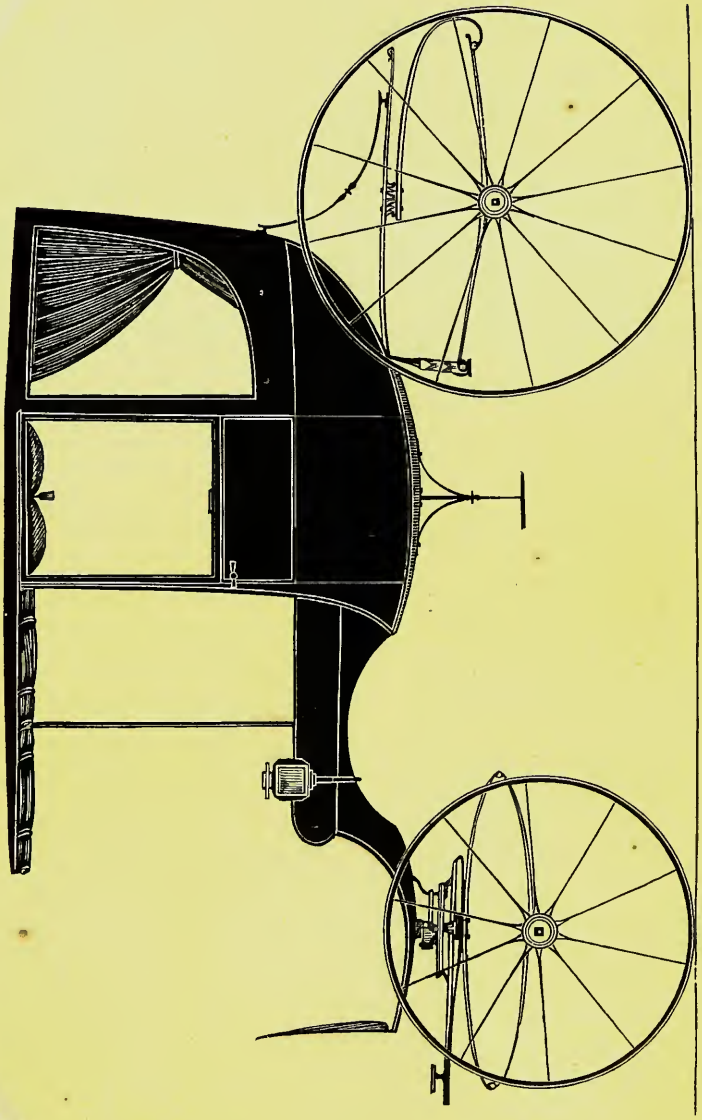
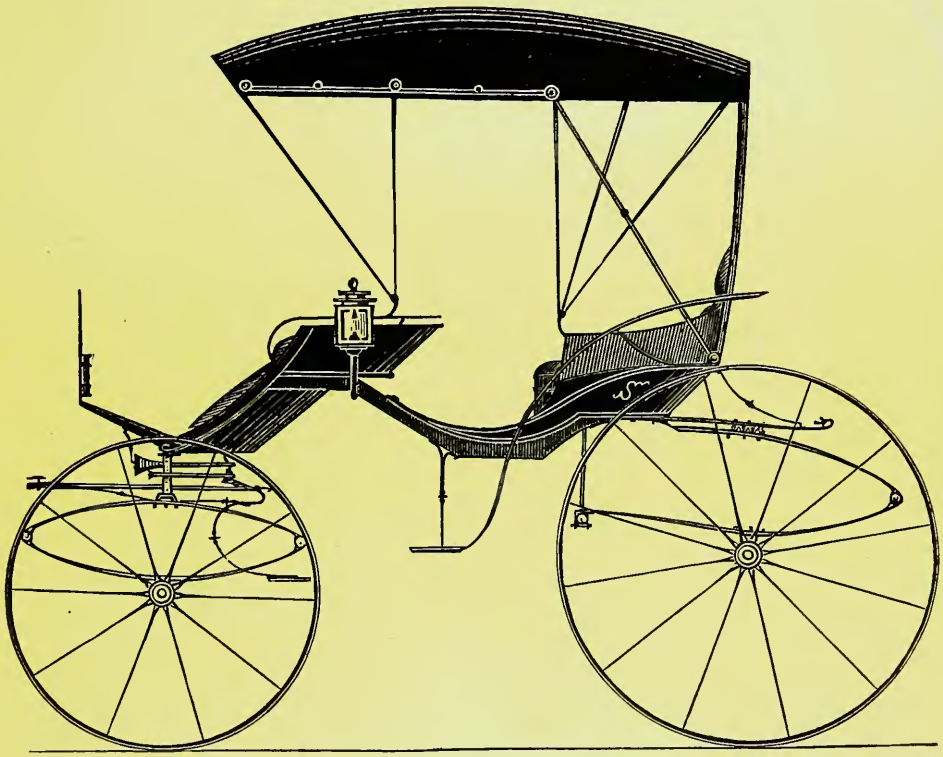


SIX-SEAT ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

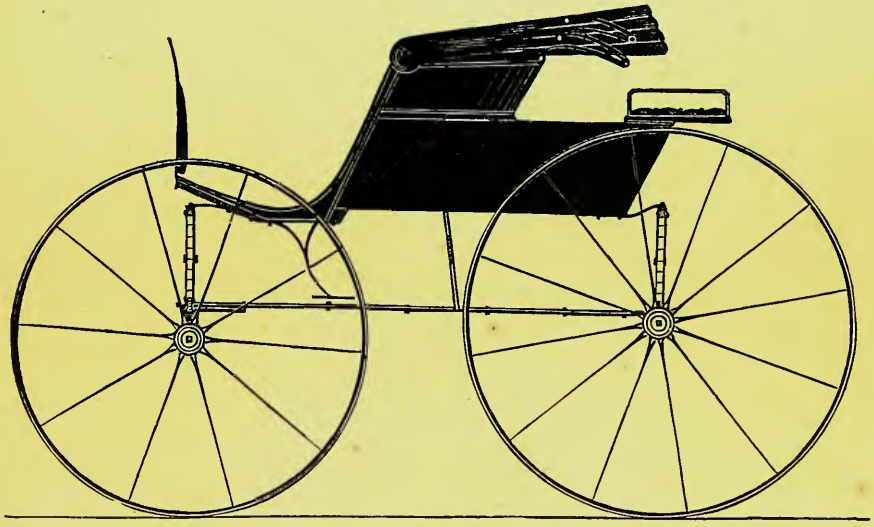
Explained on page 25.



EXTENSION TOP CABRIOLET.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

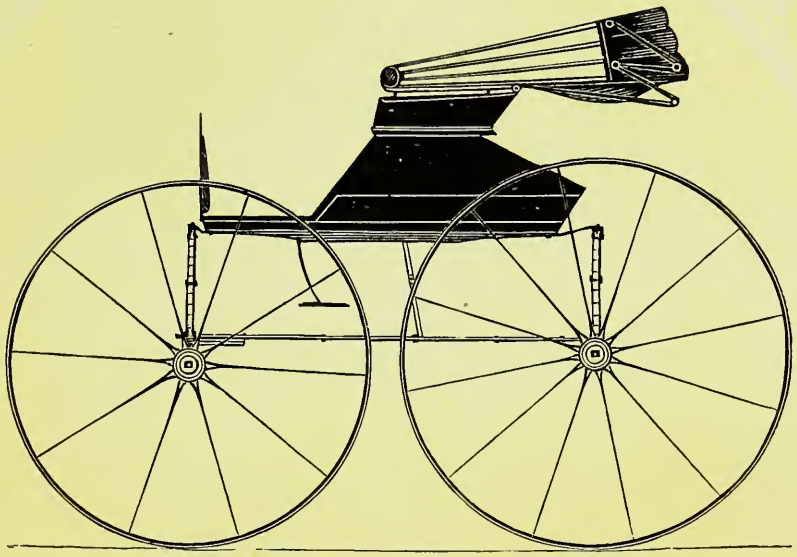
Explained on page 25.



TURN-OVER SEAT PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

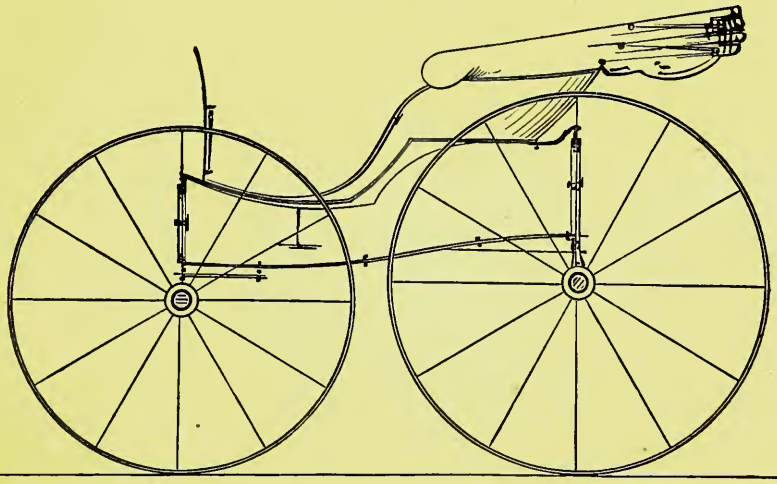
Explained on page 25.



ROAD BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 25.



GIG PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 25.

THE NEW YORK
Coachmaker's Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, JULY, 1870. No. 2

Mechanical Literature.

STAGE-COACH TRAVELING FORTY-SIX YEARS AGO.

FROM MR. THURLOW WEED'S AUTOBIOGRAPHY.

Very few of our citizens possess information, other than traditional, of the mode of travel between Albany and the western part of New York, even as late as 1824. Those who step in a railway car at Albany at seven o'clock in the morning, and step out to get their dinner in Rochester at two o'clock P. M., will find it difficult to believe that within the memory of by no means the "oldest inhabitant" it required, in muddy seasons of the year, seven nights' and six days' constant traveling in stages to accomplish the same journey.

And yet that was my own experience in April, 1824. We left Albany at eight o'clock in the evening, and traveled diligently for seven nights and six days. The road from Albany to Schenectady, with the exception of two or three miles, was in a horrible condition; and that west of Schenectady, until we reached "Tribes Hill," still worse. For a few miles, there was a gravely road over which the driver could raise a trot; but this was a luxury experienced in but few localities. Passengers walked, to ease the coach, several miles each day and each night; although they did not literally carry rails on their shoulders, to pry the coach out of ruts, they were frequently called upon to use rails for that purpose. Such snail-paced movement and such discomforts in travel would be regarded as unendurable now. And yet passengers were patient, and some of them even cheerful, under all those delays and annoyances.

But stage-coach traveling had its bright as well as its dark aspects. Take, for illustration, an early September day. The coach leaves Rochester after breakfast in the morning, if with a full complement, nine passengers inside and two on the box with the driver. At Pittsford and Mendon and Victor, where the stage stops to change the mail and water the horses, a lady or boy, but usually a lady, comes with a basket of delicious peaches, of which the passengers are invited to partake, but for which they are not permitted to pay, except in thanks. At Canandaigua, a beautiful village, then rejoicing in a greater number of distinguished men than are now to be found in any interior city of our Sate, we get dinner; and the dinners at "Blossom's," as all who ate them will remember, were dinners indeed.

Leaving Canandaigua, we are driven through a charming series of agricultural landscapes to Geneva, sixteen miles, where we have a view of its beautiful lake, a lake not unlike or unworthy of its equally beautiful namesake in Switzerland. From Geneva to Waterloo, four miles, seems but a turn of the kaleidoscope, and the distance from Waterloo to Seneca Falls is gotten over in no time.

The drive over Cayuga Bridge, more than a mile in length, was always pleasurable and interesting. Some one would remark how much it was to be regretted that a lake so large should be of so little practical value, not being used for purposes of navigation or inhabited by fish of any value.

I remember one of the passengers once amused the coach by relating an incident that occurred to Mr. John C. Spencer. It was a dark, rainy, cold evening. The stage was full inside and out. A lady, closely veiled, came to the steps, who was, as the keeper of the hotel said, very anxious, on account of sickness in the family where she resided, to get to "Goodwin's" that evening. The passengers said it was impossible, as there were already nine of them inside. But Mr. Spencer, prompted by his sympathies or his politeness, as it was but four miles, thought a lady ought not to be refused a passage, and offered a seat on his lap. The offer was accepted, and the stage dashed off. At "Goodwin's Tavern," a light was brought to enable her to find her luggage, and when she removed her veil, a very ebony-colored individual of the female gender was revealed, to the consternation of Mr. Spencer and the amusement of the other passengers!

At Auburn we rest for the night, having made sixty-four miles. In the evening, the magnates of the village drop into the hotel bar-room, to gossip with the stage passengers. There was no sitting or drawing-rooms at hotels in those days; nor could a single lodging-room, or even single beds, be obtained. In country inns, a traveler who objected to a stranger as a bedfellow was regarded as unreasonably fastidious. Nothing was more common after a passenger had retired, than to be awakened by the landlord, who appeared with a tallow candle, showing a stranger into your bed!

In the morning, the stage was off between daylight and sunrise. The passengers, refreshed themselves, en-

joyed a view of refreshed and invigorated nature, to which the rising sun soon began to impart light and life. The canal was attracting business and population; the stage had just begun to run over the New Turnpike, leaving the villages, on the line of the old turnpike, to a process of decay which has rendered them almost obsolete. I ought to have remarked that at Auburn passengers always dreaded an acquisition to their number, in the person of Mr. Wood, who, weighing some four hundred pounds, and inconveniently broad across the shoulders and transom, made the coach every way uncomfortable. For ten or fifteen miles there was little of outside interest to talk about. Our approach to stage houses and post-offices was announced by the blowing of a tin horn or trumpet, with more or less skill, by the driver. This drew together a crowd of idlers, with this difference between New York and many parts of Europe—that instead of beleaguering the coach with imploring appeals for charity, our visitors would generally present us with some choice fruit.

At Syracuse, twenty-five miles from Auburn, we breakfasted. Syracuse then, as now, was a marvel in the suddenness and rapidity of its growth. And here, *my* story came in. I had worked in the Onondaga furnace in 1811 and 1812, and remembered having gone through what was now the flourishing village of Syracuse, with six or seven thousand inhabitants, when it was a tangled and almost impenetrable swamp, thickly inhabited by frogs and water-snakes. Indeed, the swamp foliage was so thick, and darkened the atmosphere to such an extent, that the owls, mistaking day for night, could be heard hooting. Upon the locality over which the now large and beautiful city of Syracuse has extended, there was, in 1811, but one human habitation; that was "Cossett's Tavern," near the site of the present Syracuse House. At the western boundary of the swamp, on the creek which empties into the lake, there was a small grist-mill and two log cabins.

After breakfast, we leave Syracuse and drive rapidly on to Manlius Square, and still on to Westmoreland, and through New Hartford into Utica, seventy-two miles from Auburn. This is the end of our second day's journey. But, for the accommodation of those who preferred a night ride, a stage left Utica at nine P. M. Those to whom time was important took the night line. We, however, will remain over.

Before reaching the ancient village of Herkimer, we were driven over the fertile and celebrated German Flats, nearly a thousand acres of which were owned by Judge Jacob Weaver and Colonel Christopher Bellinger. Many amusing anecdotes were told of Judge Weaver's early life, when he was a merchant and trading with the Indians. In purchasing furs, as the story goes, his hand, placed on the scale opposite the fur, weighed half a pound, and his foot a pound. His accounts were kept on boards, in chalk. One of his neighbors, Mr. Harter, in settling an account, found himself charged with a cheese. Being a farmer, and making it, not only for his own table, but being in the habit of selling it at this store, he asked an explanation. Judge Weaver, priding himself upon his accuracy, was impatient with all who disputed his accounts. But Mr. Harter, appealed to his reason and common sense to show him how improbable, if not impossible, it was that he who made cheese for sale should have been a purchaser. This perplexed the Judge, who, after thinking and talking for a long time, was unwilling under the circumstances to press his neighbor to pay for a cheese, and equally unwilling to admit an inaccuracy in his book-keeping. The question was finally laid over till the next day, in the hope that the Judge might be able to verify the integrity of his books, or boards! On the following day, when Mr. Harter appeared, the Judge met him in jubilant spirits, exclaiming, "It is all right; I remember all about it now." "But," said his neighbor, "you don't mean to say that I bought the cheese!" "No, no," said the merchant; "it was not a cheese, but a grindstone, and I forgot to put the hole in it!" In Judge Weaver's mode of book-keeping, a circular chalk mark represented a cheese, while the same mark, with a dot in the center, converted it into a grindstone.

From Herkimer to Little Falls, seven miles, there were no particular attractions, but we come, after an hour's ride, to a hill, by the bank of the river, which, several years before, General Scott was descending in a stage, when the driver discovered, at a sharp turn near the bottom of the hill, a Pennsylvania wagon winding its way up diagonally. The driver saw but one escape from a disastrous collision, and that, to most persons, would have appeared even more dangerous than the collision. The driver, however, having no time for reflection, instantly guided his team over the precipice and into the river, from which the horses, passengers, coach, and driver were safely extricated. The passengers, following General Scott's example, made the driver a handsome present as a reward for his courage and sagacity. We dine at East Canada creek, where the stage-house, kept by Mr. Couch, was always to be relied on for excellent ham and eggs, and fresh brook trout. Still further east, we stop at Failing's tavern to water. Though but an ordinary tavern in the summer season, all travelers cherish a pleasant remembrance of its winter fare; for, leaving a cold stage with chilled limbs, if not frozen ears, you were sure to find in Failing's bar and dining-rooms "rousing fires;" and the remembrance of the light, lively, "hot and hot" buckwheat cakes, and the unimpeachable sausages, would renew the appetite, even if you had just risen from a hearty meal.

From Schenectady to Albany the drive through dwarf pines and a barren soil, the turnpike road ornamented with poplar trees at uniform distances on either side, was tame and, unless enlivened by conversation, dull. But it was an unusual circumstance to find a stage-coach, with fair weather and good roads, between Rochester and Albany, that was not enlivened by conversation, for there were almost always two or three intellectual passengers. And there was an unfailing source of fun at every stopping place in the "gibes and jokes" of the stage-drivers, who, as a class, were as peculiar, quaint, and racy as those represented by the senior and junior Weller in "Pickwick," as "Samivel" described them—a class of highly-social individuals, who have been driven off the roads and compelled to earn a precarious living by tending pikes and switches, or marrying "vidders," and whose unintellectual successors are engine-drivers and stokers.

The stage-drivers of that day lived merry but short lives. The exceptions were in favor of those who, after a few years' experience, married some reputable farmer's daughter on their route, and changed their occupation from stage-driving to farming. This must, I think, have been the case with one of my earliest stage-driving acquaint-

ances. It is but a few weeks since I saw in the papers an announcement of the death, somewhere in Tompkins county, of "Phineas Mapes," aged 80 years. "Phin. Mapes," a rollicking stage-driver at Catskill, is one of my very earliest remembrances. In 1803 or 1804, a stage with four live horses was an institution, at least in the admiring eyes of the boys. I remember with what a flourish "Mapes" used to dash up to the post-office door, and, while Dr. Croswell was assorting the mail, how gracefully and gently he would throw his long whip-lash over the backs of the leaders, and how, by the responsive action of their fore-feet, nostrils, and ears, they would show how well they understood that he meant it playfully. How well, too, I remember when, in 1810 or 1811, I renewed my acquaintance with this driver at Skaneateles, between which place and Onondaga Hollow he was blowing his horn and cracking his whip and his jokes, quite as popular here as he had been at Catskill. The oldest inhabitants of Catskill and Skaneateles, as well as the few survivors who rode in stages upon the great Genesee turnpike sixty years ago, will remember "Phin. Mapes" pleasantly, from whom, in his best days, Dickens might have found a "jolly" original for Mark Tapley.

TREATISE ON THE WOOD-WORK OF CARRIAGES.

(*Continued from page* 4.)

LXXIII. Now in order to project the triangle A B C in any of its positions in space, when revolving round A C, it will be remarked that the vertical plane Q being perpendicular to A C, the triangle will be projected in all of its positions, on that plane, by a line which will be the radius from the point B. Moreover, the angles A and C of the triangle, being adjacent to the side A C which remains fixed, will but revolve around those points. In order, therefore, to construct the projection of the triangle on the horizontal plane, it will suffice to determine that of the angle B.

As a preliminary, the vertical projection of that point is fixed by transporting the radius *a* B in the position in space that is desired to be taken by the triangle; for instance, in *a b'*. Having the vertical projection *b'* of the angle B, the horizontal projection of that point is found in *b*, and on a perpendicular lowered from the point *b'* to the ground line, and also on *b* B, the horizontal projection of the segment of the circle described by the point B. On joining, by straight lines, the points *b* A and *b* C, the two projections A *b* C and *a b'* will be obtained, which are those desired.

The radius *a b'* transposed on to any plane, say P, passing by the axis *a* C, is the hypothenuse of a rectangular triangle, the right angle of which is composed of the projection *a b* of the radius on the plane P, and the distance *b b'* from the other extremity to that plane.

The figure 50 in perspective shows the triangle in space, and its projections on the planes P and Q, with all the points marked by the same letters and in an analagous position to that which we have considered on figure 49 (*see page* 2).

When the radius *a* B (fig. 49) is in a vertical position *a b''*, the triangle is perpendicular to the horizontal plane, and is projected on that plane according to a straight line *a* C.

LXXIV. In lieu of elevating a surface in space for the subsequent determination of its projections, it is most frequently the inverse operation that has to be followed; because, in graphical construction, when a surface is entirely comprised within one of the two planes of projection, it will be found to be in the most favorable position possible for the purpose of solving the operation that it involves, inasmuch as all the lines of construction are shown in their sizes and relative positions (Art. 71). If we have made a commencement by considering the surface on one of the planes of projection, it was merely for the purpose of conveying a clearer idea of the inverse operation that we now shall proceed to execute.

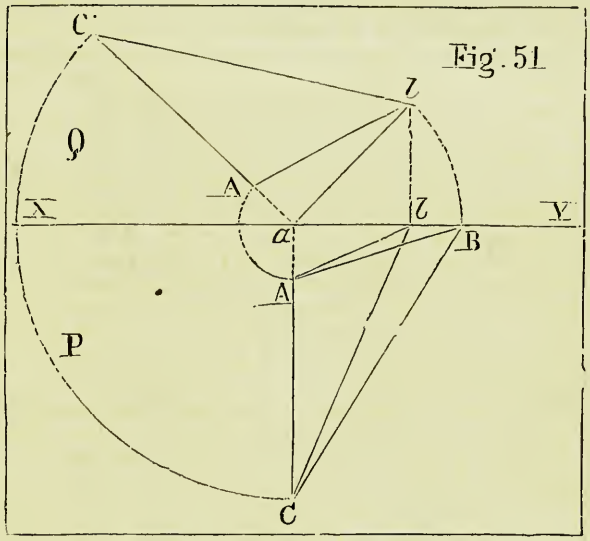


Fig. 51

Suppose A *b* C and *a b'* (fig. 51) the horizontal and vertical projections of a triangle: it is proposed to deploy this triangle on to the horizontal plane by making it turn around its side A C, in the horizontal plane.

The triangle (A *b* C, *a b'*) being projected following a line *a b'* on the vertical plane, is perpendicular to that plane. The same refers to the side A C, given on the horizontal plane, and which projects itself on the other in a point *a*, on the ground line. Now, in the rotary movement around the axis A C, which remains fixed, each point of the triangle describes a segment of a circle, which is projected by a straight line perpendicular to the axis in the horizontal plane P, where the axis is given (Art. 72), and in its full size on the vertical plane Q, perpendicular to the axis A C. The two angles A and C, being adjacent to the axis, will merely turn around those points. Now, in order to deploy the triangle on to the horizontal plane, it suffices to construct the point where the angle (*b b'*) pierces that plane. But the angle (*b b'*) is on the vertical plane; the segment of the circle that it will describe must also be upon that plane. Its radius is the line *a b'* that joins the prolongation of the axis A C and the point *b'*. Taking point *a* as the center, with *a b'* as a radius, draw the arc *b'* B. When the triangle is deployed upon the horizontal plane, the arc *b'* B will pierce that plane in a point B of the ground line, which is the top of the angle (*b b'*). Then join the points A, B and C by the lines A B and B C. The triangle A B C thus formed will be the one desired.

LXXV. If it were desired to deploy the triangle

upon the vertical plane, the line $a\ b'$ could be taken for the axis around which to turn it. Now a C being perpendicular to $a\ b'$, the points A and C would then fall on a line a C, drawn from point a perpendicular to $a\ b$, and in such a manner that the result would be a A′ equal to a A, and a C′ equal to a C. On joining the points A′, b' and C′ by the lines A′ b' and b' C, the triangle A′ b' C′ would be the desired triangle.

LXXVI. In the cases of deploying that we have effected, the triangle had one of its sides upon the horizontal plane. Now let us consider the case where the triangle is in space, beyond the planes of projection, and following a position perpendicular to one of those planes; for instance, to the horizontal plane. Then the projection of the triangle on that plane will be a straight line.

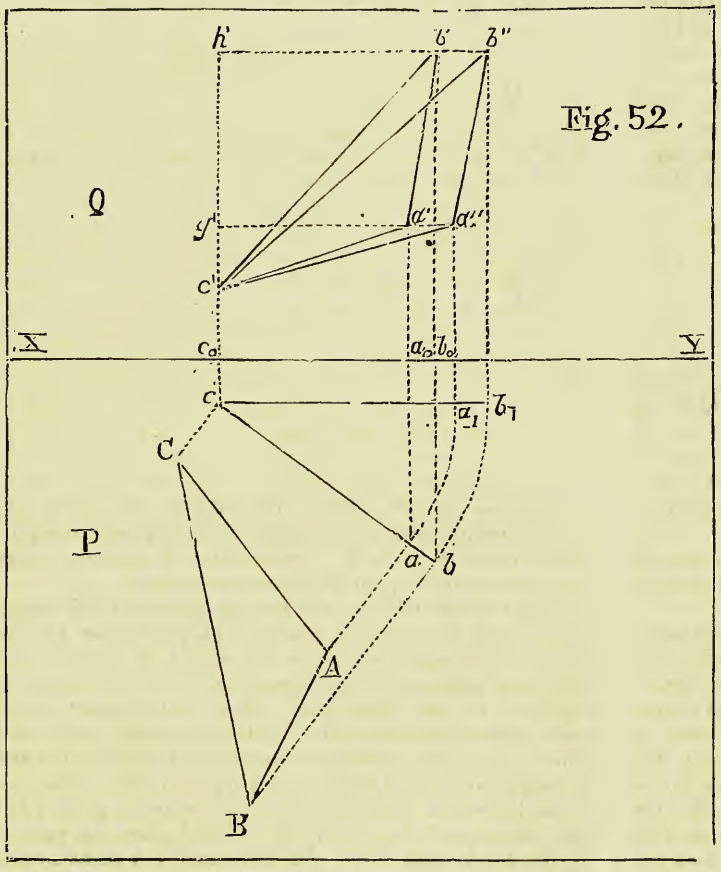


Fig. 52.

Let $c\ a\ b$, $c'\ a'\ b'$ (fig. 52) be the horizontal and vertical projections of the triangle that we intend to deploy first on to the horizontal plane. The plane of the triangle must be supposed to be extended until its projectants meet the horizontal plane. The figure of that plane will be projected on the vertical plane by the rectangular trapeze $c'\ c_0\ b_0\ b'$, and on the horizontal plane it will be traced by the line $c\ b$, which is but the horizontal projection of the triangle. On taking the line $c\ b$ as the axis, each point of the triangle, in the movement around $c\ b$, which remains fixed, will describe the arc of a circle the plane of which is perpendicular to that line (art. 72). It therefore now remains to be known where each point under consideration will pierce the horizontal plane.

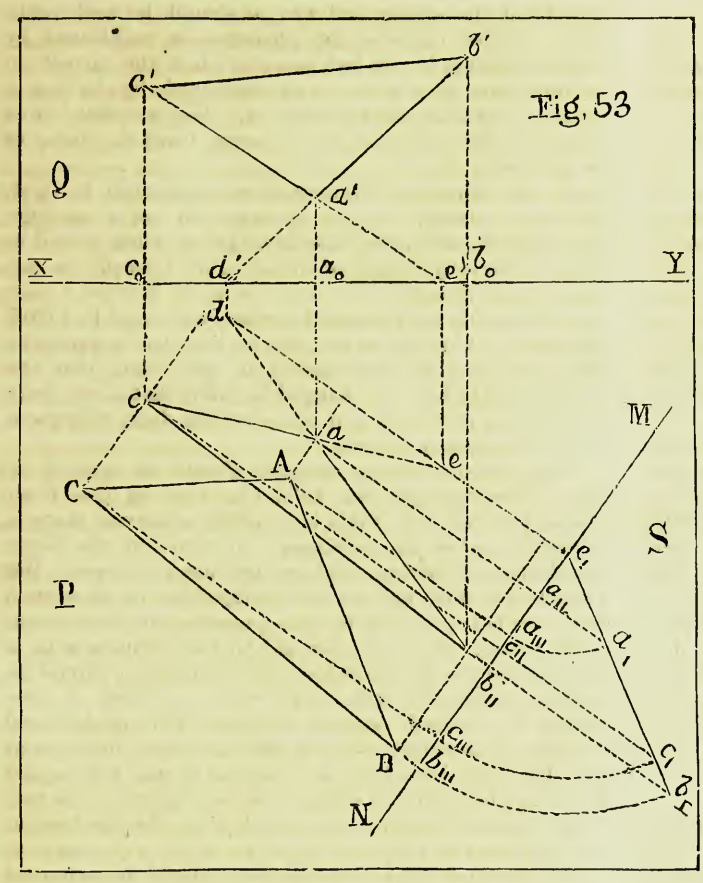
The points in question are the angles (c, c'), (a, a'), (b, b') of the triangle. The arcs of circles described by these points have for radius the vertical lines perpendicular to the axis. Those lines are projected on the horizontal plane, each one in a separate single point, c, a and b, and in their whole length on the vertical plane, by the lines $c'\ c_0$, $a'\ a_0$, $b'\ b_0$, drawn from the projections $c'\ a'$ and b', perpendicular to X Y. Therefore, by the rotary movement of the triangle, those radii will not cease to be perpendicular to the axis $c\ b$, and when the triangle is deployed upon the horizontal plane they will still remain so. In order to construct them in this new position, perpendiculars c C, a A, b B to the axis $c\ b$ must be drawn from their horizontal projections c, a and b. Then place the length of each radius upon these lines, as $c'\ c_0$ from c to C; $a'\ a_0$ from a to A; $b'\ b_0$ from b to B. The points C, A and B, thus obtained, are the points where the segments of a circle described by the angles (c, c'), (a, a'), (b, b'), pierce the horizontal plane where the triangle is deployed upon it. On joining the points C, A and B by the lines C A, C B and B A, the triangle A B C, which they form, is the triangle desired.

LXXVII. In lieu of deploying the triangle $(c\ a\ b, c'\ a'\ b')$ on to the horizontal plane, it can be brought by a rotary movement in a position parallel to the vertical plane, and the new projection that will follow can be constructed on that plane.

The triangle $(c\ a\ b, c'\ a'\ b')$ being vertical, take as the axis of rotation in the plane of that triangle, a vertical line that is made to pass by one of the extremities of the triangle; for instance, by the angle (c, c'). The axis of rotation will thus be projected in a single point c on the horizontal plane, and by $h'\ c_0$ on the vertical plane. The points of the triangle to be considered in its rotary movement are the two other angles $(a\ a')$, $(b\ b')$, which will each describe an arc of a circle, the plane of which will be perpendicular to the axis (art. 72). Now, the axis of rotation being vertical, the arcs $(a\ a_1, a'\ a'')$, $(b\ b_1, b'\ b'')$ described by each angle will be horizontal. They will therefore be projected in their size $a\ a_1$, $b\ b_1$ on the horizontal plane, and by the horizontal lines $a'\ a''$, $b'\ b''$ on the vertical plane. Therefore the arcs described by these points (a, a'), (b, b') will respectively have for radii the horizontal lines $(c\ a, g'\ a')$, $(c\ b, h'\ b')$, and because these radii are horizontal, they are represented in their whole length by their horizontal projection $c\ a$ and $c\ b$.

Now, in order to bring over the triangle $(a\ b\ c, a'\ b'\ c')$ in a position parallel to the vertical plane Q, a line $c\ b_1$ is drawn through the point c, parallel to the ground line X Y, and from the point c as a center, with $c\ a$ and $c\ b$ as radii, the arcs $a\ a_1$, $b\ b_1$, are drawn. The points a_1 and b_1, where the arcs meet the line $c\ b_1$, are the new horizontal projections of the points (a, a'), (b, b'). Vertical corresponding projections will be obtained to the same points, by drawing perpendiculars to X Y by a_1 and b_1, till they meet the horizontal lines $g'\ a''$, $h'\ b''$ in a'' and b''; these last two points are the new vertical projections desired. By joining the points c', a'', b'' by the lines $c'\ a''$, $c'\ b''$, $a''\ b''$, the triangle $c'\ a''\ b''$ will be the one sought for.

LXXVIII. We will now consider the case that most generally occurs, where the triangle is found to be placed



in any manner in space, and in an inclined position in respect to the planes of projection.

Suppose $a\ b\ c$ and $a'\ b'\ c'$ (fig. 53) to be the horizontal and vertical projections of the triangle. The triangle is so disposed, that all its sides are inclined in respect to the planes of projection; in order to effect the possibility of bringing it into a vertical or horizontal position, one or both of its sides must be prolonged until they strike a horizontal line, or one of the planes of projection. These two conditions can, however, be reduced to one only, because, after having prolonged the sides of the triangle until they strike a horizontal line, that line can be taken for a horizontal plane. Now, as it is always possible to carry the horizontal plane of projection in such a manner that it passes by the proposed line, the question reduces itself to the prolongation of the sides of the triangle, until they meet one of the planes of projection. The points where these sides pierce the plane appertain to the axis around which the deployment of the triangle is affected. In the proposed question, we prolong the sides ($a\ b$, $a\ b'$), ($a\ c$, $a'c'$) of the triangle until they strike the horizontal plane.

The side ($a\ b$, $a'\ b'$) being prolonged or extended, pierces the horizontal plane in a point, whose vertical projection is the point d', which is found in the vertical plane on the line X Y, and on the extension of $a'\ b'$. In the same manner, the side ($a\ c$, $a'c'$) being extended, pierces the horizontal plane in a point whose vertical projection is the point e', which is found on the line X Y, and on the extension of $a'c'$. It now remains to construct the two horizontal projections, the vertical projections of which we have in d' and e'. But these two projections from a point in space (art. 59) are on the same line, perpendicular to the common intersection X Y of the two planes of projection. By drawing the perpendicular lines $d'\ d$, $e'\ e$, through the known projections d' and e' to X Y, those lines will give the desired projections. Each one of these two projections must, moreover, be found on the extension of each of the horizontal projections $a\ b$ and $a\ c$, therefore they are found in d and e; the former, d, at the intersection of the extension of $a\ b$ and of the line $d'\ d$ perpendicular to X Y; the second, e, at the intersection of the extension of $a\ c$ and of the line $e'\ e$, perpendicular to X Y. The points d and e being known, where the sides of the triangle ($a\ b$, $a'\ b'$), ($a\ c$, $a'c'$) pierce the horizontal plane, the line $d\ e$, which joins those points, is taken for the axis.

The axis being determined upon the horizontal plane, a line M N is drawn perpendicular to that axis, which is considered as the common intersection of a vertical plane S and of the horizontal plane P. The vertical projections of the first plane Q are then transferred to the new vertical plane.

By preserving the horizontal plane in the same place, as also the triangle in space, it is very evident, firstly, that the various points of the triangle will retain their same projection on that plane; secondly, that the elevation of each point, taken in respect to the horizontal plane, will always be the same. But the two projections of a point on two planes of projection, P and S, taken at will, will be found (art. 59) on a same line perpendicular to the common intersection of the two planes. Now, in order to project a point whatever ($b\ b'$) of the triangle ($a\ b\ c$, $a'\ b'\ c'$) n the plane S, a line $b\ b'$, perpendicular to M N is drawn through the horizontal projection b; the distance $b_0\ b'$, of the first vertical plane Q, is then transferred to that line from $b_{/}$ to b. The point $b_{/}$ is the new vertical projection of the angle ($b\ b'$) on the plane S, projected on the two other planes. By the same method, the projections of the two other angles ($a\ a'$) and ($c\ c'$) of the triangle are obtained in $a_{/}$ and in $c_{/}$, on the plane S, by bringing over respectively the distances $a'a_0$, $c'c_0$ of the plane Q, from $a_{//}$ on $a_{/}$, and from $c_{//}$ on $c_{/}$. But the plane of the extended triangle is traced on the horizontal plane P, by the line $d\ e$, perpendicular to the common intersection M N, of the planes P and S; therefore the plane of the triangle is perpendicular to the plane S (art. 57), and is projected on the latter by a line (art. 55). Having determined the projection $b_{/}$ of the apex of the triangle, then join that point and the intersection $e_{/}$, of the axis $d\ e$, by a line $b_{/}\ e_{/}$; that line indicates the vertical projection of the triangle on the plane S. The angles that are projected on the horizontal plane by the points a and $c_{/}$, will have their vertical projection S, in $a_{/}$ and in $c_{/}$, which are the intersections of the perpendiculars drawn from the projections a and c to M N, and of the line $b.\ e_{/}$.

(*To be continued.*)

Successful Carriage-making.—A leading firm in this city, made its return to the Revenue Department as $116,135 for the month of May, 1870. Who says that carriage-making is unprofitable, and that the business pays a smaller profit on the capital invested than any other.

STORING OF CARRIAGES.

IN compliance with the request given in the last *Hub*, we make the following suggestions on storing carriages. That the matter is one of direct importance to the carriage-maker is illustrated by the following letter just received:

"It is a common and very vexatious complaint, from customers who store their carriages near the stable or otherwise improperly, that the varnish turns dim or flakes off. I have often seen this happen in such cases, even after the very best varnish has been used. Then the customer comes and blames the carriage-maker for using poor varnish, and he may be perfectly innocent, for *no varnish ever was made, or ever can be made*, that will stand the steam arising in a stable where horses stand."

There are six rules which should be observed by those who store carriages, and it would be well if every carriage-maker posted them in a prominent place in his office, and called the attention of customers to them. They might help to prevent the complaints which we have mentioned, and if they did not prevent such, they would help to answer them.

"TO CARRIAGE OWNERS.—In storing carriages, these six rules should be observed:

1. The carriage-house should be apart from the stable.
2. It should be well ventilated.
3. It should be light.
4. It should be free from dust.
5. The carriages should be washed frequently.
6. They should be run out into the sun and air frequently."

We will now speak of these points more in detail, and show the "why and wherefore." In regard to the first, which is the most important consideration, we give a letter received by us from a distinguished chemist, which will show why carriages should not be kept near where horses are kept, and will also illustrate several of the other points:

"Oils, by contract with alkalies, are more or less readily converted into soaps soluble in water. Among the most easily saponified oils is linseed, which, when shaken up with a solution of potash, soda, or ammonia, unites with the alkali, forming a thick emulsion of soft soap. Ammonia is a gas, and occurs in the air wherever organic fermentation is in progress. When a varnished carriage is exposed to an atmosphere of ammonia, arising from manure heaps or decaying vegetable matter, the alkali unites with the oil of the varnish, forming an almost imperceptible filament of soap, which, when the carriage is washed, dissolves in the water and is removed, leaving a fresh surface to be again acted on by the ammonia, so that the oil is gradually removed from the varnish, leaving it brittle and more liable to crack. The phenomenon may perhaps be utilized by the carriage-painter in removing old coats of varnish by substituting, for the tedious process of 'burning off,' washing over with a solution of caustic soda, or, better, applying the soda, mixed into a paste with some inert substance, as pipe-clay or ground pumice stone, to keep it in place for half an hour, when the varnish will be softened and may be scraped off."

This letter explains why the carriage-house should be apart from the stable, and why it should be well ventilated. It also explains the phenomenon mentioned by William Gaskin in our last issue, in which the varnish on the hind end of a wagon was destroyed by having a barrel of potatoes stored under it. We see that it was caused by the ammonia which arose from the decay of the potatoes.

In the third place, the carriage-room must be light. For some reason, not yet apparent to us, a carriage painted black will invariable turn green when stored in the dark for any length of time. For example: a carriage owner, living in New York, went to Europe a year ago, and during his absence his coach was kept in a dark repository. On his return, it was sent to be painted a dark green, but on examination it was found that the original black had so changed in color that it was only necessary to revarnish and bring out the dark, rich green which was already present.

It is obvious that a carriage should be kept clean. Hence, the carriage-room should be kept as free from dust as possible, and if this is carefully observed, there is no need to cover the carriages. In some of the finest repositories of carriage-dealers they use no covers. But if exposed to dust, protect the carriage thus by all means. Some use heavy ticking for this purpose, but close sheeting is better. As a further aid to the cleanliness of a carriage and the preservation of its varnish, it should be washed frequently with cold water. When a new vehicle is received, covered perhaps with cinders and the dust of travel, it is often left unwashed for several days from the idea that the varnish is still tender and should not be meddled with. This is a mistake. A new vehicle should always be washed soon after its receipt. The varnish may be tender, but for that very reason is it the more essential that the dust should be removed from, it, and the cold water will aid greatly in hardening the varnish. A carriage ought always be washed, also, after use in muddy weather; otherwise, if the mud spots be allowed to remain overnight, they will generally leave their mark. Always wash with a sponge, avoiding the use of a hose, which has the effect of forcing the water into the crevices, and after washing always dry off with a chamois skin. Then wheel the carriage out into the sun and air, and this will help to preserve its beauty of finish. The idea is held by some that if a carriage be kept closely housed, its preservation is thereby warranted, but such is not the case; the opposite is true, and a vehicle long housed will generally be found to be losing its luster. In such a case, exposure to the sun and fresh air and frequent washing will help to renew it.

We have now touched upon the main points connected with the storing of carriages, and our remarks apply as well to the show-room and repository of the dealer as to the gentleman's carriage-house. If our readers think of points which we have not mentioned, we shall be glad to hear further on this subject.—*The Hub.*

THE MANUFACTURE OF CARRIAGES.

WITHIN a few years the manufacture of carriages has taken up with the progress of the age, and called to its assistance all the advantages of modern improvement and science.

Few persons will dispute that articles made by the aid

of machinery are better constructed than they were in olden times by main strength and awkwardness.

At the head among the best adapted and appointed factories in this country, or the world we might say, is that of McLear & Kendall, corner of Ninth and King streets, Wilmington, Del. Its dimensions are: 90 feet front on King street, 220 feet along Ninth to French, three stories high. On the first floor we find the blacksmith shop; finishing, polishing, engine, and boxing rooms; saw-mill and fitting department. The forges are placed around the sides of the room, the draft being supplied by a Dimpfel fan.

The finishers and polishers occupy one-half of the space between the forges. In the middle of all is a 20-horse Corliss engine. (The boiler is outside the building, and the fuel used is the chips, blocks, and sawdust from the saw-mill and wood-shop).

It is on this floor that the iron and steel for the different parts of the carriage are fashioned, polished, and put together. All the holes are drilled by power drills. Bolts and nuts are threaded by a cutting machine. Passing out into the lumber yard, we here find stored about 150,000 feet of ash, hickory, poplar, and walnut, under cover. This immense stock is carried to insure the wood to be beyond shrinkage—that is, perfectly dry.

Going up to the third story, we find the carriage-body and wheel making combined in one large, well-ventilated room, with an ample skylight on hinges, making all parts of the room as light as out-of-doors. All parts of wheel-making is done by machinery, except the putting together. No one can say that a hub can be mortised by hand as true and exact as by the mortising machine. Instead of filing by hand, a revolving sanded belt does the smoothing of rims and spokes. All parts of this most particular branch are done with exactness. Every spoke, hub, and rim is examined by a foreman, who rejects every thing defective. To the assistance of the body-maker is brought a planer, circular and endless saws, &c. On this same floor is the paint-shop for the bodies, where *sixteen coats of paint are put on all.* The paints are ground to the required fineness by mills driven by power.

Adjoining is the trimming-room, where all the upholstery is done. This department uses annually over 3,000 hides of leather, bales upon bales of cloth, and thousands of pounds of curled hair.

We now come down to the second story, and find the paint-room for the running parts. Next adjoining it is the room where the bodies are put on the running parts, the finishing touches given, and then we bring our finished carriage into the show-room, on the same floor. The ground from King street to French street being a hill, the second story of the building on French street is the first floor on King; so that the show-room is not altogether upstairs, but is level with the pavement on one front, making the finest show-room in the United States, being the whole length of the building and half its width.

Attached to this story is the drying-room, which is heated with the exhaust steam from the engine. The temperature is never allowed to get beyond the heat of the sun, so that no wood is baked or killed. Here is stored, until it gets dry beyond a doubt, every piece of wood used in a carriage. The planks are bought dry, or kept until they are well seasoned, then sawed into the shapes required, then put in this room to insure their being all right. We also find here over 500 sets of hubs and rims, and 1,000 sets of spokes. This firm makes a specialty of their wheels, using nothing but the best material, and that dry beyond a doubt. *The wheels, when made, are kept on hand for months before they are hooped.*

In each department there is a foreman, who examines every part of the carriage before it is put together, and every workman knows that any faulty workmanship, or bad material put in, has to be removed, and made as it should have been, at his own expense of time and labor. Over these is the general superintendent, and over all is the constant personal supervision of the proprietors, making it almost impossible for any thing improper to escape.

This firm started business in 1864, in a much smaller way, but constantly applying all the aids of improvement and science to their business, has enabled them to give *an excellent article, at such prices as have increased their trade*, until it amounted, in 1869, to 1,158 carriages, or nearly a half million dollars. Each of these carriages was accompanied with a year's guarantee to make good, and to the perfect satisfaction of the purchaser, every part of the carriage, even if it should be necessary to replace the defective carriage with a new one, which also has its guarantee. Should there be such a thing as an unsatisfactory carriage of their manufacture, it is the fault of the purchaser in not reporting it to the makers.

The trade done by them in the city of Philadelphia was increasing so fast, and want of room at the factory, together compelled them to open a repository at Nos. 710 and 712 Sansom street, where they are represented by Mr. W. S. Hare. A stock of nearly fifty carriages is on hand almost constantly, embracing almost every variety of vehicle. Photographs and engravings are furnished, and full descriptions given in reply to inquiries by mail or in person.

The increased demand from the South has also compelled them to be *at home* among their customers, at 45 Wentworth street, Charleston, S. C., with a large stock suited to the tastes of that section.

Their carriages are being sold in every State and Territory, and over 6,000 are now in use, showing the result of improvement, science, advertising, business energy, and careful watchfulness on the part of the proprietors.—*Forney's Weekly Press.*

GEOMETRICAL EXERCISE.

Having given the cord of any circle and its versed sine, to describe the arc without knowing the center of the circle; or, in the language of the Body-maker, having given the opening or length of any circle, and the width to which it springs; to describe the circle without knowing its center.

Let A B be the opening or length of any circle, and C D its spring; it is required to describe the circle A C B, without knowing its center. Let C D be square to A B, and A D equal to D B. Take two strips of panel board, E A C and F

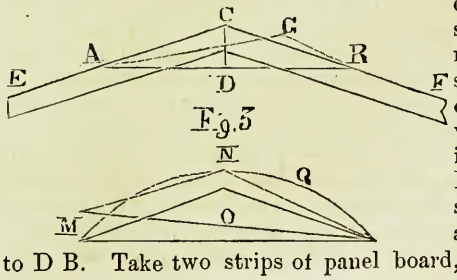


Fig. 3

then the angle A C B, which they form at C, is the angle in the segment A C B, which may form the same. Let the point be anywhere situated, suppose at G, then the angle A G B is equal to the angle A C B, or the angle the strips are fixed at. Nothing, therefore, is necessary to describe the circle A C B, but to fix at A and B two brad-awls or nails, fixing a pencil or tracer at C. Let the angular point C of the strips C E and C F be moved from A to B, keeping the strips always pressed close to the awls or nails at A and B, and the point C will describe the circle required.

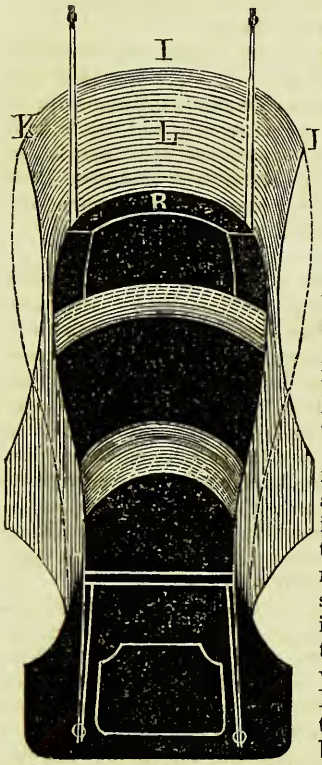


Fig. 4.

Perhaps it is necessary for me to state that there is also another mode of striking a circle similar to the the first figure, when it is required to give more spring to the circle, as in round-back bodies, for the purpose of showing which we have adopted Plate No. 29, Vol. 11. of this Magazine, giving a bottom view. The instrument to obtain the circle at I will be seen in the diagram made out of a piece of panel of the length of line J K, three-fourths the width of the circle or sweep at I and L. Stick an awl in at J and I, placing the trammel with the point M at I, and the angular point N at J, placing the pencil at point J, and move from that point to I; then remove the awl from J to K, and draw from I to K, and the sweep is finished, except small sharp points at J and K, which can be caught in the sweep or cant-board of the side. The dotted lines O and P show the movements of the trammel in striking line Q. Sweep R may be obtained in the same manner as at L. These instruments it is very necessary for the body-maker to understand.

When we take into consideration the extreme round given bodies in these modern days, it becomes us to adopt some practical mode, in order to reduce every thing to a systematical conclusion, doing away with the old plan of "*try and fit*" or guess-work. In view of these facts, each body-maker owes it to himself to consider well all matters connected with coach-making. It is, and always has been, the error of our judgments, to turn away from certain studies, as impracticable for the grasp or texture of our minds, because they are, or seem to be, foreign to our tastes. The difficulty lies not in the divergence of our minds from the general direction of a peculiar study, such as mechanical geometry, but for the want of a steady and controlling power to keep our minds in their normal and proper direction, and withstand the warping and distorting of arbitrary taste and fancy. What is this taste? No man lives without a principle of refinement in his mind, and nowhere can he go that he may safely say, B C, each full as long as A B, and join them firmly at C; "Here is no food for me." Let us send such benighted men home "with all their gettings to get understanding," and let us treasure up ourselves this all-important lesson, that hitherto there has been a shamefully prevalent neglect of things *mechanical*. There is, in this world, a beauty of meaning as well as a beauty of appearance—a beauty for the mind as well as a beauty for the eye.

P. B. J.

SUMMER MORNING.

BY CARRIE M. WHITNEY.

The summer morn rose mild and fair,
Bright in its very shadows;
And perfume laden was the air,
From clover-scented meadows.
The wild rose clambered o'er the wall,
And trailed along the ledges;
And honeysuckles, growing tall,
Drooped o'er the briar hedges.

The little brook babbled along,
In pensive murmurs dreaming,
Content to waste its gush of song
Through its own valley gleaming;
The birds were up, and filled the trees
With melody and motion,
Singing to every rustling breeze
Glad anthems of devotion.

The bees were early at their toils
Among the waking flowers,
Bearing away the honeyed spoils
With all their busy powers.
The patient cows, down by the gate
Where the young corn was silking,
Seemed to remember they must wait
For Minnie and their milking.

She tripp'd along with dancing feet,
And hair all tangled-curling,
Just out of bed, the cows to greet,
Her milk-pails briskly whirling.
"Good morrow, Minnie! Aren't you late?
The cows are tired of waiting.
And I—well—I—have kept the gate!
For the cows the corn were eating."

"Fie! what a story, Tom! you know
The gate is stout and heavy;
The cows will wait—the corn will grow—
Without your care or labor."
And then a silence fell between
Fair Minnie and her lover,
There in the lane so cool and green,
While th' cows clipped of the clover.

But redder grew the maiden's cheek,
And Tom a tune was humming,
Thinking that quickly he *must* speak,
For her last pail was foaming.
"Miss Minnie, I have twenty cows"
(Her foolish heart *would* flutter),
"But, lack-a-day, I have no spouse
To make the cheese or butter."

No answer came to this bold speech,
So Tom drew nearer, shying;
And as he strove her hand to reach,
She kept the white spray flying.
"Dear Minnie, will you be my wife,
And mistress of my dairy?
I'll try to make a pleasant life,
Through all its labors weary."

Oh! over went the milking-pail!
Far sped the brindle heifer;
But Tom exacted, without fail,
Her promise, ere he left her.
The summer mornings come and go,
With ever-glowing beauty;
But Minnie's home-life goes to show
That Tom is up to duty.

SOUTH ADAMS, Mass.

Pen Illustrations of the Drafts.

SIX-SEAT ROCKAWAY.

Illustrated on Plate V.

FOR this elegant design for a six-passenger rockaway, we are under obligations to Messrs. Brewster & Co., of Broome street, New York city. Itis plain and neat—two of the most important points to be gained in the construction of a carriage, aside from easy riding. Width of body on the seat, 50 inches; axles, 1⅛ inches; wheels, 3 feet 3 inches and 4 feet; hubs, 4 by 7 inches; spokes, 1¼ inches; rims, 1⅝ inches deep; tires, ⅝ by 1⅛ inches. Price of rockaway, nicely finished, $1,350.

NEW YORK CHARGES FOR REPAIRING.—*Wood-work:* Hub, $5; new spoke, $1; rimming wheels, $20; half-rim, $3; drafting wheels, $1; back spring-bar with carved center-figure, $15. *Iron-work:* new tires and bolts, $35; resetting tires, $8; tire-bolts, each, 25 cents; washers and oiling axles, $2; resetting axles, $10; carriage-bolts, each, 30 cents. *Painting:* burning off old paint and repainting, $160; coloring and varnishing body, painting and striping rims and varnishing carriage-part, $110.

EXTENSION TOP CABRIOLET.

Illustrated on Plate VI.

WE take much satisfaction in introducing this fine design for a cabriolet, from the pencil of one of our own artists, to our appreciative readers. The first impression made on the mind of the observer in glancing at it, is its extreme lightness. The second is the gracefulness of the lines throughout the entire design. When the curtains are put on the top, very little of the side quarter, back, will be visible to outsiders, and consequently the carriage will appear much lighter than it really is. We need scarcely remind our readers that this vehicle will require a very stout rocker-plate to make it strong enough to stand the wear and tear of practical use, since every carriage-maker is supposed to understand this for himself. Width of the body at the front of back seat, inside, 48 inches; axles, 1⅛ inches; wheels, 3 feet 4 inches and 4 feet high; hubs, 4 inches by 6½ inches long; spokes, 1 inch; rims, 1⅛ inches; tires (steel), ¼ by 1 inch.

Painting.—Carriage-part, cream; body, carmine; carriage-part relieved by two fine lines blue, on a broad one black.

Trimming.—Broadcloth, indigo blue.

Workman's charge for making body, $45; manufacturer's charge for the carriage, $850.

CHARGES FOR REPAIRS.—*Wood-work:* New hub, $8; spoke, $1; back-spring bar (carved), $15; bolster, $8; furchells, each, $3; pole, $9; yoke, $7.50; fifth-wheel bed, $2.50. *Iron-work:* New tires and bolts, $35; tire bolts, each, 25 cents; resetting tires, $8; new wheels, $85; resetting axles, each, $5; carriage bolts, 30 cents; washers and oiling axles, $2. *Trimming:* New cloth head lining and covering top with enameled leather, $165; head lining, alone, $80; top, alone, $85; covering dash, $12; rubber apron, $9; whip-socket and fixtures, $3. *Painting:* Burning off old paint and repainting body, carriage part and varnishing, $90; touching up body, painting carriage, striping, etc., $45.

TURN-OVER SEAT PHAETON.

Illustrated on Plate VII.

THIS is another pretty phaeton for afternoon exercise in the open air. By sinking the body at the foot of the front pillar, two objects are accomplished—lightness in the side quarter, and leg-room for the passengers on the front seat. With the back turned in, it makes a very respectable-looking buggy. For a gentleman wishing to occasionally accommodate two only, or, at other times, to take his children for a ride, this is a very desirable carriage. Width on front seat, 46 inches; wheels, 3 feet 10 inches and 4 feet 1 inch high. Other proportions of the wheels, and the prices for repairing the different parts, about the same as given for the road phaeton on Plate VI. Price for the phaeton, $675.

ROAD BUGGY.

Illustrated on Plate VIII.

IT gives us special pleasure to present so fine a design for a buggy to our friends, as we deem this to be. The modest correspondent who sends, but does not care to have his name appear in connection with it, will please accept our best thanks for the favor. We hope to hear from him often. Wheels, 3 feet 11 inches and 4 feet 1 inch high. Other proportions of the wheels, workman's charges for making body, &c., and for repairing, about the same as given on page 7, for the trotting coal-box buggy. Price for the buggy when built, $450.

GIG PHAETON.

Illustrated on Plate VIII.

THIS vehicle is well calculated for the use of physicians, among whom the greater number of customers are found, as they make a very strong carriage, and, besides, hang extremely low in front, making them convenient in getting in and out. Wheels, 3 feet 8 inches and 4 feet high. Price, $400.

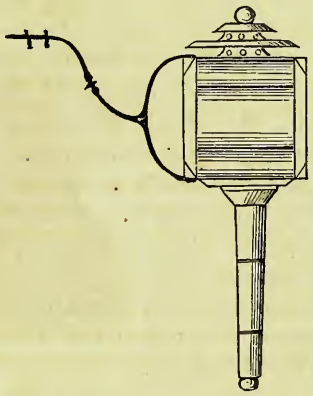
Sparks from the Anvil.

CARRIAGE STEPS.

ONE great defect in carriage steps is, that they are frequently forged so very small at the intersection of the shaft and pad, to make them appear light and graceful, that their practical usefulness is, in many instances (if not entirely gone), very much impaired. How many of our readers have been made sensible of this by complaints from incensed customers, when, perhaps, no amount of reasoning over the broken steps will induce them to continue their patronage.

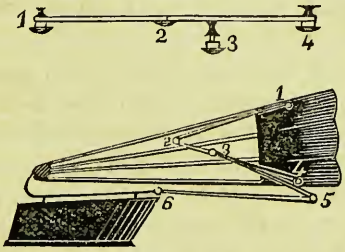
HANGING CARRIAGE LAMPS.

A NOVEL way of hanging carriage lamps has lately been adopted in Paris, by using a bracket which, encircling the lamp, as in the cut, is screwed or riveted to the box of the lamp at the top and bottom.



TOP JOINTS ON A NEW PLAN.

OUR friend J. B. Peck is the inventor of a new mode of constructing top-joints, the plan of which is seen in the diagram.



The back joint is arranged as in ordinary cases. The forward joint (in place of the short one) at 3, has a short prop forged thereon, so as to prevent the outside portion coming in contact with the prop at 4, in falling—this joint being continued from 4 to 2 and 1, after the French manner. In lowering the top, it is only necessary to strike the back joint; this back joint regulating the opening and shutting of the other at the same time; in fact, the top is let down or raised up to its place by merely handling the back joint. The form these joints assume, when down, is not only novel, but looks much better than in the old way, with the joint sticking out behind, and shaking about. In making them, there is the same number of prop-irons, and very little more labor required, the small extra work consisting in forging the short prop solid.

IMPROVED ANVILS.

THE face or table of anvils, as at present made, is often defective, having frequently hard and soft places after hardening, while the face should be equally hard all over its surface; and the steel in some instances not being properly welded to the iron part or butt which forms the lower part, the anvil is thereby rendered unsound and not fit for use. Some improvements recently patented by an inventor of Sheffield, England, have for their object the removal of such defects, and consist in so making anvils that the face may be equally hard all over when finished, and in so casting or welding the butt to the head or upper table, that the parts may be thoroughly amalgamated, and the anvil made more durable at a less expense than hitherto.

He first prepares a model of the size and shape of the anvil to be produced. He then places it in a box, covers it with composition, and fills up the box with sand in the ordinary manner. After the model is removed, and the sand perfectly dry (this being done in the usual way), he first pours in the molten steel to form the face or table, then, through the same aperture (after the steel on the table is sufficiently cool), he pours in a very mild molten steel, which flows over the table and gives the requisite toughness and solidity to the steel back. After a proper time has elapsed, he pours in through another opening the iron or metal, which also runs upon the steel, and a perfect amalgamation takes place between the iron and steel. The casting being complete, it is then finished in the ordinary manner.

To harden the work, a large metal box or trough, 6 or 8 inches deep, is formed, in which is inserted a number of perforated sharp-edge bars of metal, on which the anvil is allowed to rest on its face or upper surface, either flat or slanting. A sluice communicating with a reservoir of water is then opened, and a force of cold water is allowed to flow upon the face by an upward cast, and to pass under the anvil and over the bars to any depth required. By these means a much harder and more regular surface is obtained than by the present mode of manufacture. After this, the surface is ground in the ordinary way.—*Mechanics' Magazine.*

Paint Room.

VERMILION.

VERMILION is a French word which signifies *worm-dye*, and was originally so called from the fact that the color was first produced from the dried bodies of a species of small insects, called kermes, who feed upon the oaks in the vicinity of the Mediterranean Sea. Hence, *vermilion* has come to be the name of all red colors of its class, even those which are produced from minerals.

The vermilion of antimony was invented in 1833 by Lampodias, and consists of a red sulphuret of antimony, in the form of a very fine, inodorous and insipid powder, insoluble in water, alcohol and spirits, and subject to but little change by contact with the weak acids, or by the strong mineral acids. It is, moreover, but little affected by ammonia and alkaline carbonates, but the strong alkalies, potash and caustic soda, affect it more or less, by combining. The vermilion of antimony cannot therefore be mixed with colors which have an alkaline reaction, nor

will it withstand a high degree of heat, but will blacken under such influence.

Vermilion is an opaque color. When moistened with water, or mixed with gum or gelatine, it has no luster, but when combined with oil or varnish it becomes exceedingly brilliant and intense in color. It covers well, and surpasses in this respect all other mineral colors. If well prepared and employed as an oil color, it presents perhaps *the very purest hue of red*, a hue which never turns orange or crimson, though it generally retains a slight tint of brown. Vermilion is not favorable to the drying of oil, although it does not retard its drying to any great degree. Its beautiful color, together with its unusual covering properties, make it a very valuable color for use by the coach-painter. At present, and for many months past, it has been the popular color in New York for carriage-parts, both light and heavy. The fashion is a tasteful one, as it gives lightness and beauty to a vehicle.

SUNSHINE AND PURE AIR.

In this busy life of ours we are often sadly negligent of these two essentials to physical comfort and long life—sunshine and pure air. They are the two great agencies by which to secure health, and without health, business can no longer be that pleasurable exercise that insures success. In locating and constructing workshops, manufacturers should give careful attention to securing ample sunlight and ventilation, and the result will redound greatly to their advantage by adding to the physical stamina of their workmen.

Much has been said of the importance of well-ventilated paint and varnish rooms, but much more needs to be said and written before carriage-makers will awaken fully to a consciousness of the true value of pure air in this connection. Every varnish-room should have a ventilator, and by means of this the temperature of the room should be kept at a uniform degree, and it should be comfortable for the workmen. It is not necessary for producing good varnishing that the room should be made oppressive for the painter. Some painters think extreme heat is necessary, but it is not. It is of much greater moment that the heat be uniform, and that the air be pure and moderately dry. Moreover, we have often traced a bad job to a close and muggy atmosphere in the varnish-room, induced by wetting down the floor and allowing the excessive heat to evaporate the water, thus filling the room with dampness. A damp, muggy day is a poor time for varnishing. Every painter understands this. But oftentimes he produces in his varnish-room a miniature muggy day, and the effect is just as injurious to the work.

Ventilate the varnish-room.

ENGLISH VARNISH.

We have made further investigation with reference to ascertaining the time when this article was first introduced into this country, and it appears that John R. Lawrence, of New York, was the *first carriage-maker in America who used English varnish.* Mr. Lawrence has been in the carriage business for forty-three years, and it was about the year 1835, when the firm was Lawrence & Collins, that he made his first importation of varnish from Great Britain.

At that time, all carriages made in this country were polished in a manner very similar to the present mode of polishing pianos. English carriages were then frequently imported into this country, and Mr. Lawrence had often studied the appearance of their finish, and wondered how it was produced. The great trouble with the polished carriages was the readiness with which they spotted and discolored when exposed to moisture. A wealthy citizen of New York, and a good customer of Mr. Lawrence, had ordered of him a fine coach, but complained that it changed color badly. Mr. Lawrence went to his coach-room, and, finding it very damp, assured the gentleman that any varnish would perish when exposed to so damp an atmosphere. "Not so quickly, however," replied the customer, and he showed an English coach which he had owned for many months, and whose appearance was decidedly better than the new coach.

This incident led Mr. Lawrence to look still more deeply into the subject, and he decided he would obtain and try some of that English varnish, if possible. He wrote to a business acquaintance in London, and through him he received ten gallons in 1835. At the time of receiving it, he had a hand in his employ who once worked in a London carriage-shop, and this man was called upon to give suggestions about using the new varnish. He represented that it was polished in the same manner as in America, so a heavy coat was applied, and the men waited patiently for it to dry. At the end of a week it had scarcely begun to do this. A month passed by, and then an attempt was made to rub it, but the painters found this perfectly impracticable. At the end of three months the attempt was again made, but again failed most signally; and the painters were disposed to curse it as a miserable humbug. During these three months it had been run out into the sun every day when pleasant, and every night it had been carefully housed; every pains had been taken, and if not ready to be polished yet, when would it be? It was impossible to answer this question, so the job was laid aside as a failure. Three months more passed away, and the painters again tried polishing it, but with no better result.

A few days after this last failure, Mr. Lawrence was examining an English carriage very closely, and trying to solve the mystery as to how the finish was produced, and as he was scrutinizing the arch panel, which was just opposite the window and exposed to a strong light, he noticed what he thought were brush-marks in the surface. He called his painter, and between them and the brush-marks, it was decided that this coach must have been finished without polishing. Here was an important fact brought to light, and they hastened to submit this new knowledge to practice. The coach was given another coat of English varnish, which worked without much trouble, as the first coat had been rubbed so often, and, although not so easily accomplished nor so satisfactory as later jobs, this first experiment with imported varnish was decided to be a success, and Mr. Lawrence continued its use. Mr. Wm. B. Crosby, a prominent gentleman of New York at that time, became the possessor of this *first American carriage finished with English varnish.*

For several years, the firm kept their method of finishing a secret, importing privately from London, and paying a round price of $15 to $18 per gallon. Within a few years after this time other carriage-makers began to try the English, generally through the recommendation of

painters who had used it in the old country. It had much opposition at first, but one by one became interested, until, about 1852, an agency was established in New York, and this year is generally mentioned as the date of its introduction.

Such is the history of the introduction of English varnish into America. For twenty years it stood unrivaled in this country, and although no explanation could be offered *why* American manufacturers of varnish should not equal the imported, they failed signally to do so, and painters had, in many cases, become confirmed in the opinion that England alone *could make* coach varnish. A rival has now appeared, however, in the well-known "Valentine Varnish," which, after thorough and repeated tests, is fast making good its claim of "Equality with English." The competition between this and the imported continues earnest and incessant, and the American is gaining daily, as may be seen by visiting the leading carriage-factories of New York, Boston, Philadelphia, and our other principal cities.—*The Hub.*

LINSEED OIL AND PREPARATION FOR PAINTERS' USE.

LINSEED oil is extensively employed as a vehicle for the harder resins, to which it imparts softness and toughness, but causes the varnish to dry slowly; and unless the oil is of the purest and palest quality, well clarified, and carefully combined with the resin, without excess of heat, it materially darkens the color of the varnish when first made, and it is also liable to become darker by age after it is applied. Linseed oil intended for the best varnishes, is clarified by gradually heating it in a copper pot, so as to bring it nearly to the boiling point in about two hours; it is then skimmed and simmered for about three hours longer, when dried magnesia, in the proportion of about one-quarter of an ounce to every gallon of oil, is gradually introduced by stirring; the oil is then boiled for about another hour, and afterward suffered to cool very gradually. It is then removed into leaden or tin cisterns and allowed to stand for at least three months, during which the magnesia combines with the impurities of the oil and carries them to the bottom, and the clarified oil is taken from the top of the cistern as it is required, without disturbing the lower portion, and the settlings are reserved for black paint. A pale drying oil may also be made as above, by substituting for the magnesia white copperas and sugar of lead, in the proportion of two ounces of each to every gallon of oil.

Linseed oil when rendered drying, by boiling and the addition of litharge and red lead, is sometimes used alone as a cheap extempore varnish. In boiling linseed oil, it is heated gradually, to bring it to the boiling point in about two hours; it is then skimmed, and well-dried litharge and red lead, in the proportion of about three ounces of each to every gallon of oil, are slowly sprinkled in, and the whole is boiled and gently stirred for about three hours, or until it ceases to throw up any scum, or emit much smoke. It is then frequently tested by dipping the end of a feather into it, and when the end of the feather is burned off, or curls up briskly, the oil is considered to be sufficiently boiled, and is allowed to cool very slowly, during which the principal portion of the dryers settle to the bottom. The oil is afterward deposited in leaden cisterns screened from the sun and air. When the oil is required to be as pale as possible, dried white lead, sugar of lead, and white copperas are employed instead of the litharge and red lead.—*Byrne's Handbook for the Artisan.*

COACH-PAINTING IN LONDON.

THE London coach-builder paints the body of a fine coach in this way:

4 coats of lead.
7 " " rough-stuff.
1 " " lead.
Putty and face.
1 coat of lead, and sand paper.
1 coat of lead, and sand paper.

14 coats before coloring.

From this point, the upper and lower panels of the body are finished differently, namely:

Lower panels:
3 coats of color.
1 " glazing.
4 " hard-drying varnish.
1 " wearing body.
9 coats, or 23 from the beginning.

Upper parts:
1 coat ivory black.
2 " black japan.
2 " hard-drying varnish.
1 " wearing body.
6 coats, or 29 from the first.

The flatting is left to the judgment of the painter and to suit the purchaser. Sometimes every coat is flatted, and sometimes every other coat. To obtain perfect smoothness, a great deal of time is used in rubbing.

When the body is not to be black, two or three coats of the required color take the place of the two coats of black japan, and an additional coat of flatting varnish is used. All the color coats and rough-stuffs are mixed with japan gold size.

GOLD-LEAF.—A convenient way of applying gold-leaf to sizing is to previously rub the tissue paper gently with wax. The gold will then adhere to the paper, and may be readily cut into any size required.

Editor's Work-bench.

IMPORTANT TO SUBSCRIBERS.

ACCORDING to request, we have forwarded the Magazine to a number of subscribers, who have intimated their wishes to have it continued from year to year. The price is $5, but we intend to mail it, free of postage, to *all* who pay their bills promptly *in advance*. We hope our friends will avail themselves of this offer, which must prove mutually agreeable to both parties. Send postal orders where such are available.

CINCINNATI INDUSTRIAL EXHIBITION.

A COMMITTEE of managers, appointed for the purpose, propose holding a grand Industrial Exhibition of Manufactures, Products and Arts, at Cincinnatti, in September of the present year, which will be open for the reception of goods from the first to the twenty-fifth of the month, at which latter date the Exhibition will be opened to the public, and continue open until the 15th of October. Ample preparation has been made for the exhibition of machinery in operation, for the prominent display of manufactures, works of art and products, and, likewise, for the general convenience of exhibitors. Articles may be entered solely for exhibition, or may be put in competition with other articles for premiums, but in the latter list only products of the United States will be admitted, and every exhibitor will be required to pay an entrance fee of two dollars, which will entitle him to a badge, which will at all hours admit him to the building.

The managers contemplate making this exposition of art and industry superior, in point of attraction and practical benefit to those concerned, to any similar one ever held in this country, and therefore earnestly solicit the co-operation of the industrial classes in sending forward their productions. Arrangements have been made for the cheap transportation of articles from different parts of the country, and for their removal from the depots and wharves in Cincinnati to the place of exhibition.

Applications for space must be made by the use of blank forms, which will be furnished by the committee on application. Space allotted to applicants and not occupied by them, may be assigned to other exhibitors; but the right to exclude from the exhibition all explosive, inflammable, dangerous and offensive articles will be exercised, as well as to shut out goods presented the day after the opening, should it prove injurious to other exhibitors or inconvenient to visitors. When necessary, articles must be shown in glass cases. No article must be taken away during the days of exhibition, after being once entered; but sales then made may be delivered at the close, or afterward sold for the exhibitor's benefit at auction, under the direction of the general committee.

Judges will be provided, eminent for skill in the arts, one by the general committee, another by the exhibitor, and a third by the two thus selected. Premiums will consist of gold and silver medals, diplomas, with special medals for the best displays in prominent departments, and "honorable mentions" made in reference to articles which, not being awarded a premium, are yet not devoid of merit. All communications and articles for exhibition should be directed, "Cincinnati Industrial Exposition, Cincinnati," with the name and residence of the sender plainly marked thereon, accompanied by a statement of the contents of the boxes or packages, or else sent by mail.

PAYING FOR NEGLIGENCE.

ON the 3d day of July, 1869, Messrs. Durham, Booth & Wooster, carriage-builders, shipped by the New Haven Steamboat Company a new four-seat coupé, worth $600, to Gabriel Chevalier, for John C. Ham, a carriage-dealer in this city. The carriage, it was proved, was, by special agreement, to be forwarded by the morning boat, but was not sent until the evening. Had it come on in the morning it would have been received here on the same day and properly taken care of, but coming here on the Fourth of July, when every body is supposed to have enough to do to join in the celebration, it was not delivered, although duly demanded. Meanwhile, the carriage was destroyed by fire in the company's store-house on the pier, they refusing to pay for it, claiming that the owner did not take it away, as he should have done, and that they did not agree to deliver it from the morning boat. The case was tried in June last, before Judge Spencer and a jury, when a verdict in favor of the plaintiff was, in five minutes, rendered for $470 and the costs, in addition to which the Court allowed five per cent. for counsel fees.

CARRIAGE ADVERTISING EXTRAORDINARY.

A CARRIAGE-DEALER "on Broadway 'street,'" one day in June, startled the public by the following notice in the public prints: "I do not sell any pony wagons for $150, because at that price they cannot be good. I do not sell carriages at the cost of production, because it would burst me if I did. I do not sell the 'Period Carriage,' because there is no such thing. I do not sell carriages at 'factory rates,' because factory rates are too high. I do not sell any 'patent circular fronts.' I do not think I keep any 'Pagnals.' I do not advertise five hundred carriages, when my entire building would not hold half that number. I have no connection whatever with a firm of 'similar,' etc., etc., etc., 'country-made carriages,' etc., etc., etc. I do not offer my stock at a great reduction in prices for thirty days. But I do offer," etc. Having had a hearty laugh over this unique advertisement, we naturally concluded some body had been making just such announcements as are here negatived. Who are they?

LOOK OUT FOR SWINDLERS.

A CORRESPONDENT in the West writes us: "There is a fellow from New York out here, who is selling counterfeit India-rubber anti-shaft-rattlers. Please give notice of it in your MAGAZINE, as the rubbers are of no more use than so much dirt, and about as cheap." If, then, they are "dirt cheap," the vendor ought to suspect that the rubbers, when offered, cannot be of much value; but the great trouble is, some people will buy an article simply because it is sold low, and it would seem, in many in-

stances, as though the purchaser *courted* humbugging for the fun of the thing, else why do they purchase these cheap wares? We would no more expect to get a good article in such cases than we expect to fly. We advise our readers, now the patent has expired, to buy rubber of the proper size in the bar, of reliable dealers, and cut off pieces, of the length required, as needed. In this way anti-rattlers can be had "dirt cheap," from dealers in carriage materials, without the risk of being cheated by itinerant Jews and other swindlers, who find their chief success "out West."

NEW PROJECT.

WE believe it would be of great practical value to both employers and employees, if a library were established in each large carriage-shop. A well-selected library would be a great educator. Can any one doubt this?

Now, in order to illustrate how good a library can be found, and to render more available the suggestion we have made, we intend opening a new department in our next number, namely, a list of books and publications, which relate directly and indirectly to the art of coach-building in all its branches. In the first number, we cannot hope to make the list complete, by any means; but we ask the co-operation of all our friends, in suggesting to us others which they are acquainted with, and, by adding monthly, we hope, in a few months, to present a full list of valuable coach-making books, and we trust they will make so good an appearance, that some leading coach-maker will be induced to carry out our suggestion and establish a shop library. It is our aim to put the "coming man" (now an apprentice) in the way of books which will help him to put *American carriage-making on a par with that of any part of the world.*

REVIEW OF TRADE.

SINCE our last report, trade has much improved, a number of carriages having been sold, generally at very moderate prices. This trade, we judge, has not much improved the finances of the dealer, which could scarcely be expected when selling in a falling market, with gold depreciating all the time. It is very evident that every thing has a downward tendency, and that the days of speculation are about ended for the present. The sooner all hands come to this conclusion and accept the situation, the better. The voice of the people is strongly adverse to the continued Internal Revenue scheme, and there is little doubt that this year will end that matter, when all business will soon sink to its former status previous to the war, which, with our ideas of what constitutes good times, were preferable to any we have experienced for the past ten years. A reduction of say $25 in the prices of buggies has been made by the manufacturers in this city, and in some of the country localities still larger amounts. This in some degree is the natural result of having on hand a large stock when money is scarce. Those who have heeded our advice given some months back, will now have cause for self-congratulation, and perhaps thank us for the result.

CARRIAGE PATENTS.

HEREAFTER we intend publishing monthly a list of the new patents taken out, which are of interest to carriage-makers. By many inquiries which have reached us, we are led to think that this will be a valuable department.

EDITORIAL CHIPS AND SHAVINGS.

A NOTABLE AUCTION SALE.—In May the carriages of the late Col. Clement March were sold at public auction, in Portsmouth, N. H., and among the number was the private carriage formerly owned by Daniel Webster, to whom it was presented by friends in New York in 1850. This brought $86, and is now in the possession of Mr. H. H. Smith, of New Market. Among the others were a French-built coupé, which sold for $85, and a dog-cart, built by Wood Brothers, which brought $72.

THE LIGHTEST WAGON ON RECORD.—Messrs. Brewster, of Broome street, have just finished a wagon, weighing, with shafts ready for driving, only 85 pounds and 14 ounces. It was made to order.

TRADE IN THE STATE OF NEW YORK is at present quite satisfactory. We have visited a number of places along the Hudson River and New York Central Railroads, and found the greater part of the carriage-makers doing very well.

PAYING A NEWPAPER BILL.—A subscriber to a newspaper, was repeatedly dunned for his subscription, long due, and at last promised that the bill *should* be paid by a certain day, if he were *then alive!*

The day passed, but no money reached the office. In the next number of the paper appeared, among the deaths, a notice of the subscriber's departure from this life. Soon after this announcement, the subject of it appeared to the editor, and, without waiting to be addressed, as is ascribed to apparitions, he cried, "What did you mean, sir, by publishing my death?"

"As when I publish the death of any other person," was the answer—"to let the world know that you are dead."

"But I am not dead!"

"Not dead! Then it is your own fault, for you told me you would positively pay your bill by such a day if then alive."

The bill was settled immediately.

PAYING THE DRIVER.—A reverend doctor of Boston was once called upon to supply the pulpit of Rev. Orville Dewey, of New York, but in consequence of delays on the way, he did not arrive in New York on Sunday morning until after the bells had ceased to call the people to church. He immediately jumped into a cab and drove with all haste to the church, jumped out, whispered to the sexton to pay the driver, and walked with ministerial dignity up the aisle. When about to ascend the steps of the pulpit, a hand was laid upon his shoulder, and judge of his surprise, on turning, to behold cabby with hand outstretched for his fare. This story was related by the victim himself.

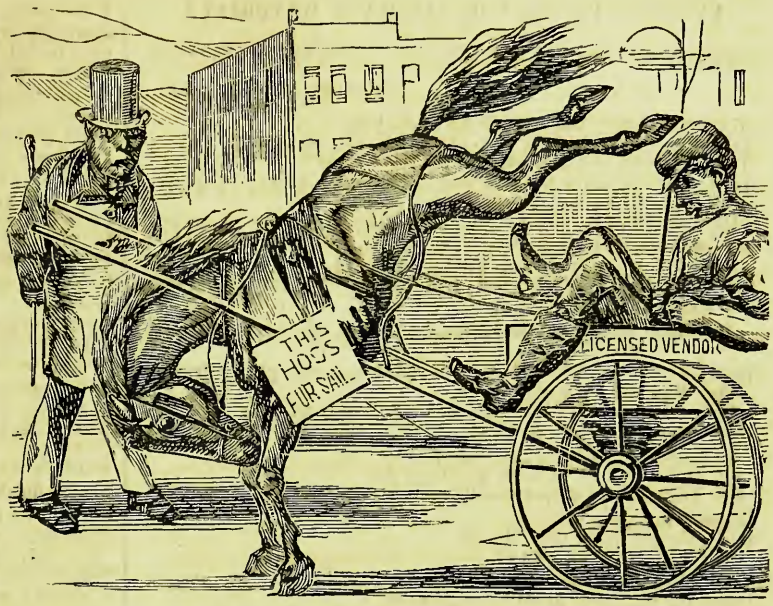
KANSAS WAGES.—Out in Kansas they pay blacksmiths per day from $3 to $4; wagon-makers from $3 to $3.50.

TOO ACCOMMODATING.—A Boston undertaker, having established himself next door to a popular livery stable, was accosted one day by an individual, apparently in a great hurry, who asked: "Can I get an open buggy here?" "No, sir," said the interrogated, "we haven't got a buggy, but"—pointing to a hearse, which stood at the door—"we can accommodate you with a *skeleton wagon!*"

J. F. GOODRICH, of New Haven, makes a specialty of basket phaetons, which he builds with astonishing rapidity, and finds a constant demand.

THE SHOO FLY is the name of a new style of vehicle which hails from Newark.

BUCK WAGONS.—C. W. Horn, of Wilmington, is building a number of novel-looking vehicles, which he calls "buck wagons." They are light and inexpensive, and intended for the South.



VENDOR.—*I guess, now, he would suit you tip-top. Just the critter for a doctor. Wouldn't sell him, only his ideas are too elevated for me, and he gets above his business.*

CIRCULAR-FRONT CARRIAGES.—Circular-front carriages are considered an old invention, and they were made many years ago, but we have never been able to find out the exact time or the name of their inventor. We are now enlightened on this point to some extent. A Philadelphia cotemporary, having published a draft of a circular-front six-seat rockaway, was promptly notified by a New York carriage-dealer (J. C. Ham) that circular-fronts were his patent, and he had the satisfaction of seeing his claim published in the same organ, showing, we think, an evident want of knowledge in the matter. Circular-front six-seat rockaways were made and sold in Boston and Portland years ago, and in 1867 circular-front coupé rockaways made their appearance, at least *on paper*, in New York. Hardly any body will think, nowadays of building circular-front carriages, with low front seats, for obvious reasons. But for justice's sake, will not some interested carriage-maker come forward and help clear up this question.

WHIP-SOCKETS.—So small an article as a whip-socket hardly suggests how extensive is its manufacture. On a recent visit to Troy, N. Y., we had occasion to call on Messrs. Merriam & Chamberlin, inventors and patentees of several improvements in whip-sockets, and fastenings. There this indispensable article is manufactured from the raw material to the last finish, and in quantities quite astonishing to one who has not a correct idea of the great extent of the carriage trade in this country.

CARRIAGE PRISON LABOR.—A firm of lumber-dealers in Columbus, Ohio, have bodies of light carriages made on an extensive scale in the Ohio State Prison at that place. It is said that the average wages they pay by contract to the convicts is about fifty cents per diem, and in consequence thereof they can afford to sell at prices ruinous to every body who has not the benefit of a contract with or the unenvious privilege of serving the State of Ohio.

AMESBURY AHEAD.—The united carriage-makers of Amesbury, Mass., claim, through a joint circular, that they can furnish, for less money, the best finished carriage in the United States. Go ahead, gentlemen, but look after your styles.

A BRIDAL TRIP IN AN OX-CART.—Taking a bridal trip in an ox-cart is not the most fashionable method of doing it hereabouts, but we don't know why there shouldn't be just as much fun in it as in riding behind the screeching locomotive, or in the rocking steamer. A happy man out in Arkansas, who had been fitting up a homestead, lately met the coming woman for him at the railroad station. She had taken the journey alone from the city of Boston, and if Boston girls in general are "up to this sort of thing," we should be glad to know it. Of course he married her on the spot, and the next day the couple started for their home, a considerable distance off, in an ox-cart. They have probably reached it ere this. If fashionable society turns up its aristocratic nose at the idea of a bridal trip in an ox-cart, we have only to suggest, that it would be in better taste to try it first. "The proof of the pudding," etc.

DERIVATION OF NAMES OF TRADES.—The names that designate the various orders of tradesmen are, in some cases, derived very curiously.

Tinkers, for instance, or *tinklers*, as the Scotch call them, were originally so called because the itinerant members of that trade used to give notice of their approach to the villages and farm-houses by making a tinkling noise on a brass kettle.

Milliner is a word corrupted from "Milaner," which signified a person from Milan, in Italy. Certain fashions in female dress that first prevailed in that city, were introduced into England, and the name milliner accompanied the introduction of the fashion.

The word *landlord* was first applied to the keeper of an inn. Formerly wayfaring guests were generally entertained by the proprietors of the *land*, the *lords* of the manor through which they journeyed.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, JUNE 20, 1870.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7 c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅞ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Benzine, per gall., 35c.
Bolts, Philadelphia, list. 45 off.
Do. T. per 100, $3 *a* $3.50.
Borax, English, refined, per lb., 33c.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Buggy bodies, finished, $15 to $20.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Bruss., $1.75 *a* $2; velvet, $2.50 *a* $3.50; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.25, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $12 *a* $16.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.25.
Enameled cloth, muslin, 5-4, 32c.; 6-4, 50c.
Enameled Drills, 45 in., 45c.; 5-4, 40c.
Do. Ducks, 50 in., 65c.; 5-4, 60c.; 6-4, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $1.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $2.00.
Japan gold size, $4.00.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No. 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates, $5 for 25, $8 for 50.
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $12.00, pure, $13.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $5.00 per gallon.
Poles, $1.25 *a* $2 each.
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Pumice-stone, selected, per lb., 7 to 8c.
Putty, in bbls. and tubs, per lb., 5 to 7c.
Putty, in bladders, per lb., 6 to 8c.
Rubbing-stone, English, per lb., 9 to 10c.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shafts, finished, per pair, $3 to $4.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2 25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.

Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.

Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes, American, wearing body, $6.50; elastic gear, $5.50; hard-drying body, $5; Quick leveling, $4.50; black body, $5; enameled leather, $4.00.
Varnishes, English. Harland & Sons', wearing body, $10; Noble & Hoar's, $9.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Wheels, coach, $20 to $40 per set; buggy, $12 to $18.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.