Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME VII.] NEW-YORK, JUNE 19, 1852. [NUMBER 40.

THE
Scientific American,
CIRCULATION 16,000.
PUBLISHED WEEKLY
At 128 Fulton street, N. Y., (Sun Buildings),
BY MUNN & COMPANY.

Hotchkiss & Co., Boston.
Dexter & Bro., New York City.
Stokes & Bro., Philadelphia.
Cooke & LeCount, San Francisco, Cal.
Courtenay & Wienges, Charleston, S. C
John Carruthers, Savannah, Ga.
M. Boullemet, Mobile, Ala.
Sidney Smith, St. Louis, Mo.
M. M. Gardissal & Co., Paris.

Responsible Agents may also be found in all the principal cities and towns in the United States.

Terms—$2 a-year—$1 in advance and the remainder in 6 months.

RAIL-ROAD NEWS.

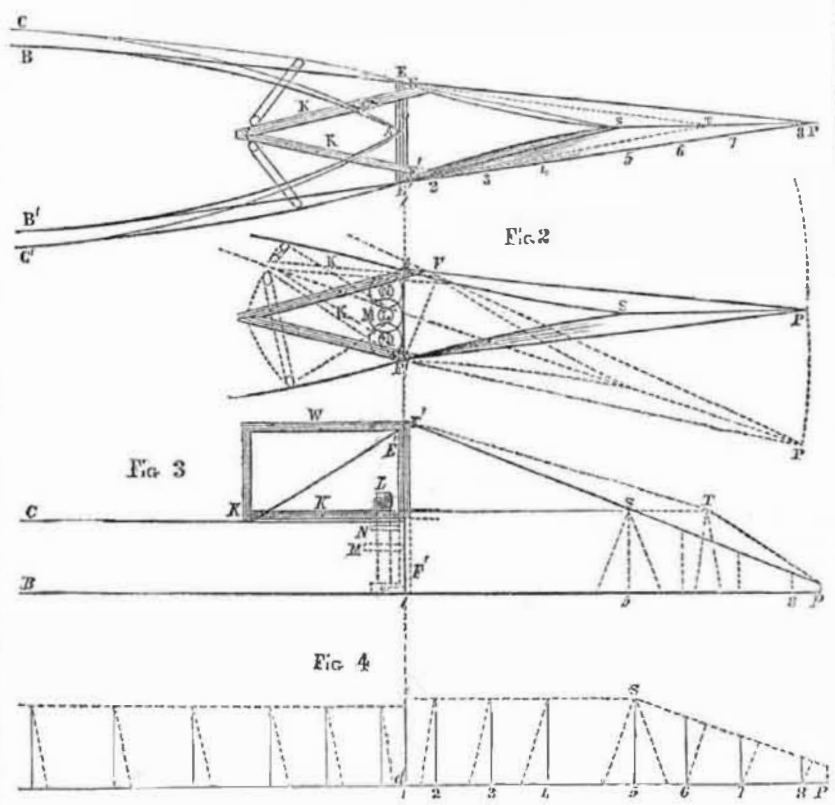
Pacific Railroad.

The Board of Directors of this railroad have presented their Second Annual Report. Thirty-seven miles of this road, from St. Louis to Franklin Co., Mo., are now in the course of construction, about 1,000 hands are employed. Three locomotives—two from Paterson, N. J., and one from Taunton, Mass.—will soon be ready, and five additional locomotives are to be added in two years. The rails to be used are of English T iron. The State of Missouri has voted $2,000,000 for the construction of this road. The State bonds of the road are now held above par. The benefits which railroads confer upon land-holders, perhaps above all others, have been exemplified in a most striking light by the Pacific Railroad; lands adjacent to the line have recently trebled in price: some which were valued at $1,50 per acre, have arisen to $10, and some which were held to be worth $30, have been sold for $100. It has infused a new spirit of energy in the people, and many new settlers have been attracted thither. The object of the people of St. Louis, in constructing this road at present, is a sagacious one, viz., "to hold St. Louis to her true destiny as the Central City of the Mississippi Valley." They have petitioned the General Government for a donation of lands, to construct the road to the boundary line of the State, but Congress coupled the grant with so many restrictions that they sent word to their Representatives they could not accept of it upon such burdensome conditions, but would rather take advantage of a pre-emption right to a limited number of acres. Missouri is yet destined to be a very great State; its climate is delightful; its soil is fertile; its natural products varied, and its mineral resources inexhaustible; and St. Louis is on the highway from the Atlantic to San Francisco.

Railroad Accidents.

We have met people actually entertaining a horrible dread of railroad travelling: some willing to stay at home mainly because afraid to ride after the energetic tread of the iron-horse; while, on the other hand, there are many who complain of five minutes' delay, and are willing to risk every thing for extra speed gained by its employment. We believe it is true that the accidents on railways are one hundred per cent. less than those incurred by coach travelling—take the average, and we shall find the number of deaths below that of the old coaching system. We think that the railway proprietors use all wholesome precautions, and as the public have demanded high speed, it is not altogether right or justifiable to blame officers of roads, as casualties are unavoidable many times. A celebrated Englishman once properly remarked that a traveller was disappointed that he had not arrived at Exeter from London in three hours, and yet complained of the R.R. Co., because a tyre flew off. If the public demand improvements, a few casualties—and few they are compared with the traffic—must necessarily occur. There is nothing without risk; "if you prick your finger, why there's danger in it," says Shakspeare.

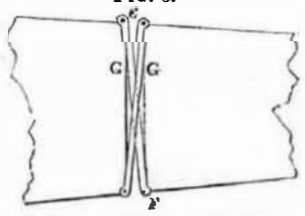
THE PLOWSHARE PROW.---Fig. 1.



Explanation of the Engravings.—To a flat-bottomed river steamer of 300 feet length, 40 feet beam on deck, and 35 feet at the bottom, it is proposed to add a Wave-line Prow of one-fourth the length of the boat, with a base of one half of the boat's medium beam, say 18 3-4 feet.

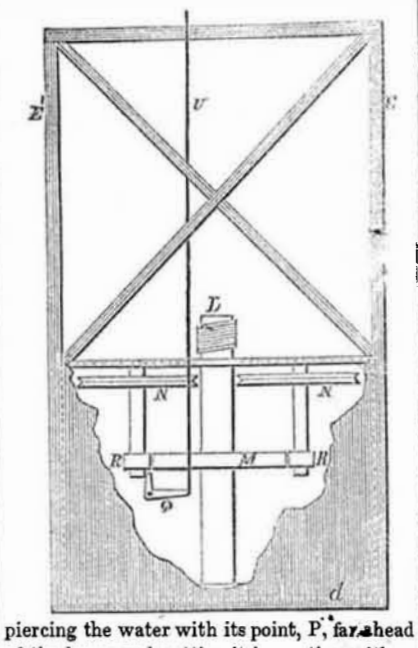
In fig. 1, A is the original cut-water; A B, A

Fig. 5.



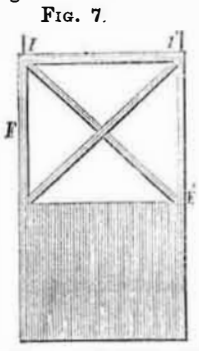
B′ is the bottom, and A C, A C′ the top of the original bows. In adding the Plowshare Prow to such a boat, a strong bulkhead is built across the cut-water (seen in the plan view at E E′, fig. 1, and in the elevation view, figs. 3 and 6); the sides of this bulkhead are vertical and parallel. The Prow is a double plowshare,

Fig. 6.



piercing the water with its point, P, far ahead of the bows, and putting it in motion with a gradually increasing force. Fig. 3 shows the Prow to be a prolongation of the boat's bottom; the long line, P A B, fig. 3, is the same as P E B, fig. 1; and S K C, fig. 3, is the same as S E C, fig. 1. Fig. 2 shows the Prow thrown to

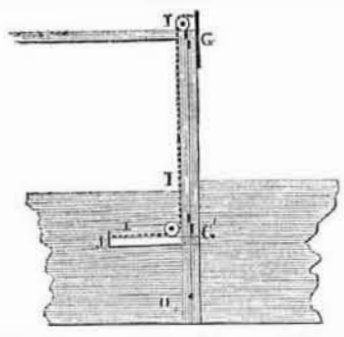
Fig. 7.



one side in steering. Fig. 5 shows the manner of hinging the Prow to the hull; the double hinges being represented as strained out of their true position, that their mode of construction may be the better illustrated. Fig. 7 is an end view (elevation) of the base or after-part of the Prow, with its bulkhead, and strongly braced posts. Fig. 8 shows how the tops of the prow-posts are securely fastened, by two iron chains, to the top of the hull-posts,—and these are also braced from the hog-chain of the boat. Fig. 6 is an end view, looking backward through the fore bulkhead of the hull, part of the bulkhead being torn away to show the steering apparatus under the deck of the forecastle. This figure is on a scale as large again as the others.

Construction—The bulkhead, E E′ fig. 1, is first to built up on the strong timber, D, notch-

Fig. 8.



ed into the bottom end of the cut-water. A new bottom, and new sides for the bows, are to be extended from the new bulkhead. On the ends of D, the posts, E E′, are set up and strongly braced, forming part of the supports for the pilot-house, the floor of which is seen at W, fig. 3. In front of this bulkhead the new Prow is hinged, having a base of just the same dimensions, although the base on which it turns may be shorter. The bottom side-edges of the Prow may be straight lines (as drawn here) for better resisting snags and stumps, or they, like the other parts of the Prow, may take the wave-line. Fig. 3 shows sections of the Prow, indicating the varying inclination of its sides. As here shown, these sides, measured vertically, are straight lines, but they may take any curve desired for them.

The Prow is to be securely planked up on its sides, top, bottom, and after-end or base. A small pump should be placed on the top. The strength of the Prow should be less than that of the bows, so that, in a collision, the Prow may certainly be broken to pieces rather than endanger the sinking of the boat.

The posts of the Prow, F F′, are attached to those of the hull, chiefly by the double hinges, G G′, figs. 5 and 8, so that it may turn to the right or left, in the horizontal plane. To keep the upper pair of hinges from ever being drawn out of shape, as in fig. 5, a strong chain, I I, fig. 8, starting from the top of each prow-post and passing over a pulley in the top of the hull-post, and around another pulley toward its bottom, is fastened to the end of the brace, J, fig. 8, which projects backwards from the bulkhead of the Prow, and enters a suitable recess in the bulkhead of the hull. When piercing the water, the Prow is strongly pressed downwards; this brace, then, attached to the Prow, draws hard upon its iron chain, binding the top of each prow-post firmly to its hull-post. A projection from each prow-post fits into a corresponding notch in its hull-post, as at O, fig. 8, so that the two sets of posts must always keep a true adjustment.

The timbers, K K, are of such strength as to turn the Prow just as the pilot may wish to steer. They have pulley-blocks at the end where they are bound together, the ropes from which, after passing through blocks at the sides of the boat, are wound around the upright barrel, L, which is turned by the large wheel, M. At N N′ are seen two wheels with a notched edge, for receiving endless ropes, which pass around similar wheels on the shafts of the paddle-wheels. While the boat is running, N N′ are always in motion, but in opposite directions. The pinions, R R′ are on the same shafts with N N′; so that if either pinion be pressed hard against the large wheel, M, the axis-barrel, L, will haul in upon one of the pulley ropes and pay out the other. If either engine is out of order, and not running, an endless rope must be passed around the two wheels, N N′, and crossed, so that the pilot's power over the prow may never be interrupted. The pinions, R R′, should act upon M rather by friction than by gearing. They are pressed hard against M (whenever the helmsman would alter the direction of the prow) by some such means as ropes or the bent lever, Q, and rod, U, shown in fig. 6—the bent lever controlling the position of its pinion. The rod, U, and its mate, should be brought within reach of the helmsman's feet, so that by pressure above, he may command the direction of the prow. A break should also act on the wheel, M, by pressure, upon which the prow may be steadily held at any angle of deflection. The wheel for working the rudder should be removed to the new stand for the pilot—its ropes being retained so that, when necessary, it can be worked by hand, while a new set of ropes from it are coiled around a suitable barrel on the axis, L.

The timbers, K K, instead of being framed into the base of the prow, must be fastened to it by iron pins, which can easily be drawn out by the helmsman (by means of a properly adjusted rope) without leaving his station. The