

THE
Scientific American,

PUBLISHED WEEKLY

At 128 Fulton Street N. Y. (Sun Buildings.)

BY MUNN & COMPANY.

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Single copies of the paper are on sale at all the periodical stores in this city, Brooklyn, and Jersey City.

TERMS.—\$2 a year.—\$1 in advance and the remainder in six months.

Improvement in Cranes.

The invention illustrated in the accompanying engraving relates to certain improvements which simplify and cheapen the cost of that class of cranes which are used for lifting, lowering, or moving about with facility and dispatch the heaviest bodies of all kinds, such as bed plates of large marine engines, steam boilers, &c. This work is generally performed by shears, or by a derrick. The former are, for many reasons, inconvenient; the latter is of complicated construction, costly, and liable to accident or breakage, owing to its large number of parts, and the difficulty of arranging them so that the strain shall be distributed properly throughout.

In cranes constructed according to the improvement now under discussion, the jib, A, with its main braces, A', stays, A", and other immediate accompaniments, and the load, are sustained vertically on the top of a stationary post or tower, B, all the vertical pressure being transferred to the top of the tower, B, by means of the backstay timber, A", leaving only a lateral horizontal pressure against the side of the tower at the circular way.

The improvements consist, firstly, in the employment of the backstay, A", for the purpose just indicated, being connected to the jib at the top and mainbrace at the bottom, it also supports a pendant segmental traveler or foot piece, C, so applied as to work round the lower part of the pillar or tower when the jib is turned, and also to support the outer end of the jib with whatever weight may be there attached. The jib is fully braced against lateral displacement.

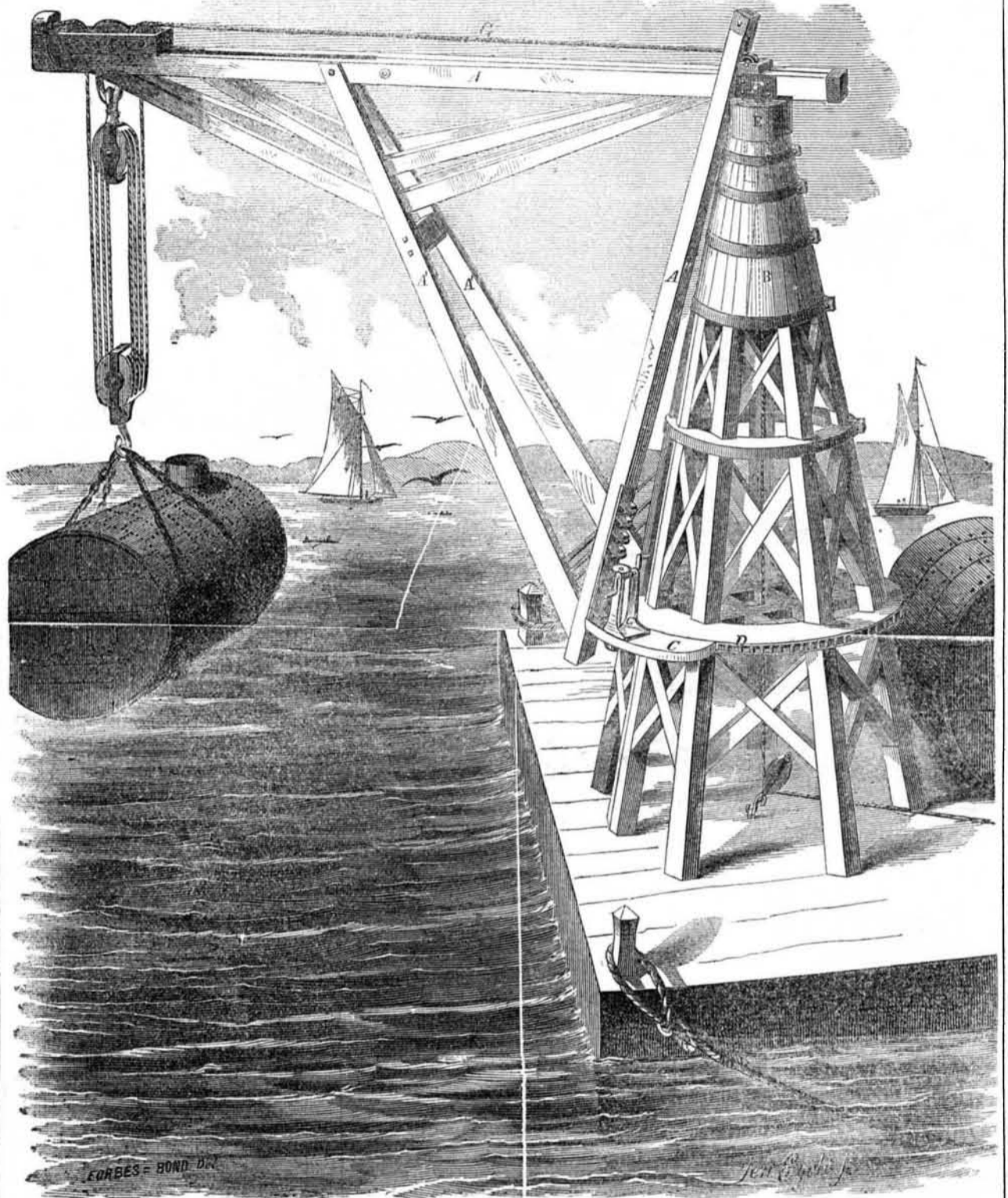
A second improvement consists in an arrangement of an anti-friction roller frame, D, in combination with the foot piece, C, so as to reduce friction, and prevent the binding of the foot piece against the tower.

In the annexed figure, the crane is shown as standing upon a float, so that it may be conveniently moved from one locality to another, placed alongside of steamers, &c. The pyramidal tower frame or frame work, B, is used in place of the ordinary vertical post. The tower terminates in a spindle or point, E. The jib, A, with its several braces and parts, is supported vertically on the top of the tower by means of a cast-iron or other metal cap or socket, G, which fits upon the spindle, E. The spindle, E, is made hollow, for the crane rope, G, or chain to pass through it to the barrel, which, with its gearing for winding the rope, may be arranged within the tower or at one side, and may be operated by hand, horse, or steam power. The barrel and gearing are not represented, as they need not differ from those of other cranes. The traveler, C, is suspended from jib, A, by means of back-stays, A".

These braces are spread apart considerably at their bases, thus balancing the traveler, C, equally, obviating its tendency to trip out sidewise, giving it free suspension from the apex of the tower, exempting it from vertical or lateral binding, &c.

To prevent the bearings of the small friction rollers against which the traveler, C, presses, from being crushed, they are arranged on a circular frame, D, which is composed of

IMPROVED INDEPENDENT CRANE.



two open rings encircling the tower. The rings are backed by an iron band on the tower, and the friction rollers are hung in the frame, D, in such a manner that the faces of the rollers will rest and travel on the backband. The traveler, C, also presses against the face of the rollers, so that their journals are wholly relieved, and cannot be crushed. This arrangement permits the easy swinging around of the jib and its load; for this purpose a stationary winch and gearing, G, is employed, working in a rack on the tower. Two men, only, are required to move the jib with its weight around.

This crane is simple in its construction, being a combination of a few members which act together, and capable of being strengthened in every part to almost any extent by mere enlargement of parts. Much care appears to have been exercised to use the strength of timber to the best possible advantage in the

way of tension and compression. All vertical pressure is received on the top of the tower, and all the lateral or horizontal stress against its side, while the structure of the crane is such as to meet these strains most perfectly.

This plan for a crane may be adopted in iron foundries, forges, &c., by making the tower from 20 to 30 feet high, and about 6 feet diameter at the base, of boiler-iron, from 1-4 to 3-8 in. thick, secured to masonry at the base, independent of the roof, or any other support; or a tower may be formed of 5-inch plank staved up and hooped; or with barrels, arranged so as to take up the shrinkage of timber.

Similar sizes may also be used with great advantage on docks, for lifting cargoes of all kinds, machinery, &c.

The invention combines strength, safety, and durability, with economy of use and construction. It is capable of employment on a large

or small scale. Our engraving shows the design for one of these cranes, which is to be capable of lifting 150 tons.

Mr. B. J. Burnett, of the Novelty Iron Works, New York City, is the inventor, and will give any further information. Patented December 25th, 1855. English and French patents have also been secured.

Two locomotives have been built at Mason & Co's. Works, Taunton, Mass., for the railroad on the Isthmus of Suez, Egypt. They are stated to be built in the most superb manner; they weigh 25 tons each, and have furnaces for burning coke.

Electro Chemical Baths.

We have received several communications on this subject, in answer to Dr. Smith's communication which appeared a few weeks ago in our columns; to these we will give attention in our next number.