G. E. Warner,

Derrick,

No. 6,515, Patented June 5, 1849.

Fig. 2.

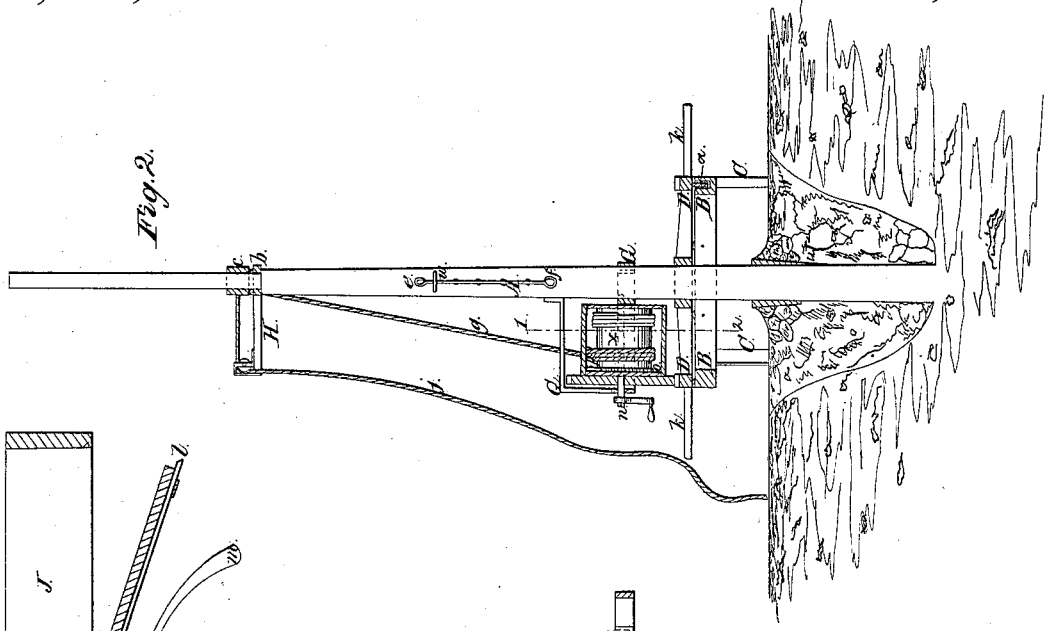


Fig. 3.

Fig. 4.

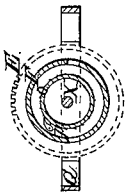
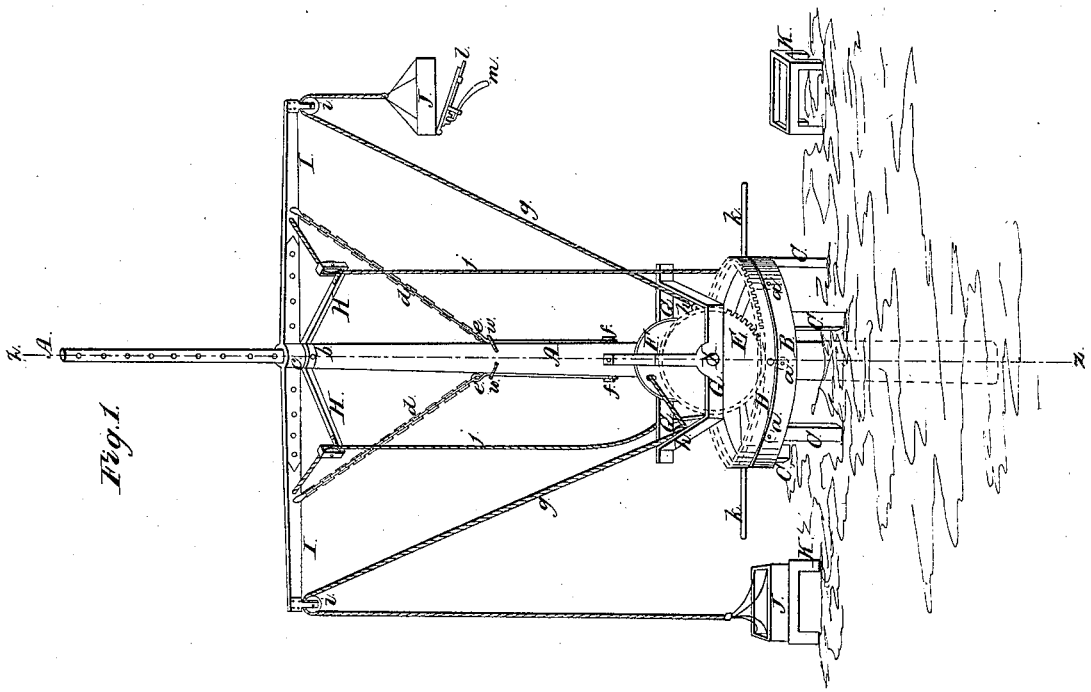


Fig. 1.



UNITED STATES PATENT OFFICE.

GEO. E. WARNER, OF SPRINGFIELD, MASSACHUSETTS.

BOOM-DERRICK.

Specification of Letters Patent No. 6,515, dated June 5, 1849.

To all whom it may concern:

Be it known that I, GEORGE E. WARNER, of Springfield, of the county of Hampden and State of Massachusetts, have invented a new and useful Improvement of a Mason-Tender or Hoisting-Machine; and I do hereby declare that the following is a true, full, and accurate description of my invention, reference being had therein to the annexed drawings, which form a part of this specification and of which—

Figure 1 is a perspective front view of the machine. Fig. 2 is a section of the same taken on the line *z*, *z*, Fig. 1. Fig. 3 is a section of the hod or elevator, J, and the draw-bolt and lever, *l* and *m*. Fig. 4 is a transverse section of the drum, F.

Similar letters of reference indicate the same parts.

The nature of my invention consists of a combination and arrangement of machinery for raising bricks, mortar and other building materials for buildings in the process of erection, whereby is effected a great economy of time and labor in the operation as compared with the ordinary modes of performing the work.

That others may understand and apply my invention, I shall proceed to describe its construction and operation.

Near the building to be erected I plant a shaft or mast, A, firmly in the ground, and of such height as may be required, usually about sixty feet more or less, as shown in Figs. 1 and 2.

At the foot of this shaft I make a frame, B, which is a circular rim or platform of iron or wood surrounding the shaft and resting upon four short and stout posts C, C, C, C, which set upon the ground. The lower side or edge of the rim of a horizontal wheel, D, rests upon four or more pulleys or trucks, *a*, fixed in the circular frame, B, on which it runs when revolved about the shaft, A, as subsequently explained; and on the upper edge of the wheel, D, are cogs, which mesh into a vertical cog-wheel, E, which forms one end or head of a cylindrical windlass or drum, F, that is supported by a strong wrought iron frame, G, secured firmly to the mast, A, as shown in Figs. 1 and 2.

In a machine for ordinary building purposes I make about twenty feet of the upper end of the mast, A, of uniform size, forming a shoulder say at about forty feet from the ground. At this point I usually fasten an iron collar, *b*, by means of a bolt passing through a hole in the said mast; and to this collar are affixed two iron arms H, H, which project forward horizontally over the windlass or drum, F; and immediately over the collar, *b*, I rig a long and stiff cross beam, I, I, which is suspended on the shaft, A, by a collar, *c*, that sets upon the collar, *b*, or is separated from it only by a friction washer, which it may be advantageous to place between the said collars. The cross-beam I, I, thus suspended rotates on the mast, A, as subsequently explained.

Near the middle of both sides of the cross-beam, I, I, are fastened stays or brace-chains, *d*, *d*, which pass down to and are secured to the iron rods, *e*, which rods play loosely on the mast, A, within the space embraced by the loop *w* but are prevented from slipping upward thereon by the bolts, *f*, which secure them to the mast at the lower end, as shown in the Figs. 1 and 2.

In the drum, F, is a shaft, *x*, to which is attached two ropes *g*, *g*, that are wound upon it and pass out through holes in opposite sides of the drum, as represented in Fig. 2, and as will be more fully explained hereafter. The ropes, *g*, *g*, go upward from the drum, F, as shown in Fig. 1, over pulleys, *h*, *h*, fixed in the frame, G, to pulleys, *i*, *i*, at each end of the cross-beam, I, I, and passing over them are attached to hod-boxes or elevators, J, J, which they raise and lower to and from stands or frames, K, K, placed on the ground directly under the pulleys *i*, *i*, in the manner and for the purpose subsequently explained. Near the middle of both sides of the cross-beam, I, I, are fastened two ropes, *j*, *j*, one to each, which pass over pulleys on the ends of the arms, H, H, and thence down to the frame B.

Having described the principal members and the arrangement of my hoisting machine, I will now further explain some details in its construction and its mode of operation:—On opposite sides of the wheel, D, which is made of cast iron, are fixed two or more projecting arms, *k*, *k*, which serve as handles to turn the said wheel. The machine is operated by men, who taking hold of the handles, *k*, *k*, turn the wheel D, which rests and runs upon the trucks, *a*, that are fixed in the frame, B, and thus they give motion to the windlass or drum, F, by means of the cog wheel, E. The drum F, being

thus turned, one of the ropes *g*, *g*, is wound upon it, and passing over the pulleys *h*, *h*, fixed in the frame, G, or one of them, to one of the pulleys *i*, *i*, at the ends of the cross-beam I, I, it raises one of the elevators, J, J, from one of the stands K, K, where it is filled with bricks, mortar or other building material, and thus hoists the elevator up to a level with the scaffold on which the masons are at work. When either of the elevators has in this manner been hoisted to a level with the scaffold, it is drawn on it by means of the ropes *j*, *j*, which being pulled from below, the one or the other of them as the case may be, the cross-beam I, I, is swung around over the right point for depositing the contents of the loaded elevator. While one elevator ascends the other descends, and thus alternately they are filled, hoisted up, emptied and lowered again.

The elevators are made with trap bottoms for dumping or discharging their contents from beneath, which is effected by a self-acting draw-bolt, *l*, that is drawn when the loaded elevator touches the scaffold, by the action of a lever, *m*, connected with it, which simple contrivance for discharging the contents of the elevators is a common device for similar purposes, and therefore needs no further description of the arrangement, but which is new in its application to this special object, and is represented in an enlarged view by Fig. 3.

The hoisting apparatus admits of being adjusted to the work at different elevations, by raising or lowering the cross-beam, I, I, and the collar, *b* and rods *e*, equidistant holes being made through the mast, A, for the reception of the bolt which secures said collar, as shown in Fig. 1.

In order to supply an additional length of rope to the elevators when the hoisting apparatus is to be raised, there is a shaft, *x*, before referred to, in the drum, F, on which are wound the ropes, *g*, *g*, any required length, to be unwound only when needed for the purpose just mentioned.

The ropes, *g*, *g*, are made long enough to permit the cross-beam, I, I, to be raised to the top of the shaft, A, when required, but when the cross-beam is at the lowest point at which it is rigged, as represented in the Fig. 1, the ropes, *g*, *g*, are wound around the shaft, *x*, in the drum, F, by means of a crank attached to one end as shown at, *n*, in Fig. 2. The shaft, *x*, is prevented from turning when the ropes, *g*, *g*, are wound upon it, by means of a ratchet wheel, *o*, at one end, on the inside of the drum, F, which is secured and held in the ordinary manner by a key, *p*, as represented in Fig. 4, but requiring no further explanation.

Having thus fully explained my invention, what I claim therein as new and desire to secure by Letters Patent is—

The drum F, as constructed, with its inner shaft *x*, with its arrangement for giving independent motion by means of which the ropes can be housed and protected, in combination with the adjustable rotary cross beam I, I, arranged and operated as described by means of which combination and arrangement I am enabled to have in wear only such portions of the ropes as the operation of the machine and the varying elevation of the wall or structure may demand.

GEORGE E. WARNER.

Witnesses:
S. H. WALES,
O. D. MUNN.