J. Crashan,

Elevator,

No. 18,575, Patented Nov. 10, 1857.

Fig. 2.

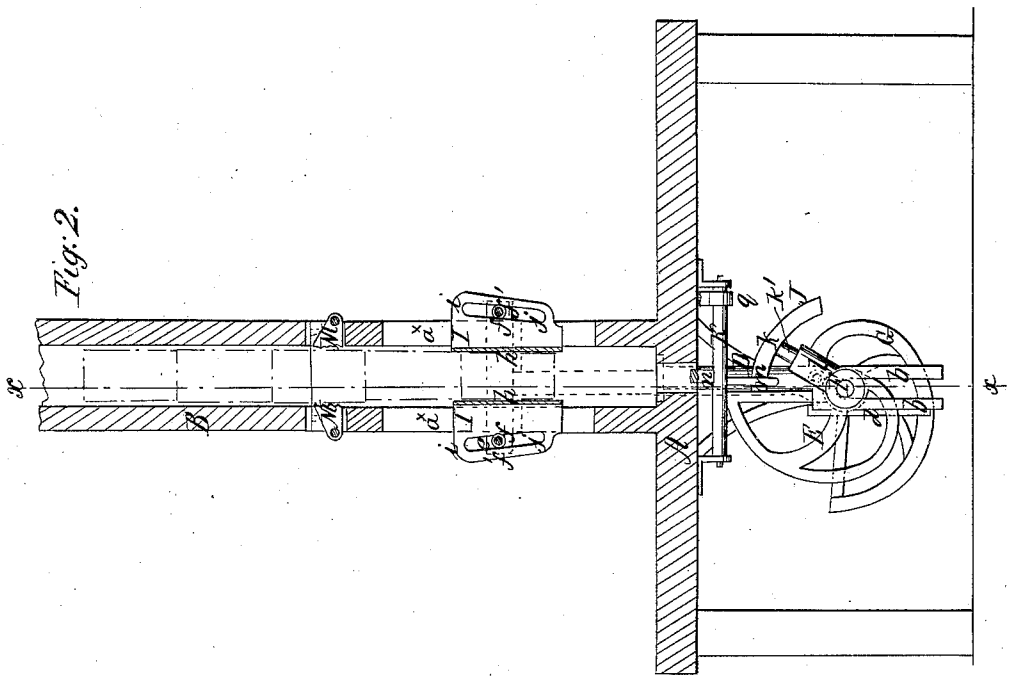
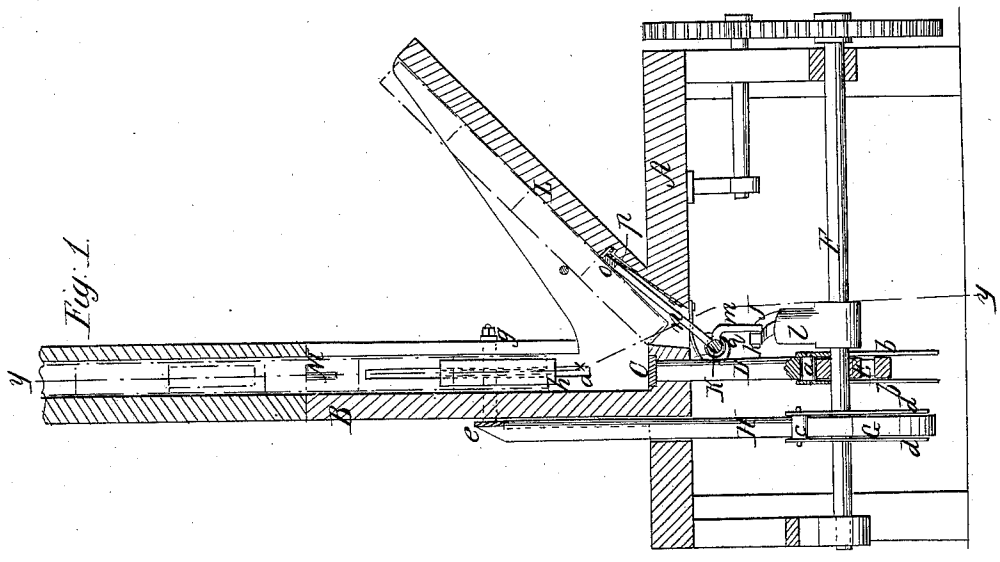


Fig. 1.



UNITED STATES PATENT OFFICE.

JOHN CRAWSHAW, OF ROCHESTER, NEW YORK.

HOISTING APPARATUS FOR BRICKS, &c.

Specification of Letters Patent No. 18,575, dated November 10, 1857.

To all whom it may concern:

Be it known that I, JOHN CRAWSHAW, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Device for Elevating Brick, Mortar, or other Substances to Any Desired Height; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a vertical section of my improvement, taken in the line (*x*) (*x*) of Fig. 2. Fig. 2 is also a vertical section taken in the line (*y*) (*y*) of Fig. 1.

Similar letters of reference denote the same parts in both figures.

This invention consists in elevating articles within a hollow vertical trunk by means of suitable mechanism so arranged as to give the substances a continuous upward movement within the trunk.

The invention is chiefly designed for elevating bricks and mortar during the construction of buildings, and is intended to supersede the manual use of the hod for such purpose. It may, however, be advantageously used for elevating other articles.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a platform supported at a suitable height in any proper manner, and B is a vertical hollow column or trunk, which may be of any suitable height, and made in sections so fitted together that they may be united or taken away to make the trunk of the desired height. The trunk B rests upon the platform A, and a plunger C is fitted in its lower end. This plunger is attached to a rod D, the lower end of which is provided with a friction roller (*a*) which rests upon a cam E, and is retained thereon by guide bars (*b*) the upper ends of which are attached to the rod D, the bars extending down each side of the cam. This cam E is placed on a shaft F, below the platform A. A cam G, similar to the cam E, is also placed on shaft F. The two cams, however, are not placed in the same position on their shaft, as will be seen by referring to Fig. 2. A rod H rests upon cam G, said rod having a friction roller (*c*) and guide bars (*d*) arranged precisely the same as those of the rod D. The rod H passes up through the platform A, some distance and at the back of the trunk B, and has a crosshead (*e*) attached to its upper end. To each end of the crosshead (*e*) a cylindrical rod (*f*) is attached at right angles, and a bar (*g*) is secured to the ends of the rods (*f*). The rods (*f*) (*f*) are at the sides of the trunk, and bar (*g*) at its front, so that the crosshead (*e*) the rods (*f*) (*f*) and the bar (*g*) form a frame which encompasses the trunk B. This frame is allowed to work freely up and down, and two clamps I, I, which are fitted in the sides of trunk B, are connected with the rods. These clamps are fitted in vertical slots (a^x) made in the sides of the trunk, and are formed of metal plates (*h*), having flanches (*i*) attached to their outer sides, the said flanches and plates being at right angles to each other. The plates (*h*) are placed within the trunk and the flanches (*i*) pass through the slots (a^x) and the said flanches (*i*) have inclined slots (*j*) made through them, one through each, the rods (*f*) passing through said slots, see Fig. 2. The rods (*f*) are provided each with a friction roller (f^1). On the shaft F, there is also placed a cam J, which is formed by attaching a segment or curved bar (*k*) to a rod (k^1) which is fitted within a socket (*l*) on the shaft F. The bar (*k*) is placed obliquely with the axis of shaft F, and, as said shaft rotates, actuates intermittently a shaft K, in consequence of coming in contact with a pin or rod (*m*) attached to shaft K. To the shaft K an arm (*n*) is attached, said arm having a small cross plate (*o*) at its upper end. The arm (*n*) and plate (*o*) are placed within the lower part of an inclined trough L, attached to the platform A, and communicating with the lower end of trunk B. The plate (*o*) when not otherwise acted upon, is kept snugly down upon a spring (*p*) in the bottom of trough L, by means of a coil spring (*g*) connected with shaft K.

In opposite sides of the trunk B, there are attached dogs M. These dogs are simply arms pivoted in the sides of the trunk at their outer ends. The outer edges of the arms are eccentric with their pivots. Any number of dogs may be used, arranged as the pair described and shown in Fig. 2.

The operation is as follows:—Power may be applied direct to the shaft F, or through the medium of gearing, and the device may be operated manually or steam or horse power may be employed. At every revolution of shaft F, the plunger C is elevated a

certain distance by the cam E, and when the prominent portion of the cam has passed the friction roller (*a*), the rod D falls by its own gravity upon the smaller portion of the cam, to be again raised. The articles N to be raised are placed in the trough L, as shown in red; and at every revolution of the shaft, the cam J actuates the shaft K, and elevates the arm (*n*) and plate (*o*), and by thus moving one of the articles N, the lowermost one is thrown upright into the lower end of trunk B, and on top of plunger C, the movement of which follows that of the arm (*n*) and plate (*o*). The arm (*n*) and plate (*o*) are thrown back to their original position by the spring (*q*), when the cam J has passed the pin (*m*); and the plunger C then moves upward, elevating the article N, and just before the plunger has reached its highest or culminating point, the rod H descends and the clamps I, I, grasp or press against the sides of the article N, and the plunger then descends to elevate a succeeding article, while the clamps I, I, ascend and still further raise the article N, first mentioned, until a succeeding article raised by plunger C reaches it, when the clamps I, I, descend and grasp this successor; the dogs M retaining the articles amove the one grasped by the clamps I, I. It will be seen that each article as it is fed into the trunk, elevates its predecessor, and when the trunk is filled, of course they are discharged from its upper end upon a platform or into any suitable receptacle prepared to receive them. In case mortar is to be elevated, rectangular boxes may be used in which to place the mortar.

This machine has been practically tested, and it operates rapidly and well, effecting a vast saving in manual labor.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. Elevating articles within a vertical trunk by means of the mechanism herein shown or any equivalent device, so that the articles will be raised with a continuous motion within said trunk as described.

2. I further claim the reciprocating plunger C, clamps I, I, and arm (*n*), operated by the cams E, G, J, or their equivalents, and used in connection with the dogs M; the whole being arranged to operate conjointly as and for the purpose set forth.

JOHN CRAWSHAW.

Witnesses:
C. J. TOWERS,
FRED. DE LANE.