(No Model.)

G. W. BROWN

HOD ELEVATOR.

No. 458,558. Patented Sept. 1, 1891.

Fig. 1.

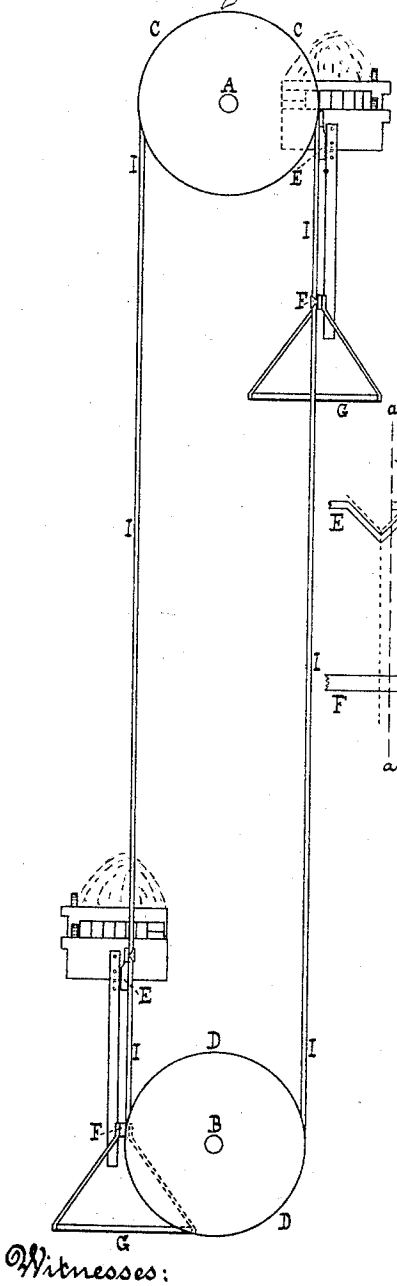


Fig. 5.

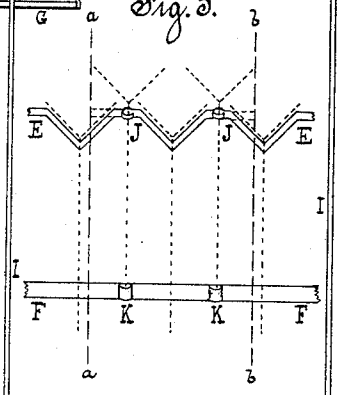


Fig. 3.

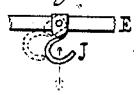
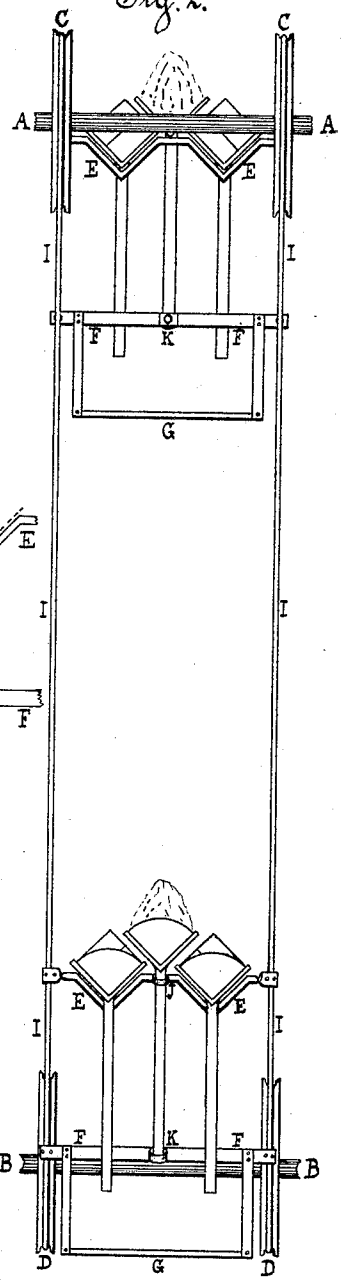


Fig. 4.



Fig. 2.



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HOD-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 458,558, dated September 1, 1891.

Application filed October 22, 1890. Serial No. 368,923. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BROWN, a citizen of the United States, and a resident of the city, county, and State of New York, have invented a new and Improved Reciprocating Endless Elevator, easily portable and especially useful for hoisting hods, wheelbarrows, and building materials generally.

Hitherto such elevators in actual use have belonged to one of two classes, commonly known as "endless chains or ladders" or "platform-elevators." The former have employed a single endless chain or a pair of parallel endless ropes or chains connected together like a ladder and provided with attachments for hods. The endless chains are intended to be continuously revolved about pulleys supported in portable frames located at the top and bottom of the building in course of erection, and the full hods are consecutively and continously taken up on one side and the empty ones brought down on the other. The platform-elevators have a suitable platform and frame provided with supports for the hods, and the hoist has been raised and lowered between upright guides or ways by a rope passing under and over pulleys located, respectively, at the bottom and top of the hoistway and carried to the drum of a hoisting-engine. These platform-elevators have been used for carrying wheelbarrows filled with brick or mortar or fireproofing materials or loads in bulk. The capacity of such elevators has been limited practically by a tendency to rock and jam against the ways when extended in size, chiefly owing to the fact that they have always been suspended by a rope attached to the center, and, besides, when so extended, they take up too much room needed for other work. The operation of the endless ladders has been laborious, because they carry necessarily all the load on one side, and therefore are unbalanced, and because the higher the hoist the more hods are attached and the heavier becomes the load, and their capacity is limited because they cannot carry loose materials except when hung on singly, and cannot carry any bulk at all.

My invention intends to overcome such difficulties and provide a lighter, stronger, and more capacious apparatus, easily portable in parts, easily put together as a complete machine for operation, and as easily taken apart for transportation, capable of elevating building materials in attachable hods or in wheelbarrows or in bulk, so constructed as to avoid oscillation from extension in size and be better balanced, and so operated by being reciprocated, as hereinafter described, instead of being revolved, as usual, that the load does not increase or decrease according to the height of the hoistway.

My apparatus is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view, and Fig. 2 is a front elevation, of the whole apparatus. Fig. 3 is a detail showing the hook for the hod-handle. Fig. 4 is a detail showing a support for the hod-handle. Fig. 5 is a detail of a frame for the hod-bowls.

Like letters of reference indicate corresponding parts throughout the views.

I use a pair of pulleys C C on a shaft A, supported in any suitable frame (not shown) such as commonly used for such purpose, and another pair of pulleys D D on the shaft B, supported in a similar frame. (Not shown.) These frames are portable and respectively located at the top and bottom of the building. I prefer to allow the pulleys to run loose on the shaft to which power is not applied. Around these pulleys pass two parallel wire ropes or chains I I, cut into suitable lengths with reference to the height of the stories of ordinary buildings and connected together by suitable means to form endless ropes. Across the outside of these parallel endless ropes and attached thereto by suitable ordinary clips are two flat steel bars E F. The bar E, flat side up, is bent into the shape clearly shown in Figs. 2 and 5, and the ends are then twisted around at right angles, edge up, as best shown in the lower part of the figure, so as to lie flat against the ropes and present a broad bearing-surface. Such construction utilizes all the strength of the bar and gives a broad and firm seat for the hods. The bar F is similarly fastened straight across, edge up, and against it rest the handles of the hods, as best shown in the particular figures above mentioned. I also provide removable hooks for the upper bar E like the hook J and removable sockets for the lower bar F

like the socket K for supporting alternate hods, as illustrated by the middle hod in the lower part of Fig. 2. The hook J is made from a flat steel bar of suitable length, thickness, and width, the end of the shank being twisted around at right angles, as shown most clearly in Fig. 3, and bolted or riveted loosely on the bar E, so as to swing aside easily, as indicated by the dotted lines in the figure, the dotted arrow indicating the movement of a hod into place between adjacent hods. The socket K may be made from a piece of pipe slotted across the bottom, to be set on top the edge of the bar F and fastened there, or of a malleable casting formed with an arm and binding-screw for convenient attachment, as shown very clearly in Fig. 4. This last construction brings the socket in front of the bar, which is a practical advantage. The two hods first mentioned are easily put in place conveniently; but to place a hod between them and in the same line is practically inconvenient, because the hods already seated are in the way; but by first shanking the middle hod in the socket on the lower bar and then pushing it up against the upper bar and bringing the hook around to hold it there is entirely convenient in practice, besides economical of space. It is obvious that a series of hooks like J may be provided on the upper bar E and a series of corresponding sockets like K on the lower bar F, and so provision made for any number of hods without bending the upper bar out of a straight line into any particular shape. Suspended from the bar F and attached thereto by bolts or otherwise, so as to be removable, is the platform G, made sufficiently wide or long for any intended use, and thereupon any load in bulk or in wheelbarrows is placed. These bars E and F are duplicated on the opposite side of the elevator, as shown most clearly, perhaps, in the upper part of Fig. 1, and so located thereon with reference to the first-mentioned bars that one pair shall always be at the bottom and the other pair at the top of the hoistway on starting and stopping the elevator.

Power may be applied to either shaft; but assuming it applied to the lower, for illustration, the operation is as follows: The shaft is turned around toward the right until the left-hand cross-bars have ascended to the top and the right-hand cross-bars have at the same time descended to the bottom. The full hods carried up having been delivered where wanted and the empty hods brought down having been filled, the revolution is reversed and the right-hand cross-bars go to the top with full hods, while the left-hand cross-bars come to the bottom with empty hods to be refilled, and so on repeatedly.

I have used the word "reciprocate" herein as a convenient expression to designate this alternate up-and-down movement just described, and in the operation it is obvious that loads can be taken to and from any floor.

My invention contemplates the arrangement of several hods in a row on supporting cross-bars with the bowls of alternate hods above those adjacent, whereby additional hods are contained in the same space and objectionable extension of the elevator in width avoided. Fig. 5 shows such an arrangement for five hods with dotted outlines, and the broken lines *a a* and *b b* indicate another arrangement for three hods than that shown in Fig. 2, which may be preferred in some circumstances.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An elevator for building materials, comprising parallel endless ropes or chains and two supports for hods arranged oppositely, each support consisting of an upper cross-bar provided with seats for the bowls of hods, and with movable hooks for holding intermediate hods upright by their shanks with their bowls above those adjacent, and a lower cross-bar forming a bearing for the handles of the first-mentioned hods and provided with sockets to support the ends of the handles of the other hods, said elevator operated by being reciprocated, as described, whereby loads received at the bottom on each side are delivered at the top, all substantially as specified.

2. An elevator for building materials, comprising parallel endless ropes or chains passing around suitable pulleys at the top and bottom of the building and provided on each side with horizontal supports for several hods, and a removable platform for wheelbarrows or loads in bulk, constructed and located thereon as described, said hod-supports consisting of upper and lower cross-bars, the upper bar having seats to support the bowls of alternate hods while their handles rest against the bar below, and the lower bar having a socket to support the end of the handle of an intermediate hod while held upright by its shank by a movable hook on the upper bar between the other hods, said cross-bars affixed to the endless ropes or chains at such a distance apart that the bowl of the hod standing on the lower bar shall be above the bowls of the adjacent hods seated on the upper bar, said elevator operated by reciprocating the endless ropes or chains, as described, all substantially as specified.

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Witnesses:
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