(No Model.) 4 Sheets—Sheet 1.

J. OTTER.

ELEVATOR FOR BUILDING MATERIAL.

No. 263,570. Patented Aug. 29, 1882.

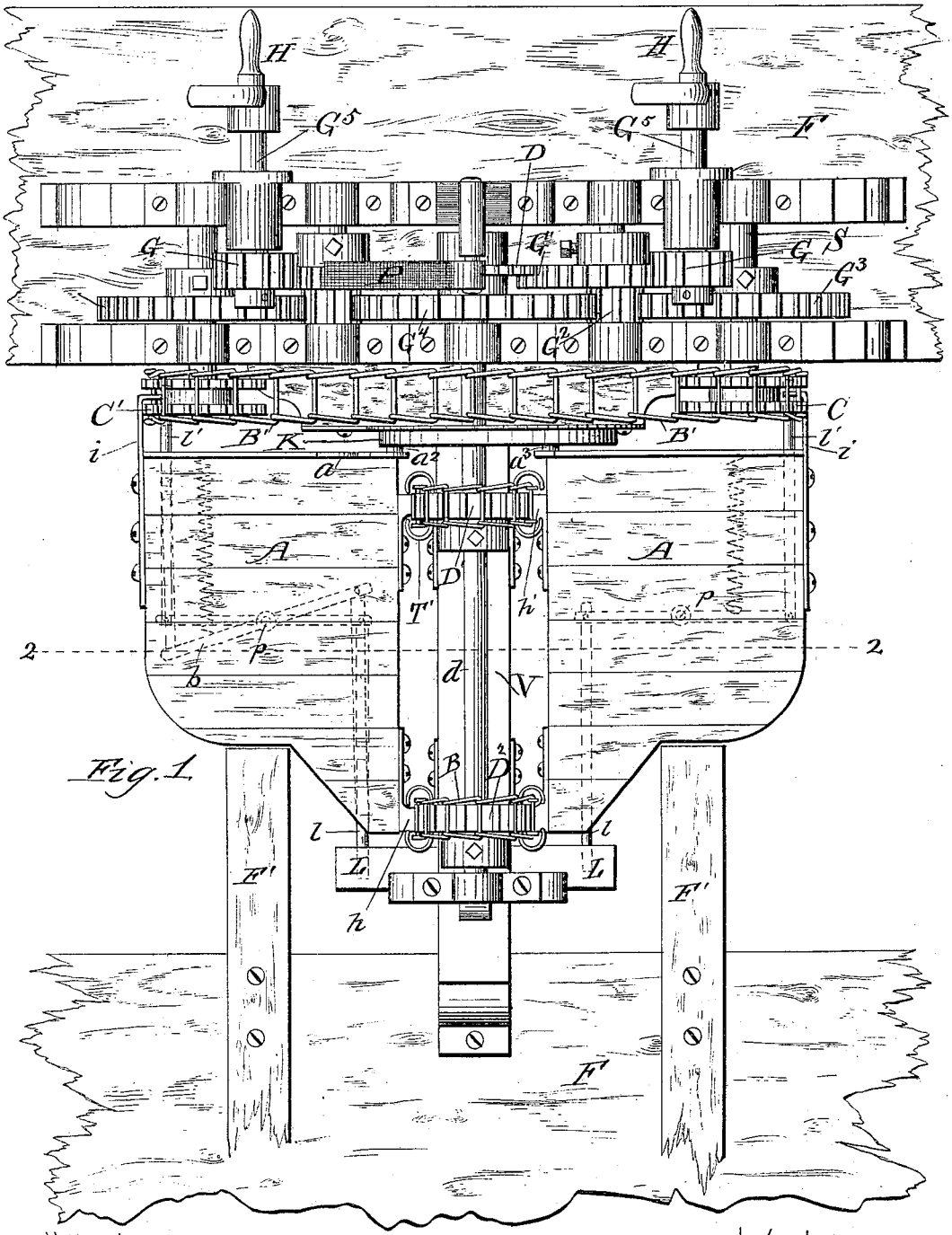

Fig. 1.

WITNESSES—
F. B. Townsend
Chas. O. Gaylord.

INVENTOR—
John Otter
By A. M. Stout
atty

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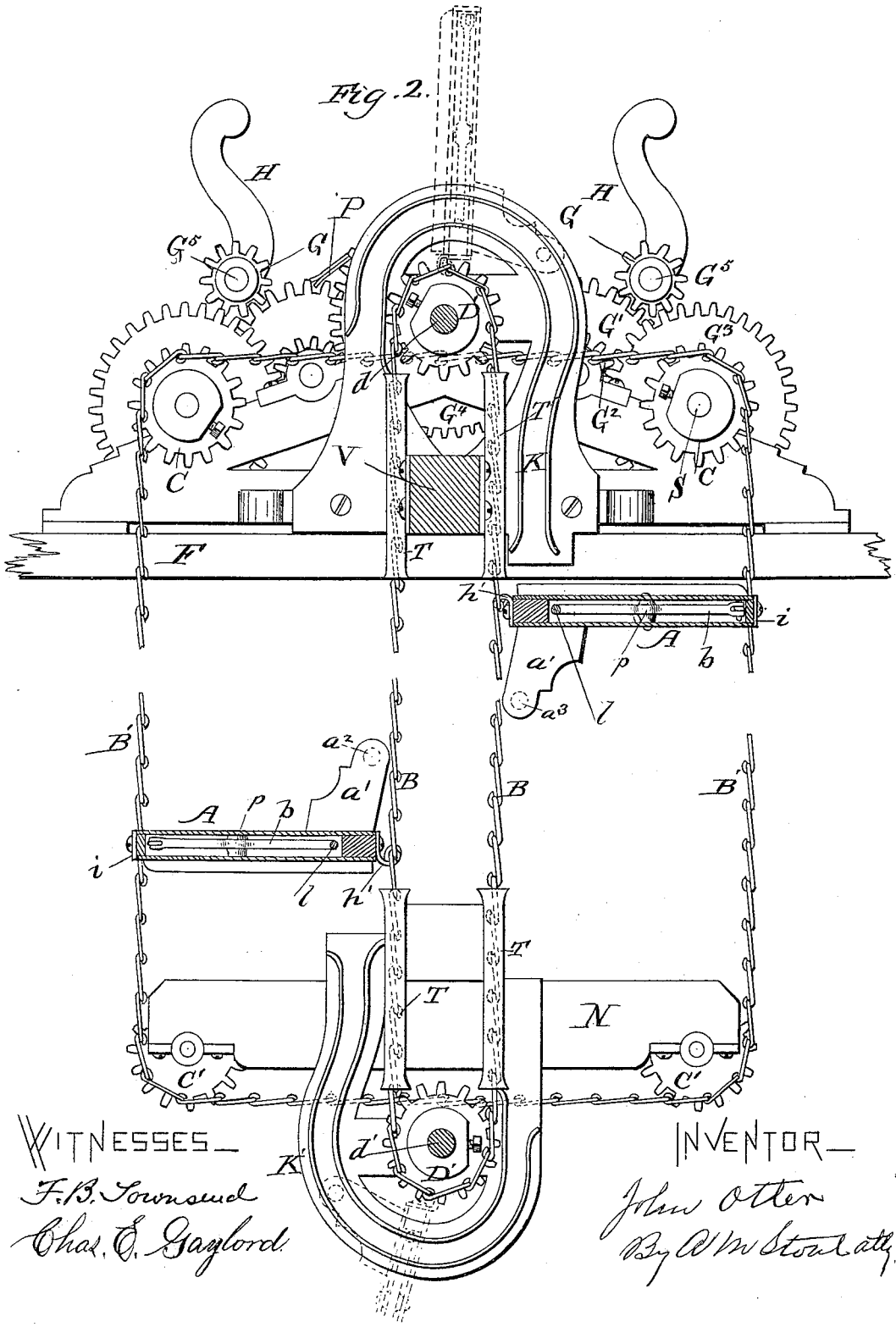
Fig. 2.



WITNESSES—
F. B. Townsend
Chas. E. Gaylord

INVENTOR—
John Otter
By A. M. Stout Atty.

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J. OTTER.

ELEVATOR FOR BUILDING MATERIAL.

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Fig. 3

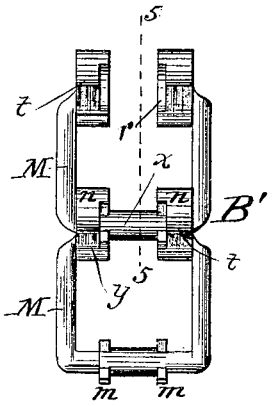


Fig. 4.

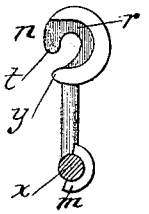


Fig. 5.

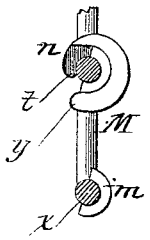


Fig. 6.

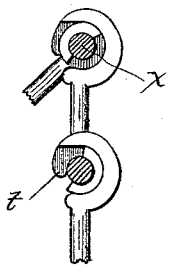
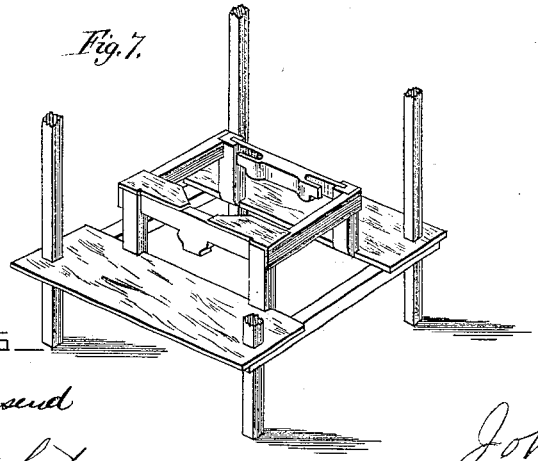


Fig. 7.



WITNESSES—

F. B. Townsend

Chas. E. Gaylord.

INVENTOR—

John Otter

By A. M. Stout

atty

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J. OTTER.

ELEVATOR FOR BUILDING MATERIAL.

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Fig. 8

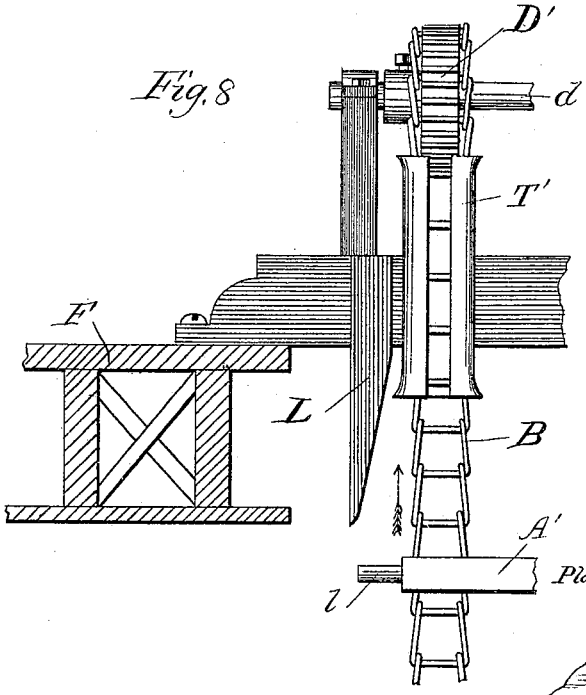


Fig. 10.

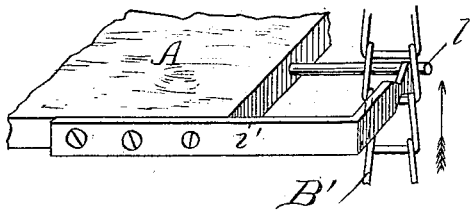
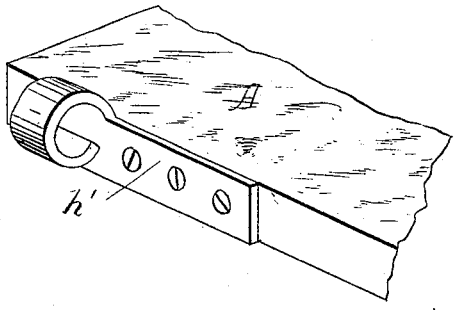


Fig. 9.



WITNESSES—
Chas Gaylord
W. Leimbach

INVENTOR—
John Otter
By A M Stout atty

UNITED STATES PATENT OFFICE.

JOHN OTTER, OF CHICAGO, ILLINOIS.

ELEVATOR FOR BUILDING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 263,570, dated August 29, 1882.

Application filed June 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN OTTER, of the city of Chicago, county of Cook, and State of Illinois, have invented certain Improvements in Elevators for Building Materials, of which the following is a specification.

My said invention will be hereinafter fully described with reference to the accompanying drawings, in which—

Figure 1 represents a plan or top view of a machine embracing my improvements; Fig. 2, a vertical section of the same, taken in the plane indicated by the broken lines 2 2 in Fig. 1; Fig. 3, a plan in detail of two links of a chain made of detachable links, to be used in operating the machine; Figs. 4, 5, and 6, other views of the links of the same; and Fig. 7, a perspective of the lower portion of the frame; and Figs. 8, 9, and 10 represent details.

The frame of the whole apparatus stands upon legs which are long enough to hold the frame sufficiently high above the ground to allow the revolving platforms A to pass under it. The power which operates the machine is applied to the two cranks H, fastened upon shafts G^5, upon standards extending up from the frame, and these shafts G^5 have toothed driving-wheels G upon them, which, when their shafts are turned, impart their motion to two other larger toothed wheels, G′, which are mounted and fastened upon their journals, having bearing in the frame; and interposed between and meshing with these two wheels G′ is an idle toothed wheel, D, suitably journaled also in the frame, and its office is to secure the revolution of these larger wheels always in the same direction, whether to the right or left, and the double-pointed pawl P, properly mounted, as shown, is designed to be turned and reversed, so as to lock the wheels G′ against turning in one direction when it is desired that they shall turn in the other direction. Each of these wheels G′ is provided with a smaller toothed wheel, G^2, on a hub-like projection of the same, and each of these small wheels or pinions with one of the large gear-wheels G^3, which are mounted on their shafts, having bearings on the frame, and also with gear-wheel G^4, which is mounted between them and upon the upper main chain-shaft, *d*. The two shafts S, upon mounted are which the gear-wheels G^3, have also mounted and fastened upon their inner ends the sprocket-wheels C, whose peripheries are provided with annular grooves for the double hooks *i* on the revolving platforms to pass through. Two exactly-similar sprocket-wheels, C′ and C′, are provided with shafts journaled in the frame below, and an endless chain, B′, having open links, passes around the two upper sprocket-wheels and the lower ones, and is made to travel by them, and the outer corners of the platforms A are carried and supported by this chain, into the openings of the links of which the double hooks *i* enter, the same having two points, as shown, one to hold when the platforms are moving in one direction and the other when the platforms are moving in an opposite direction. The system of gear-wheels before described secures the movement of the sprocket-wheels and the upper chain-shaft, *d*, all in the same direction. The other two corners of each platform A (the fourth being free) are simply attached to cross-bars of the links of the endless open-linked chains B, which chains are operated by the sprocket-wheels D′ and D^2, mounted and fastened above upon chain-shaft *d*, and two like sprocket-wheels, D′ and D, upon the lower chain-shaft, *d′*, journaled in the frame, and thus the same motion is given to all three of the endless chains, which move and sustain the platforms A, upon which are hoisted or lowered the bricks, mortar, or other building materials that may be placed upon them in hods, boxes, or wheelbarrows, which may be used to transfer the same to any part of the building where the same may be required.

The cross-beam V, which furnishes the bearing for the outer end of the upper chain-shaft, *d*, is provided with guides on each side for the chains to insure true motion in the chains B above, and the lower stationary platform, N, is provided with like guides to serve the same purpose below, and the said platform and the upper part of the frame are furnished with plates K and K′, which are provided with cam-grooves, which exactly conform to the motions of the platforms A, and in these grooves the wrists a^2 and a^3 on the arms *a a′* of the platforms A travel, and by these devices true and even motion in the revolving platforms is secured.

The lower frame, N, may be adjustable in height to adapt the machine to floors of different elevations from the ground; and in order that the described endless chains may be either shortened or lengthened whenever the lower frame may be raised or lowered, I have invented a chain composed of open and detachable links, so that it may be easily made shorter or longer, as required, by detaching and removing or inserting additional links. Each link has two side bars, M, and but a single cross-bar, *x*, and that cross-bar has fixed upon it two semicircular flanges, *m*, and the two side bars have each upon its free end a hook, *n*, adapted to grasp the cross-bar of another link, and the heel *y* and the toe or point *t* of the hook are just so far apart as to admit the cross-bar to be passed in and out between them; and in order to prevent the cross-bar from being thrown out of the hooks by accident or otherwise, when not desired to be so, the inner side of each hook is provided with a depression, *r*, adapted to receive one of the flanges when the cross-bar, with its flanges, is presented to the hook at a certain angle or inclination therewith, and when once the cross-bar and flanges have entered the hooks and the recesses therein they cannot be removed without turning the links into the required angle with each other.

In Fig. 3 two links are shown hooked together in the same plane; in Fig. 4, a longitudinal section of a single link, showing the depression *r*, the heel *y* and point *t*, and one flange *m* on the cross-bar *x;* and in Figs. 5 and 6, the cross-bar *x* and one of its flanges in position for removal.

The double-pointed hooks *i* are fastened to the outer sides of the revolving platforms A, as shown, and are designed to support the outer corners of the loaded platforms in their upward movement, and when that movement shall have been completed it will become necessary to free them from the chain B′; and for this purpose I have invented a device consisting of the double cam L, fastened beneath the beam V, and in connection therewith the rods *l*, which extend within the platforms A in the direction of the chain B′, and their inner ends are fastened to one end of a lever, *b*, which is pivoted at *p*, and another rod, *l′*, is fastened to the other end and extends within and a little beyond the chain B′. And the operation of the device is such that when the platform rises to the proper height the sloping portion of the cam L strikes against the rod *l* and forces it endwise and forward, and that rod through the pivoted lever *b* forces the rod *l′* back endwise and allows the double hook *i* to disengage itself from the chain B′, and the platform is allowed to pass up over the chain-shaft *d* and down on the other side.

It is almost needless to add that by means of cross-beams in the frame to support them as many chain-guides may be provided as shall be found necessary.

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

1. The combination of the gear-wheels G and the gears G′ and G² on the same shaft, the idle-gear D on its own shaft, the outer gear, G³, and the central gear, G⁴, mounted and fastened upon the upper chain-shaft, *d*, arranged as described, and adapted to impart even and simultaneous motion to the endless chains B and B′, substantially as described.

2. The combination of the revolving platforms A, having double hooks *i* and the endless chains B, two corners being permanently attached to said chains at *h′*, and the endless chain B′, adapted, when put in motion, to hoist and lower building materials placed upon them, substantially as described.

3. The two upper sprocket-wheels, D′, mounted and fastened upon the upper chain-shaft, *d*, and the two lower sprocket-wheels, marked D′, and mounted upon lower chain-shaft, *d′*, adapted to carry the two inner corners of the platforms A, substantially as described.

4. The combination of the upper cam-guides, K, and the arms *a′* upon the platforms A, having wrists *a*³, adapted to secure even and true motion of the inner corners of the platforms during their revolution over the upper chain-shaft and under the lower chain-shaft, substantially as described.

5. The combination of the two upper sprocket-wheels, C, and the two lower ones, C′, provided with annular central grooves in their peripheries for the hooks *i*, and the revolving platforms A, provided with said hooks *i*, adapted to give support to the platforms when bearing their loads in their upward movements, substantially as described.

6. The combination of the cams L, rods *l*, pivoted lever *b*, working in the interior of platforms A, the rods *l′*, the hook *i*, and endless chain B′, adapted to engage and disengage automatically said hook with said chain, substantially as described.

7. The described detachable link for an endless chain, consisting of the two side bars, M, the single cross-bar *x*, having the flanges *m* at one end of the same and the two hooks *n* at the other end, one on each side, having depressions *r*, corresponding with flanges *m*, heels *y*, and points *t*, substantially as described.

JOHN OTTER.

Witnesses:
ABEL BOND,
WALTER C. LARNED.