

(No Model.)

2 Sheets—Sheet 1.

L. ZIMMERMAN.

STABLE CLEANER.

No. 318,406.

Patented May 19, 1885.

Fig. 1.

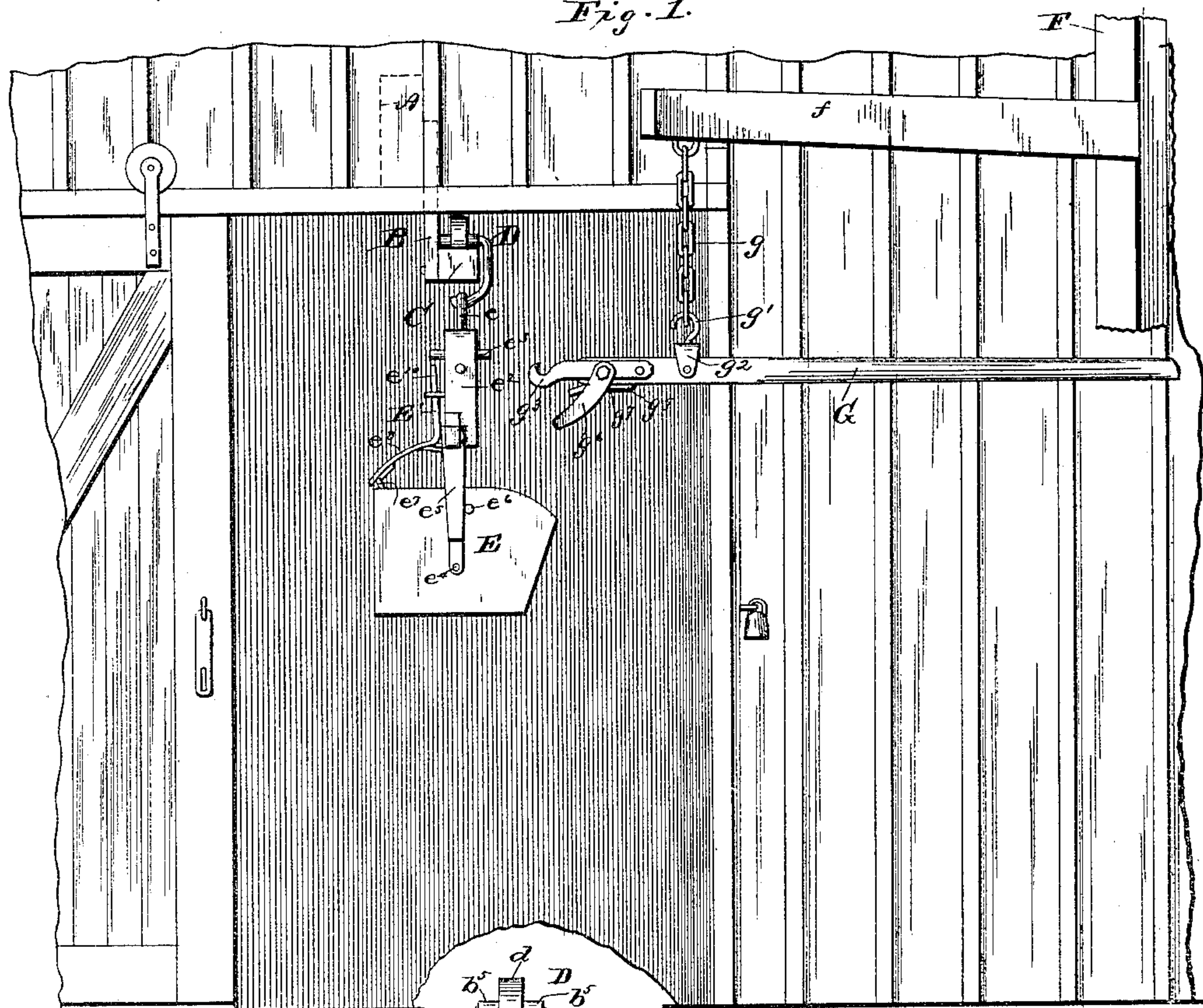
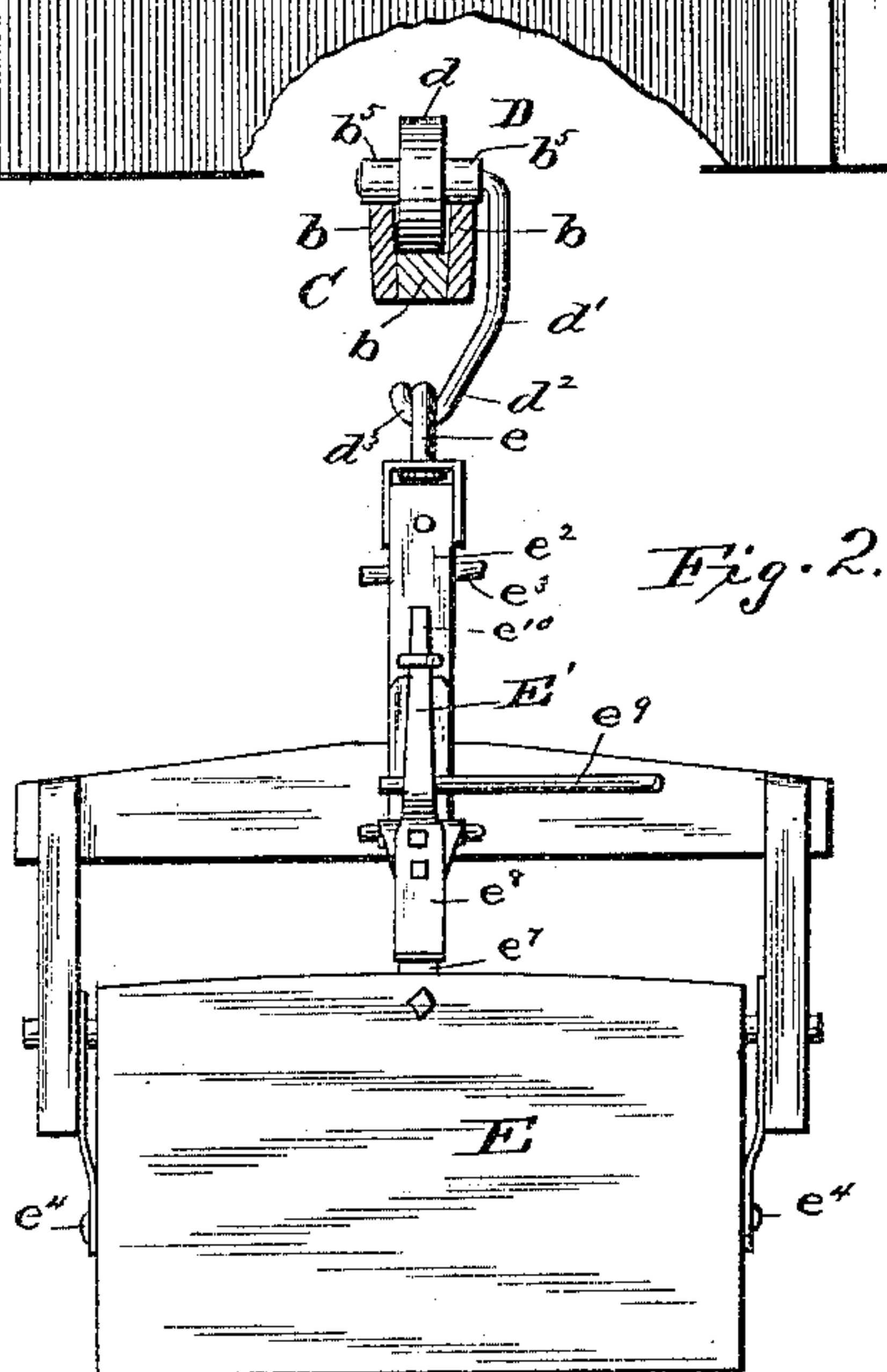


Fig. 2.



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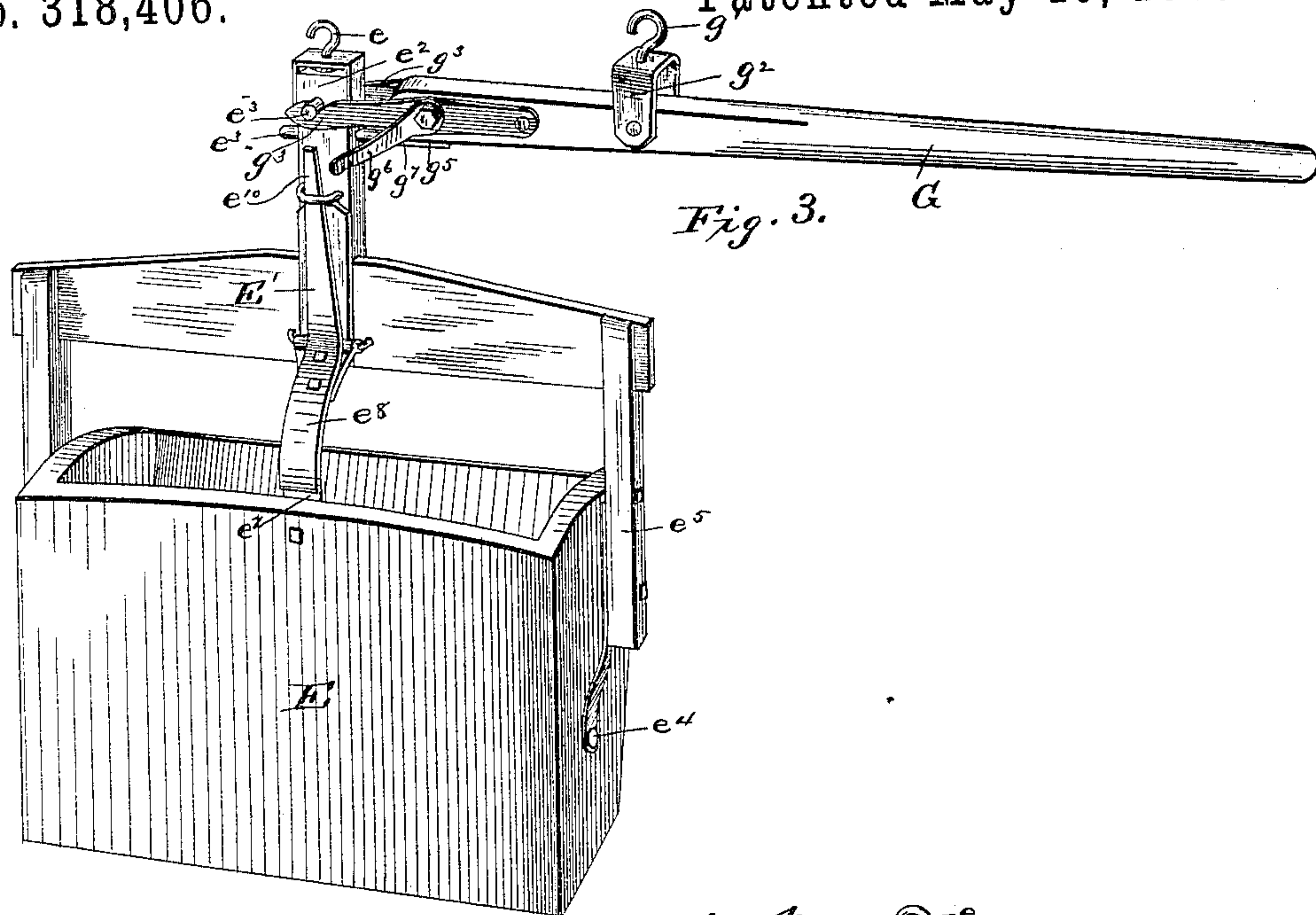


Fig. 3.

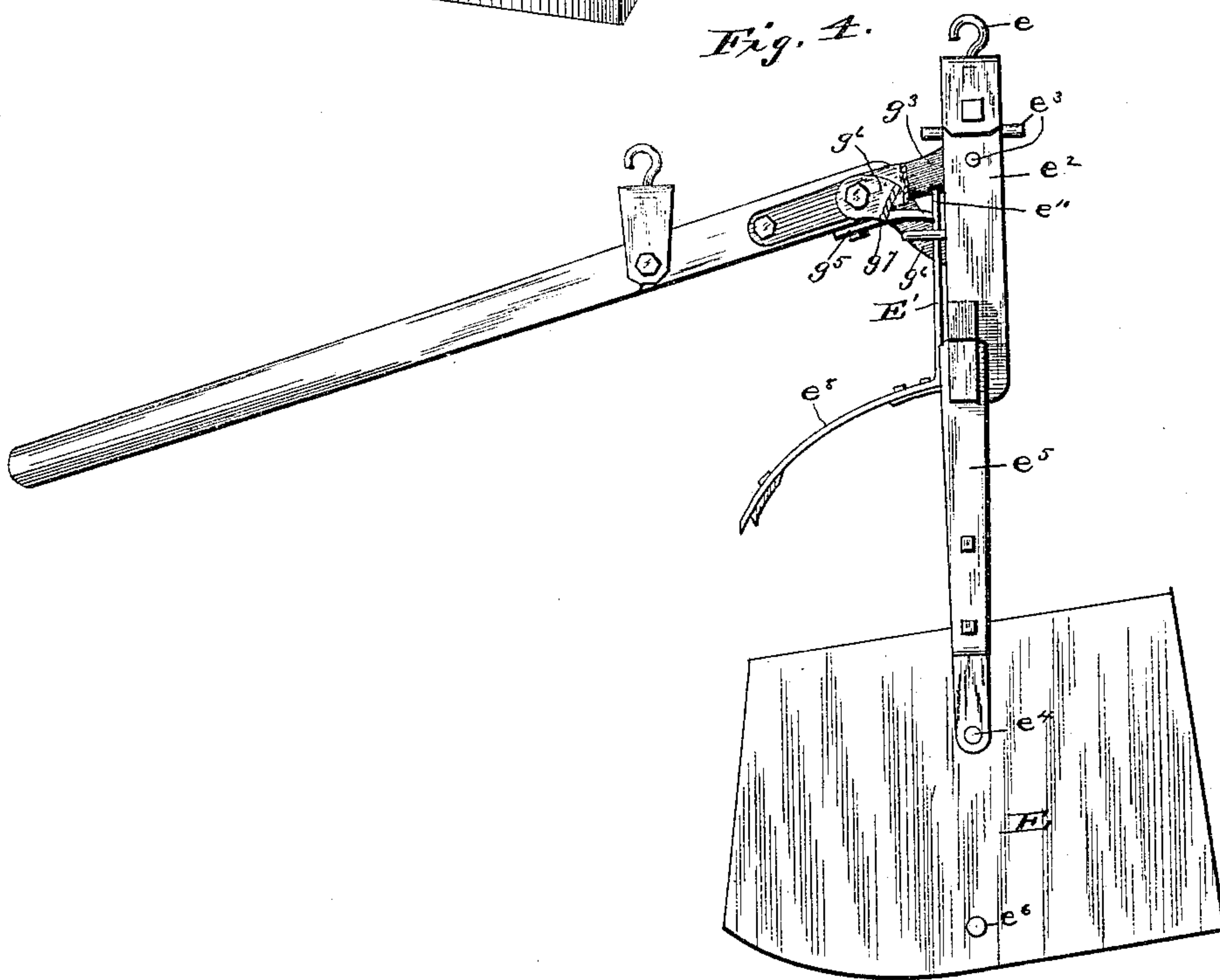


Fig. 4.

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UNITED STATES PATENT OFFICE.

LORENZO ZIMMERMAN, OF SHERWOOD, MICHIGAN.

STABLE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 318,406, dated May 19, 1885.

Application filed April 11, 1885. (No model.)

To all whom it may concern:

Be it known that I, LORENZO ZIMMERMAN, of Sherwood, in the county of Branch and State of Michigan, have invented certain new and useful Improvements in Stable-Cleaners; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

My present invention relates to an improved apparatus or system for transporting materials from one place or part of a building to another, or to the exterior of the building where they are to be deposited, and is more especially designed for use in barns for transporting manure or other materials from the stalls or other receptacles to the exterior of the barn or building and dumping or delivering the said material at some point distant from the door or window through which it is to be carried. To this end I construct a preferably overhanging or elevated track, upon which is mounted a roller or truck provided with means for detachably securing a dumping-bucket; and to the outside of the building, or in a position to conveniently connect with the said track, I arrange a crane or its equivalent, carrying a suspended transferring device or lever to receive the loaded bucket or other receptacle, by which the latter is directed to the required point and automatically released or dumped.

The devices by which my said invention may be carried into practice will first be described, and the parts desired to be secured pointed out in the claims.

In the accompanying drawings, Figure 1 represents the apparatus as applied to a building, a portion only of the latter being shown. Fig. 2 is a transverse section of the track, showing the car or traverser and the bucket suspended therefrom. Fig. 3 is an enlarged perspective of the bucket suspended upon the transfer-lever. Fig. 4 is a detail showing the manner of suspending and unlatching the bucket by the transfer-lever.

Similar letters of reference in the several figures indicate like parts.

To the joists A, or any other suitable supports within the building, are secured a series of hangers or brackets, B, carrying the track or rail C, which latter is preferably trough-shaped, as shown, having the vertical side flanges, *b b*, and the central bearing, *b'*, made separate and of three longitudinal strips, if desired.

Fitted to run upon the rail C and be guided and confined thereon by the side flanges, *b b*, is a traverser, D—in the present instance composed of a single roller, *d*, carrying a dependent hanger, *d'*, whose lower end, *d''*, projecting beneath the rail, is provided with a hook, *d'''*, or equivalent means from which to suspend the bucket. The hook *d'''* is carried sufficiently far beneath the rail to bring the weight of the bucket and its contents at or about in the vertical plane of the roller, to prevent tilting the latter and causing it to rest against and bind upon the side flanges, *b b*, and, if desired, supplemental friction-rollers *b''* may be applied to the journal of the roller to bear upon the upper edges of the side flanges, *b b*, should there be any tendency on the part of the truck to tilt to one side or the other.

The bucket E is provided with a swivel-hook, *e*, by which it is attached to the hook *d'''* of the traverser D, and when suspended from the latter can readily be transported from place to place along the rail.

The rail C passes or terminates near a door or opening in the building, and a crane, F, of any approved construction, is so arranged that its boom *f* can be swung around from the door or opening aforesaid to the place where the material is to be dumped. To the boom *f* is attached a chain, *g*, or equivalent suspension device, provided with means for engaging a hook, *g'*, swiveled to the yoke *g''*, in which latter is pivoted the transferring suspension-lever G, provided at or near one end with devices for disengaging the bucket E from the traverser D and swinging it around with the boom *f* to the place where the material is to be discharged. For this purpose the vertical standard *e''*, to which the hook *e* is secured, is provided with pins *e'''*, and the end of the lever G with two hooks, *g'''*, whereby the bucket can be raised and suspended from the lever G by

passing the hooks g^3 one on either side of the standard e^2 and elevating that end of the lever until the hooks engage the pins e^3 , when the hooks e^3 are disengaged, and the bucket is thereby transferred from the traverser to the lever, the latter being suspended from the boom of the crane.

Although any suitable form of bucket may be arranged for operation in this manner, I prefer to employ a dumping-bucket such as shown, suspended on pivots e^4 from the side pieces, e^5 . The pivots e^4 are preferably arranged to one side and below the center of the bucket, so that the latter will have a tendency to tilt to one side and turn bottom up, and to maintain it in an upright position pins or projections e^6 are secured to the sides and bear against the side pieces, e^5 , and a plate, e^7 , is secured to the back piece in position to engage a latch, e^8 , formed upon or attached to the end of a lever, E' , the latter pivoted to the cross-piece or standard e of the bucket-frame. A spring, e^9 , is employed to hold the lever E' , with its latch e^8 , down and in position to engage the plate e^7 .

Two sets of pins, e^3 , are attached to the standard e^2 at right angles to each other, so that the lever G can be applied to the standard from either side and without first turning the bucket around or shifting the lever.

For the purpose of automatically raising e^8 and permitting the bucket to turn upon its pivots and dump the contents when it has been swung to the desired point, the following arrangement of tripping mechanism has been devised, which not only enables the operator to swing and dump the bucket by one and the same lever, but also to effect this result as well when the bucket is suspended from one set of pins e^3 as from the other set.

An arm, e^{10} , of the lever E' extends up alongside the standard e^2 , to which the lever G is applied. Upon the under side of the lever G , near the end, is secured an adjustable plate, g^5 , and on each side of said lever, and above said plate, is pivoted an arm or plate, g^6 , extending down below and beyond the plate g^5 , and with its end bent or curved outward. These arms or plates g^6 bear against shoulders g^7 , formed upon the edges of the plate g^5 , whereby, as the latter is adjusted forward or backward upon the end of the lever, the said arms will be correspondingly raised or lowered. These arms g^6 and plate g^5 are so arranged and disposed with relation to the pins e^3 and hooks g^3 that when the lever G is applied to the bucket-frame from the rear the end of the plate g^5 will be opposite the arm e^{10} of the catch-lever E' , and when applied from either side the curved end of one arm, g^6 , will be in line with said arm e^{10} . As thus arranged, when it is desired to dump the bucket, the handle or free end of the lever G is depressed until the plate g^5 or arm g^6 , by coming in contact with the arm e^{10} , shall raise the catch and release the bucket, which latter, being no longer

held thereby, will turn upon its pivots. The angle at which the lever G shall thus be made to raise the catch can be varied by adjusting the position of the plate g^5 , as will be readily understood.

Having thus described my invention, what I claim as new is—

1. In a system such as described, the combination, with the elevated rail, the traverser mounted thereon and provided with devices for detachably suspending the bucket, of the crane, the lever suspended from said crane and provided with hooks for engaging, lifting, and removing the bucket from the traverser, substantially as described.

2. In combination with the elevated rail provided with the side flanges, as described, the traverser consisting, essentially, of the roller and the hanger mounted upon the axle of the roller, extending beneath the rail, and provided with a hook, from which the bucket is suspended, substantially as described.

3. In combination with the elevated rail, the traverser mounted thereon and provided with the dependent hanger, the bucket detachably secured to the said hanger, the crane carrying a suspended lever, the latter provided with open hooks to engage pins upon the vertical standard of the bucket-frame, whereby the bucket can be shifted from the traverser to the lever and swung on the crane, substantially as described.

4. In combination with the pivoted bucket, its frame and upright provided with the pins, as described, and the pivoted latching-lever applied thereto, a lever carrying hooks for engaging said pins and suspending the bucket, said lever carrying a plate co-operating with the latching-lever and releasing the bucket when the lever is tilted, substantially as described.

5. In combination with the vertical post of the frame in which the bucket is pivoted, and the two sets of pins applied thereto as described, and the locking-lever, a suspended lever carrying hooks to engage said pins, and provided with tripping-plates to engage the locking-lever and release the bucket, substantially as described.

6. In combination with the lever carrying hooks to receive and sustain the bucket-frame, the latter provided with a locking device, substantially as described, the plate and curved arms applied to the said lever, and adapted to engage the locking device and release the bucket when said lever is presented to the bucket-frame from either direction, substantially as and for the purpose set forth.

7. In combination with the bucket, its supporting-frame and locking device, the lever for suspending the bucket, provided with the two curved and pivoted side plates, and adjustable bottom plate having projections engaging said side plates, substantially as described.

8. In combination with the lever carrying

the hooks to receive the pins on the bucket-frame, the curved plates pivoted to the sides of the lever, and an adjustable plate applied below said side plates, and having projections
5 or lugs upon which the side plates rest, whereby the side and bottom plates can be simultaneously adjusted to effect the unlocking of the

catch on the bucket-frame, substantially as described.

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Witnesses:

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