

No. 737,426.

PATENTED AUG. 25, 1903.

C. LAMAR.  
HOISTING AND DUMPING APPARATUS.

APPLICATION FILED APR. 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

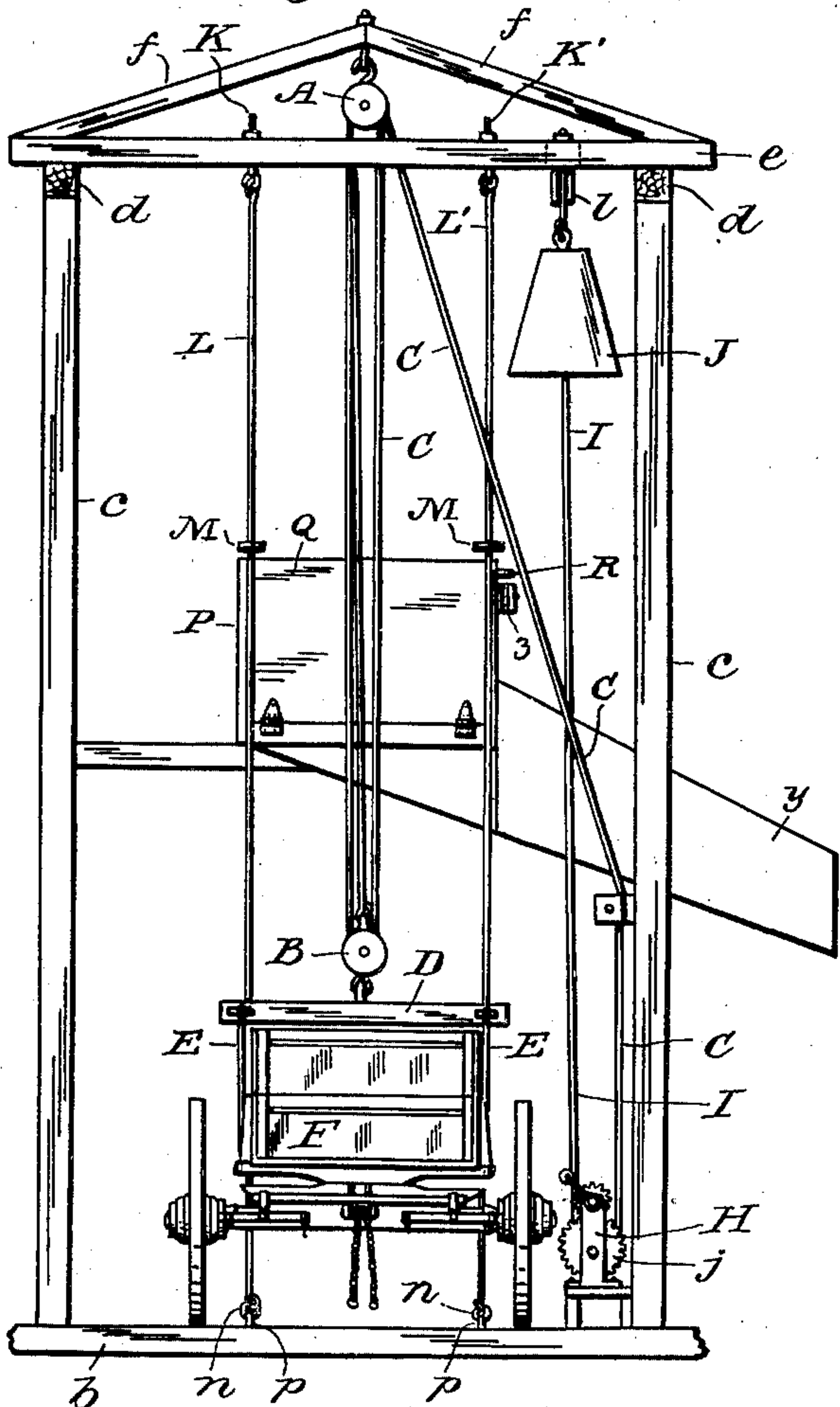


Fig. 2.

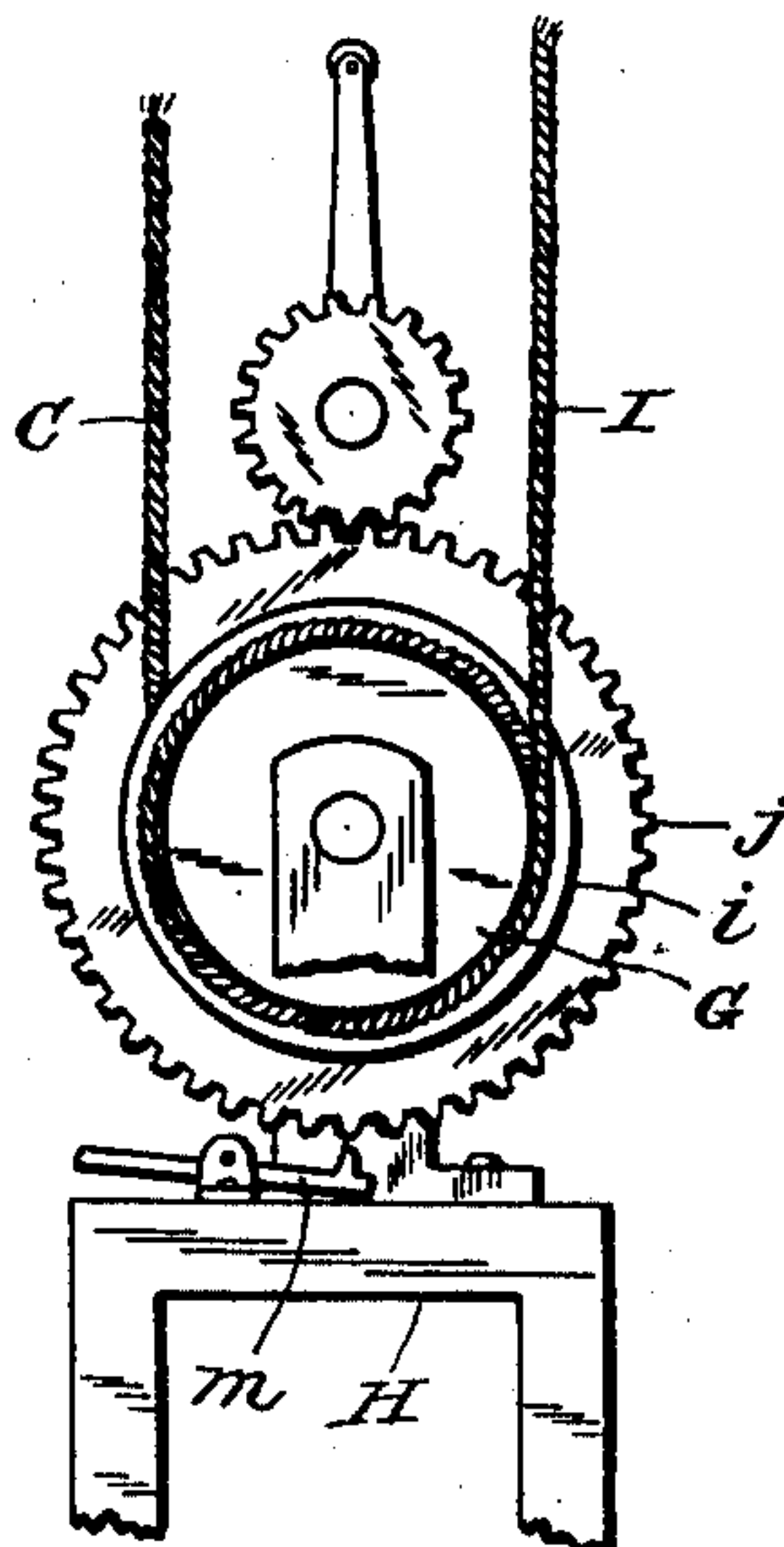


Fig. 3.

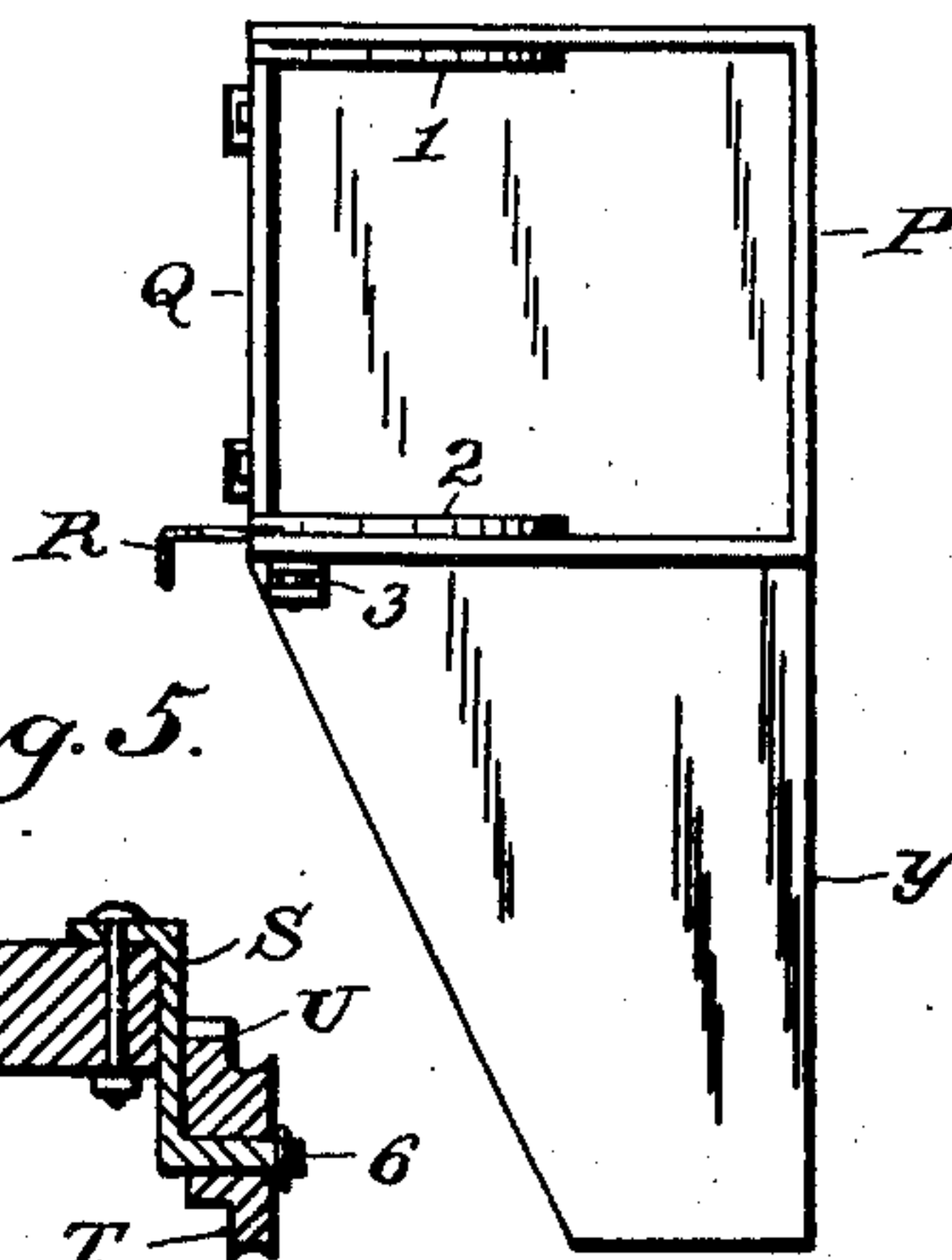


Fig. 4.

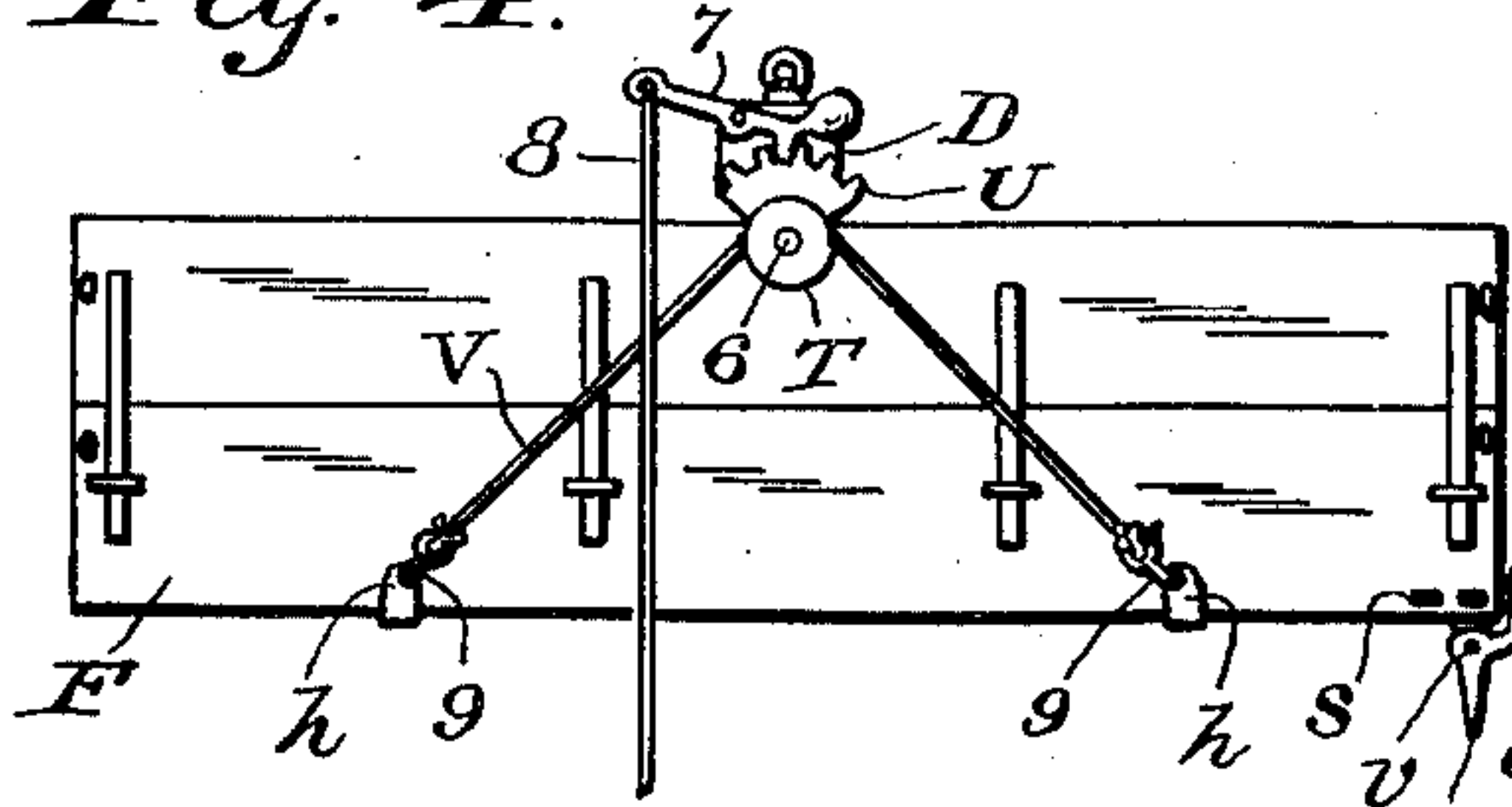
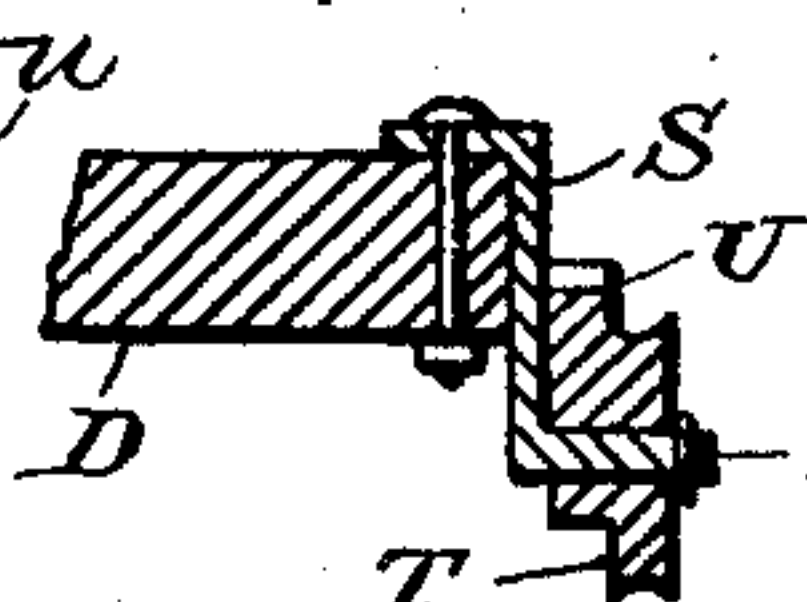


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

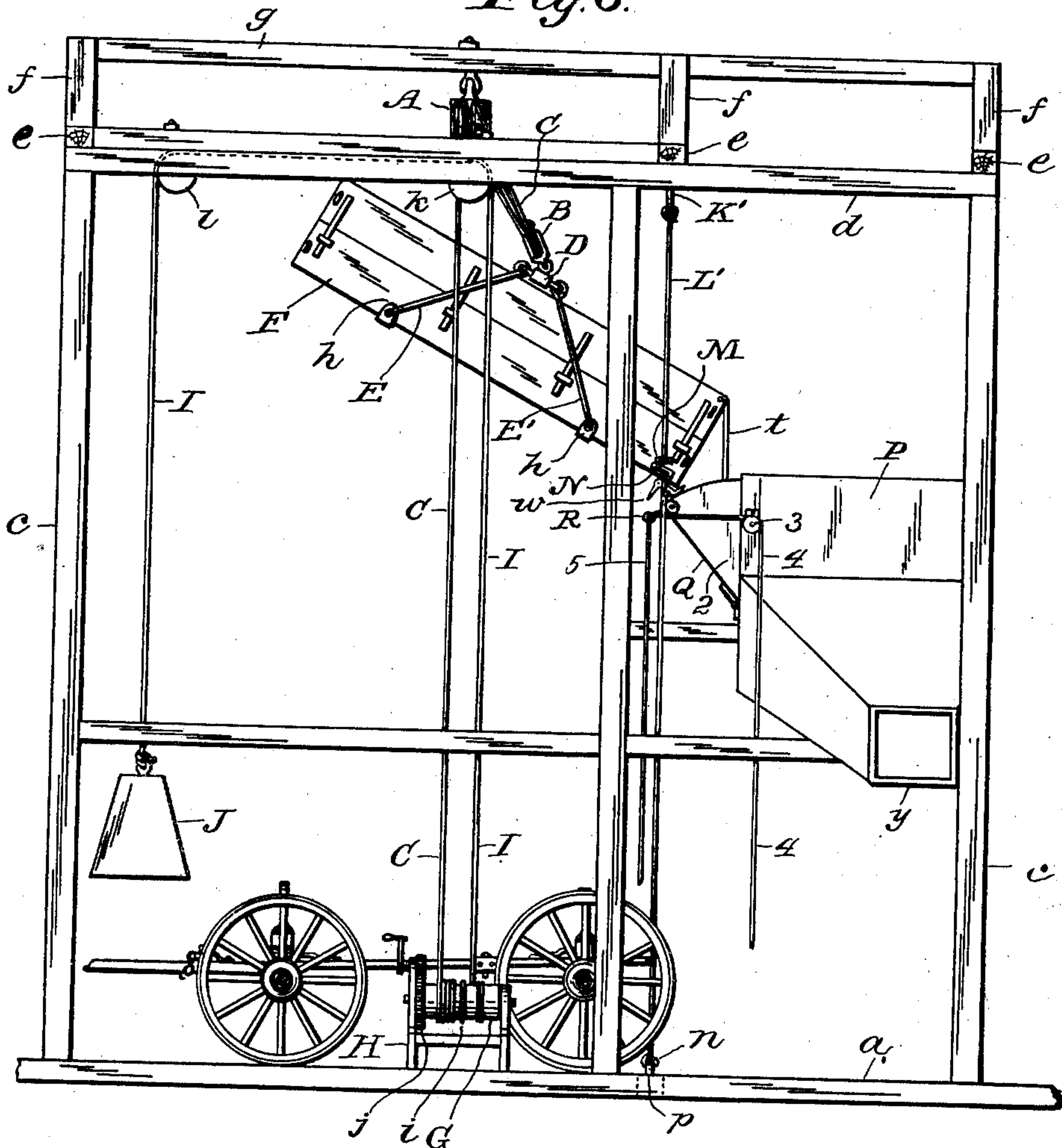
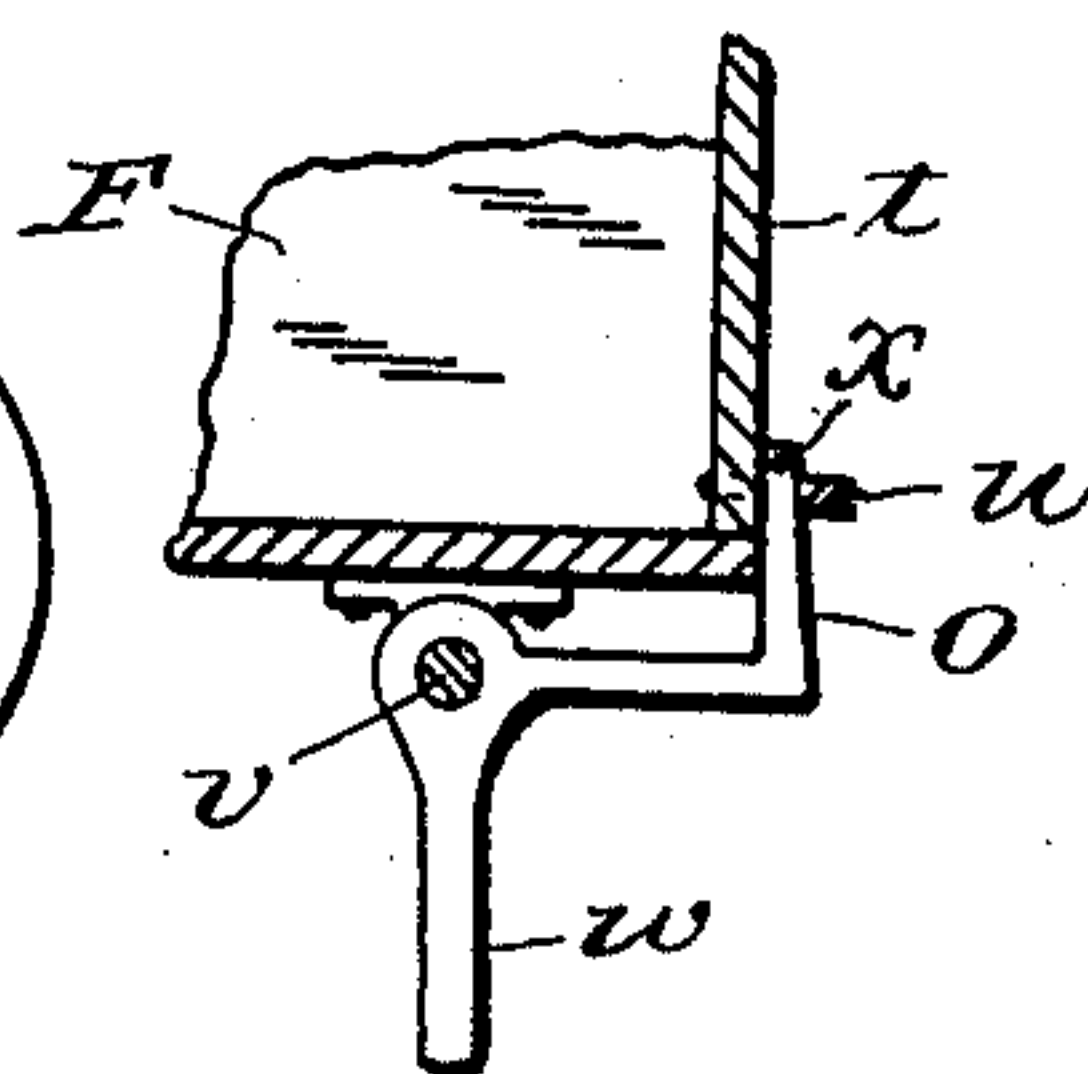
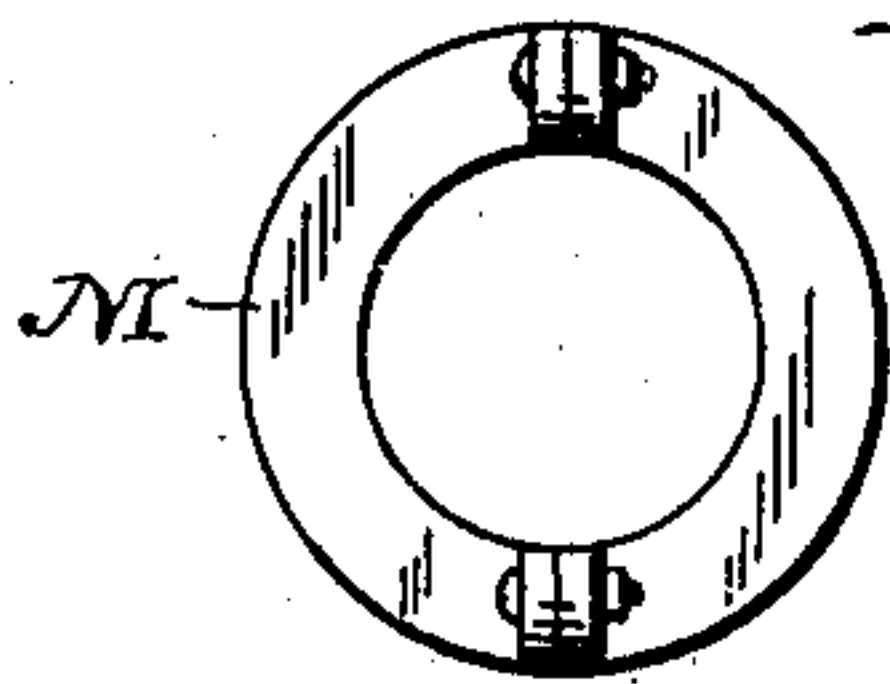
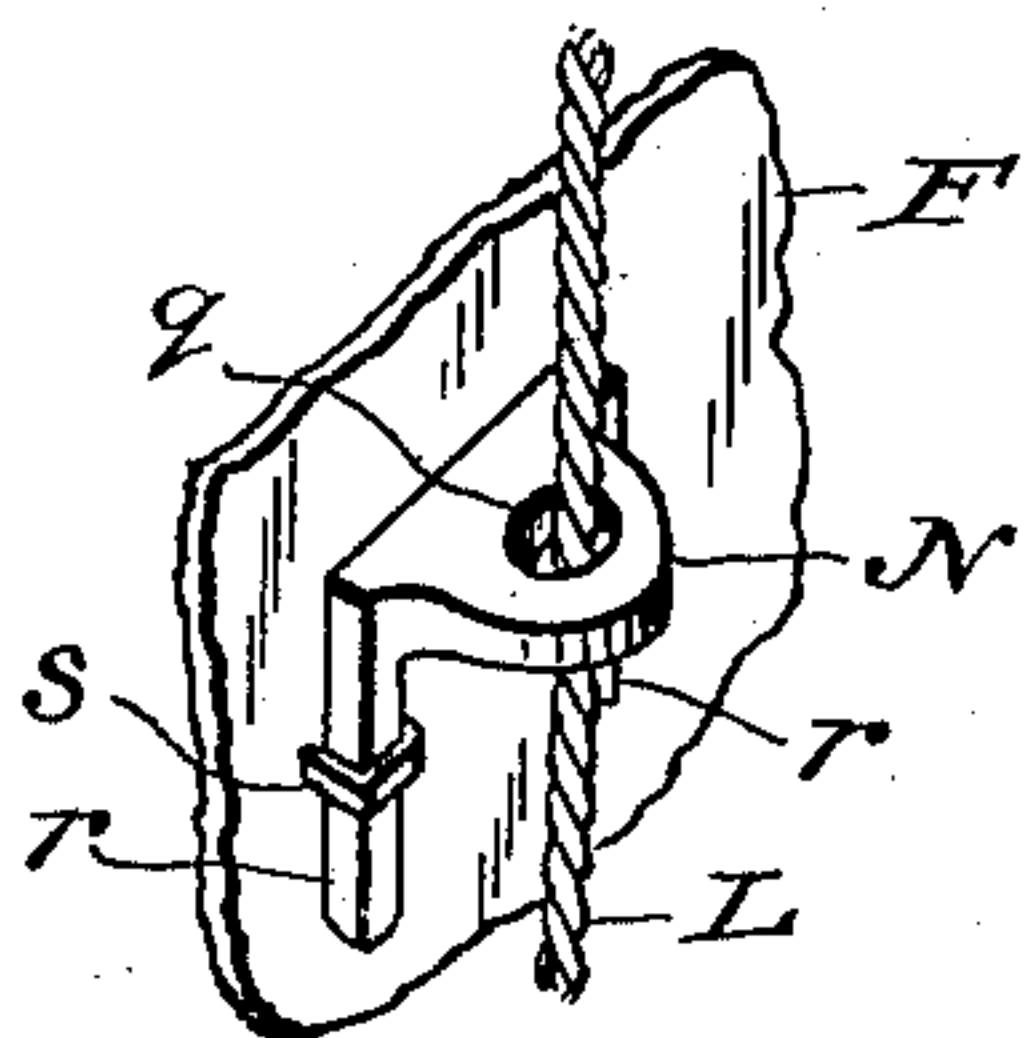


Fig. 7.

Fig. 8.

Fig. 9.



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# UNITED STATES PATENT OFFICE.

CHARLES LAMAR, OF JACKSON TOWNSHIP, INDIANA.

## HOISTING AND DUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 737,426, dated August 25, 1903.

Application filed April 29, 1903. Serial No. 154,743. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES LAMAR, a citizen of the United States, residing in Jackson township, in the county of Shelby and State of Indiana, have invented new and useful Improvements in Hoisting and Dumping Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to apparatus for hoisting bulk grain and the like from vehicles and delivering the same at an elevation from which such substances may flow by gravity into bins or elsewhere, as may be desired, the object of the invention being to provide inexpensive improved hoisting and dumping apparatus that may be easily operated by a man alone without requiring assistance from others, and which may be particularly well adapted for farm use, whereby wagons may be conveniently and expeditiously unloaded, as well as for use at elevators and side tracks of railways.

The invention consists in the peculiar construction and arrangement of parts, as hereinafter described and claimed.

Referring to the drawings, in which similar reference characters designate like parts or elements, Figure 1 is an end elevation of the framework and apparatus, showing the front end of a wagon which is in position to be unloaded; Fig. 2, a fragmentary end elevation of the windlass for effecting the hoisting operations; Fig. 3, a top plan of the hopper and chute into which the load is designed to be dumped; Fig. 4, a side elevation of the dumping wagon-body and improved slings therefor, showing a trip-latch for the end-gate of the body; Fig. 5, a fragmentary detail view showing portions of balancing devices for the slings; Fig. 6, a side elevation of the framework and apparatus and a wagon-body elevated as when being dumped, the running-gear of the wagon remaining on the ground; Fig. 7, a fragmentary perspective view showing a portion of the wagon-body and parts of the operating devices connected thereto, whereby the dumping may be effected; Fig. 8, a top plan of a stop-collar em-

ployed in tilting the wagon-body, and Fig. 9 a fragmentary detail view showing the latch for the end-gate.

In this invention the wagon-body forms part of the apparatus, although it is adapted to also be used for general hauling either on wheels or on sled-runners.

In construction the supporting framework may be variously designed, and it may be either portable, as shown, or be permanently built in a barn, and in the latter case portions of the barn-frame and its floor may be utilized; but for descriptive purposes the portable frame is herein illustrated, in which—

*a* designates side sills; *b*, transverse sills; *c*, the posts set on the side sills; *d*, side caps on the posts; *e*, transverse beams mounted on the side caps; *f*, arch-beams, and *g* a ridge-beam. A suitable pulley-block A is suspended from the ridge-beam *g*, although it may be supported by other suitable means above a point where a wagon may be placed. A suitable pulley-block B is hung to the other block A by means of a rope C, suitably reeved through the blocks. A sling-beam D of suitable length is connected centrally to the block B, and each end of the beam D is provided with a pair of sling-links E E', having suitable hooks at their ends.

A wagon-body F is adapted to be carried on wagon-bolsters and is provided with eye-plates *h* at the sides thereof, to which the links E E' may be detachably connected. A suitable windlass, comprising a drum G and a frame H, supporting the drum, is secured near the place where the wagon is designed to be placed for unloading. The drum is divided about midway of its length by a flange *i* on its periphery, so that it may operate substantially as two connected drums for winding ropes thereon. The drum is suitably journaled and is provided with a spur-wheel *j* and such other operative gearing and cranks as may be desired. The end of the rope C is secured to one end portion of the drum G. An independent rope I is also secured to the drum at the opposite end portion thereof and leads off from the side of the drum opposite to that from which the rope C leads, so that when either rope is being wound on the drum the other rope will pay out therefrom, and vice versa. A pulley *k* is suitably supported



by one of the overhead timbers, and another pulley *l* is in like manner supported, the rope *I* extending from the drum over these pulleys and thence downwardly, the free end of the rope having a heavy counterweight *J* attached thereto. In order to prevent movement of the ropes and the loads thereon, when desired, a latch *m* is connected to the frame *H* and adapted to engage the spur-wheel *j* and prevent rotation thereof.

At suitable points two adjustable eyebolts *K K'* are supported overhead by means of a beam *e*, so that the bolts may be raised or lowered, and guide-links *L L'*, which may be composed of rope, are attached to the eyebolts and extend to the ground-line, the links having hooks *n* attached to their ends, so as to be detachably connected to eyebolts *p*, which are secured to a floor-timber, as *b*, and be held stretched. At the upper portions of the links *L L'* they are provided each with a collar *M*, secured thereto, so that its position may be changed when necessary. Also the links are each provided with a movable bracket *N*, having an aperture *q*, through which the rope extends loosely, each bracket having a pair of holding-bars *r r*, adapted to enter staples *s s*, that are secured to the sides of the rear end of the body *F* and be connected thereto detachably when required.

The rear end-gate *t* of the body *F* is hung pivotally to the top portion of the body, so as to swing outwardly at the bottom thereof, and it is held in place normally by means of a catch *u*, attached to the gate, and a latch *O*, mounted on a pivot *v*, connected to the bottom of the body *F*, the latch having a trip-arm *w*, projecting downwardly. Normally the latch *O* may be held in engagement with the gate by means of a pin *x*, inserted removably in its upper end above the catch *u*, a suitable pin-hole being provided.

A hopper *P*, having a discharging-chute *y*, is suitably supported in the framework at a proper elevation. The hopper has an inlet-chute *Q*, hinged at its bottom to the hopper in an opening therein and having sides 1 and 2 extending into the opening in the hopper. The chute may be drawn out radially, so as to be inclined below the wagon-body after the latter may have been elevated, and any suitable provision may be made for limiting its movements. It is provided with a suitable bracket *R* at its upper portion. The hopper has a pulley 3 mounted thereon, and an operating-cord 4 runs over the pulley and is attached to the bracket, the cord extending from the pulley downwardly, so it may be reached by the operator, whereby the chute *Q* may be closed. Another cord 5 is also attached to the bracket *R* and extends downwardly therefrom for opening the chute.

In some cases the wagon-body may be balanced by the operator while being elevated by means of ropes (not shown) connected to the ends of the body, as will be obvious; but the balancing is preferably accomplished by

means of devices substantially as shown in Figs. 4 and 5, arranged either at one or both ends of the sling-beam *D*, the devices including a bracket *S*, secured to an end of the beam *D* and having a stud-axle 6, on which is rotatively mounted a pulley *T*, having a toothed quadrant *U* attached thereto, the latter being normally engaged by a pivoted pawl or latch 7, having an operating-cord 8. It will be understood that the beam *D* has a pulley *T* at each end thereof, although but one of them need have the quadrant and pawl devices. Each pulley has a rope or chain *V* hung thereon, having hooks 9 at its ends for connecting it to the eye-plates *h*. It will be obvious that the two pulleys *T* may be secured to a single shaft rotatively supported by the ends of the beam *D*, if preferred, so that one set of balancing devices may control both slings *V* at both sides of the wagon-body.

In practical use the winding-drum *G* may be manually operated in a proper direction, so as to elevate the counterweight *J* and lower the hoisting-slugs. The weight will then represent stored energy, the latch *m* being in engagement with the wheel *j*, whereby the weight may be held up while the operator may be adjusting the other parts of the apparatus. The vehicle having the loaded body *F* thereon may be moved into a proper position either before or after elevating the counterweight. The slings with which the beam *D* may be provided may be connected to the body, and guy-ropes may also be connected to the body, if found desirable. The latch *O* may now be unlocked if it has been designed to be locked positively. The chute *Q* should be closed. If the vehicle is properly positioned, the ropes (or chains) *L L'* will hang perpendicularly from their supports close to the staples *s*, that are attached to the body *F*, and may be connected to the eyebolts *p*. If found to be of unsuitable lengths, they may be readjusted by means of the eyebolts *K K'*. The brackets *N* may then be moved along the ropes *L L'* to proper positions and the bars *r* thereof connected to the staples *s*, and consequently with the body *F*. If the balancing devices are provided, the pawl 7 will engage the quadrant *U* and prevent rotation of the pulleys *T* while the load is being elevated, and when not employed guy-ropes may be used for the purpose. If now the drum be rotated in the direction opposite to that required when elevating the counterweight *J*, it will be apparent that the body *F* will rise and the weight *J* will descend, assisting the operator in his efforts, so that with simple hoisting devices with small power his strength may be materially augmented. The body *F* will rise until sufficiently elevated to permit the chute *Q* to open below the rear end thereof, when the rear end will be stopped by means of the brackets *N*, engaging the collars *M*, held by the ropes *L L'*. The body may be now further elevated at its front end only, so as to be inclined, as in-



licated in Fig. 6. If now the cord 5 be pulled downwardly, the chute Q will open and striking the arms *w* of the gate-latches will release the gate *t*, which will be forced open by the load, permitting the contents of the body F to run into the chute Q and the hopper P and then disposed of as may be desired. It will be understood that the pawl 7 should be disengaged at the proper time to permit the wagon-body to be inclined. After dumping the load the chute Q should be closed by means of the rope 4. While lowering the wagon-body F the weight J will again be elevated, ready for the next operation. Other movements and operations will obviously suggest themselves to the operator.

Having thus described the invention, what is claimed as new is—

1. Hoisting and dumping apparatus including a frame, a winding-drum, a stationary pulley-block, a movable pulley-block, a rope reeved through the pulley-blocks and attached to the drum, a guide-pulley mounted in the frame, a counterweight, a rope attached to the counterweight extending over the guide-pulley and secured to the drum oppositely to the other rope so that when either rope is wound on the drum the other rope will unwind therefrom, a sling-beam connected to the movable pulley-block, sling-links connected to the sling-beam, and a latch for the drum.

2. Hoisting and dumping apparatus including a frame, hoisting pulleys and ropes having slings, a body for holding loads connected to the slings and having staples at one end thereof, guide-links supported by the frame and removably anchored at their lower ends, stops attached to the guide-links, and brackets connected loosely to the guide-links below the stops and adapted to be connected to the staples of the body.

3. Hoisting and dumping apparatus including a frame, hoisting pulleys and ropes, a sling-beam connected with the pulleys and ropes, pulleys supported by the ends of the sling-beam one of which has a toothed quadrant attached thereto, a pivoted pawl adapted to engage the quadrant, slings mounted on the last-described pulleys, and an operating-cord attached to the pawl.

4. Hoisting and dumping apparatus including a frame, hoisting pulleys and ropes, a sling device connected with the pulleys and ropes, a hopper supported by the frame and having a chute pivoted thereto having sides adapted to enter the hopper, cords connected to the chute whereby the same may be operated, a body adapted to contain loads con-

nected to the sling devices and having a trip-latch for the end-gate adapted to be operated by the chute.

5. In hoisting and dumping apparatus, the combination with the hoisting pulleys and ropes, of the sling-beam connected therewith, pulleys supported at the ends of the beam and having locking devices therefor, and ropes mounted on the pulleys.

6. In hoisting and dumping apparatus, the combination with the hoisting-tackle and the wagon-body connected therewith having the end-gate pivoted at the top thereof, of a trip-latch engaging the end-gate and having a depending arm whereby the latch may be disengaged from the gate, a hopper, and devices connected to the hopper adapted to cooperate with the arm of the trip-latch.

7. In hoisting and dumping apparatus, the combination with the frame and the hoisting-tackle, of guide-links secured adjustably to the upper portion of the frame and detachably connected to the lower portion of the frame, stops attached to the guide-links, brackets having holding-bars and mounted slidably on the guide-links, and a body adapted to hold loads and having staples adapted to receive the holding-bars of the brackets.

8. In hoisting and dumping apparatus, the combination of the frame, the winding-drum, the stationary pulley-block, the movable pulley-block, the hoisting-rope attached to one side of the drum, the counterweight, the guide-pulley mounted in the frame, the rope attached to the counterweight and extending over the guide-pulley and attached to the opposite side of the drum, the slings connected to the movable pulley-block and having the balancing devices connected therewith, the guide-links connected at both ends thereof to the frame, the stops secured to the guide-links, the brackets loosely mounted on the guide-links and having the holding-bars, the wagon-body adapted to be connected to the slings and having the staples at opposite sides of the rear end thereof adapted to receive the holding-bars of the brackets, the hopper mounted in the frame, and the movable chute pivoted to the hopper, all constructed and operating substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES LAMAR.

Witnesses:

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H. E. TINDALL.