

J. JONES.
Hoisting-Machines.

No. 145,657.

Patented Dec. 16, 1873.

Fig. 1.

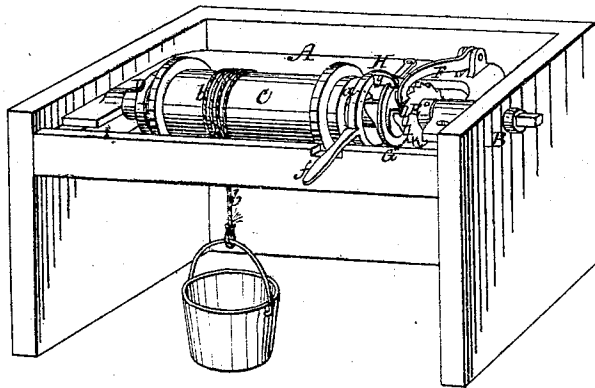


Fig. 2.

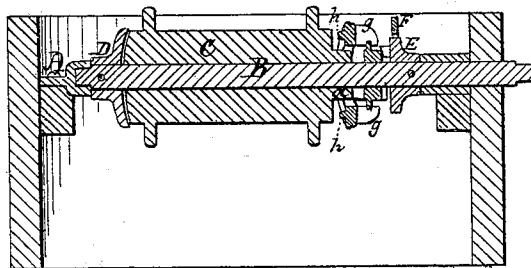


Fig. 3.

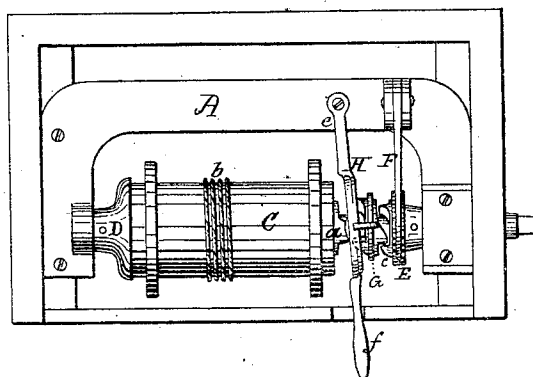
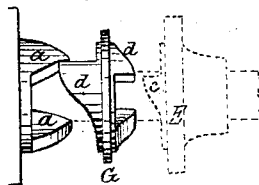


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

JENKINS JONES, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF ONE-HALF HIS RIGHT TO JASON F. HOLMES, OF SAME PLACE.

IMPROVEMENT IN HOISTING-MACHINES.

Specification forming part of Letters Patent No. **145,657**, dated December 16, 1873; application filed November 11, 1873.

To all whom it may concern:

Be it known that I, JENKINS JONES, of the city and county of Providence, in the State of Rhode Island, have invented a certain new and useful Hoisting-Machine.

My apparatus is designed for use in hoisting building materials, water, &c.; and my invention consists in a novel combination of a windlass-drum, loosely mounted on a shaft controlled by a ratchet and a frictional end plate, a toothed clutch of peculiar construction, and a clutch-shipper, which latter device also performs the function of a brake for controlling the movement of the windlass-drum while lowering the crate or bucket, whereby complete control of the windlass-drum is afforded, and complete operative contact of the clutch-faces, during the hoisting operation; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear and accurate description of an apparatus embodying my invention.

In the drawing, Figure 1 represents a view, in perspective, of one of my improved hoisting-machines. Fig. 2 represents the same in longitudinal vertical section. Fig. 3 represents the same in top view, and Fig. 4 shows the clutch-teeth detached from the shaft and drum.

A denotes the frame of the machine. It may be located at any suitable part of a building in process of construction, if it is desired to employ the machine in hoisting building materials, or it may be mounted in a well-curb if intended for hoisting water. B denotes the winding-shaft, mounted in bearings at the ends of the frame A. The outer end of the shaft is provided with a crank, by which it is operated. C denotes the drum. It is loosely mounted upon the shaft B, and is capable of a slight longitudinal movement thereon. At the end adjacent to the crank it is provided with the inclined or bevel-faced clutch-teeth *a*. A rope or chain, *b*, for the crate or bucket, is attached to the drum C. It will be seen that the contact-faces of the teeth *a* are not parallel with the axial line of the shaft, as is usual with toothed clutches, but are inclined, for a purpose hereafter described. D denotes a friction-plate secured to the shaft B

adjacent to the end of the drum C, and with which the latter is brought into contact when moved longitudinally upon the shaft B. An arm, with a sufficient friction-surface, attached to the frame A, and having its friction-surface adjacent to the end of the drum, will serve a similar purpose as the plate D. E denotes a ratchet-wheel firmly secured to the shaft B, and provided upon its inner face with the clutch-teeth *c*, similar to those upon the inner end of the drum C. A pawl, F, pivoted to the frame A, is arranged to engage with the teeth of the wheel E, and thereby prevent any retrograde movement of the shaft and windlass. G denotes a double clutch, loosely mounted upon the shaft B, between the end of the drum C and the ratchet-wheel E. The teeth *d* upon each side of the clutch are arranged to be brought into contact with the clutch-teeth upon the drum and toothed wheel, and thereby form a connection of the crank-shaft with the drum for the winding of the elevating rope or chain. The teeth *d* upon that side of the clutch adjacent and engaging with the teeth *a* on the drum are of such length that they will always remain in contact with the latter, whether connected with or disconnected from the teeth *c* of the wheel E. H denotes the combined shipper and brake. As shown in the drawing, it is made partially in the form of a circle placed around the winding-shaft B. An arm, *e*, extending from one side, is pivoted to the frame A, and the shipper is operated by means of a lever, *f*, at the opposite side. Arms *g* upon one face of the shipper are arranged to connect with the edge of the clutch G, by which said clutch is moved longitudinally upon the shaft B. Upon the opposite side of the shipper frictional lugs *h* are provided, which, by a movement of the lever *f* and shipper, are brought into frictional contact with the drum after the release of the clutch from the toothed wheel E. In practice, the vibratory movement of the shipper H from the drum C causes the teeth upon one side of the clutch G to be brought into contact with those upon the toothed wheel E, and the teeth upon the opposite side of the clutch remain in operative connection with those upon the inner end of the drum, whereby the hoisting operation may

be effected by the turning of the crank-shaft. Owing to the inclined contact-faces of the clutch-teeth *a* on the windlass-drum, the clutch *G* is always, by the wedge-like action of the faces, pressed outward, or in a direction away from the drum, although always in contact with it, and by that means a proper operative connection will be maintained between the teeth on the opposite end of the clutch and those on the side of the ratchet-wheel *E*, and dispense with any necessity for holding the shipper for that purpose. As before stated, by the contact of the pawl *F* with the teeth of the wheel *E* any retrograde movement of the drum is effectually prevented. When the hoisting operation has been completed, a lateral movement of the shipper releases the clutch from the toothed wheel *E*, and the reverse movement of the drum will then be permitted by the weight of the crate or bucket in its descent. By the movement of the shipper *H* toward the drum, the projections *h* are brought into contact therewith, and the drum is forced against the friction-plate *D*. By pressure upon the lever *f*, and contact of the drum with the friction-plate *D*, the unwinding of the elevator-rope may be regulated, the

shipper serving the purpose of a brake by bearing not only against the adjacent end of the drum, but forcing the opposite end against the friction-plate.

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

1. A windlass-drum loosely mounted on a shaft, which is provided with a ratchet-wheel and a pawl for preventing its movement in one direction, in combination with a toothed clutch loosely mounted on the shaft, a shipper for controlling it, and the clutch-teeth respectively connected with the drum and the shaft, substantially as and for the purposes specified.

2. The combination of the shipper-brake *H*, the drum, the friction-plate, and shaft, substantially as described.

3. The combination of the drum, shaft, and toothed plate with a clutch having teeth with inclined contact-faces, whereby the movable portion of the clutch will be pressed toward the teeth on the plate and kept in operative contact therewith, substantially as described.

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Witnesses:

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