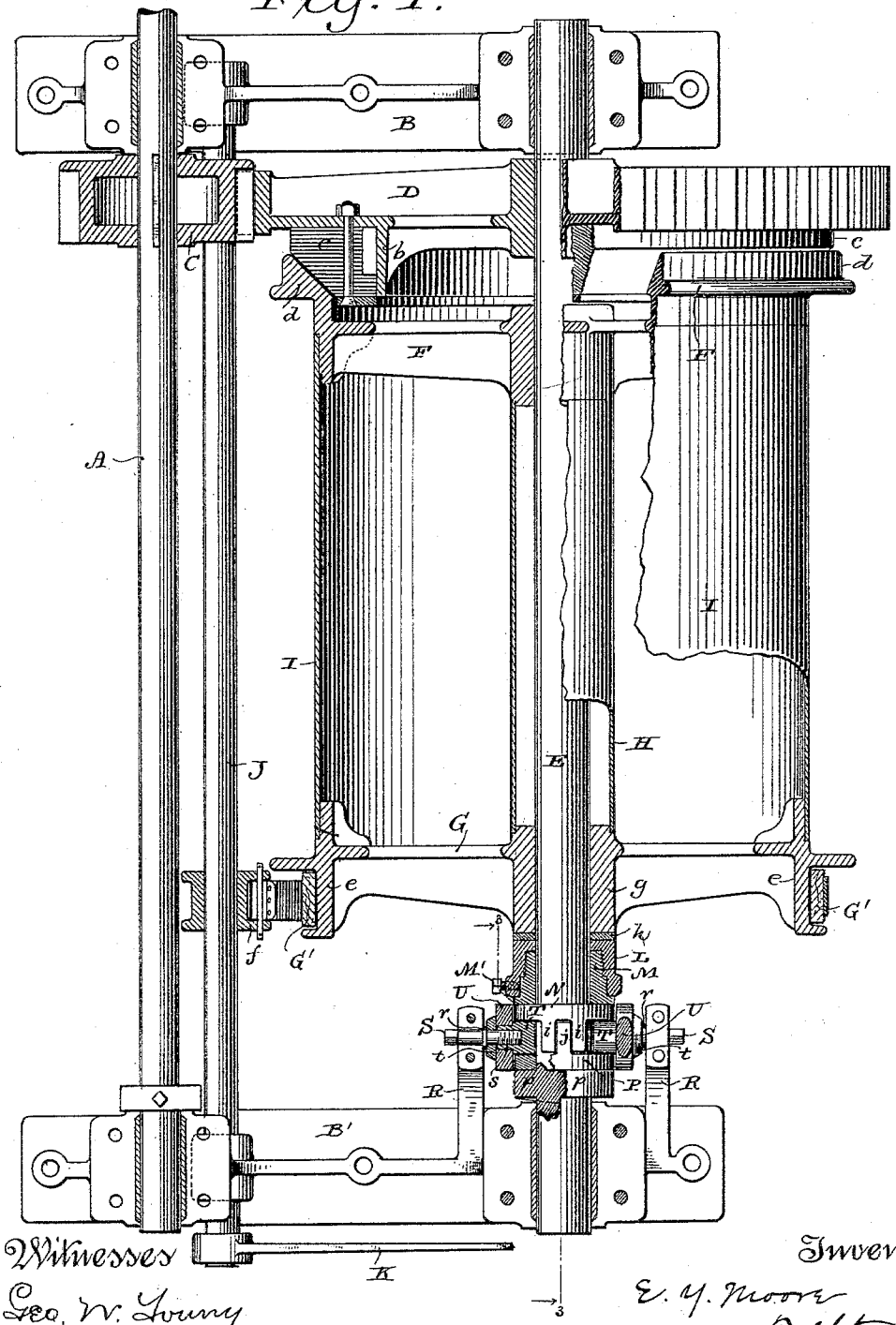
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E. Y. MOORE & H. B. TEFFT.

HOISTING MACHINE.

No. 411,604. Patented Sept. 24, 1889.

Fig. 1.



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Fig. 2.

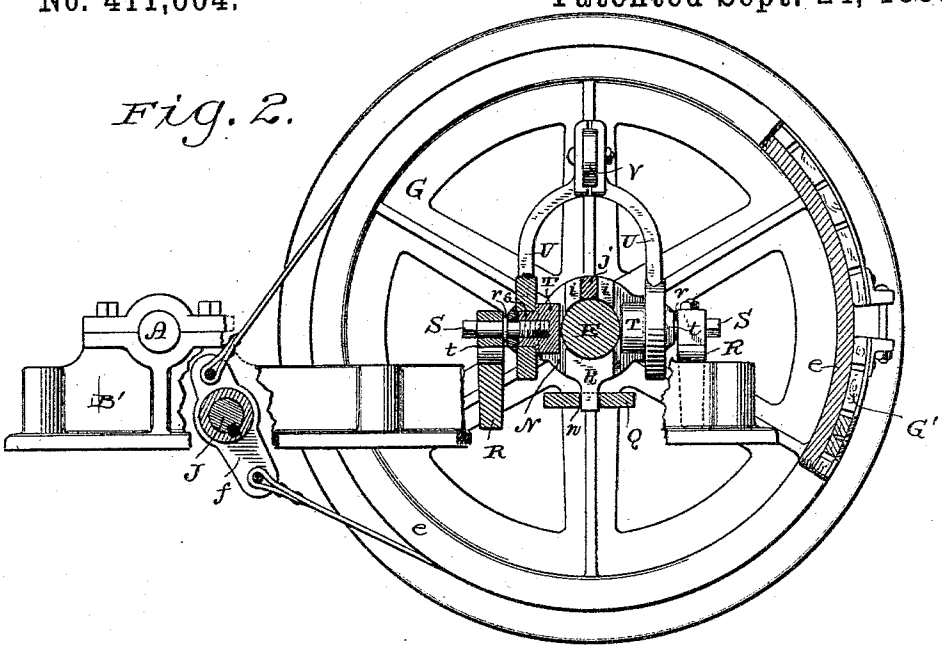
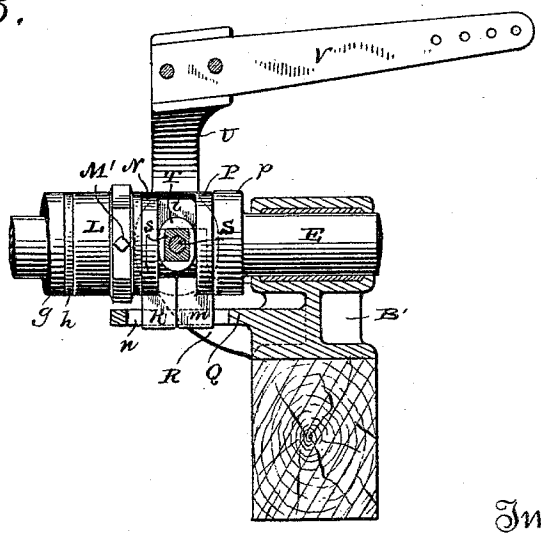


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD Y. MOORE AND HENRY B. TEFFT, OF MILWAUKEE, WISCONSIN.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,604, dated September 24, 1889.

Application filed March 29, 1889. Serial No. 305,242. (No model.)

To all whom it may concern:

Be it known that we, EDWARD Y. MOORE and HENRY B. TEFFT, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Hoisting-Machines; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to hoisting-machines; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents a plan view of a hoisting-machine embodying our invention, certain of the parts being broken away for the purpose of better illustration; Fig. 2, an end elevation with parts broken away, and Fig. 3 a detail sectional view taken on line 3 3 of Fig. 1.

Referring by letter to the drawings, A represents a drive-shaft having its bearings on bed-pieces B B′, and keyed to this shaft is a pinion C, that meshes with a gear-wheel D, fast on another shaft E, that also has its bearings on said bed-pieces. The gear-wheel D is provided with an inwardly-extended flange *b*, that serves as a support for a beveled friction-ring *c*, the latter being preferably composed of a series of paper layers clamped to said gear-wheel. The friction-ring *c* is arranged in opposition to the flaring rim *d* of a skeleton drum-head F, the latter and a similar head G having their hubs loosely arranged on the shaft E and connected by a detachable sleeve H, that surrounds said shaft, said heads serving as supports for a shell I and constitute therewith the winding-drum of the machine, the sleeve H serving as a means for stiffening said drum in a longitudinal direction.

The drum-head G is provided with a flanged extension *e* for a flexible brake G′, connected at its ends to a long and short arm lever *f* on a shaft J, that has its bearings on the bed-pieces and is actuated by a hand-lever K, as is best illustrated in Fig. 1.

Arranged on the shaft E to impinge against the hub *g* of the drum-head G is an anti-friction washer *h*, and impinged against this washer is a countersunk nut L for a sleeve M, the latter being longitudinally adjusted by a rotation of said nut and held in its adjusted position by a set-screw M′.

Loose on the shaft E are disks N P, respectively provided with horizontal fingers *i j* and vertical lugs *k m*, the latter being in engagement with a slot *n* in a bracket Q, that extends from the bed-piece B′, as is best illustrated in Fig. 3.

The disk N is arranged to impinge against the sleeve M, and the fingers *i* of this disk engage with the finger *j* on the opposing disk P, the latter being arranged to impinge against a collar *p* on the shaft E, as is best illustrated in Fig. 1.

Projecting from the bed-piece B′ are arms R, having bearings for trunnions S, that are provided with collars *r* and screw-threaded to engage elliptical nuts or spreaders T, the latter being arranged between the disks N P and provided with squared shanks *s* for engagement with sockets in the lower ends of brackets U, the upper ends of these brackets being clamped to a lever V to form a bail, as is best illustrated in Fig. 2. Between the brackets U and collars *r* on the trunnions S are washers *t*, and by screwing up said trunnions a rigid connection is established between the brackets U and elliptical nuts T, whereby the movement of said brackets, by means of the lever V, will impart a partial rotation to said elliptical nuts, and thus cause the disks N P to spread apart, these disks being held against rotation by the engagement of their lugs *k m* with the slot *n* in the bracket Q, that extends from the adjacent bed-piece.

When the elliptical nuts T are actuated, the disk N will exert pressure on the sleeve M, and consequently the winding-drum will be forced forward toward the friction-ring *c* on the gear-wheel D, while at the same time the disk P will exert pressure on the collar *p* and cause the shaft to move longitudinally in its bearings, and thereby draw said gear-wheel in a direction opposite to the movement of said drum. By the opposing movement of the drum and friction-ring a very tight clutch is had between the two, and consequently the slipping of one upon the other is rendered impossible, while at the same time the strain is equally divided because of said opposing movement of the contact-surfaces and comes

entirely on the drum-shaft, thereby preventing any spreading of the machine-frame. To compensate for wear, the sleeve M is longitudinally adjusted, and this adjustment can be made by means of an ordinary wrench without interfering with the work of the machine.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a hoisting-machine, the combination of a longitudinally-adjustable winding-drum and a friction-ring adjustable to or from the winding-drum simultaneously with the longitudinal movement of the latter, substantially as set forth.

2. In a hoisting-machine, the combination of a longitudinally-adjustable shaft, a friction-ring carried by the shaft, and a winding-drum longitudinally adjustable on the shaft simultaneously therewith and to or from the friction-ring, substantially as set forth.

3. In a hoisting-machine, the combination of a shaft, a friction-ring carried by the shaft, a winding-drum loose on said shaft in opposition to the friction-ring, opposing disks also loose on the shaft, spreaders interposed between the disks, a collar on the shaft in opposition to one of the disks, a sleeve interposed between the other disk and adjacent head of the drum, and a lever mechanism connected to the spreaders, substantially as set forth.

4. In a hoisting-machine, the combination of a shaft, a friction-ring carried by the shaft, a winding-drum arranged on said shaft in opposition to the friction-ring, opposing disks also loose on the shaft, spreaders interposed between the disks, a collar on the shaft in opposition to one of the disks, a sleeve interposed between the other disk and adjacent drum-head, an adjusting-nut screw-threaded to the sleeve, and a lever mechanism connected to the spreader, substantially as set forth.

5. In a hoisting-machine, the combination of a shaft, a friction-ring carried by the shaft, a winding-drum loose on said shaft in opposition to the friction-ring, opposing disks also loose on the shaft, spreaders interposed between the disks, a collar on the shaft in opposition to one of the disks, a sleeve arranged to impinge against the other disk, an anti-friction washer interposed between the sleeve and adjacent drum-head, and a lever mechanism connected to the spreaders, substantially as set forth.

6. In a hoisting-machine, the combination of a shaft, a friction-ring carried by the shaft, a winding-drum loose on said shaft, opposing disks also loose on the shaft, spreaders interposed between the disks and provided with squared shanks, a collar on the shaft in opposition to one of the disks, a sleeve interposed between the other disk and adjacent drum-head, collared trunnions screw-threaded to the spreaders, bearings for the trunnions, a bail having its ends fitted to the shanks of said elliptical nuts, washers arranged on the trunnions between the collars thereon and bail, and a lever connected to said bail, substantially as set forth.

7. In a hoisting-machine, the combination of a shaft, a friction-ring carried by the shaft, a winding-drum loose on said shaft, opposing disks also loose on the shaft and provided with interlocking fingers, spreaders interposed between the disks, a collar on the shaft in opposition to one of the disks, a sleeve interposed between the other disk and adjacent drum-head, and a lever mechanism connected to the spreaders, substantially as set forth.

8. In a hoisting-machine, the combination of a shaft, a friction-ring carried by the shaft, a winding-drum loose on said shaft, opposing disks also loose on the shaft and provided with lugs, a slotted bracket arranged to engage said lugs, spreaders interposed between the disks, a collar on the shaft in opposition to one of the disks, a sleeve interposed between the other disk and adjacent drum-head, and a lever mechanism connected to the spreaders, substantially as set forth.

9. In a hoisting-machine, the combination of a shaft, a friction-ring carried by the shaft, a winding-drum loose on said shaft in opposition to the friction-ring, opposing disks also loose on the shaft and provided with horizontal interlocking fingers and vertical lugs, a slotted bracket arranged to engage said vertical lugs, spreaders interposed between the disks, a collar on the shaft in opposition to one of the disks, a sleeve interposed between the other disk and adjacent drum-head, and a lever mechanism connected to the spreaders, substantially as set forth.

10. In a hoisting-machine, the combination of a longitudinally-adjustable shaft provided with a rigid collar, a friction-ring having a rigid connection with the shaft, and a longitudinally-adjustable winding-drum interposed between the collar and friction-ring to move simultaneously with said shaft to or from the friction-ring, substantially as set forth.

11. In a hoisting-machine, the combination of a shaft provided with a rigid collar, a friction-ring having a rigid connection with the shaft, and a winding-drum loosely arranged on said shaft between the collar and friction-ring, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

EDWARD Y. MOORE.
HENRY B. TEFFT.

Witnesses:
J. D. SCHOONMAKER,
E. DELANEY.