S. E. STOKES, Jr.
Hoisting Mechanism.

No. 202,298. Patented April 9, 1878.

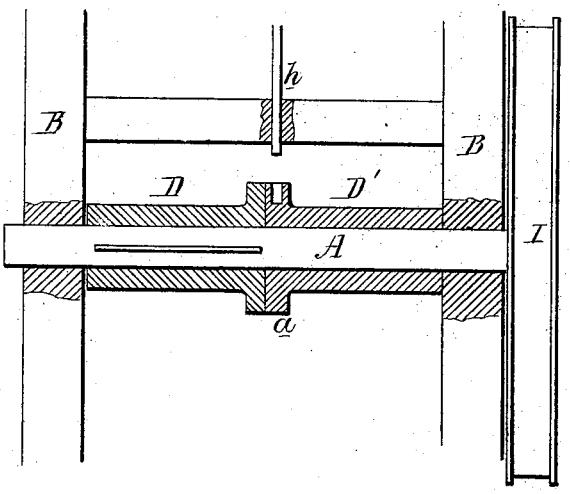


FIG. 1.

FIG. 2.

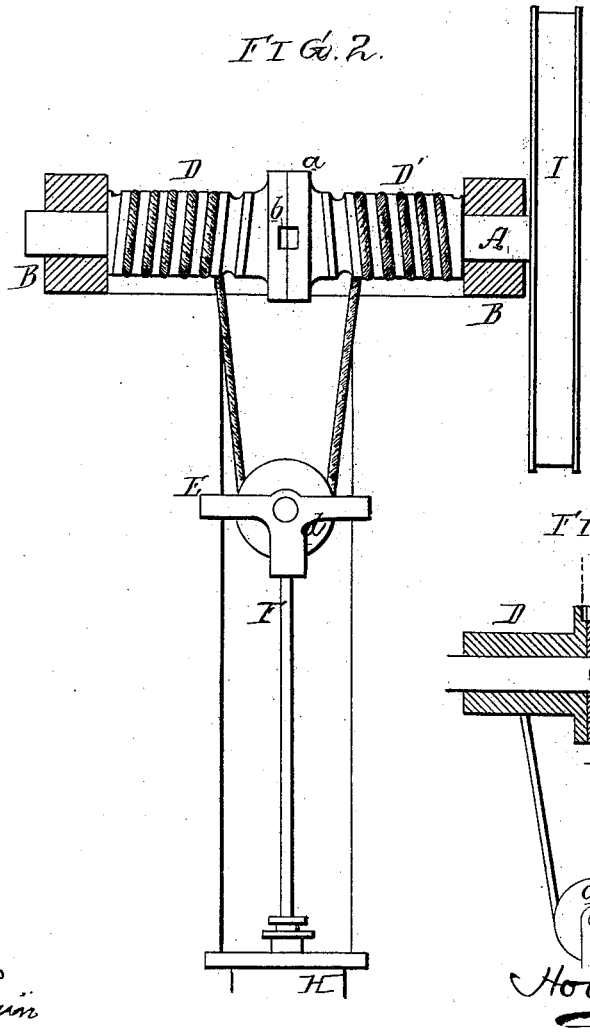
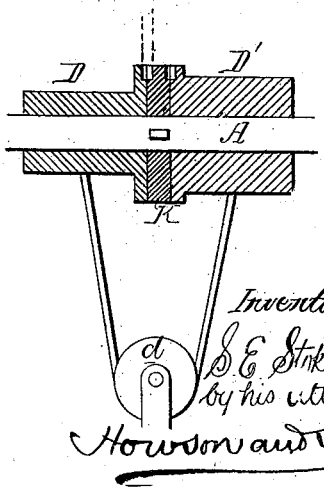


FIG. 3



Witnesses
Harry Smith
Thomas McElvain

Inventor
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by his attys
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UNITED STATES PATENT OFFICE.

SAMUEL E. STOKES, JR., OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND ALFRED PARISH, OF SAME PLACE.

IMPROVEMENT IN HOISTING MECHANISMS.

Specification forming part of Letters Patent No. **202,298**, dated April 9, 1878; application filed January 7, 1878.

To all whom it may concern:

Be it known that I, SAMUEL E. STOKES, JR., of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Hoisting Mechanism, of which the following is a specification:

My invention relates to improvements, fully described hereinafter, in machinery through the medium of which pressure exerted on a piston within a cylinder may be made to operate a hoisting-drum, the main object of my invention being the adoption of simple devices whereby hoisting mechanism can be readily adapted to light or heavy loads.

In the accompanying drawing, Figure 1 is a vertical section, and Fig. 2 a plan view, of my improved mechanism arranged as a medium through which the piston of a cylinder under hydraulic or steam pressure is caused to turn a hoisting-drum; Fig. 3, a modification of my invention.

In Figs. 1 and 2, A is a shaft, having its bearings in a suitable frame, B, and on this shaft are two drums, D and D′, the former being fast and the other loose on the said shaft.

Provision is made for so retaining the drum D′ that it cannot turn, the device used for this purpose in the present instance being a vertical sliding bar, *h*, carried by the frame, and so arranged that its lower end can be depressed into an orifice in the flange *a* of the said drum, for the locking of which other devices will readily suggest themselves to those skilled in the class of machinery to which my invention relates.

There is also a provision for locking the two drums together, so that both must turn with the shaft, the device for this purpose consisting in the present instance of a key, to be driven into a recess, *b*, formed partly in the flange of one drum and partly in that of the other.

On the drums are formed spiral grooves for the reception of a rope or chain, the ends of which are attached one to each drum, and which passes round a pulley, *d*, carried by a cross-head, E, secured to the rod F of a piston, which is adapted to the cylinder H, and which is acted on by water, steam, or air pressure.

A pulley, I, for the hoisting or hauling rope is secured to one end of the shaft A.

In hoisting comparatively heavy loads the two drums should be connected together, so as to revolve with the shaft, in which case the power exerted by the piston to turn the shaft A will be precisely the same as though the piston was connected directly to a rope or chain adapted to a single barrel on the shaft; but in raising lighter loads the barrels should be disconnected from each other, and the barrel D′ locked to the frame, in which case the device will be a medium through which the power exerted by the piston to move the shaft will be half as great as that which was exerted on the shaft under the circumstances described above, the movement of the shaft being, however, proportionately faster.

In the modification illustrated in Fig. 3, the two barrels D and D′ are loose on the shaft, to which, between the barrels, is secured a disk, K, and to the latter or to the frame either of the barrels may be locked, the barrel D′ being larger in diameter than the barrel D. Both barrels must be locked to the shaft when the heaviest weight has to be raised. The barrel D′ must be locked to the shaft and the barrel D to the frame when a lighter load has to be raised.

I claim as my invention—

1. A cylinder having a piston operated by water, steam, or air pressure, and a cross-head secured to the piston-rod, and carrying a pulley, *d*, in combination with the hoisting-shaft A, the two drums D and D′, one loose and the other fast on the said shaft, devices for locking the loose drum either to a frame or to the fast drum, and a chain or rope, the ends of which are attached one to each drum, and which passes round the said pulley *d*, all substantially as set forth.

2. A cylinder having a piston operated by water, steam, or air pressure, and a cross-

head secured to the piston-rod and carrying a pulley, *d*, in combination with the hoisting-shaft A, the disk K secured to the said shaft, the two barrels D D′ loose thereon, and devices whereby either of the barrels may be locked to the disk or to the frame, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL E. STOKES, JR.

Witnesses:

HARRY A. CRAWFORD,

HUBERT HOWSON.