(No Model.)

S. T. WELLMAN.

Lifting Motor.

No. 239,127. Patented March 22, 1881.

Fig. 1.

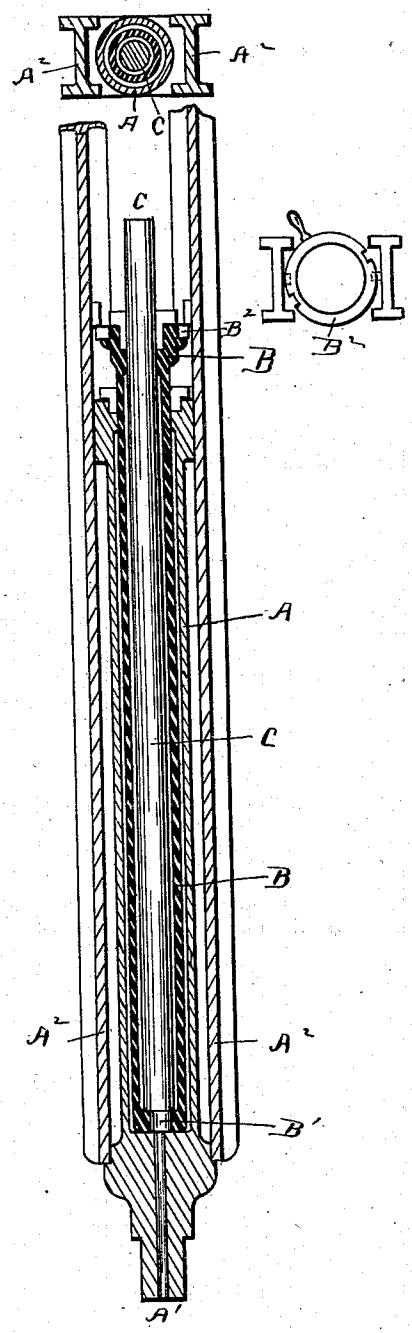


Fig. 3.

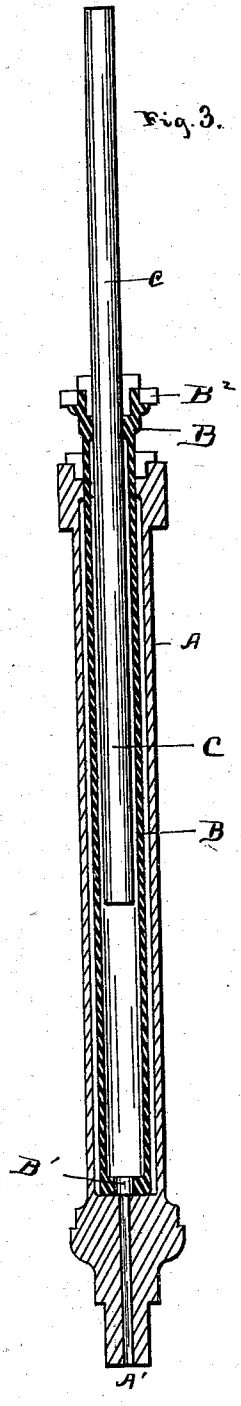
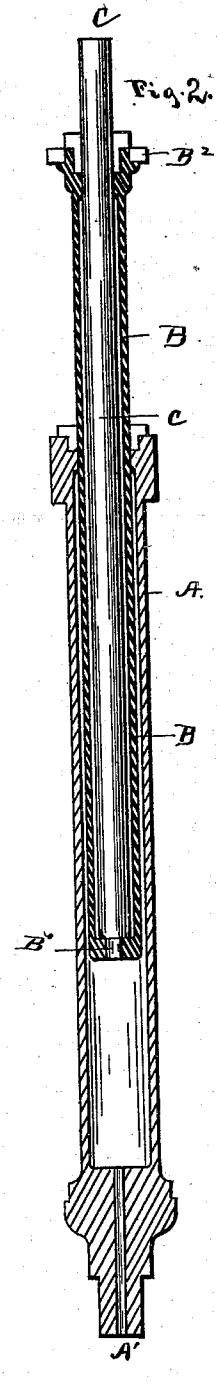


Fig. 2.



WITNESSES

F. M. Fabyan

W. O. Donnelly

INVENTOR

Samuel T. Wellman.

By Dewgett & Dewgett.

ATTORNEY

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL T. WELLMAN, OF CLEVELAND, OHIO.

LIFTING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 239,127, dated March 22, 1881.

Application filed July 6, 1880. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL T. WELLMAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Lifting-Motors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to motors for derricks, cranes, elevators, and the like; and it consists in the construction hereinafter described and claimed.

In the drawings, Figure 1 represents, in longitudinal section, a device constructed according to my invention, with both sections of its compound plunger within the chamber or cylinder. Fig. 2 represents the same device with the larger section of the compound plunger in operation, and Fig. 3 the same with the smaller section of the compound plunger in operation.

In the said drawings, A is a chamber or cylinder, constructed of metal or of any suitable material, and of any desired form of cross-section, round being preferred. At the lower end of said chamber A an inlet, A′, for water or steam, is provided, and this inlet may be of any kind, and provided with any valve apparatus required for governing the entrance and escape of water or steam. The cylinder A may be supported by any suitable framework, A^2.

B is the larger section of the compound plunger. It fits tightly within the cylinder A, and is driven up by the water or steam entering at A′. The plunger-section B is hollow, and contains within its cavity smaller section C of the compound plunger. At the bottom of the plunger B is an opening, B′, for the entrance of water or steam when only the smaller section of the plunger is to be employed. When the larger section B is used both sections of the plunger B and C are moved together; but when the smaller section C is to be employed alone the larger section B is locked down, and the smaller section C moves up and down within the section B.

B^2 is a locking device. This locking device consists of a ring surrounding the upper end of the larger section B, and this ring is provided with projecting lugs, which, by turning, are brought beneath lugs or projections on the frame A^2, thus preventing section B from rising.

It will be observed that the outer piston has its end, which corresponds to the cylinder end, having an inlet-opening, provided with an opening in line with said cylinder-opening and of greater sectional dimension than the latter. The inner piston is adapted to fit over said outer piston-opening, and constitutes the entire piston area subjected to water-pressure in line with the cylinder when said outer piston is in locked position.

Obviously the compound plunger or piston, instead of being constructed of two sections, may be made in three or more sections fitting into each other in the manner here shown, and each section should then be constructed so that it may be locked down at pleasure, to permit the smaller section within it to move.

The object of my invention thus described is to economize water or steam in the employment of cranes, elevators, or the like.

Were only the large plunger B employed it would take the maximum amount of water or steam to raise it, whether the load to be lifted were light or heavy. This is wasteful.

By my invention I am enabled to modify the amount of water or steam consumed in proportion to the load to be lifted. If the load is heavy a greater surface of plunger shall be exposed, and in such case the section B is in operation. If the load be light a smaller plunger will answer, and in such case the section C is used and the section B locked down; and if still smaller sections than the section C be desirable, it may be provided and used as already sufficiently indicated.

It matters not how the elevator or crane be connected with the plungers of my device. They may be directly attached, or the plungers may be coupled to compound pulleys or otherwise, that forming no particular feature of my invention.

What I claim is—

1. In a lifting-motor, the combination, with a cylinder having one end provided with an inlet-opening, of two concentric pistons and a device for locking the outer piston station-

ary against that end of the cylinder, the outer piston being provided with an opening in its corresponding end, and adapted, when in locked position, to have said end free from water-pressure in line with the cylinder, substantially as set forth.

2. In a lifting-motor, the combination, with a cylinder having one end provided with an inlet-opening, of two concentric pistons and mechanism for locking the outer piston against that end of the cylinder, the outer piston having its corresponding end provided with an opening in line with the cylinder-opening, and of greater sectional dimension than the same, the inner piston being adapted to fit over said outer piston-opening and constitute the entire piston area subjected to water-pressure in line with the cylinder when said outer piston is in locked position, substantially as set forth.

3. In a lifting-motor, the combination, with a frame-work provided with an inwardly-projecting lug and a cylinder, of two concentric pistons and a locking-ring fitted loosely to the outer cylinder, said ring being provided with a slot adapted to register with said lug when rotated in suitable adjustment, substantially as set forth.

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

SAMUEL T. WELLMAN.

Witnesses:

JNO. CROWELL, Jr.,

WILLARD FRACKER.