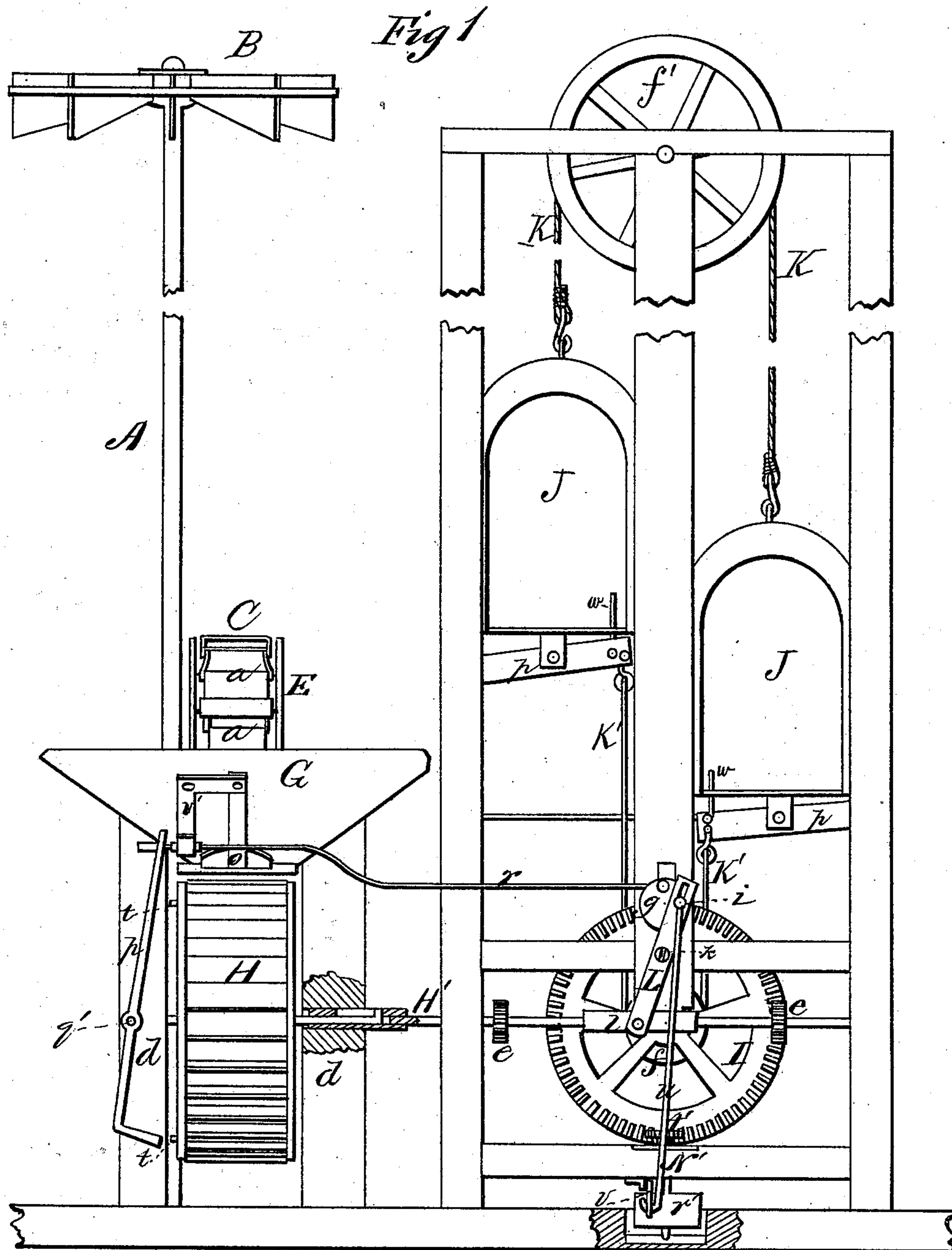


S. R. DIMOCK.  
SAND-POWER.

No. 177,817.

Patented May 23, 1876.



WITNESSES  
*Robert Everett*  
*E. H. Bates*

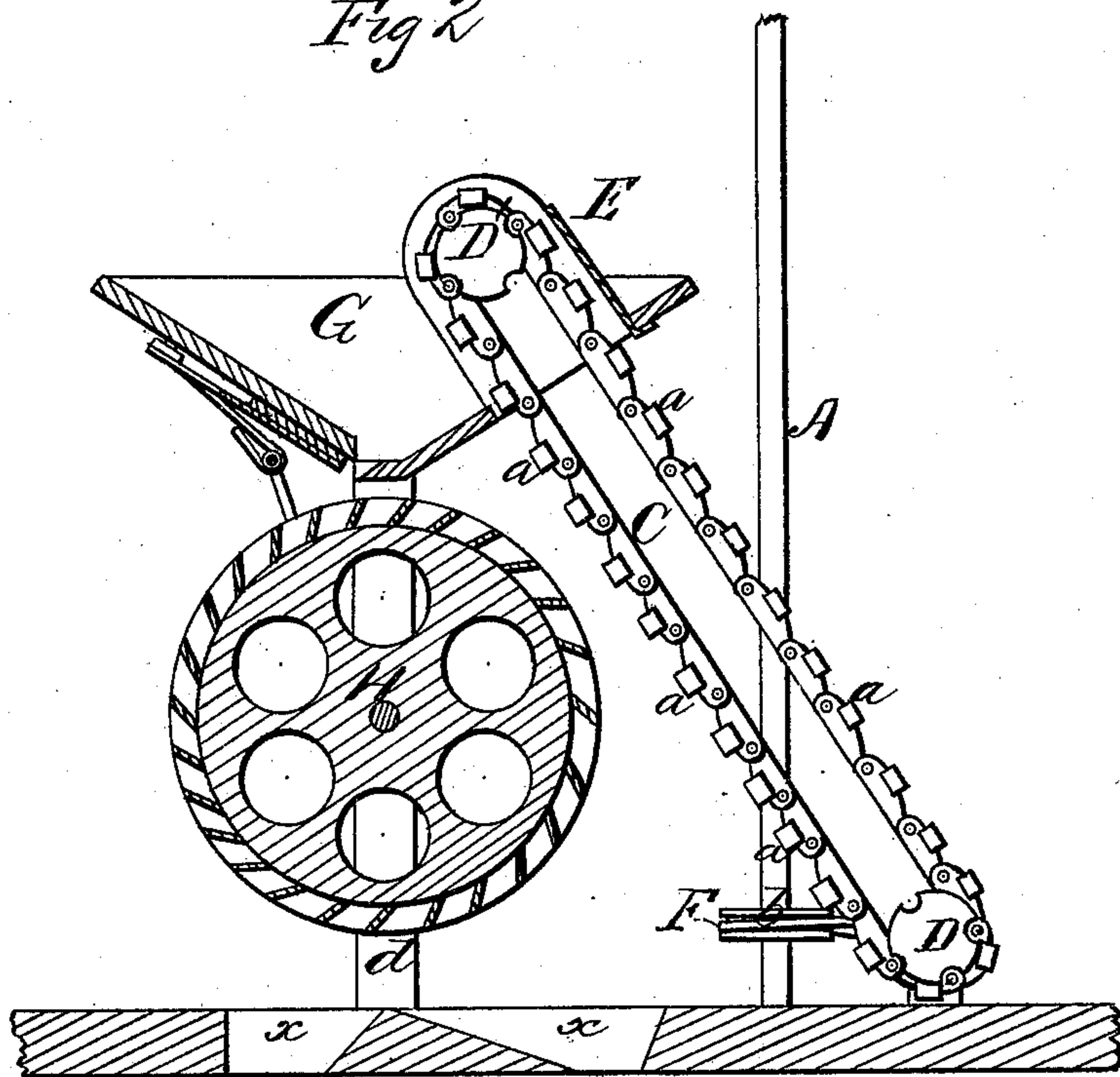
INVENTOR  
*Samuel R. Dimock*  
*Chipman & Son*  
ATTORNEYS.

S. R. DIMOCK.  
SAND-POWER.

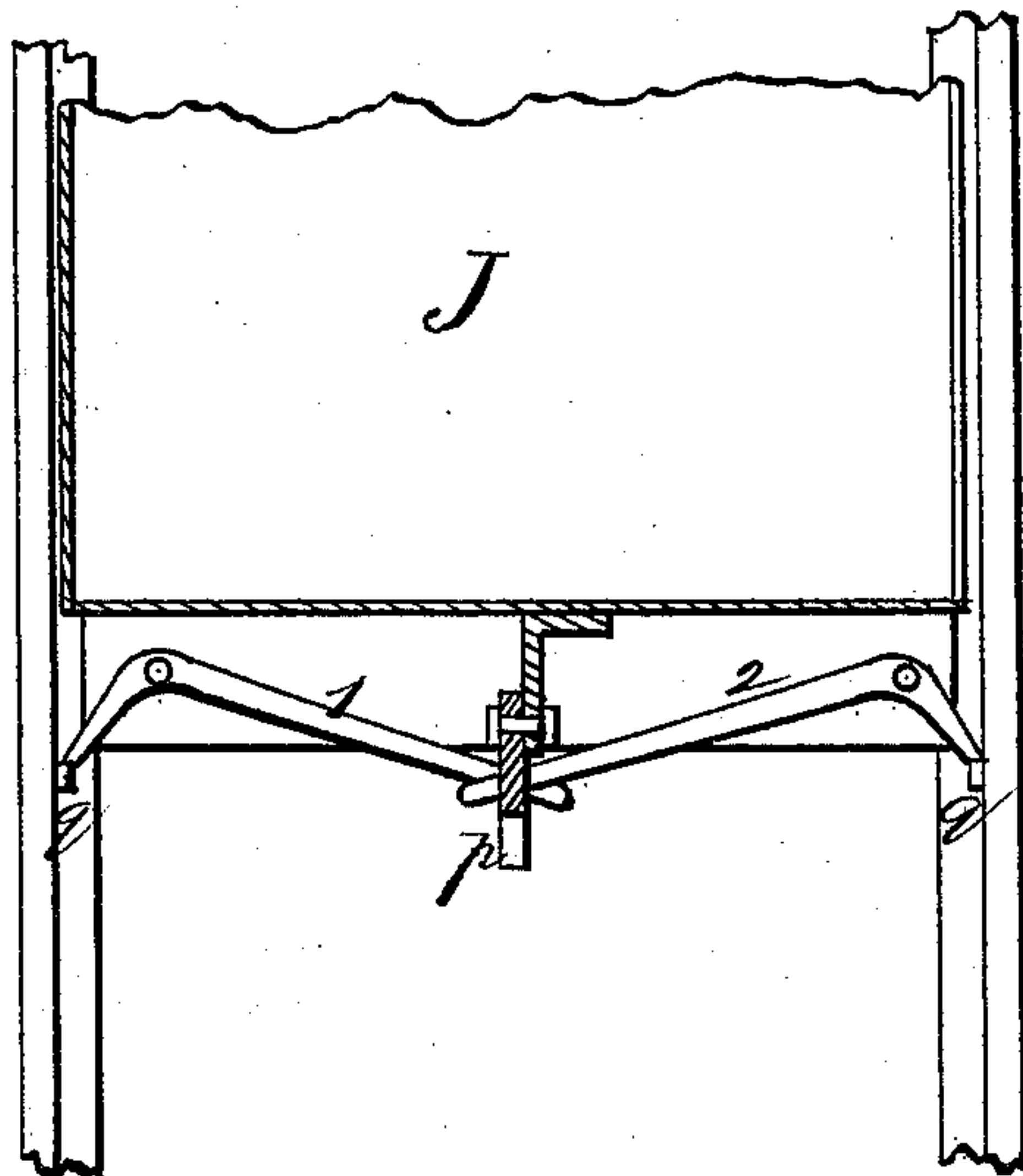
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*Fig 2*



*Fig 3*



WITNESSES

*Robert Everett*  
*E. H. Bates*

INVENTOR

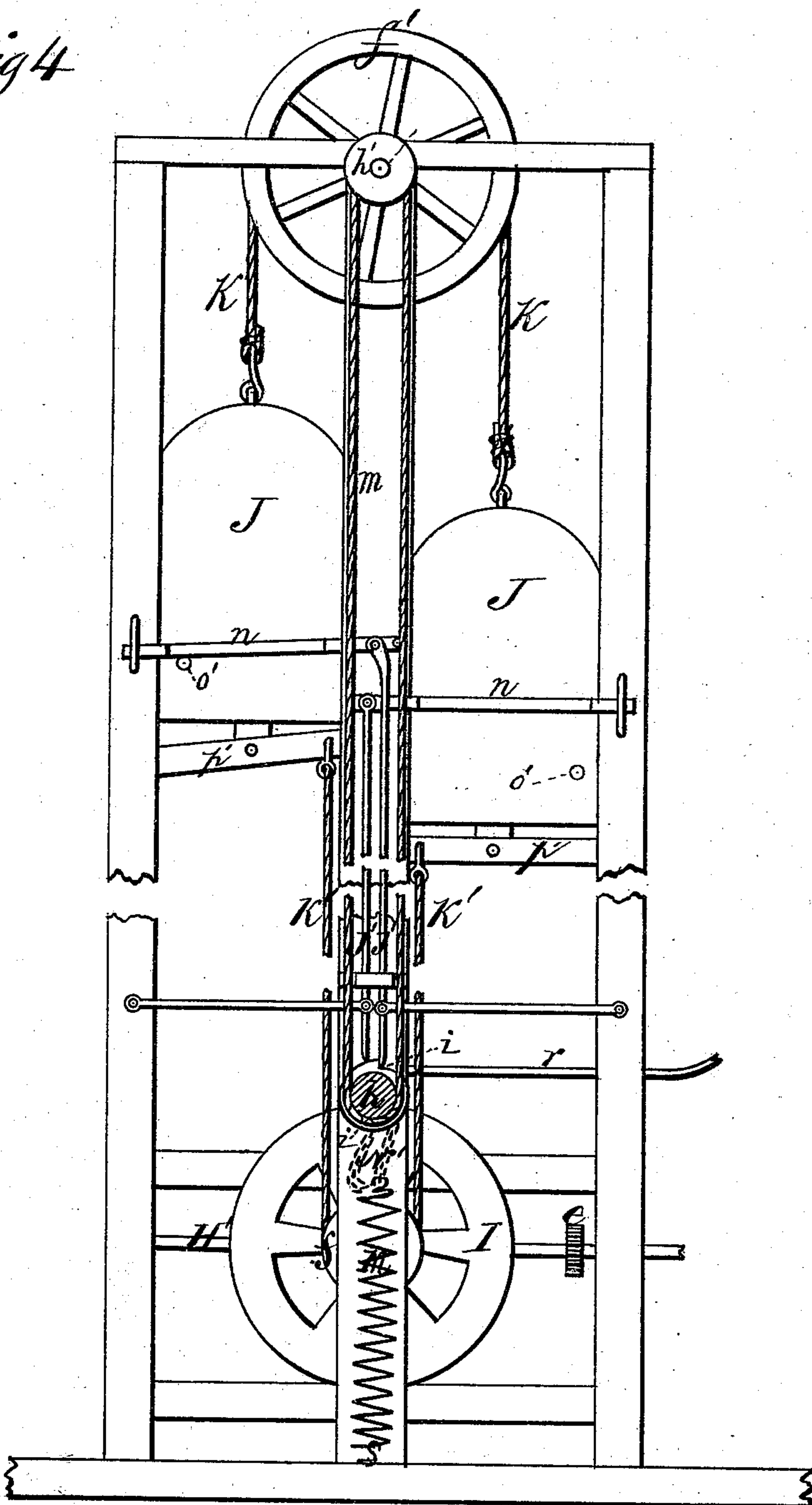
*Samuel R. Dimock,*  
*Chipman & Co.*  
ATTORNEYS

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*Fig 4*



WITNESSES  
*Robert Everett*  
*George E. Hoffmann*

INVENTOR  
*Samuel R. Dimock,*  
*Chapman & Hornum & Co,*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

SAMUEL R. DIMOCK, OF LINCOLN, NEBRASKA.

## IMPROVEMENT IN SAND-POWERS.

Specification forming part of Letters Patent No. 177,817, dated May 23, 1876; application filed May 8, 1875.

*To all whom it may concern:*

Be it known that I, SAMUEL R. DIMOCK, of Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and valuable Improvement in Sand-Powers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my device, and Fig. 2 is a sectional detail view of the same. Fig. 3 is a detail view, and Fig. 4 is a side view, part sectional.

This invention has relation to improvements in motors. The object of the invention is to produce a motor which may be applied to the operation of any description of machinery when neither wind, water nor steam power is available.

It is well known that on the broad prairies of America water is very scarce, and is of too great a value to be applied to moving machinery; also, that there are periodical calms occurring and alternating at regular intervals, with strong breezes adequate during their prevalence to moving a wind-wheel and operating a pump, mill, or other like machinery.

The object of my invention is to utilize these facts, for the purpose of storing away sand in a reservoir to be used during calms for propelling machinery; and to this end the nature of the invention consists in combining, with a wind-wheel and an elevating-belt, a reservoir for storing away sand, and an overshot bucketed wheel, to be operated by the regulated discharge of the sand from its reservoir, whereby a reserve motor is obtained, adapted to be used as a substitute for wind, water, or steam when these motors are not available, as will be hereinafter more fully explained.

In the illustration of the advantages of my new motor, I propose to show its operation in connection with a mechanism for raising dumb-waiters for hotels, warehouses, or private residences, and in pursuance of this purpose I shall first explain the operation and relative arrangement of the mechanism for elevating and storing the sand.

In the annexed drawings, A designates the shaft of a wind-wheel, B, arranged in suitable bearings, and operating an elevating-belt, C, upon which are secured at intervals a number of buckets, *a*. This belt passes over a pulley, D, rotating in suitable bearings at the bottom of a sand-pit or vault, passing thence upward through an aperture in a reservoir over an upper pulley, D', having its bearings in the open upper end of a casing, E, inclosing that portion of the belt above the reservoir. Motion is imparted to elevating-belt C through the medium of an endless belt, F, passing around a grooved pulley, *b*, upon the end of shaft A, and a second pulley keyed upon the end of the shaft of the lower pulley D. It may, however, be operated by a system of interlocking gear-wheels, if I so elect. This reservoir, which I shall now designate by the letter G, may be of any desired size, and it is elevated on uprights *d*, between which is mounted an overshot bucketed wheel, H, of suitable dimensions. When this wheel is caused to rotate, it will communicate motion through the medium of a connecting-rod, H', and gear-wheels *e* to the main actuating-wheel I of a windlass, *f*, having its bearings in the lower part of the frame supporting two cabs or waiters, J. The cabs are raised by means of a single cable or chain, K, passing over the grooved periphery of a pulley-wheel, *f'*, having its bearings in the top of the frame, which cable is rigidly secured to the upper part of the said cab, and by means of second cables K' rigidly secured to windlass *f* and to the under side of the said cab, as shown in Fig. 1.

Rod H' is made endwise movable, for the purpose of bringing one or the other of its gear-wheels *e* into communication with actuating-wheel I, for the purpose of raising one or the other of the cabs, as I may elect, without reversing the movement of power-wheel H, by means of a reversal of the movements of windlass *f* thus obtained; and this engagement may be effected by the occupant of a cab in the following manner, to wit: A shaft is passed transversely through the frame of the cabs, below and between the cabs, having on one end a disk, *g*, having a wrist-pin, and upon its rear end an actuating winding-drum, *h*, having in its flanged end, next the



frame, a deep notch, *i*, diametrically opposite a second notch, for a purpose hereinafter explained. The wrist-pin engages in the slotted upper end of a vertically-vibrating lever, *L'*, pivoted at *k* to the cab frame, and is connected pivotally to endwise-movable rod *H'* by means of a suitable connection, *l*, in the nature of a bridge. Winding-drum *h* is connected with a pulley-wheel, *h'*, on the end of the shaft of the pulley-wheel *f'* by means of an endless belt, *m*, which passes loosely over the grooved periphery of the upper pulley-wheel *h'*, but is rigidly secured to the lower pulley *h*, so that when the operator pulls forcibly down upon the side of the belt *m* nearest to the lowest cab, the lowest wheel *h* will be rotated and one of its notches, *i*, brought uppermost, allowing one of two catches, *j' j'*, arranged on and guided in the cab frame, to fall into the said notch and hold the said wheel against backward rotation. The operation above described will bring one of gears *e* into engagement with the main actuating-wheel *I*, at the same time opening the eduction-aperture in the bottom of reservoir *G*, and allowing sand to fall over the wheel. The wheel will be immediately operated, raising one of the cabs and lowering the other, and when the cab has reached the upper part of the building, catch *j* will be raised out of the notch by means of a pivoted lever, *n*, which is actuated by a pin, *o'*, on the cab, causing pulley *h* to spring back with its notches in a horizontal plane, through the recoil of a suitable spring, *M*, which spring is rigidly secured to a chain, *N'*, depending from pulley *h* and to the platform of the elevator, and had been distended by the previous actuation of the said pulley. By this means gear-wheel *e* is disconnected from wheel *I*, and the feed-gate *o* closed, cutting off the supply of sand from the wheel and arresting its movement.

The operation of opening and closing gate *o* is rendered automatic in the following manner: It is connected by means of a rod, *r*, to disk *g*, so that when pulley *h* is operated for the purpose of throwing gear-wheel *e* into connection with wheel *I*, thus connecting the motor and the machinery, gate *o* will be opened through the medium of an angular lever, *r'*, and the end of a catch, *p*, pivoted at *q'* to upright *d* of wheel *H*, will be vibrated out of engagement with studs *t* on the said wheel, thus allowing it to be operated by the fall of the sand out of reservoir *G*; but when catch *j*, is raised out of its notch in wheel *h*, thus allowing spring *M* to react, the backward turn of disk *g* thus superinduced will reverse the movements of rod *r* and lever *v'*, closing the gate and re-engaging catch *p* with studs *t* on wheel *H*, thus arresting its rotation.

Cabs *J* are held in the upper part of their frames at each floor of the building by means of pivoted catches 1 2, which hook over a strip of metal, *q*, on the inside of the frame, thus relieving the hoisting mechanism of

strain. These catches are pivoted to an actuating-lever, *p'*, to which lever cables 'K' of the windlass are attached; consequently, as soon as the strain of raising the lower cab and lowering the upper one commences, these catches will become disengaged from their detaining-strips and will allow the upper cab to descend.

The occupant of the upper cab may lower it by pressing down upon a pin, *w*, connected to actuating-lever *p'*, thus depressing its power-arm, and disengaging catches 1 and 2 from their detaining-strips *q*, allowing the upper cab to descend under the impulse of the weight of the occupant.

With a view to checking the rapidity of descent of cab *J* a fan-wheel, *r'*, is arranged at the base of the cab-frame, having upon the upper end of its shaft a gear-wheel, *t'*, which will engage with actuating-wheel *I* during such descent, and will be thrown out of gear therewith when one of gears *e* is in engagement with the said actuating-wheel.

By this means the descent of the cab will be rendered equable and gradual, and the said wheel being thrown out of gear when a gear, *e*, is engaged with cog *I*, for the purpose of raising a loaded cab, it will offer no resistance to such elevation.

This engagement and disengagement are rendered automatic in the following manner: The shaft *N* of fan-wheel *r'* is journaled in the end of an angular vertically-vibrating lever, *v*, the power end of which is connected by means of a rod, *u*, to disk *g*, the said rod being rigidly secured to the lever, and hooked or otherwise attached to the wrist-pin of the disk; consequently, when the said disk is rotated in the act of bringing gear *e* into engagement with wheel *I*, such actuation will depress the power-arm of angular lever *v*, throwing its weight-arm outward from wheel *I*, thus disconnecting gear *t* from it; but when the disk *g* is returned to its normal position by the reaction of spring *M*, a re-engagement of wheel *I* and pinion *t* will take place, and the upper cab lowered gently and safely, as above described, through the rotation of fan-wheel *r'*, consequent upon such re-engagement.

As the sand falls out of the buckets on wheel *H* it is transmitted through apertures *x* in the floor, within reach of the buckets, on belt *C*, and it may be again and again used.

It will be seen from the above description that the sand used in operating the elevators may be stored away in reservoir *G* during the night, when they are not in use, and may be used to operate the same during the day, when there is little or no wind, thus providing a reserve motor of unexceptional efficacy for the purpose.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the endwise-movable shaft *H'*, having gear-wheels *e*, with an over-



shot wheel, H, and the actuating-wheel I of a windlass, *f*, substantially as specified.

2. The endwise-movable catches *j*, for holding disk *g* against backward rotation, in combination with a lever, *n*, adapted to be operated by the elevator-cabs J, for the purpose of disengaging gears *e* from wheel I, substantially as specified.

3. The rotating disk *g* and rod *r*, in combination with the sliding door *o* of sand-reservoir G, substantially as specified.

4. The fan-wheel *r'*, adapted to be automatically geared to actuating-wheel I of cabs J and to be disengaged therefrom, substantially as specified.

5. The rotating disk *g*, adapted to throw gears *e* into and out of engagement with wheel

I, to open door *o* of reservoir, and to throw fan-wheel *r'* into and out of engagement with wheel I, substantially as specified.

6. In combination with a wind-wheel and an elevating-belt operated thereby, a reservoir for stowing away sand, and an overshot bucketed wheel, rotated by the discharge of the sand from the reservoir for actuating machinery, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SAMUEL ROBINSON DIMOCK.

Witnesses:

WM. A. HIGGINS,

Mrs. ADDIE L. BEECHER.