

No. 740,475.

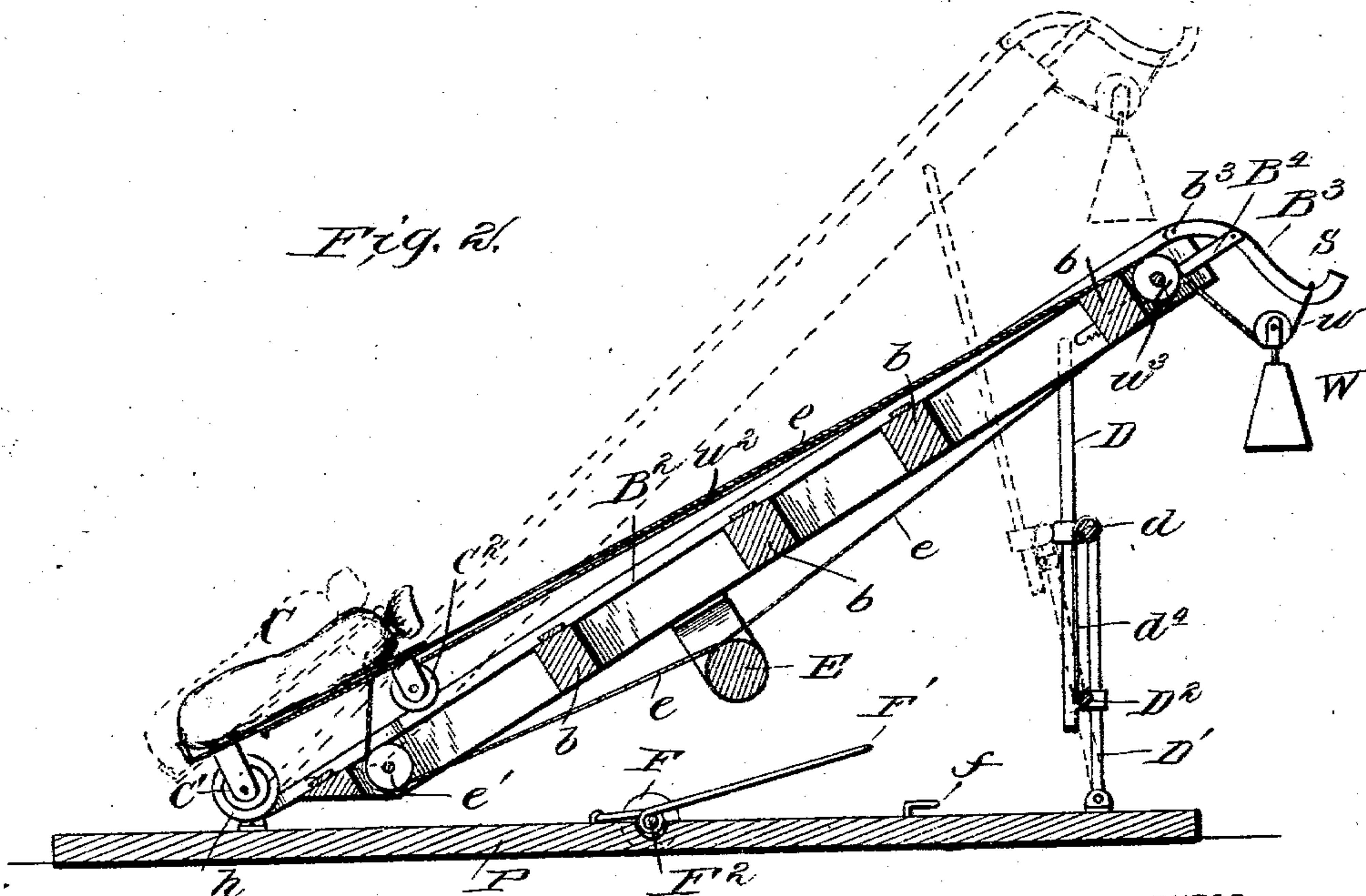
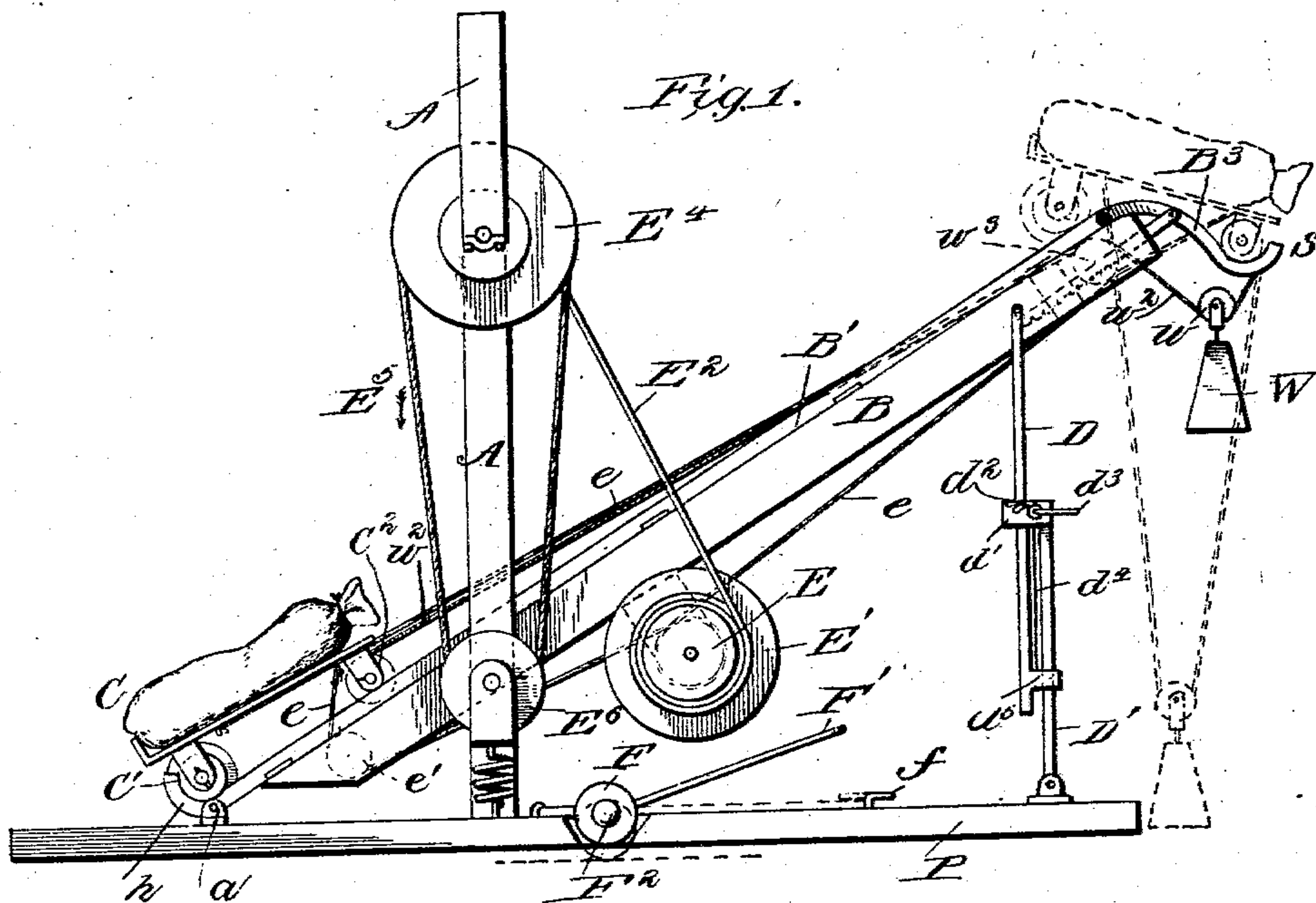
PATENTED OCT. 6, 1903.

C. SERLEY.
HOISTING DEVICE FOR SACKS, BOXES, &c.

APPLICATION FILED AUG. 26, 1902

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

Wm. A. Bradford
Edw. W. Byrnes

INVENTOR
Chris Serley

BY *Munn & Co.*
ATTORNEYS.

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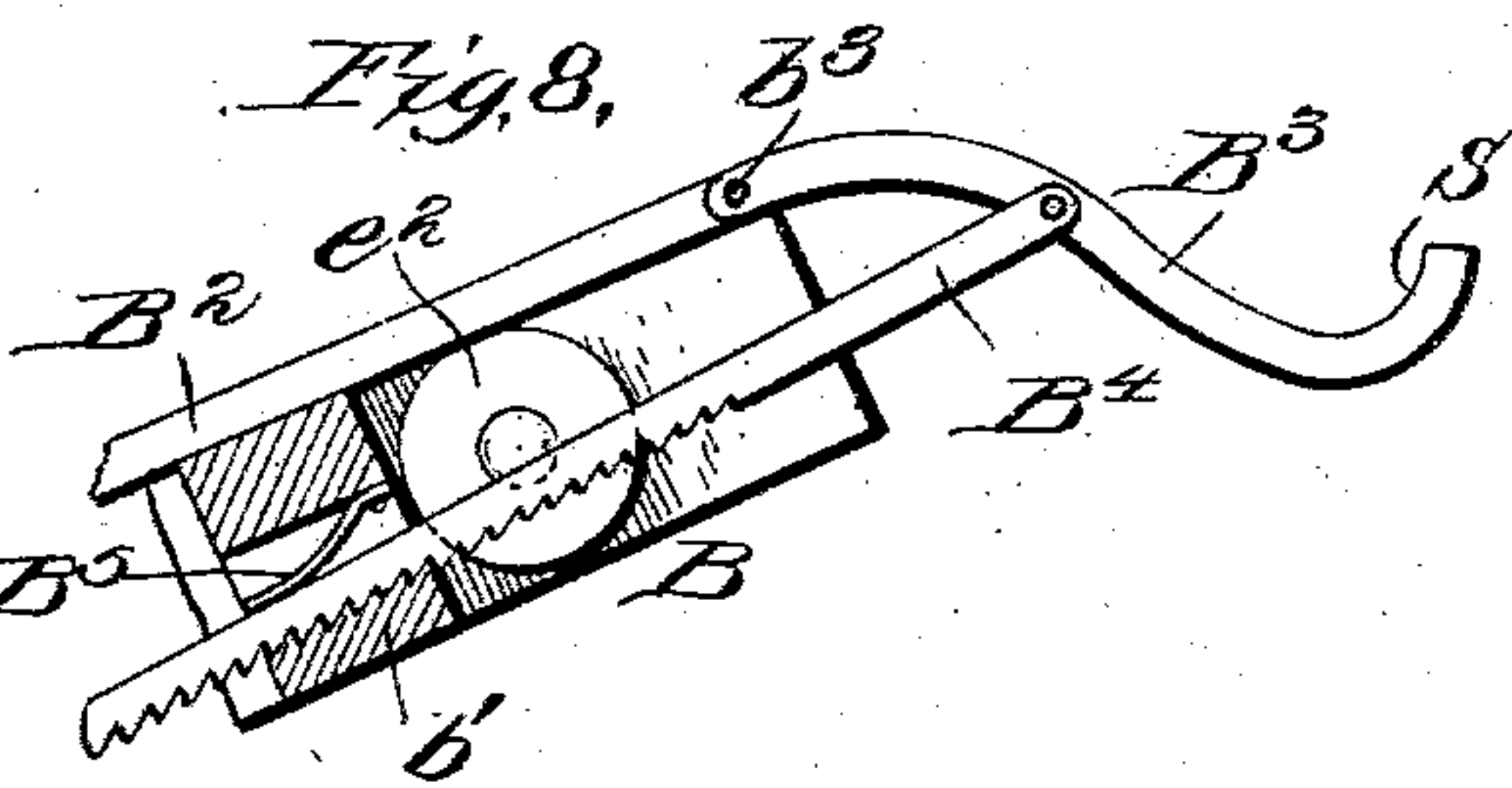
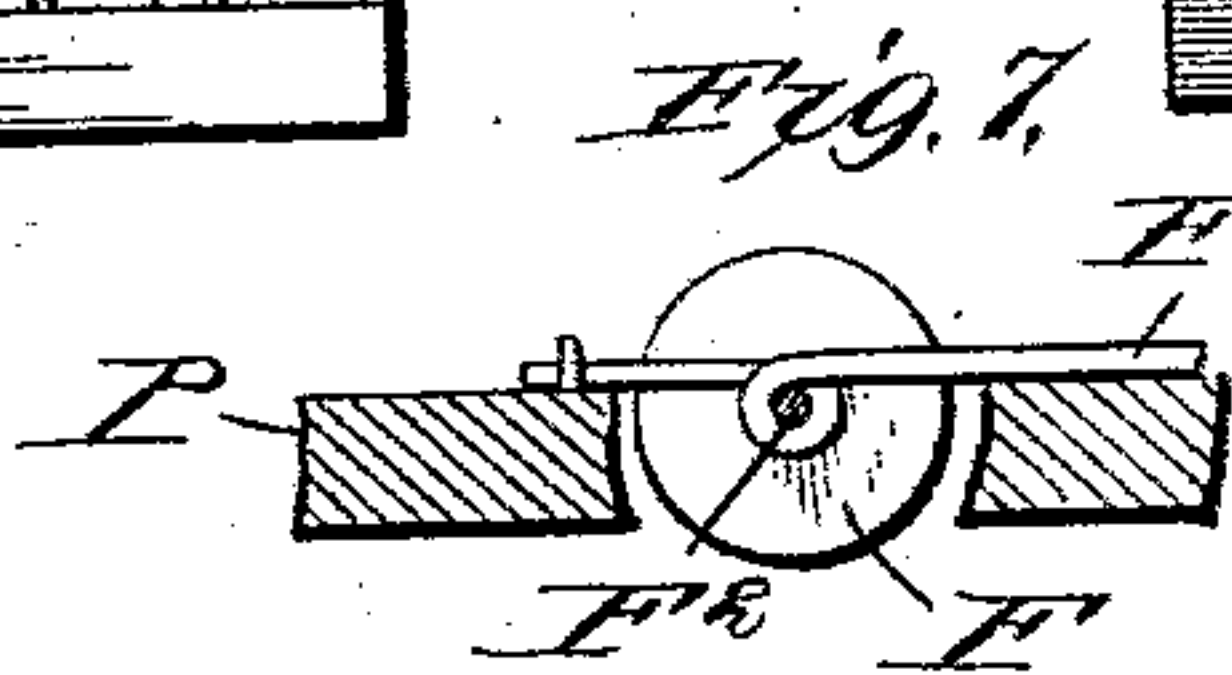
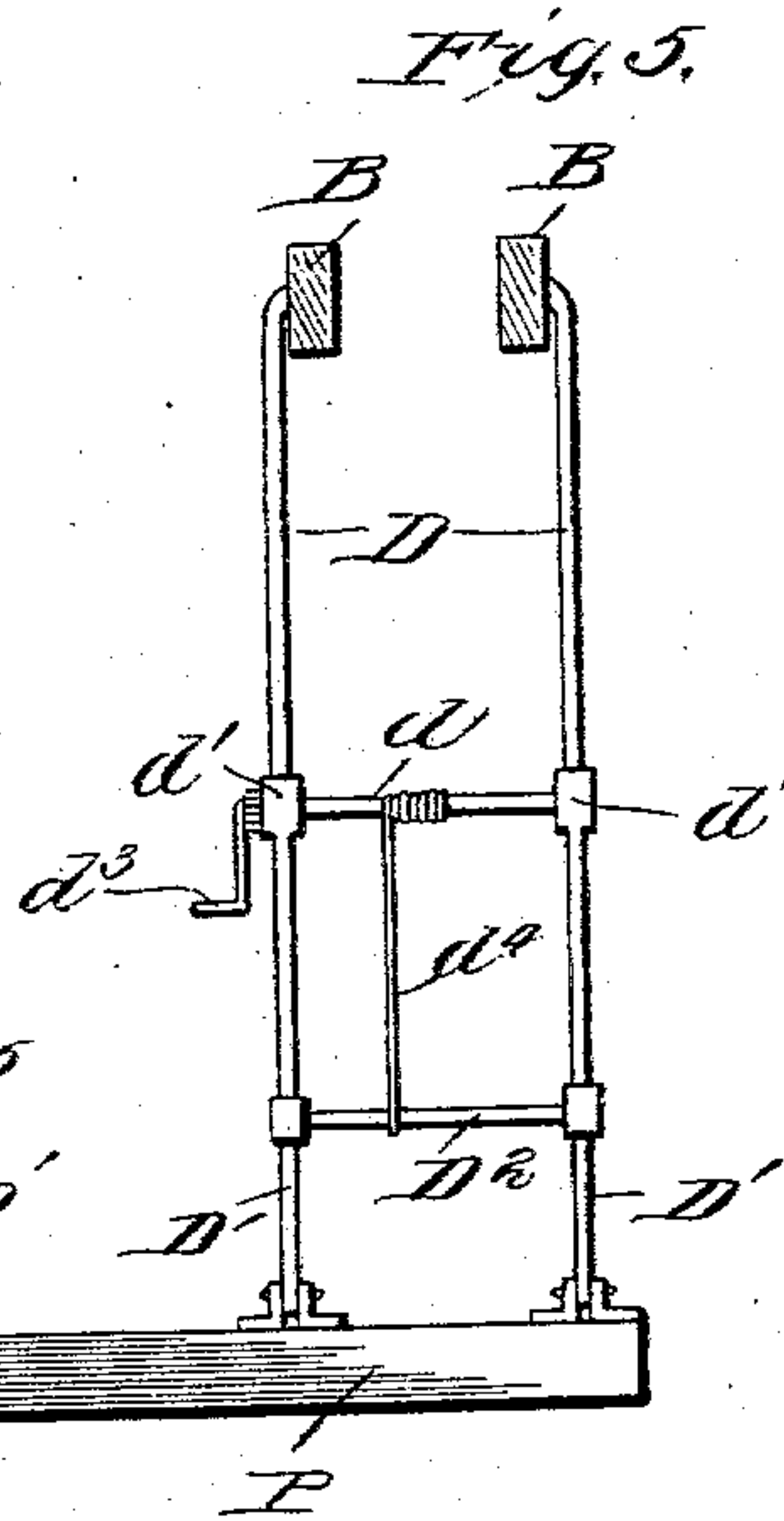
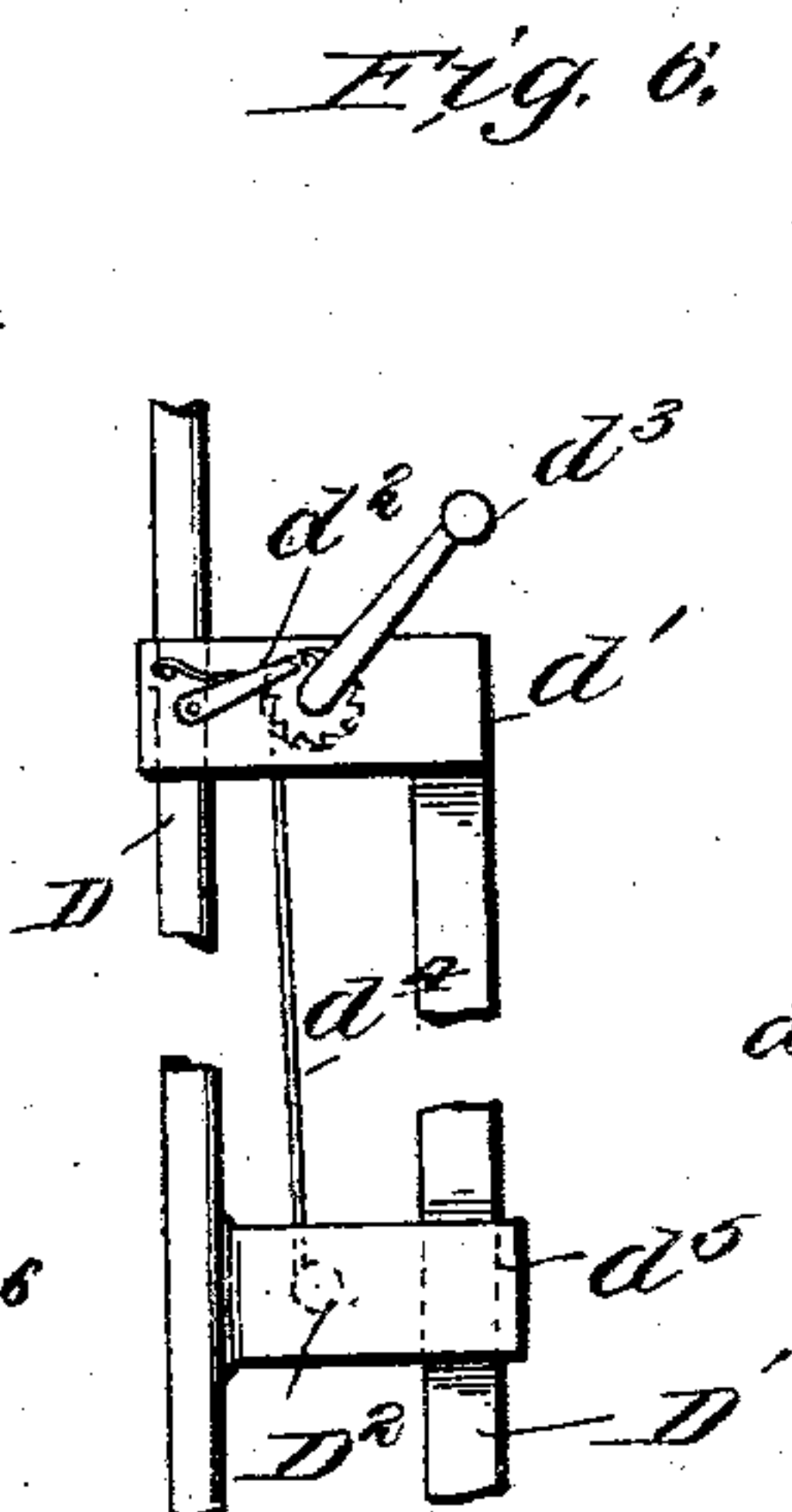
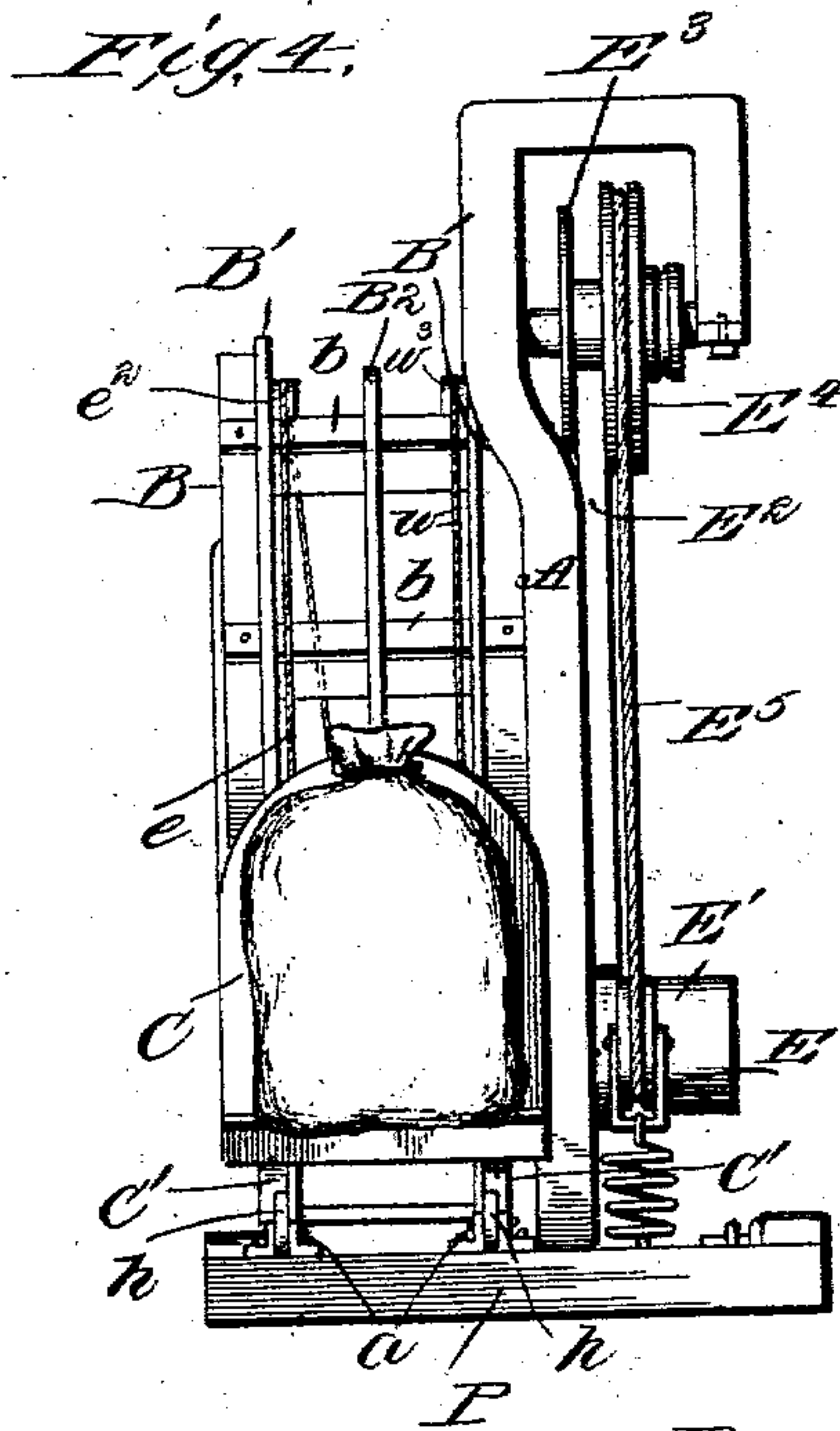
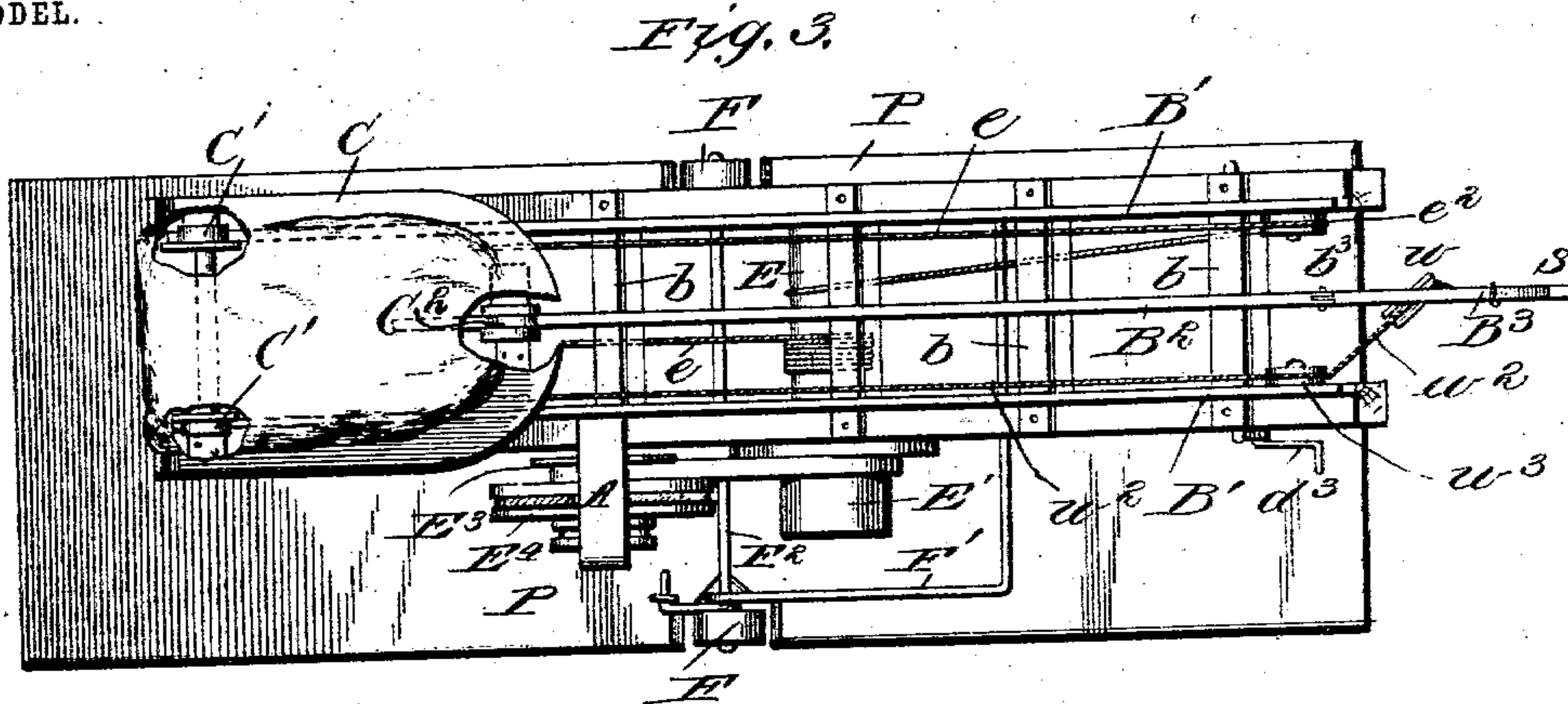
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UNITED STATES PATENT OFFICE.

CHRIS SERLEY, OF WILBUR, WASHINGTON.

HOISTING DEVICE FOR SACKS, BOXES, &c.

SPECIFICATION forming part of Letters Patent No. 740,475, dated October 6, 1903.

Application filed August 26, 1902. Serial No. 121,133. (No model.)

To all whom it may concern:

Be it known that I, CHRIS SERLEY, of Wilbur, in the county of Lincoln and State of Washington, have invented a new and useful
5 Improvement in Hoisting Devices for Sacks, Boxes, &c., of which the following is a specification.

My invention is in the nature of a simple, practical, and efficient device for hoisting and
10 piling sacked grain, boxes, or other material in a very rapid, convenient, and economical manner; and it consists in the novel construction and arrangement of the various parts and combination of parts, which I will now
15 proceed to describe with reference to the drawings, in which—

Figure 1 is a side elevation showing in dotted lines the elevated position of the carriage. Fig. 2 is a vertical longitudinal section showing in dotted lines a different inclination of
20 the inclined ways or track. Fig. 3 is a top plan view. Fig. 4 is a front elevation. Fig. 5 is a vertical transverse section through the track, showing means for varying the inclination of the same. Fig. 6 is an enlarged detail
25 side view of the same. Fig. 7 is a detail side view of one of the truck-wheels for the platform; and Fig. 8 is a detail in side view of the upper end of the track, showing means
30 for varying the position of the stop-seat in the middle rail.

In the drawings, A represents an upright post or frame mounted upon a platform P. To this platform is hinged at *a*, Fig. 1, the inclined
35 frame B, having cross-bars *b* and carrying on its upper surface two side rails *B'* *B'* and a middle rail *B*². These rails and their supporting-frame constitute an inclined track upon which travels a car C, the track being capable of
40 adjustment as to inclination about the lower hinge-point *a*, as shown by dotted lines in Fig. 2. This car has three flanged wheels that run upon the track-rails *B'* *B'* *B*², (see Fig. 3,) the upper wheel, *C*², running upon the
45 middle rail *B*² and the lower ones, *C'* *C'*, being the larger diameter and running upon the two side rails *B'* *B'*. The car is moved up and down on the inclined track by means of an actuating-rope *e*, whose opposite ends are
50 attached to the car and extend, respectively, around an upper pulley *e*² and a lower pulley *e'*, carried by the inclined frame. The

middle portion of this rope is wound around a windlass E, journaled in offsetting bearings below the inclined frame. When the
55 windlass E is turned in one direction, it winds up the rope on one side and unwinds it upon the other and causes the car to travel up or down on the inclined track. For turning this windlass a flanged pulley *E'* is rigidly fixed on the end of the same and receives
60 one end of a strap *E*², the upper end being wound upon an elevated pulley or spool *E*³, journaled in bearings in the upper end of the upright frame A. Rigidly fixed to the elevated spool or to its shaft is an actuating-pulley *E*⁴, of relatively large diameter, and
65 around this hangs an actuating-rope *E*⁵ of about one and one-half inches diameter. This rope will ordinarily hang loosely in the form of a loop or bight at the bottom, and it enters a groove in the large pulley above, which is of such shape and provided with such
70 roughened surfaces for friction that when one side of this endless rope is pulled it will turn the pulley above and wind or unwind the strap *E*². It is not necessary to provide any tension devices for this actuating-rope *E*⁵ for ordinary use; but I may, if desired, arrange
75 a pulley *E*⁶ in the lower bend or loop of this rope and connect this pulley by a spring with the platform, as shown. This will give an increased friction for heavy work and will hold the rope *E*⁵ against swinging about.

To raise or lower and change the inclination
85 of the inclined frame B, its upper end is mounted upon legs *D* *D*, which slide through keepers *d'* *d'*, (see Figs. 5 and 6,) formed on the upper ends of other legs *D'* *D'*, which latter are hinged at the bottom to the platform
90 P. A small windless *d*, with crank *d*³ and ratchet and pawl *d*², is carried in bearings *d'* at the upper end of the legs *D'* and has a rope *d*⁴ wound thereupon, whose lower end is attached to a cross-bar *D*² of the upper legs *D*,
95 so that when the windlass winds up the rope it lifts the cross-bar *D*², the legs *D*, and the inclined track B, as shown in dotted lines in Fig. 2, the hinge-joint at the bottom of the legs allowing the lifting legs to turn slightly
100 in accommodating themselves to the changed position of the inclined track.

At the upper end of the middle rail *B*² there is formed a hook-shaped seat *s* on an

extension of this rail which is below the upper end of the rail. This seat receives the upper small wheel of the car when it reaches its full height, allowing the front end of the car to drop down, as shown in dotted lines in Fig. 1. This seat not only acts as a stop for the car, but it allows the outer end of the car to have a cant downwardly after it has raised its load, so that a bag or box may be easily slipped off the same to be piled or placed by the workman in its final place of deposit. As the inclination of the frame B is changed for high or low piling, it is obvious that the seat *s* should have a corresponding adjustment, and for this purpose the seat *s* is preferably formed on the end of a separate section B^3 of the track-rail B^2 , and the two are hinged together at b^3 . This section B^3 is adjusted by the devices best shown in Fig. 8, in which a toothed bar B^4 is hinged to the seat-section B^3 near its middle, and its teeth are arranged to engage corresponding teeth formed on a cross-bar b' of the inclined frame B. A spring B^5 is located above the tooth-bar and holds it into engagement with the stationary teeth; but if the toothed bar is grasped and forced upwardly against the spring until the teeth are disengaged the bar B^4 may be adjusted longitudinally to change the position of the seat-section B^3 as may be desired. If desired, this seat-section may be set so low as to cause the bags or other objects to be automatically pitched off the car when raised to the proper height, thus making the car self-dumping.

To counterbalance the weight of the car in moving over the tracks, a weight *W* is hung by a pulley *w* on a rope w^2 , one end of which is attached to the seat *s* and the other end of which passes over a pulley w^3 and extends to and is connected with the car. The weight should be a little less than sufficient to sustain the car, so that the latter will gravitate easily and slowly to the bottom.

To facilitate moving the apparatus about, slots are cut in the platform on each side, as seen in Fig. 3, and truck-wheels *F* are arranged in the place of the platform on a shaft F^2 , which is journaled in a bail F' . When this bail is forced downwardly and secured by a turn-button or catch *f*, the wheels *F* are projected below the platform and raise the latter above the floor-line, as seen in dotted lines in Fig. 1, and the whole apparatus can then be conveniently pushed about to any desired position. When once located in proper position and it is desired that it should rest firmly and solidly on the floor, the bail F' is released and raised, as shown in Fig. 2, and then the platform rests solidly and flat upon the floor.

The object of my three-rail track and three-wheeled car is to avoid the side friction which a four-wheel car would involve, thus enabling the car to rise and fall easily and with but a small application of power. By making the rear wheels higher than the front wheel the top surface of the car is made to sit more

nearly horizontal, and the bags are less liable to slip off in hoisting them up a steep grade. It also causes less friction on the rails. When the car reaches its lowest position, these rear wheels are received into upturned hooks *h h* on the lower ends of the side rails, which act as stops to the descent of the car. The car-platform is made of one-eighth-inch sheet-steel, with an upturned flange at the lower end.

For transmitting power from the actuating-rope E^5 to the windlass the strap E^2 , which connects the flanged pulley E' of the windlass to the spool E^3 above, has a peculiar and advantageous effect in regulating the speed and power to suit the conditions of the work. Each end of the strap is spirally wound upon itself with a number of convolutions, which causes a constantly-varying differentiation of power and speed by reason of the different leverages that the pulleys assume when their diameters are increased or diminished by the winding or unwinding of the strap thereon. Thus when the car is at the bottom it starts slowly and with a greater power, because the leverage of the upper pulley or spool E^3 is smallest, there being no wraps of the strap thereon, while that of the pulley E' is larger, because of the number of spiral convolutions of the strap thereon. On the downward movement when the car goes down empty these conditions are reversed. The pulley E' is flanged to keep the convolutions of the strap from slipping off, and the pulley is intended to be detachable and a series of varying sizes provided, any one of which may be used to suit the conditions of the work, as a steep elevation of the track or heavy goods require more power than a slight incline or lighter packages. By means of my differentiating-pulleys and connecting-straps it will be seen that the car starts easily and slowly from the bottom, and as the strap winds upon itself on the upper pulley or spool the speed is automatically increased without any attention from the operator.

In making use of my apparatus I do not always use the counterbalance for the car, but only when the track is raised to a high elevation, partly to assist in lifting the load, but more for the purpose of easing back the car as it descends.

In constructing my machine I employ, for the sake of a reduced friction, roller-bearings at all points where they may be used to advantage.

By means of this machine two men can pile high about four sacks of grain per minute, which is more than twice the amount handled by the ordinary block-and-tackle apparatus.

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

1. A hoisting device comprising an elevated track, a car mounted thereon, a windlass and rope connecting the same to the car, a pulley on the windlass, a strap having one end connected to this pulley and arranged to

wind upon itself, a second pulley receiving in like manner the other end of the strap, and means for turning said pulley substantially as and for the purpose described.

5 2. A hoisting device comprising an elevated track, a car mounted thereon, a windlass and rope connecting the same to the car, a pulley on the windlass, a strap having one end connected to this pulley and arranged to
10 wind upon itself, a second pulley arranged at one elevation and receiving in like manner the other end of the strap, an actuating-wheel connected to said pulley, and an endless rope belt hanging upon said actuating-
15 wheel and arranged to turn the same as described.

3. A hoisting device comprising an inclined track having rails, one of which is extended downwardly at its upper end to form a hook-
20 shaped seat, and a car having one of its wheels adapted to be received in said seat to stop and tilt the car as described.

4. A hoisting device comprising a car, an inclined track having rails one of which is
25 provided with an adjustable extension at its upper end, said extension being bent to form a seat for one of the car-wheels, and means for adjusting said extension substantially as described.

30 5. A hoisting device comprising a platform,

an inclined track hinged at its lower end to the platform, a car traversing the track, means for raising and lowering the car, and means for adjusting the inclination of the track consisting of two sets of extensible legs
35 sliding upon each other, one being hinged to the track and the other to the platform, and means for sliding and locking one set of legs upon the other substantially as described.

6. A hoisting device consisting of a plat-
40 form with hoisting mechanism mounted thereon, a set of wheels arranged in the plane of the platform, an axial shaft carrying said wheels, a bail having bearings carrying said shaft and arranged to project the wheels be-
45 low the plane of the platform, and means for locking the bail substantially as described.

7. A hoisting device consisting of an inclined track, a car running upon said track, means for raising and lowering the car, and
50 a counterbalance for the car consisting of a rope attached at one end to the car and at the other end to the upper end of the track, a pulley suspended upon said rope, and a weight attached to said pulley substantially as and
55 for the purpose described.

CHRIS SERLEY.

Witnesses:

E. F. SCARBOROUGH,
C. C. PRYOR.