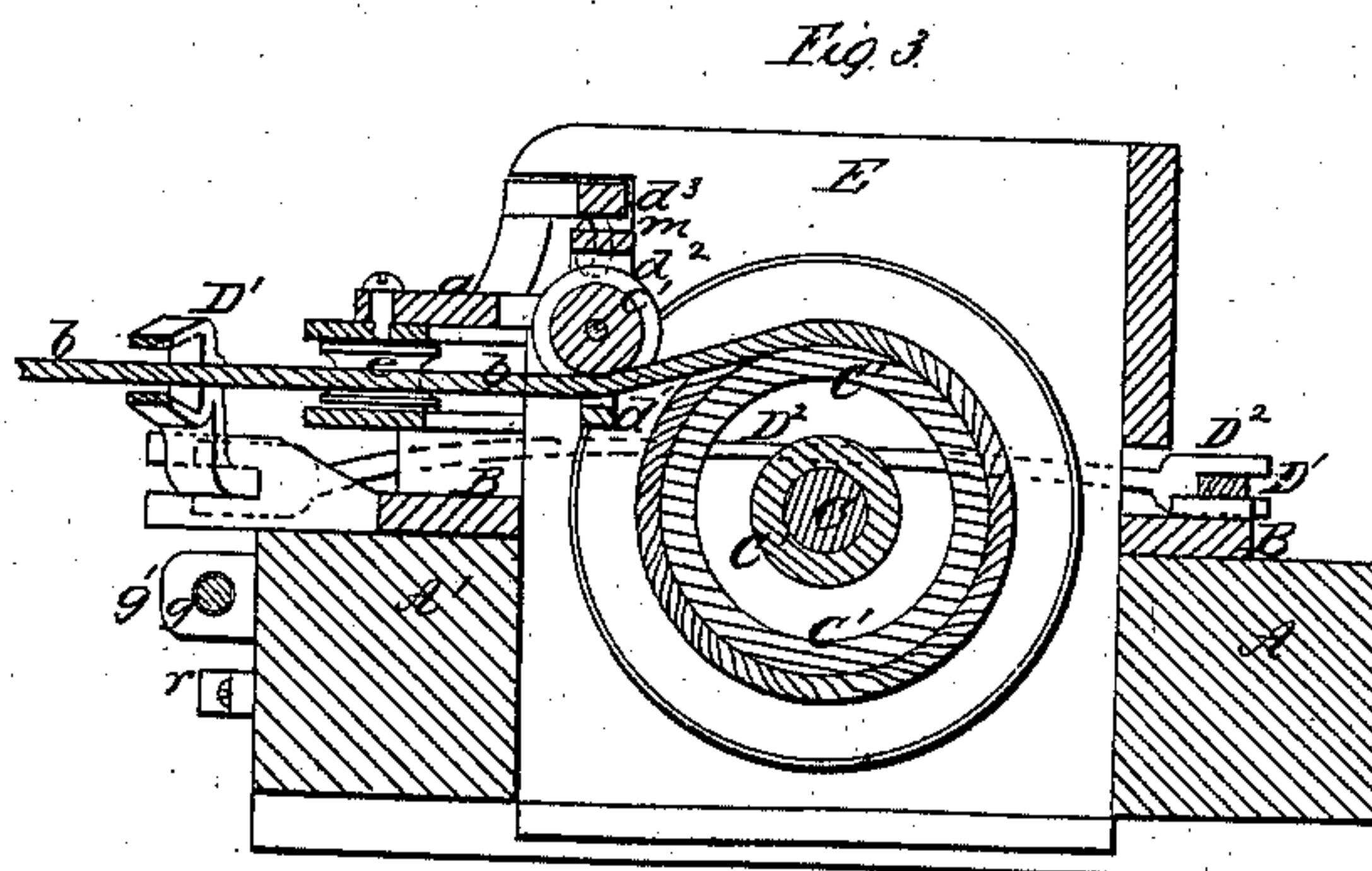
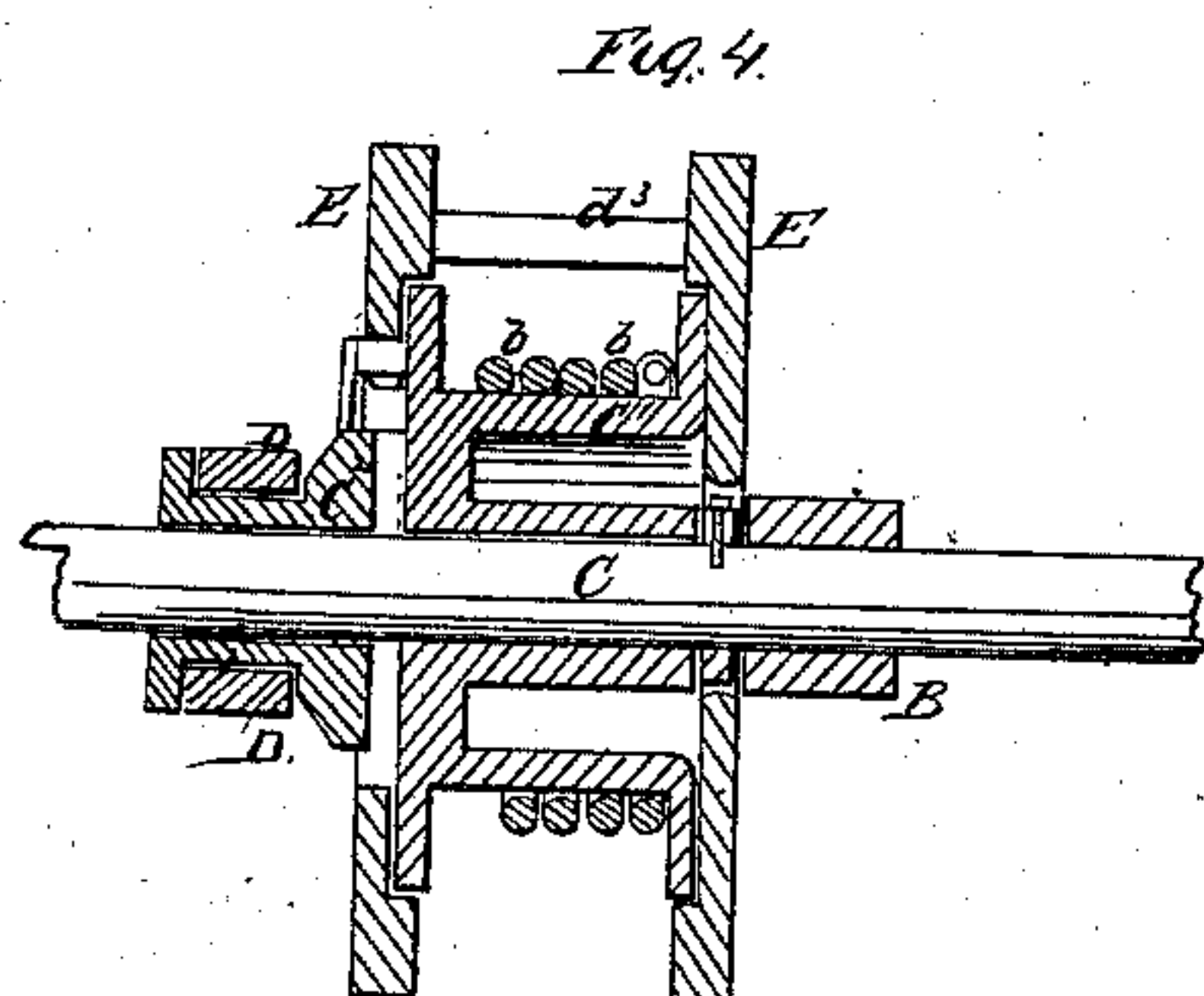
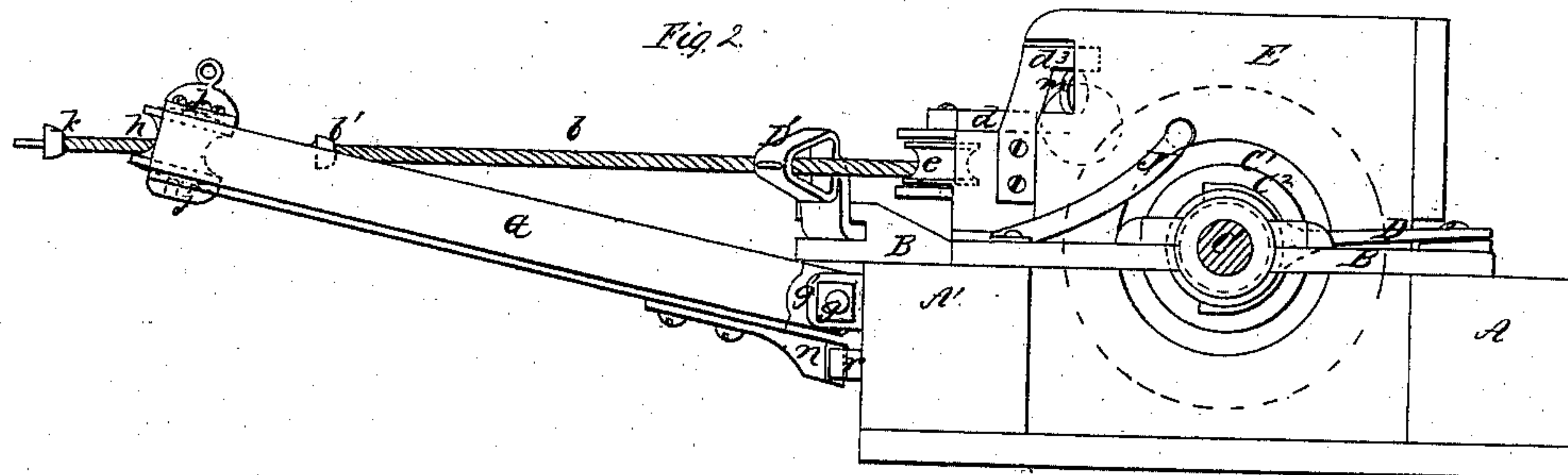
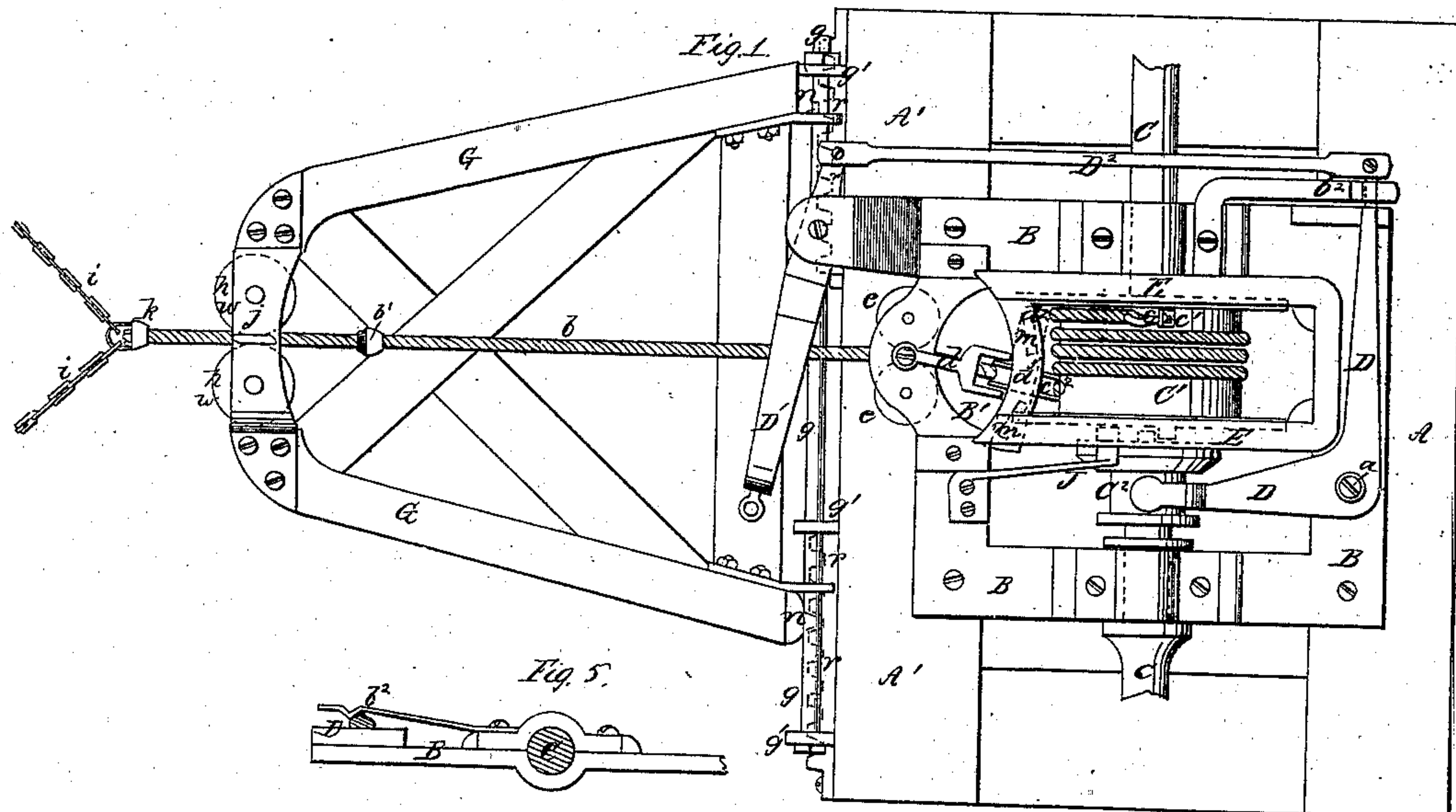


J. Dable

Unloading Railroad Cars.

N^o 56,906.

Patented Aug. 7, 1866.



Witnesses,

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UNITED STATES PATENT OFFICE.

JOHN DABLE, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MACHINERY FOR UNLOADING RAILROAD-CARS.

Specification forming part of Letters Patent No. 56,906, dated August 7, 1866.

To all whom it may concern:

Be it known that I, JOHN DABLE, of Chicago, Cook county, State of Illinois, have invented certain new and useful Improvements in Machinery for Unloading Grain from Cars, Vessels, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view of the improved machine. Fig. 2 is an elevation of one side of the machine. Fig. 3 is a vertical section through the center of the machine without the swinging frame. Fig. 4 is a longitudinal section, showing the windlass and its sliding clutch. Fig. 5 is a view in detail, showing the spring-stop for holding the clutch-lever in its desired positions.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain new and useful improvements on the machine which forms the subject of Letters Patent No. 44,937, for unloading grain from railroad cars.

The first part of my invention consists in laying the rope or chain upon the drum or windlass in an even and close manner by means of a horizontally-vibrating arm carrying a pulley, under which the rope passes, said swinging arm being held down in its place against the pressure of the rope by means of anti-friction rollers which have an upward bearing, as will be hereinafter described.

The second part of my invention consists in housing the windlass or drum in such manner that the rope which is wound thereon shall not be liable to run off and wind around the shaft, or to fray or wear out upon the flanges of said drum, as will be hereinafter described.

The third part of my invention consists in providing for allowing the rope which is wound upon the drum to untwist by attaching the rope to the drum by means of a swiveling connection, as will be hereinafter described.

The fourth part of my invention consists in the application of a spring friction-brake to the flange of the drum or windlass for the purpose of preventing the rope from unwinding too freely.

The fifth part of my invention consists in applying a spring-stop to the end of the clutch-

lever for the purpose of preventing the clutch from moving into gear with the drum, or out of gear therefrom, when not required.

The sixth part of my invention consists in providing for giving a lateral adjustment to the swinging frame or shears, and establishing the same so as to operate at any desired point.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A A' represent two horizontal sill-beams, which are secured together by means of transverse braces, so as to constitute the foundation-frame for supporting the machinery hereinafter to be described. B is a rectangular frame, which is bolted upon the two sills A A', and C is a horizontal shaft, which has its bearings in suitable boxes on the frame B. This shaft is allowed to rotate freely, but it is prevented from having end play by the collars which are formed on it, as shown in Fig. 1.

C' is a flanged drum, which is placed upon the shaft C so that it will turn loosely thereon, and C² is a clutch, which is applied to shaft C so that it will turn with this shaft, and also so that it may be moved forward and backward thereon. This clutch has a tooth formed on that end which is nearest the flanged drum C', which tooth can be made to engage with a corresponding tooth which is on the drum, as shown in dotted lines, Fig. 1.

When the clutch-cylinder C² is moved into gear with drum C' this drum will be turned with the shaft C; but when the clutch is out of gear the drum will remain stationary when the shaft C is turned.

D represents an L or bell-crank shaped lever having a yoke on one end which embraces the smallest part of the clutch. This lever is pivoted at *a* to the frame B, and its opposite end is connected to a slotted lever, D', by means of a connecting-rod, D².

Lever D' is pivoted to a projection of the frame B, so as to receive through its slot the rope which is wound upon the drum C', as shown in Figs. 1, 2, and 3.

The rope or chain *b* has an enlargement, *b'*, formed on it at a suitable point, and when this enlargement is brought in contact with the lever D' it will move this lever until the

clutch C^2 is thrown out of gear from the drum C' , thus automatically stopping the further winding up of the rope b .

To prevent the lever D from being moved casually, so as to throw the clutch when not required, I employ a spring-stop, b^2 , one end of which is secured to the frame B , and the other end bears upon a reduced portion of the lever D , near the point of connection of the rod D^2 . That end of the spring b^2 which presses upon lever D is bent so as to form a V-shaped stop, the inclined sides of which bear upon a ridge which is formed upon the lever D .

It will be seen that the lever D cannot be moved without lifting the spring-stop over the ridge, which will cause sufficient resistance to prevent the said lever from being casually moved by the slipping of the rope b through the slotted lever. The clutch is moved into gear with the drum C' by the attendant, a rope being attached to the outer end of the slotted lever D' for this purpose.

The rope b is attached to a swivel-eye, c , which is allowed to turn freely in a plate, c' , that is secured to the drum C' near one of the flanges thereof, as shown in Fig. 1. The object of thus connecting the rope to its drum is to allow the rope to untwist so that it will not kink, or rather to prevent the rope from twisting during the operation of winding it upon or unwinding it from the drum. The rope b passes from the drum C' beneath a grooved pulley, c^2 , which is pivoted between the forks of a vibrating arm, d , and from this pulley the rope passes between two grooved pulleys, e e , which are pivoted in a horizontal plane to a frame, B' , that is secured to the frame B .

The arm d is constructed with a loop, d' , which extends beneath the pulley c^2 and prevents the rope b from slipping off this pulley, and it is also constructed with a horizontal cross-head, d^2 , having two anti-friction rollers, m m , projecting from its upper surface and bearing against a horizontal bridge, d^3 , as shown in Figs. 1, 2, and 3. The pulley c^2 , thus arranged, is intended for laying the rope evenly upon the flanged drum C' as it is wound thereupon, and also to prevent the rope from overriding the flanges of the drum. To effectually prevent this overriding of the rope I house the drum C' by means of the vertical boards E , which are recessed for receiving the flanges of the drum, as indicated in Figs. 1 and 3.

To the outer vertical side of the sill A' a horizontal rod, g , is suitably secured by means of eye-supports g' g' , and to this rod a frame, G , is pivoted, which frame is inclined, as shown in Fig. 2. This frame or shears is braced by means of diagonal and transverse braces, as shown in Fig. 1, and its legs or side bars are spread out at their pivoted ends.

Two grooved pulleys, h h , are pivoted to the outer end of the frame G between two transverse plates, j j , and between these pulleys the rope b passes, as shown in Figs. 1 and 2. These pulleys h h are constructed with their

upper and lower ends w w convex, and the inner supporting-faces of the two jaws or plates j j , between which these pulleys rotate, are also convex, as illustrated by dotted lines in Fig. 2.

By thus constructing the pulleys and their plates it will be seen that the former will not be liable to clog with grain. If grain should get between the convex surfaces it will be quickly expelled, as it will find no lodgment.

The shovel (or scraper) which is used for gathering and discharging grain is attached to the ends of two chains, i i , which are connected to a looped thimble, k , on the end of rope b , and said shovel is drawn up to the door of a car by the winding up of the rope b upon the drum C' . When the load is discharged from the shovel the attendant draws it back and again loads it.

The enlargement b' on the rope b consists of a conical thimble, which is held in place on the rope by means of a knot which is termed by sailors a "Turk's head." This thimble is much larger in diameter than the width of the slot through the lever D' , and consequently this lever will be moved by it as the rope is wound upon the drum, and the clutch C^2 will be thrown out of gear and the drum stopped at the proper time for discharging the load from the shovel.

The frame G is prevented from moving laterally when the machine is in operation by means of teeth n n , which project from the lower ends of the side bars of said frame and enter spaces between the teeth of racks r r , which are bolted to the vertical side of the sill A' , as shown in Figs. 1 and 2. When it is desired to adjust the frame G laterally for the purpose of adapting it to operate at the door of a car, this can be done by elevating the outer end of said frame until the teeth n n are released from the racks r r . When the frame has been adjusted properly its outer end is again lowered and the teeth n n again engaged with their racks.

In the operation of the machine it has been found necessary to employ a friction-brake, J , to prevent the drum C' from unwinding the rope b too rapidly while carrying off the shovel to be loaded. This friction-brake consists of a spring, g , which is secured to the frame B , and having a shoe formed on its upper end, which shoe passes through a perforation through the housing E , and is pressed by the spring against the end of the drum C' , as shown in Figs. 1, 2, and 4.

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

1. The horizontally-vibrating arm d , constructed with a loop, d' , cross-head d^2 , and provided with a pulley, c^2 , and anti-friction rollers, in combination with the bridge-bearing d^3 , all operating substantially as described, for laying the rope evenly upon the drum C' .

2. The construction and manner of application of the housing E E , in connection with

the machine herein described, for unloading railroad-cars and other receptacles of their contents, substantially as set forth.

3. The combination and arrangement of the swivel-coupling *c c'*, drum *C'*, rope *b*, and hinged frame *G*, substantially in the manner and for the purpose described.

4. The combination and arrangement of the spring friction device *J*, drum *C'*, rope *b*, and hinged frame *G*, substantially in the manner and for the purpose described.

5. The combination and arrangement of the V-form spring-stop *b²*, clutch-lever *D*, connecting-rod *D²*, lever *D'*, drum *C'*, and rope *b b'*, substantially as and for the purpose described.

6. Connecting the frame or shears *G* to the sill *A'* by means of a rod, *g*, and providing at

the same time for adjusting said frame laterally and establishing it at any desired point, substantially as described.

7. The combination of the convex ends *w w* of the pulleys *h h* with the convex surfaces of the plates or jaws *j j* of the hinged frame *G*, substantially as and for the purpose described.

8. The combination of the drum *C'*, friction-brake *J*, clutch-lever *D*, spring-stop *b²*, connecting rod *D²*, lever *D'*, rope *b b'*, and hinged frame *G*, substantially as and for the purpose described.

JOHN DABLE.

Witnesses:

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