

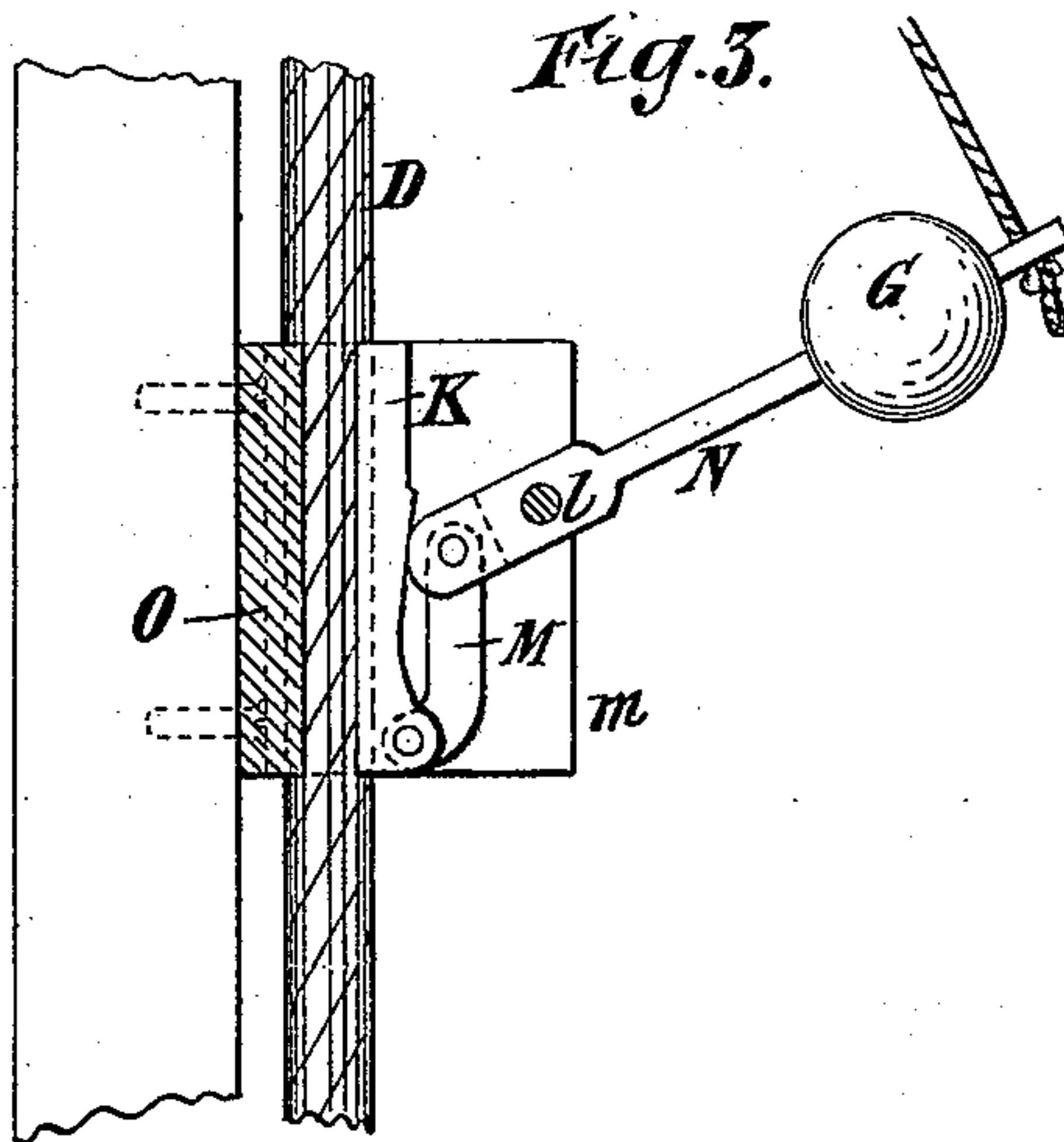
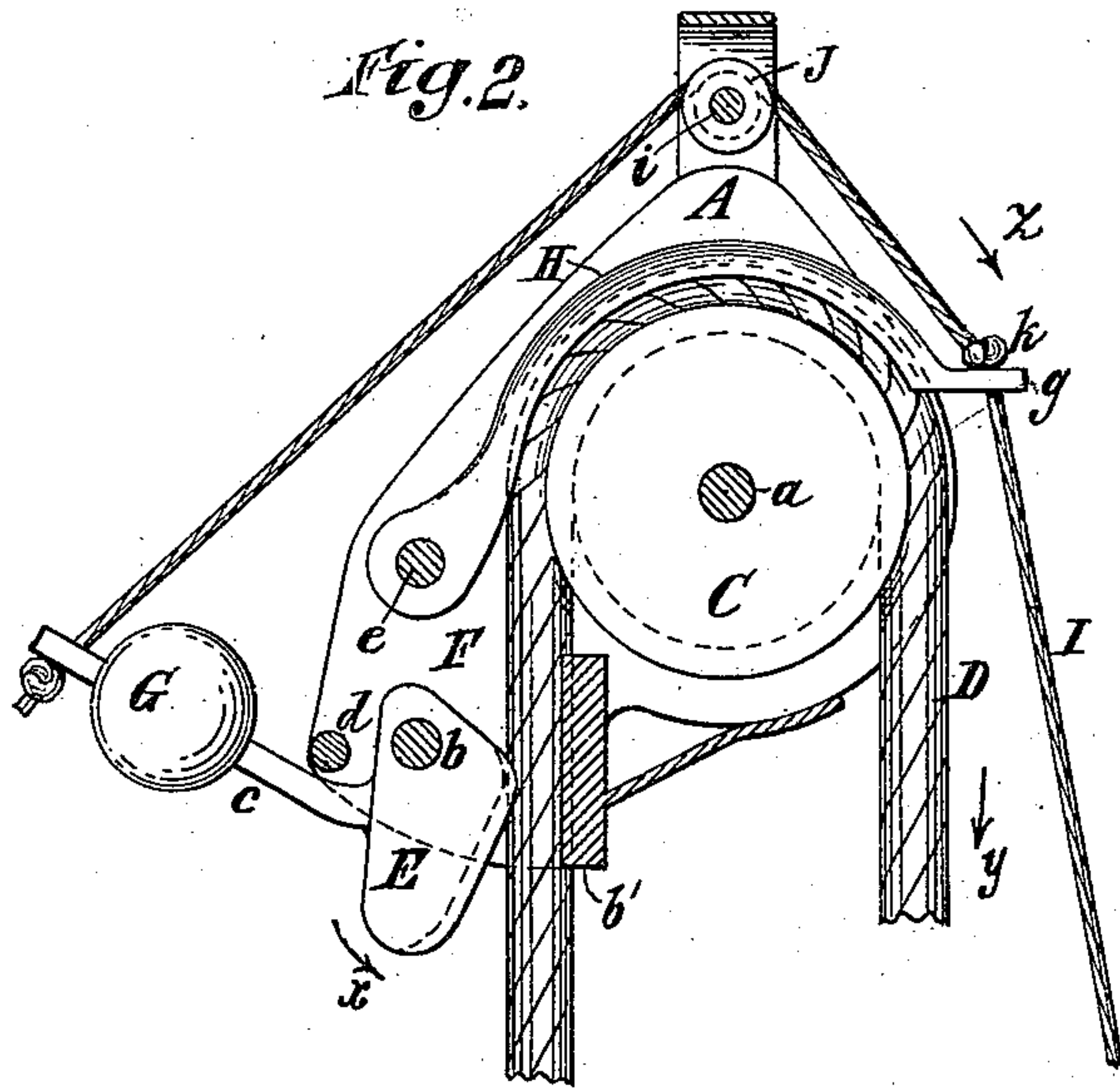
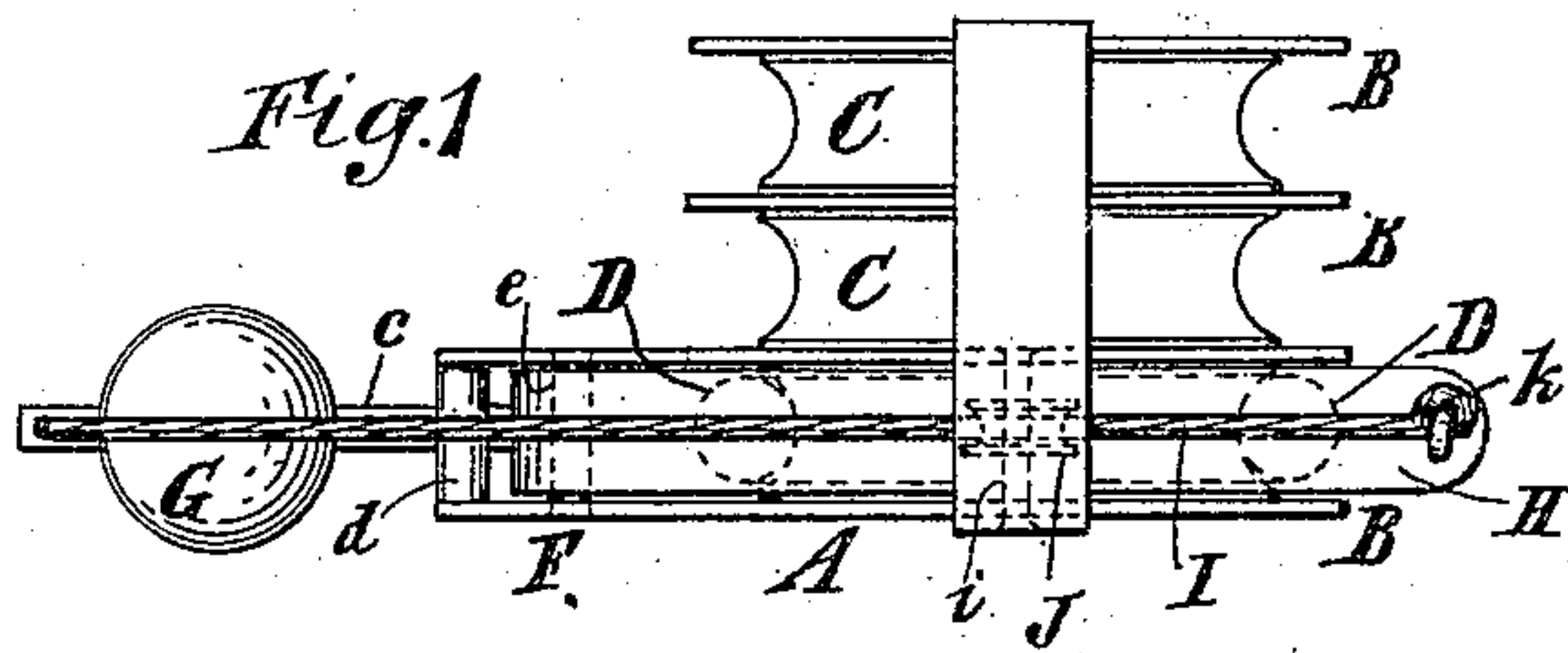
(No Model.)

G. W. CLARK.

## PULLEY BLOCK.

No. 334,071.

Patented Jan. 12, 1886.



*Witnesses*

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# UNITED STATES PATENT OFFICE.

GEORGE W. CLARK, OF BROOKLYN, NEW YORK.

## PULLEY-BLOCK.

SPECIFICATION forming part of Letters Patent No. 334,071, dated January 12, 1886.

Application filed January 31, 1885. Serial No. 154,547. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. CLARK, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Pulley-Blocks, of which the following is a specification.

I will describe in detail a pulley-block embodying my improvement, and then point out the novel features in claims.

10 In the accompanying drawings, Figure 1 is a plan or top view of a pulley-block embodying my improvement. Fig. 2 is a side view thereof, a portion being removed; and Fig. 3 is a side view of a modification thereof, 15 a portion being removed.

Similar letters of reference designate corresponding parts in all the figures.

A designates the frame of the pulley-block. It may be of metal or other suitable material. It has compartments B, adapted to receive pulleys C. As here shown, there are three of these compartments and three pulleys; but the number thereof may be varied. These pulleys are mounted on a shaft, *a*, which 25 is supported in the side frames of the pulley-block and turn freely thereon. They are adapted to receive a hoisting cord or rope, D, which passes over them in the usual manner.

30 To illustrate my improvement it is only necessary to show it passing over one, and I have therefore only so shown it.

Referring first to Figs. 1 and 2, E designates a clamping device pivoted to a downwardly-extending portion, F, of the frame. As here shown, it is loosely hung therein upon a pin, *b*. Opposite this clamping device is a portion, *b'*, of the frame. The hoisting cord or rope D passes between the clamping device 40 and the portion *b'* of the frame.

The clamping device constitutes a lock for the hoisting cord or rope. The surface of the clamping device which is opposite the portion *b'* of the frame occupies such relation 45 to the pivot of the clamping device that when the clamping device is moved in the direction indicated by the arrow *x*, Fig. 2, the cord or rope will be clamped with more or less force, according to the power with which the 50 clamping device is so moved.

The clamping device and the opposite por-

tion *b'* of the frame may be transversely corrugated or ribbed, to facilitate the gripping of the hoisting cord or rope by them. When the clamping device is moved in the reverse 55 direction to that indicated by the arrow *x*, its hold on the hoisting cord or rope will be relaxed. When a weight is to be hoisted, this cord or rope is intended to move in a reverse direction to that indicated by the arrow *y*. 60 The strain produced by the weight upon the cord or rope will tend to move it in the direction indicated by the arrow *y*. In order that the movement of said cord or rope in the direction indicated by the arrow *y* may 65 cause the clamping device to move in the direction indicated by the arrow *x*, for the purpose of effecting the gripping of the cord or rope, it is desirable that during the hoisting of a weight, by means of the cord or rope D, 70 the clamping device shall be in contact with said cord or rope. Then if the force applied to the cord or rope for the purpose of hoisting the weight be relaxed the strain of the weight being hoisted, tending to move the 75 cord or rope in the direction indicated by the arrow *y*, will cause the cord or rope to operate by friction to move the clamping device in such direction that the latter will, in conjunction with the opposite portion, *b'*, of the 80 frame, grip and secure the cord or rope against any material movement in the direction of the arrow *y*.

To produce the contact of the clamping device, I use either a spring or a weight. In this 85 example of my improvement I have shown a weight, G, upon an arm, *c*, which is secured to the clamping device E. A too-extended movement of the clamping device in a reverse direction to that indicated by the arrow 90 *x* is prevented by a stop, *d*, arranged upon the portion F, and with which the arm *c* is adapted to come in contact.

H designates a brake, which is hung near one end upon a pin, *e*, extending through 95 apertures in the side walls of the portion F, and a corresponding aperture near the end of said brake. This brake may be made of a strip of metal. The brake H extends above the hoisting cord or rope D, 100 and is curved longitudinally. It is preferably semicircular in the cross-section, to en-



able it to accommodate itself to the cord or rope in its passage over the pulley. At its free end said brake is provided with an outwardly-extending portion, *g*, near the end of which is a hole, through which passes a cord, I. This cord passes from the hole upwardly over a pulley, J, mounted upon a shaft or arbor, *i*, in a portion of the frame of the pulley-block above the pulleys C. From the pulley J the cord I passes to an eye on the weight-supporting arm or spring *c* of the clamping device, when it is firmly secured by knots, or in any other suitable manner. A stop, *k*, here shown as a knot in the cord I, prevents the cord I from moving too far in the direction indicated by the arrow *z* through the hole in the portion *g* of the brake H.

When it is desired to move the cord or rope D freely in the direction of the arrow *y*, for the purpose of lowering a weight, the cord I may be drawn downward. It then operates to raise the weight G, and consequently to move the clamping device E away from the cord or rope D, or into such position that it will not clamp the same. The cord or rope D may then move in the desired direction.

If when the cord or rope D is passing in the direction of the arrow *y* it is desired to brake the same, the cord I may be drawn downward tightly. The stop K then comes in contact with the portion *g* of the brake H, and the latter is thereby drawn down firmly upon the cord or rope D.

In the example of my improvement shown in Fig. 3 the clamping device E consists of a clamping-piece, K, adapted to bear upon the hoisting cord or rope D. Near one end the clamping-piece K is pivotally connected to one end of a link, M, the other end of which is pivotally connected to a lever, N, near one end thereof. The lever N is fulcrumed upon a pin, *l*, passing through apertures in a frame-like device, *m*, which is rigidly affixed to a plate, O. The end of the lever N which is in connection with the link M is adapted to bear upon the surface of the clamping-piece K. This end of the lever is preferably rounded off to enable it to act properly upon the clamping-piece K. The other end of the lever bears upon it the weight G. This device is adapted to be secured to a wall or other suitable support, and to receive the cord or rope from a pulley-block. When the hoisting cord or rope illustrated in this figure is moved upwardly, the clamping-piece K is moved with it by friction. The rounded end of the lever N is moved in a similar direction through the medium of the link M, and is caused to impinge more and more firmly against the surface of the clamping-piece K as the cord or rope progresses. The clamping-piece is thereby forced tightly against the cord or rope, and the latter is firmly held. When the cord or rope is moved in the opposite direction, the clamping-piece is released.

A cord, I, may be combined with this example of my improvement in the same way

that said cord is combined with the weight G and the brake J in the example of my improvement shown in Figs. 1 and 2.

The surfaces of the clamping piece K and that of the frame-like device which are adapted to come in contact with the cord or rope D may be semicircular in the cross-section, and provided with ribs or protuberances, the better to secure the cord or rope, if desired.

Obviously a hoisting-chain would be the equivalent of a hoisting cord or rope.

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

1. The combination of a hoisting cord, chain, or rope, a pulley or pulleys, over which said cord, chain, or rope passes, a clamping-piece for preventing the movement of the cord, chain, or rope in one direction, a fixed surface independent of the pulley or pulleys opposite the clamping-piece, and against which the cord, chain, or rope is clamped by the clamping-piece, and a cord connected directly to the clamping-piece for operating the clamping-piece to permit the hoisting cord, chain, or rope to move freely in either direction, substantially as specified.

2. The combination of a hoisting cord, chain, or rope, a pulley or pulleys, over which said cord, chain, or rope passes, a clamping-piece for preventing the movement of the cord, chain, or rope in one direction, a cord connected directly to the clamping-piece for operating the clamping-piece to allow the hoisting cord, chain, or rope to move freely in the same direction, and a brake independent of the clamping-piece operated by the cord last mentioned, and acting directly on the hoisting cord, chain, or rope, substantially as specified.

3. The combination of a hoisting cord, chain, or rope, a pulley or pulleys, over which said cord, chain, or rope passes, a clamping-piece for preventing the movement of the cord, chain, or rope in one direction, a cord connected directly to the clamping-piece, and a brake independent of the clamping-piece and operated by the cord last mentioned, substantially as described, whereby, when it is desired that the hoisting cord, chain, or rope move freely in one direction, the other cord may be operated to release the clamping-piece from the hoisting cord, chain, or rope, without applying the brake to the hoisting cord, chain, or rope, and the said cord may then be operated further to apply the brake to the hoisting cord, chain, or rope.

4. The combination, with a pulley-block, of a pulley or pulleys, C, a hoisting cord, chain, or rope, the clamping device E, the weight G, the brake H, having the outwardly-extending portion *g*, and the cord I, having the stop *k*, substantially as specified.

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Witnesses:

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