

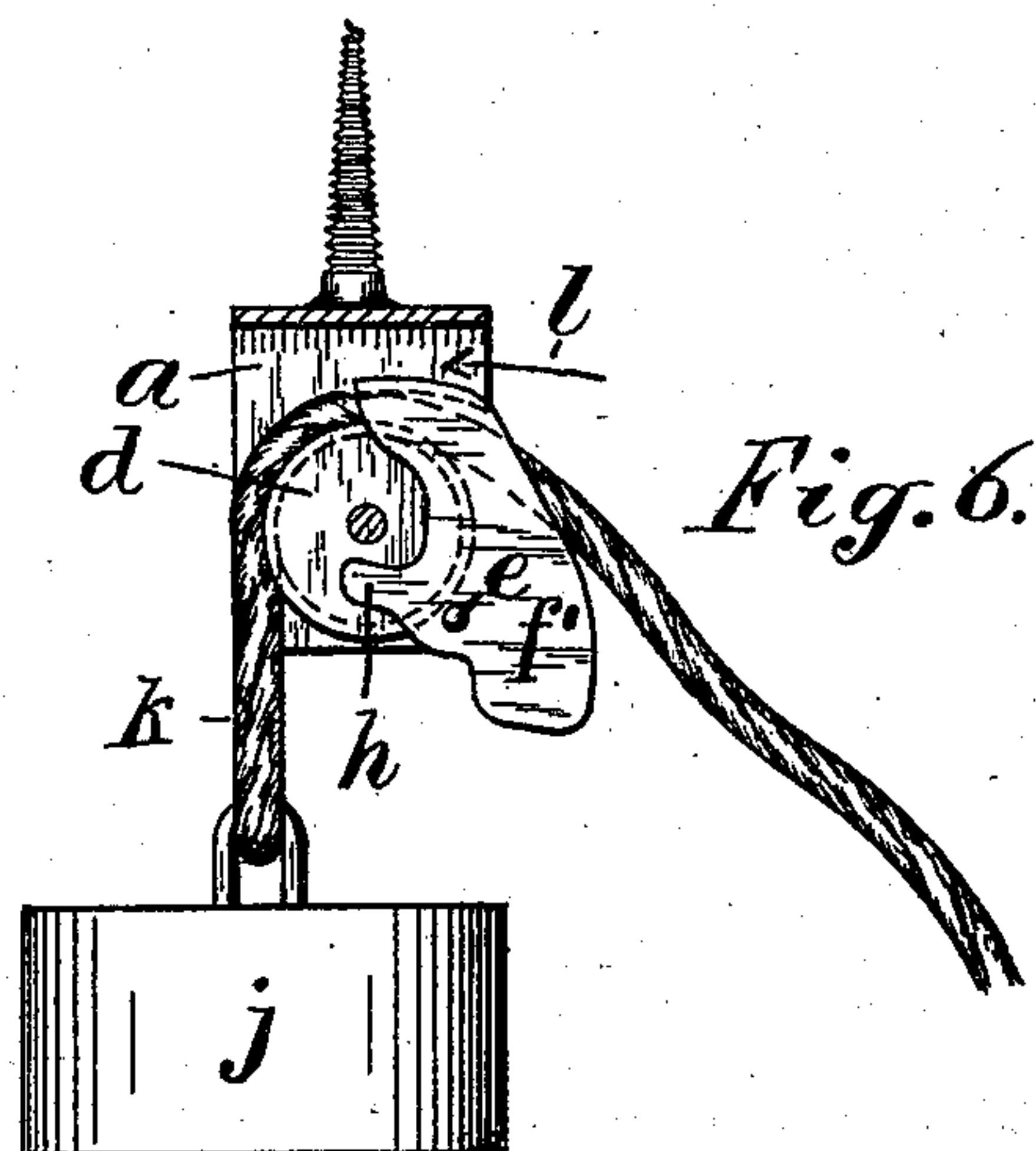
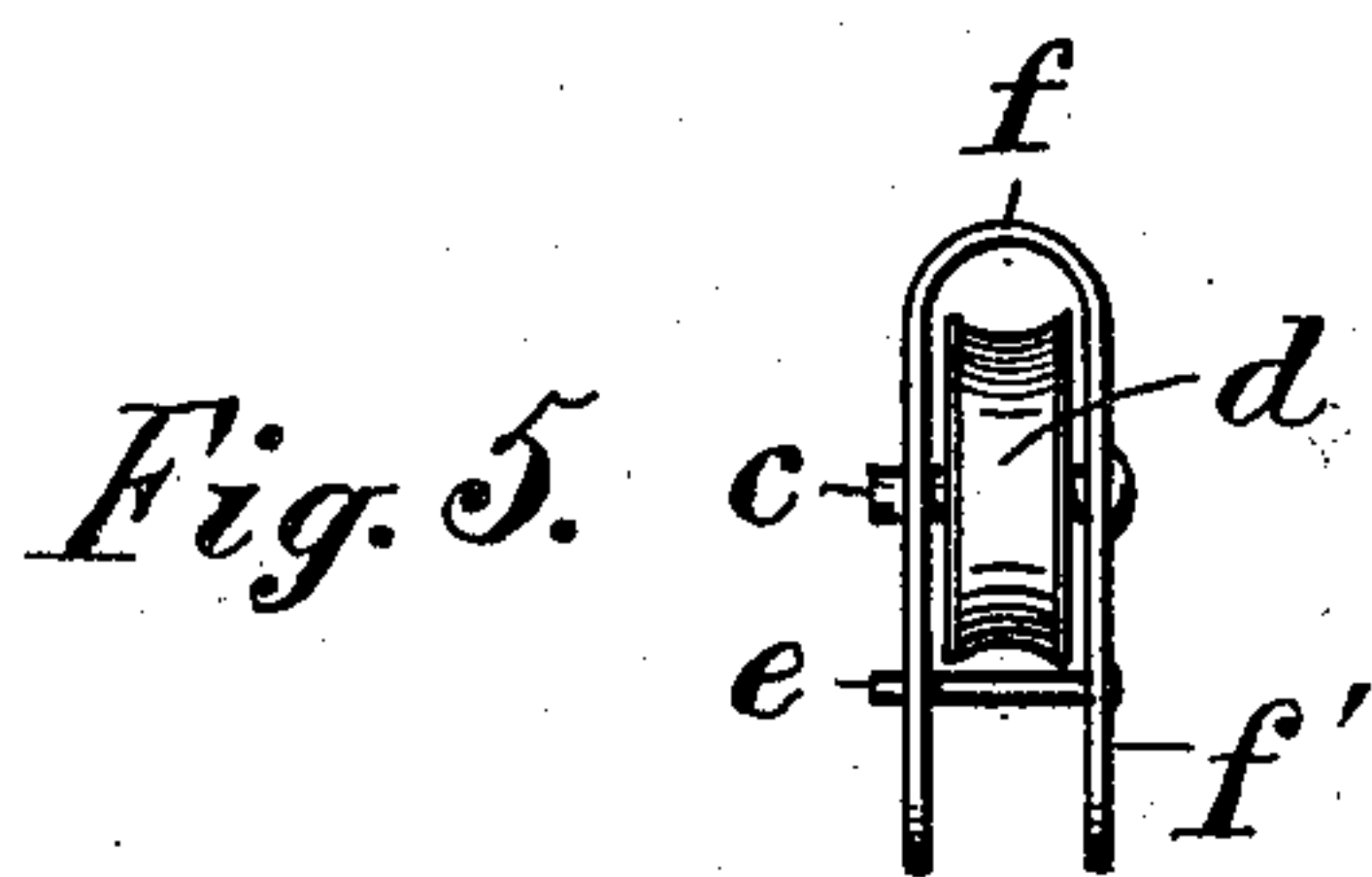
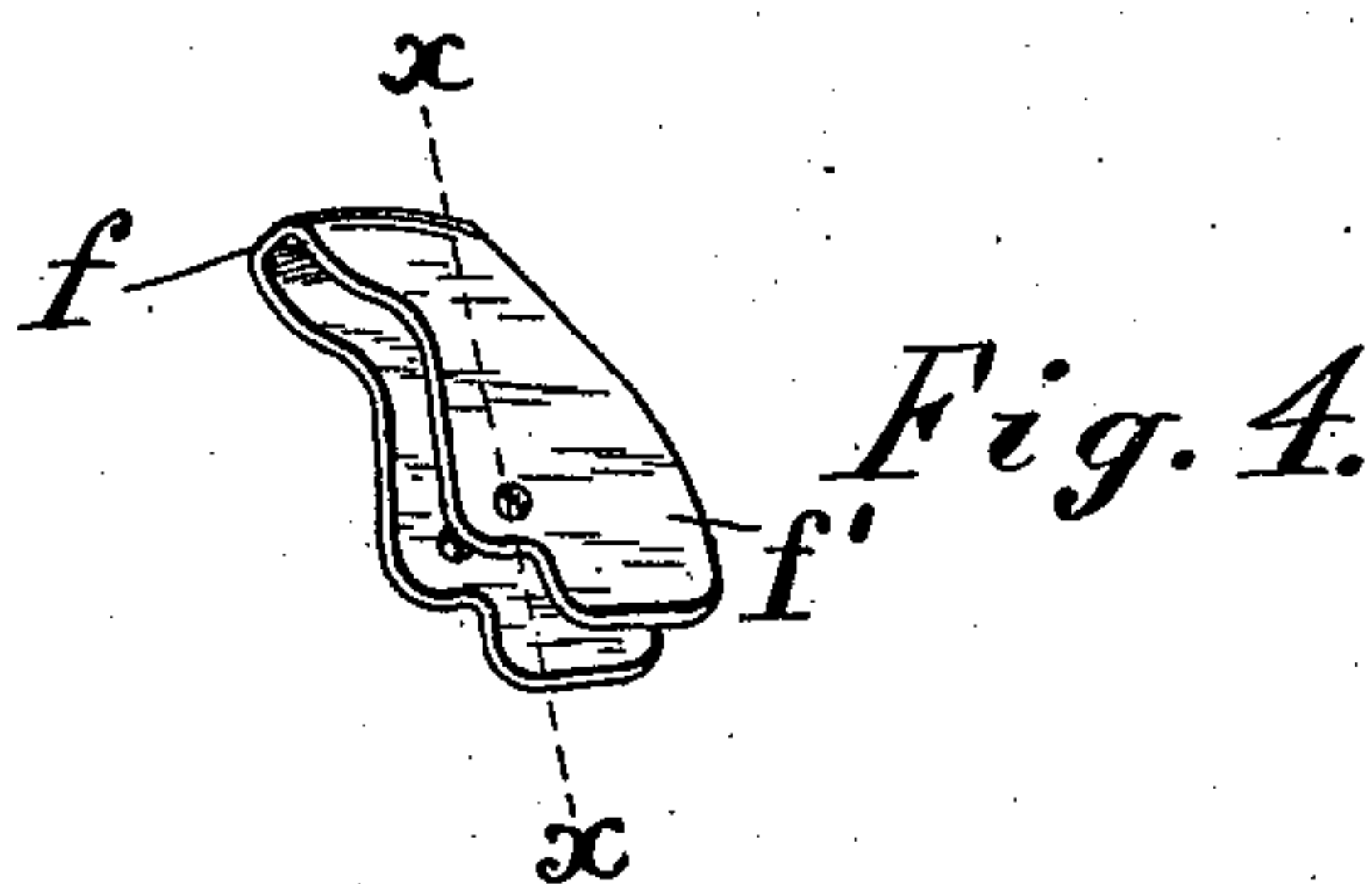
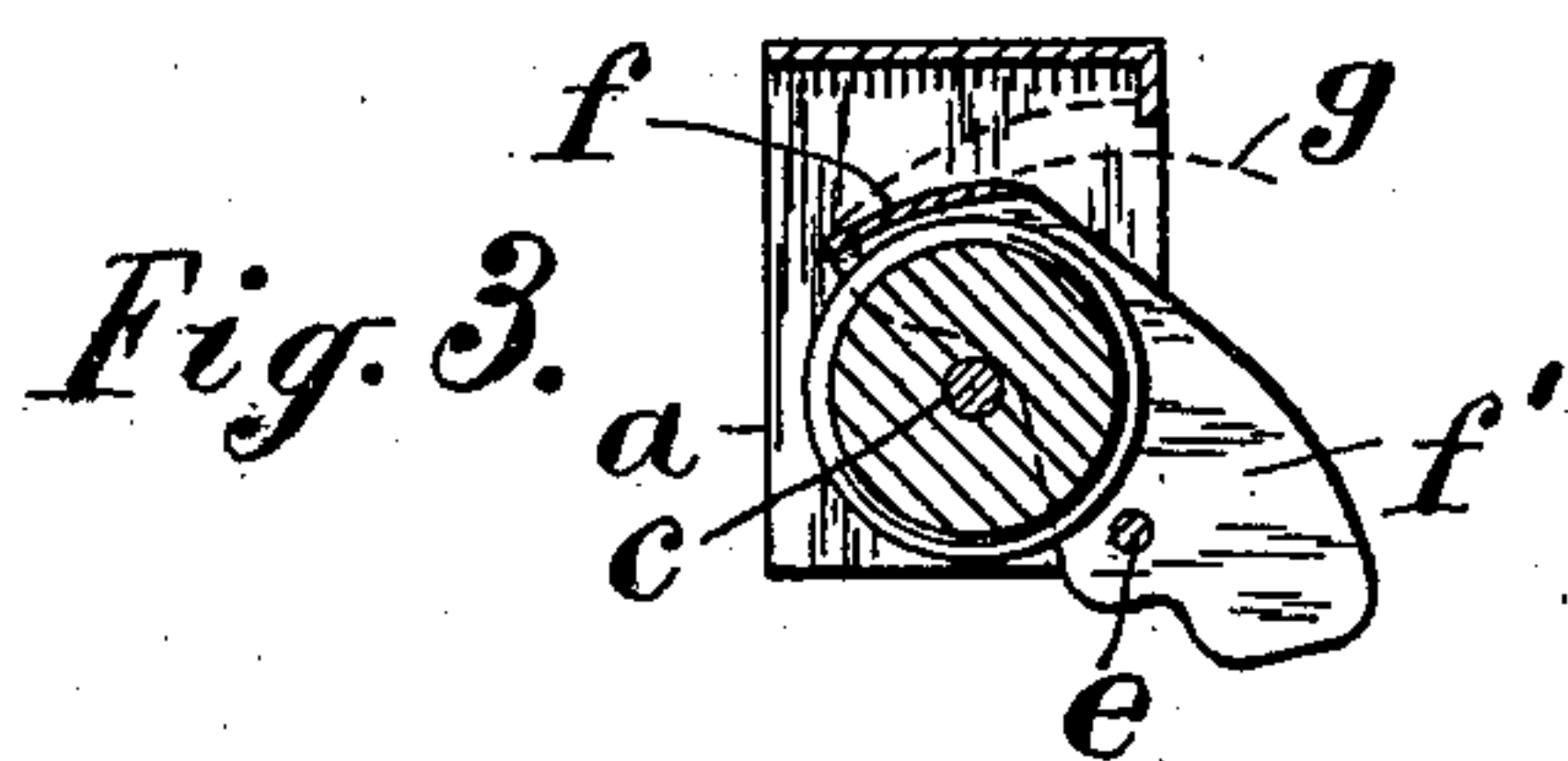
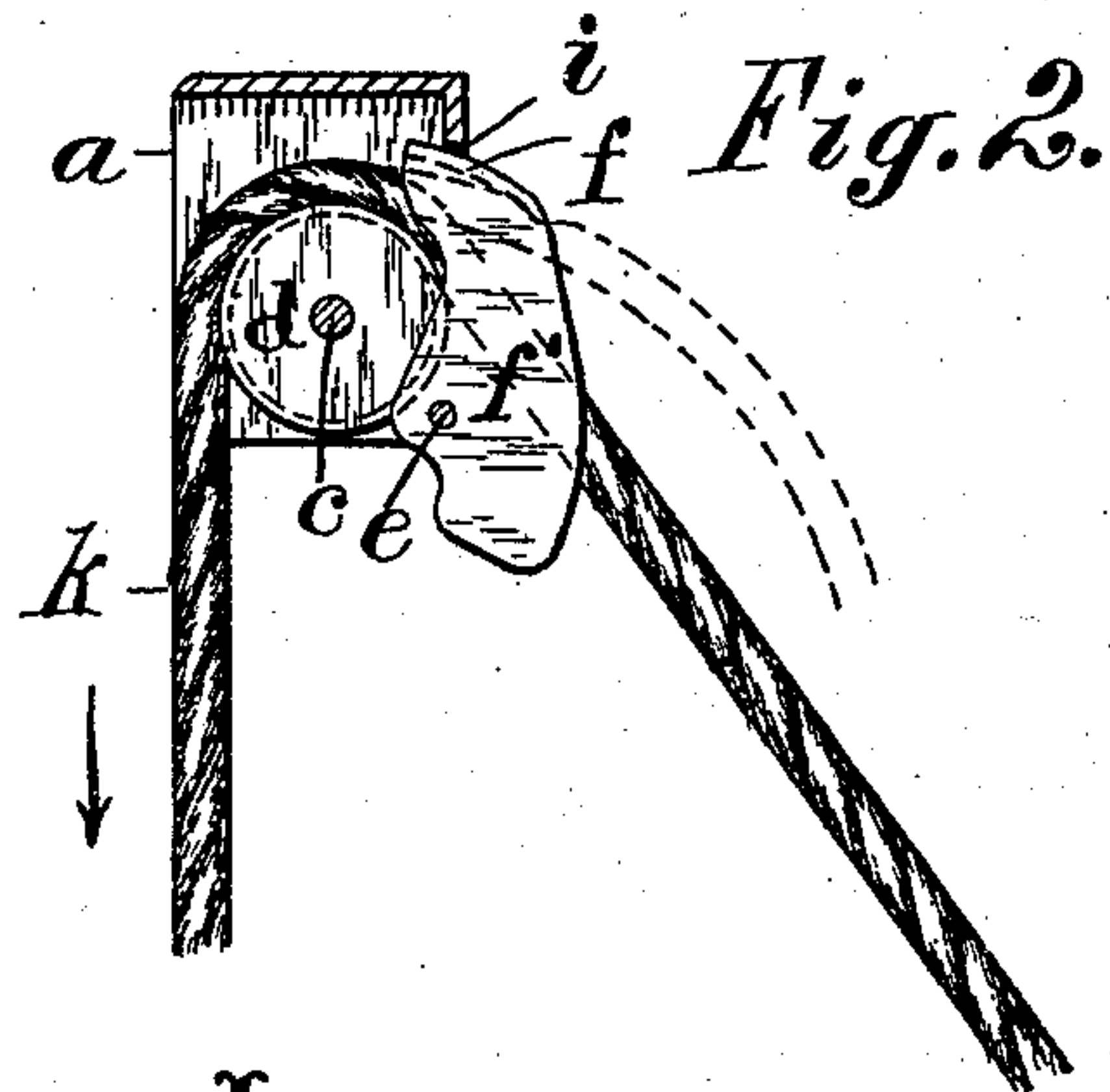
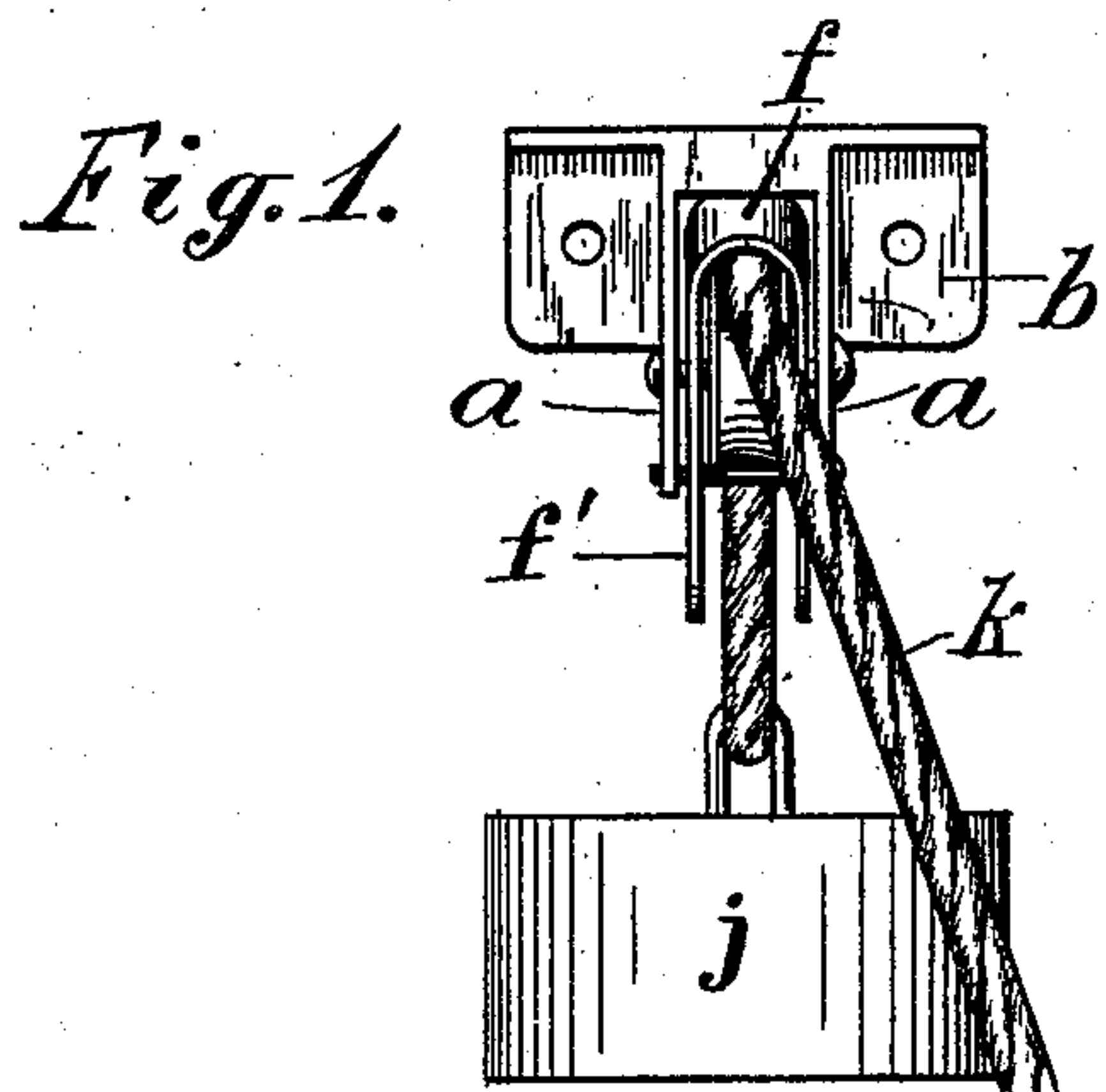
No. 692,540.

Patented Feb. 4, 1902.

D. D. NUGENT.  
CORD AND PULLEY BRAKE.

(Application filed May 17, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## CORD-AND-PULLEY BRAKE.

SPECIFICATION forming part of Letters Patent No. 692,540, dated February 4, 1902.

Application filed May 17, 1901. Serial No. 60,690. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL D. NUGENT, a citizen of the United States, residing at 510 Warren street, Harrison, county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Cord-and-Pulley Brakes, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of pulleys with which a cord is used to raise and lower a weight and which is provided with a brake to sustain the weight when desired, and which brake may be thrown into action at the pleasure of the operator by the mere manipulation of the cord. Such cords and pulleys are used for governing the movement of window-shades and other structures in which the weight or resistance is light, and my invention furnishes a very cheap and effective construction for such purposes and for any others to which it is adapted. To form such a brake it has been common to pivot a block or cam adjacent to the pulley, so as to wedge or crowd against the cord when desired, and also to pivot cheeks upon the opposite sides of the housing, with a segmental cover to guide the cord upon the pulley and provided with teeth or a ridge at the forward end of the cover to engage the cord upon the top of the pulley when the cord is crowded against the rear end of the cover. In such construction the teeth or ridge operate to chafe or wear the cord, and the rear end of the cover is liable also to chafe and wear the cord if the same be drawn out of a vertical line in raising and lowering the weight.

The object of the present invention is to furnish a pivoted brake-yoke which will not wear or chafe the cord and which is not provided with a cover which chafes the cord when drawn from a vertical line. In my construction I pivot the yoke below and at one side of the pulley and extend the housing below the pulley sufficiently to receive the pivot-pin for the yoke, thus giving the yoke a long sweep from its pivot to the brake-shoe near the top of the pulley, which draws the shoe toward the cord with sufficient force to hold it firmly without teeth or ridges. The cheeks

of the yoke are connected by the brake-shoe only at their upper portions, and the brake-shoe is made a little eccentric to the pivot of the yoke, and the housing is provided with a stop, so that when the brake-shoe is retracted its inner corner contacts with the stop and sustains it in an inoperative position. The cheeks are extended backwardly from their pivot with a free open space between them when the yoke is supported by the stop, in which space the cord may be held in any convenient position out of the vertical line when raising and lowering the weight and without chafing by contact with the yoke. The weight of the yoke is distributed so as to balance the yoke in its middle position, and its weight therefore holds it at either side of such position and keeps it clear of the cord or pressed toward the cord, according to its position at one side or the other of the middle.

The brake-shoe is thrown into operation upon lowering the weight by moving the cord laterally until it touches either of the cheeks above the pivot of the yoke, which immediately throws the brake-shoe forward into engagement with the cord and cramps the cord firmly upon the top of the pulley to sustain the weight.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is an edge view of the fixture, and Fig. 2 a side view, with the nearer wall of the housing cut away and showing the brake detached from the cord. Fig. 3 is a view similar to Fig. 2, but in section at the middle of the pulley, with the cord omitted. Fig. 4 is a perspective view of the yoke detached from the other parts. Fig. 5 is an edge view of the yoke and pulley in their operative relations; and Fig. 6 is a view similar to Fig. 2, with the cord gripped by the brake.

*a* designates the walls of the housing, which support the pivot *c* of the pulley *d* and the pivot-pin *e* of the arched yoke. The housing is shown in Fig. 1 provided with feet *b* for attachment to any support by means of screws and in Fig. 6 with a screw-shank *b'* for attachment, and its side walls are separated sufficiently to admit the cheeks of the yoke as well as the pulley. The sides of the pulley clear the walls *a* sufficiently to insert the side



pieces or cheeks  $f'$  of the arched yoke, so that such cheeks move or slide freely between the sides of the pulley and the walls  $a$ , and the pivot-pin  $e$  of the yoke is arranged below and at one side of the pulley, so as to pass across the housing, and the movement of the yoke carries the arch gradually toward the cord upon the pulley, as indicated by the dotted curve  $g$  in Fig. 3. The brake-shoe  $f$  is made only of sufficient length to cover the cord upon the top of the pulley, and thus connects only the upper portions of the cheeks  $f'$ . The brake-shoe is set a little concentric with the pivot  $e$  of the yoke, so that the forward corner of the shoe contacts with the stop  $i$ , (shown upon the housing in Figs. 2 and 3,) when the shoe is thrown backward sufficiently to clear the cord. The brake-shoe when in operation, as shown in Fig. 6, lies chiefly at one side of its pivot  $e$ , and the cheeks  $f'$  of the yoke are extended outward from such pivot sufficiently to counterbalance the arch portion, and the counterweight is preferably arranged to balance such portion when the yoke is in its middle position, so that the yoke tends to retain its place automatically at either side of such position. The counterweight thus operates when the brake is removed from the cord to hold it normally away from the same, as shown in Fig. 2, which permits the raising and lowering of the weight freely without chafing the cord.

The dotted line  $xx$  (shown in Fig. 4) indicates the position of a vertical line in relation to the yoke when the yoke is in its middle position, and as the yoke is pivoted below its center of gravity it is in unstable equilibrium when in such position and tends to fall to one side or the other; but a very slight force suffices to move it from one position to the other. The yoke is thus operated by the slight friction of the cord upon the lateral cheeks, and no pressure of the cord upon the yoke is required which would be sufficient to chafe the cord.

The outer edges or cheeks of the yoke lie chiefly above its pivot  $e$ , and the deflecting of the cord laterally from its central position brings it, as shown in Fig. 1, into contact with one of such cheeks, so that when the weight  $j$  is descending the cord pulls the yoke forward, as per arrow  $l$  in Fig. 6, and brings the brake into operation. By shifting the cord to the central position and slightly raising the weight the brake is thrown into its inactive position, as shown in Fig. 2, and is held against the stop by its weight until it is again moved by the cord. With the yoke in such position the weight can be raised and lowered by holding the cord centrally and without any contact of the cord with the yoke. In lowering the weight quickly the ascending side of the cord becomes slackened and is flung into contact with the brake-shoe, and as the yoke is nearly balanced in all positions such contact of the cord operates to throw the

brake forward, and thus instantly brings the brake into action. A slower movement is used to lower the weight normally.

The brake-shoe is constructed as shown in Figs. 1 to 4, inclusive, to cooperate with a stop  $i$  upon the housing; but any other suitable stop may be used to hold the brake in its inoperative position, where it will not chafe the cord in raising and lowering the weight. Arms  $h$  are shown in Fig. 6 projected from the inner sides of the cheeks to contact with the axle  $e$  of the pulley, and thus limit the outward movement of the yoke and hold the brake-shoe clear from the cord when lowering the weight.

The essential part of the invention is the formation of the cheeks to fit between the walls of the housing and the pulley and connecting them at the top only by the brake-shoe  $f$  and proportioning the cheeks and the shoe to balance the yoke when in its middle position and providing a stop to support the brake in an inoperative position, with the open space between the cheeks entirely clear for the manipulation of the cord at various angles from the vertical. This construction permits the operator to raise and lower the weight without standing close to the same, and thus greatly facilitates the use of the device for raising and lowering window-shades and similar articles without standing close to the shade.

By my construction the yoke is so balanced upon its pivot that the contact of the cord with the cheeks suffices when the weight is falling to draw the brake-shoe forward and arrest the descent of the weight.

The lifting of the weight by the cord operates to draw the brake backward, which throws the yoke out of balance, and the brake is thereafter held by the stop in its inactive position.

Having thus set forth the nature of the invention, what is claimed herein is—

1. An automatic brake for a pulley-cord, comprising the pulley  $d$ , the housing  $a$  extended downward below the pulley with the transverse axle  $c$  having the pulley fitted thereon with clearance at each side of the same, the pin  $e$  inserted through the housing below the pulley, the arched yoke pivoted upon the pin and fitted between the sides of the pulley and the housing, and the yoke having cheeks  $f'$  extended backwardly from the pin  $e$  and having the arched brake-shoe  $f$  connecting only the upper portions of the cheeks, so that the cord may be drawn backwardly between the cheeks at various angles without actuating the brake.

2. An automatic brake for a pulley-cord, comprising the pulley  $d$ , the housing  $a$  with the transverse axle having the pulley fitted thereon with clearance at each side of the same, the pin  $e$  inserted through the housing at one side of and below the pulley, the arched yoke pivoted upon the pin and fitted between the sides of the pulley and the housing, and the yoke having cheeks  $f'$  extended back-



wardly from the pin *e*, and having the arched brake-shoe *f* connecting only the upper portions of the cheeks, and the housing having a stop to support the arched yoke when the  
5 brake-shoe is clear of the cord.

3. An automatic brake for a pulley-cord, comprising the pulley *d*, the housing *a* with the transverse axle *c* having the pulley fitted thereon with clearance at each side of the  
10 same, the pin *e* inserted through the housing at one side of and below the pulley, the arched yoke pivoted upon the pin and fitted between the sides of the pulley and the housing, and balanced in its central position, and having  
15 cheeks *f'* with the eccentric brake-shoe *f* con-

necting only their upper portions, and the housing having the stop *i* to support the brake-shoe when clear of the cord, whereby the weight may be raised and lowered without the arched yoke touching the cord, and the brake may  
20 be thrown into action by the lateral movement of the cord.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DANIEL D. NUGENT.

Witnesses:

CHARLOTTE NUGENT,  
THOMAS S. CRANE.