

908,724.

Fig. 1.

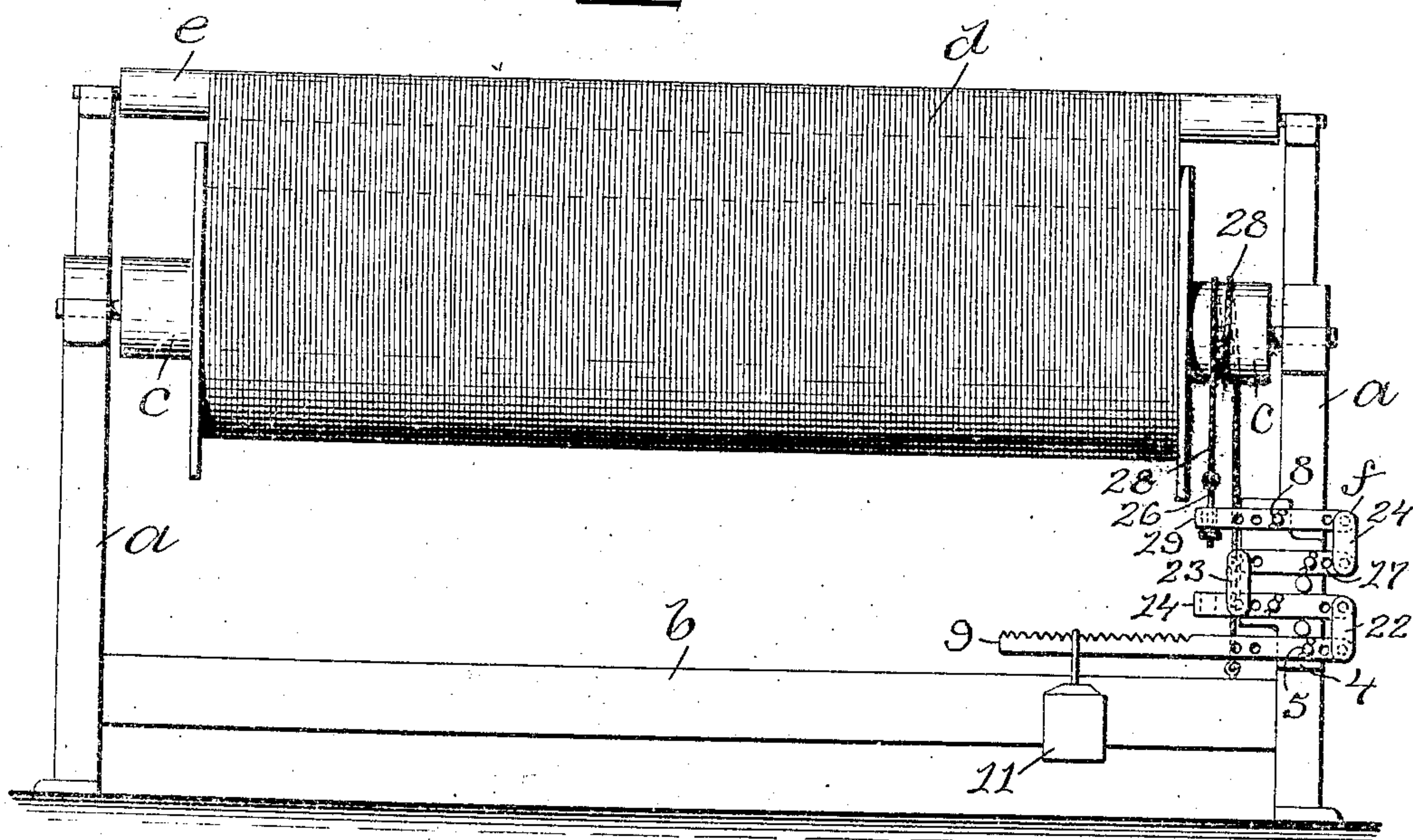


Fig. 2.

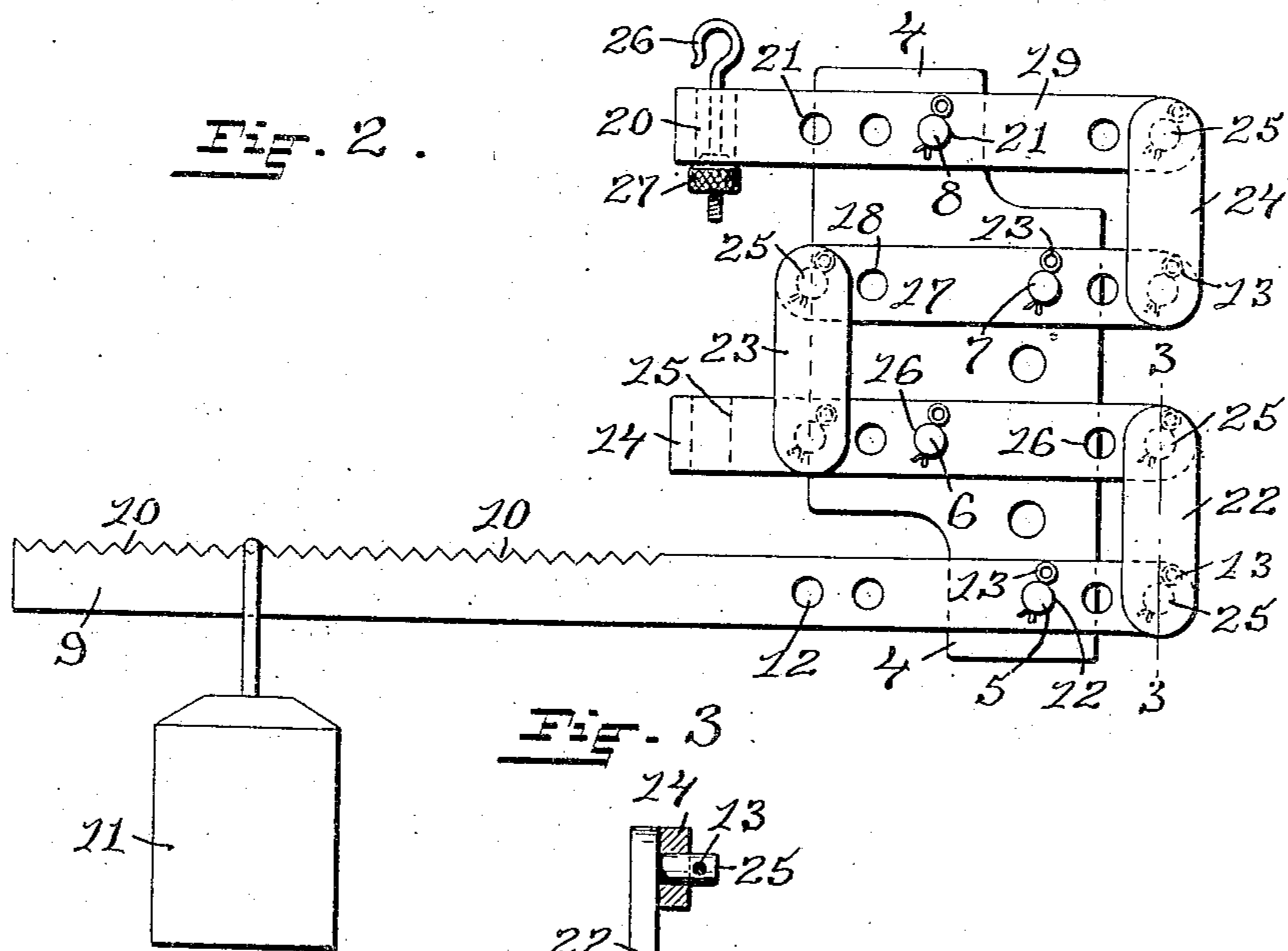
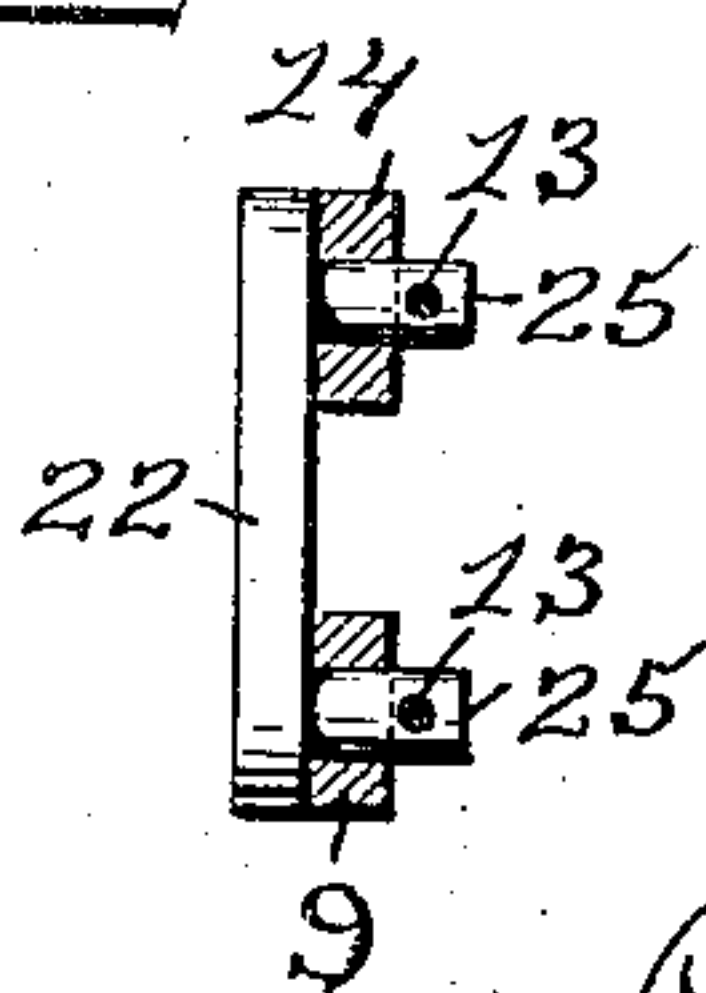


Fig. 3



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# UNITED STATES PATENT OFFICE.

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## FRICTION LET-OFF MECHANISM FOR LOOMS.

No. 908,724.

Specification of Letters Patent.

Patented Jan. 5, 1909.

Application filed March 18, 1903. Serial No. 421,833.

*To all whom it may concern:*

Be it known that I, PETER ASHBY, a citizen of the United States, residing at Central Falls, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Friction Let-Off Mechanism for Looms, of which the following is a specification.

This invention has reference to an improvement in looms and more particularly to an improvement in friction let off mechanism for looms.

The object of my invention is to improve the construction of a friction let off mechanism for looms whereby the tension mechanism and weight are decreased in size and the tension or friction on the warp beam is increased or may be varied within wide limits.

My invention consists in the peculiar and novel construction of a friction let off mechanism consisting principally of a series of adjustable compound levers operated by a comparatively light weight and operatively connected with the warp beam of a loom, and having details of construction as will be more fully set forth hereinafter and claimed.

Figure 1 is a back view of a loom provided with my improved friction let off mechanism and showing the same operatively connected with the warp beam of the loom. Fig. 2 is an enlarged face view of the tension mechanism removed from the loom to more clearly show the construction of the same, and Fig. 3 is an enlarged detail sectional view taken on line 3 3 of Fig. 2, showing the pivot construction of the levers and connecting links.

In the drawings, *a a* indicate the side frames, *b* the back cross rail, *c* the warp beam, *d* the warp, and *e* the guide roller of a loom provided with my improved compound warp beam tension mechanism *f* which consists of a plate 4 having a series of four fulcrum studs 5, 6, 7 and 8 on its face and secured to the side frame *a* under the warp beam *c*, as shown in Fig. 1; a horizontal weight lever 9 having the notches 10 10 for the weight 11 and a series of five transverse holes 12 12 through one of which the weight lever is pivotally secured to the fulcrum stud 5 by a split pin 13 through the outer end of the stud; a comparatively short horizontal lever 14 having a vertical hole 15 in its inner end, as shown in broken lines in Fig. 2, and a series of five transverse holes

16 16 through one of which the lever is pivotally secured to the fulcrum stud 6 by a split pin 13; a horizontal lever 17 having a series of five transverse holes 18 18 through one of which the lever is pivotally secured to the stud 7 by a split pin 13; a horizontal lever 19 having a vertical hole 20 in its inner end, as shown in broken lines in Fig. 2, and a series of transverse holes 21 21 through one of which the lever is pivotally secured to the stud 8 by a split pin 13; and a series of vertical connecting links 22, 23 and 24 each of the connecting links having a pin 25 at each end adapted to extend through the transverse holes in the levers and removably secured to the levers by a split pin 13 through a hole in the end of the pins, as shown in Fig. 3. The link 22 connects the outer ends of the levers 9 and 14, the link 23 connects the inner ends of the levers 14 and 17, and the link 24 connects the outer ends of the levers 17 and 19, as shown in Fig. 2. An adjustable hook 26 is held in the hole 20 in the end of the lever 19 by a nut 27, and a cord 28 is secured at one end to the hook 26, carried around the warp beam *c* one or more times, and the other end carried down and secured to the back cross rail *b*, as shown in Fig. 1.

The tension or friction of the cord 28 on the warp beam *c* may be varied within wide limits by changing the position of the weight 11 on the weight lever 9, by changing the positions of the levers 9, 14, 17 and 19 on the studs 5, 6, 7 and 8, by changing the position of the connecting links 22, 23 and 24 on the levers, or by removing the levers 17 and 19 and the links 23 and 24 and connecting the hook 26 with the end of the lever 14 through the vertical hole 15 in the end of the lever.

In the operation of my improved warp beam tension mechanism, the friction of the cord 28 on the warp beam *c* through the weight 11 and compound levers 9, 14, 17 and 19 gives the required tension on the warp beam.

By the use of my improved warp beam tension mechanism on looms any required tension on the warp beam may be easily and quickly obtained and when required to run the warp threads back the weight lever and comparatively light weight may be lifted with slight exertion by the operator.

It is evident that my improved warp beam tension mechanism may be used on either or both sides of a loom and that any number of



levers and connecting links may be used without materially affecting the spirit of my invention.

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

1. In a loom, a warp beam tension mechanism comprising a plate secured to the loom frame, a system of compound levers pivotally secured to the plate, an adjustable weight on the lower lever, a cord or its equivalent operatively connecting the upper lever with the warp beam, and means for adjusting the levers on the plate.

2. In a loom, a warp beam tension mechanism comprising a plate secured to the loom frame, a system of compound levers pivotally secured to the plate, links pivotally connecting the levers, an adjustable weight on the lower lever, a cord or its equivalent secured at one end to the upper lever, carried around the warp beam and secured at the other end to the loom frame, means for adjusting the levers on the plate and means for adjusting the links on the levers.

3. In a loom, a warp beam tension mechanism comprising a plate secured to the loom frame under the warp beam, a system of compound levers consisting of a lower weight lever, an upper lever, and one or more intermediate levers pivotally secured to the plate, links pivotally connecting the levers, an adjustable weight on the lower lever, an adjustable hook in the end of the upper lever, a cord or its equivalent secured at one end to the adjustable hook, carried around the warp beam, and secured at the other end to the loom frame, means for adjusting the levers on the plate, means for adjusting the

links on the levers, and means for adjusting the weight on the lower lever.

4. In a loom, the combination with the side frames *a a*, the back cross rail *b*, and the warp beam *c*, of a warp beam tension mechanism *f*, comprising a plate 4 having the fulcrum studs 5, 6, 7 and 8 and secured to the loom frame under the warp beam *c*, a weight lever 9 having the notches 10 10, an adjustable weight 11, and a series of transverse holes 12 12 through one of which the lever is pivotally secured to the stud 5 by a split pin 13 through the end of the stud, a lever 14 having a vertical hole 15 and a series of transverse holes 16 16 through one of which the lever is pivotally secured to the stud 6 by a split pin 13, a lever 17 having a series of transverse holes 18 18 through one of which the lever is pivotally secured to the stud 7 by a split pin 13, a lever 19 having the vertical hole 20 and a series of transverse holes 21 21 pivotally secured to the stud 8 by a split pin 13, a series of connecting links 22, 23 and 24 having a pin 25 at each end adapted to extend through the transverse holes in the levers and secured by a split pin 13, an adjustable hook 26 held in the end of the lever 19 by a nut 27, and a cord 28 or its equivalent secured at one end to the hook 26, carried around the warp beam *c* and secured at its other end to the back cross rail *b*, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PETER ASHBY.

Witnesses:

ADA E. HAGERTY,  
J. A. MILLER.