

952,845.

H. A. SHIELDS.
CLOTH PILING MACHINE.
APPLICATION FILED JULY 2, 1909

Patented Mar. 22, 1910.

2 SHEETS—SHEET 1.

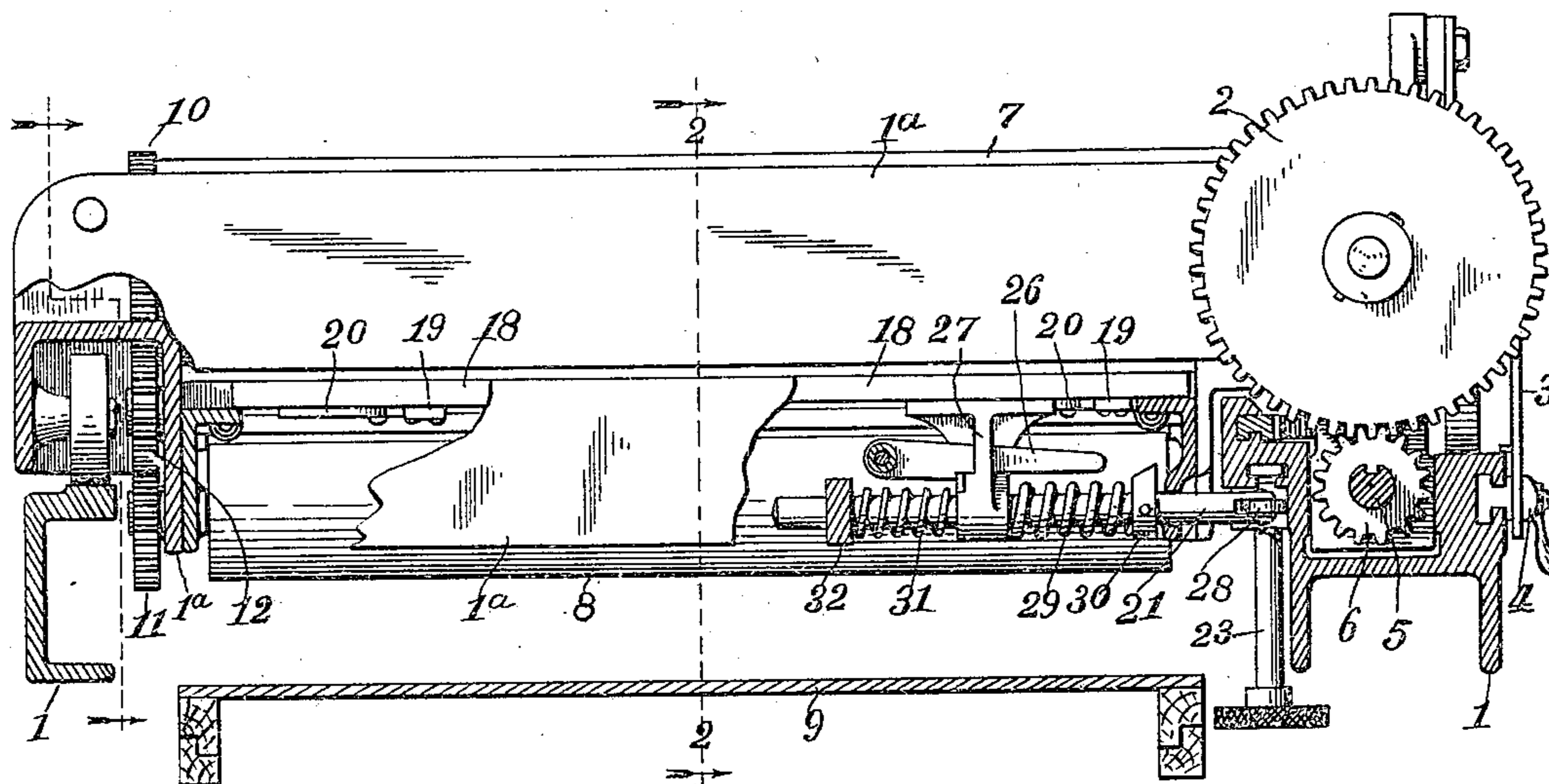


Fig. 1.

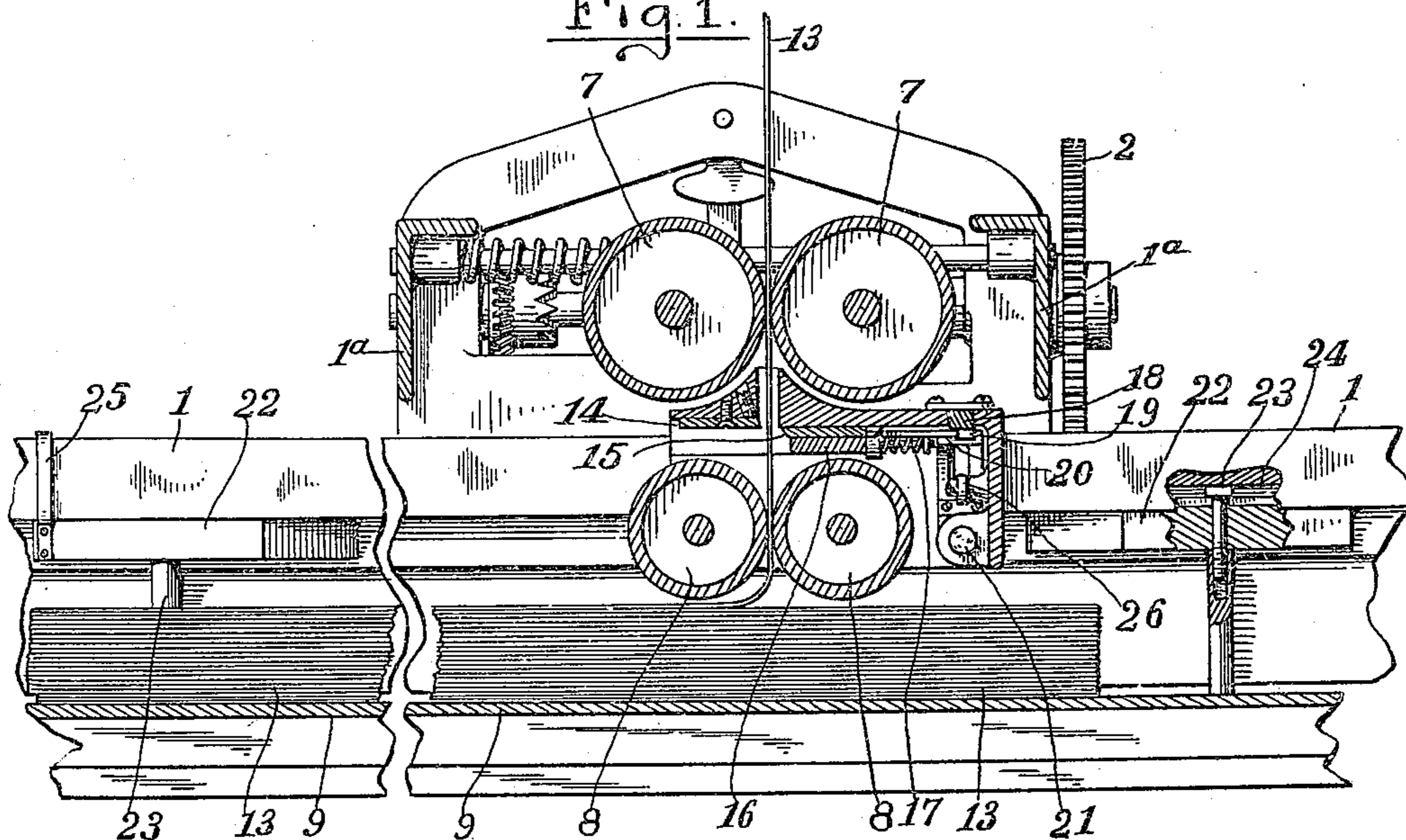


Fig. 2.

Witnesses
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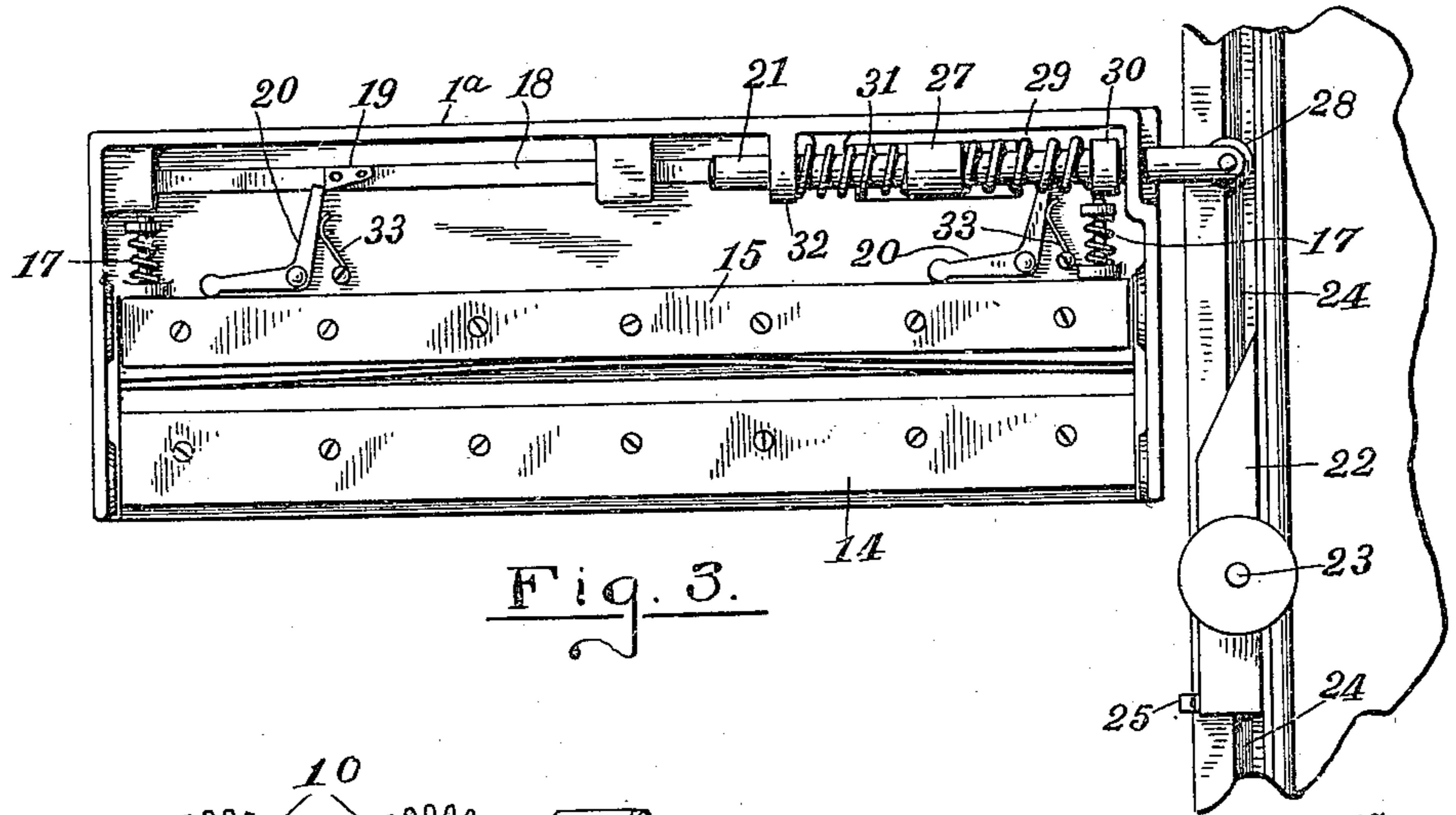


Fig. 3.

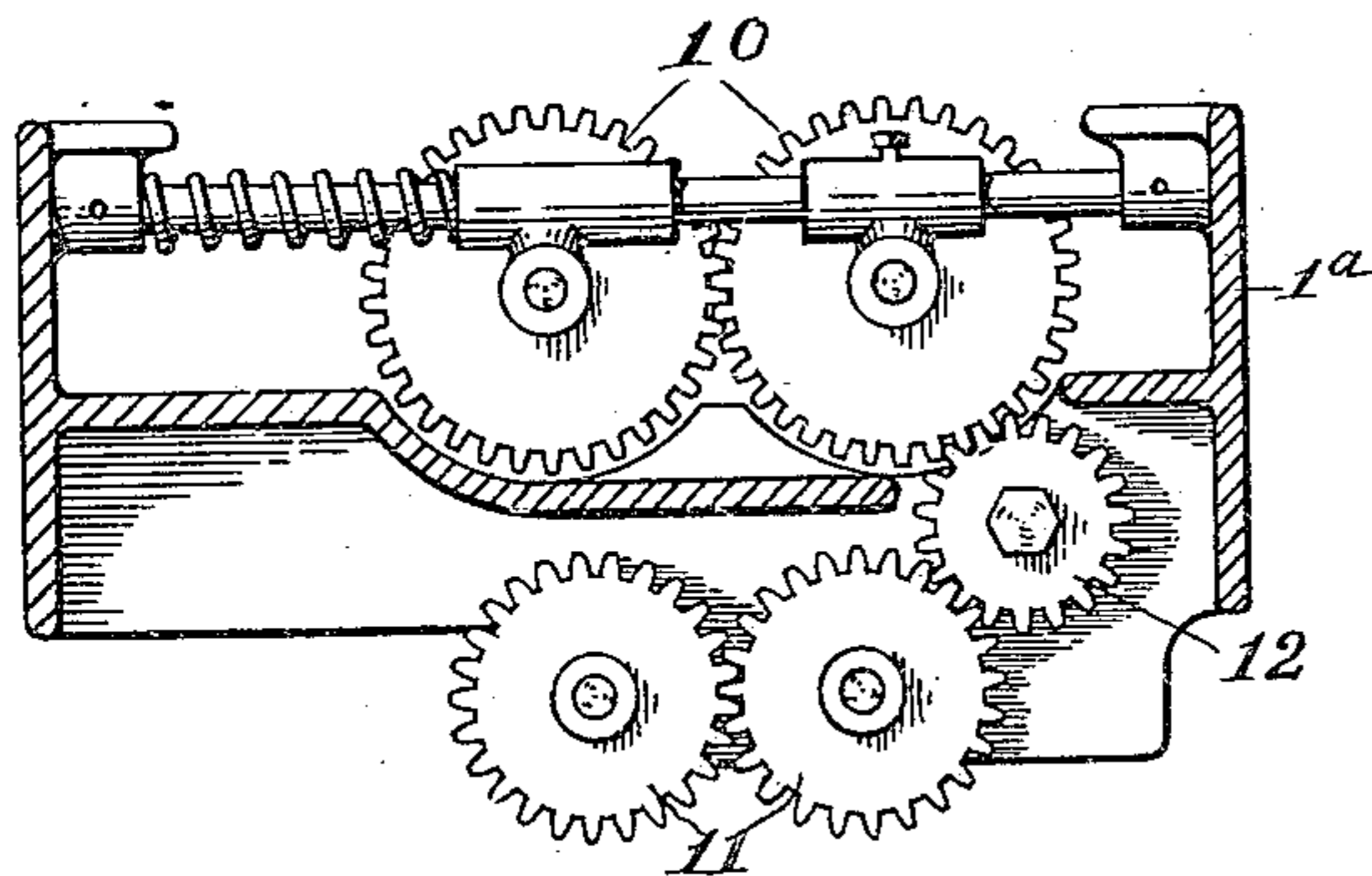


Fig. 4.

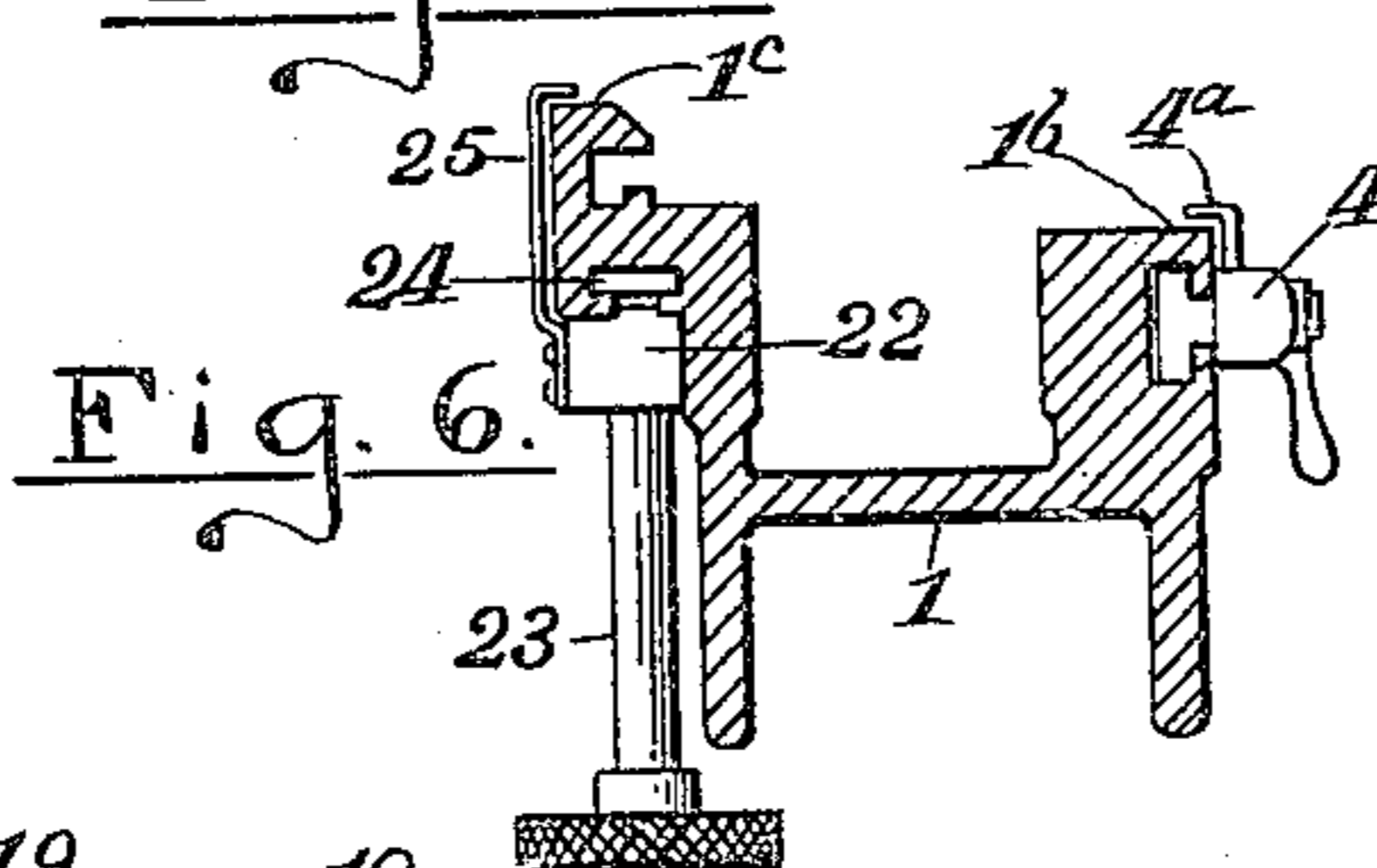


Fig. 6.

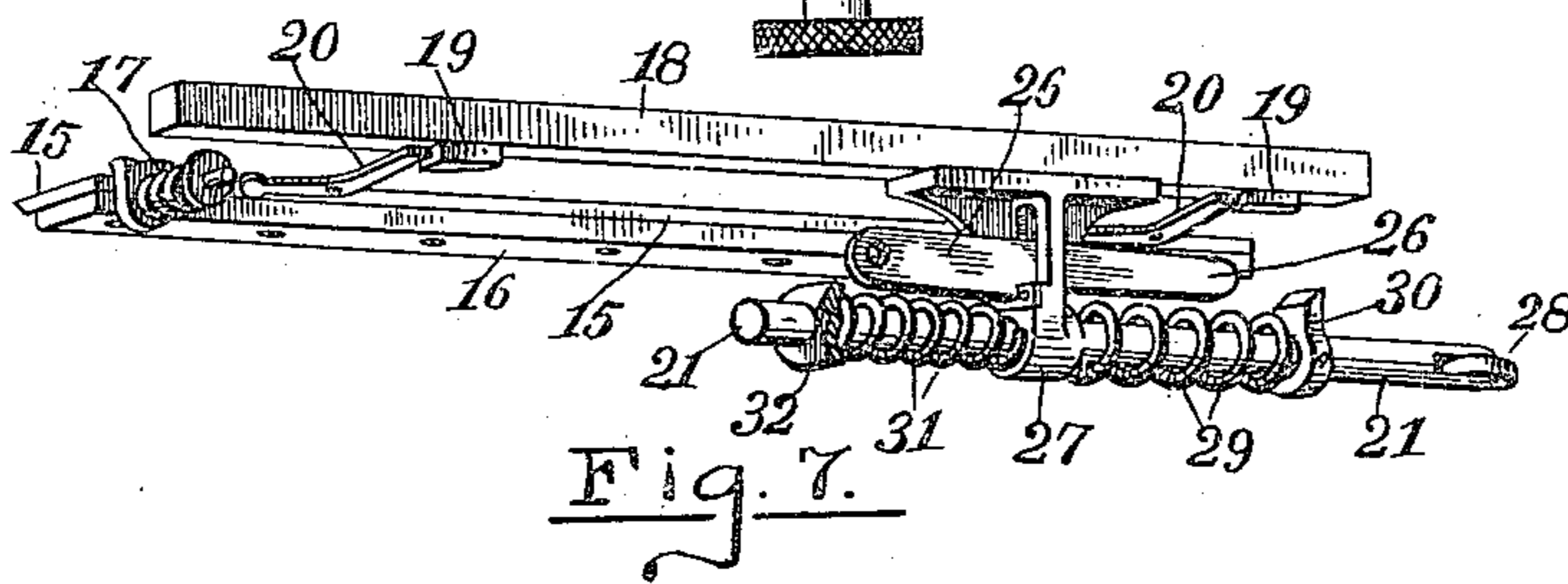


Fig. 7.

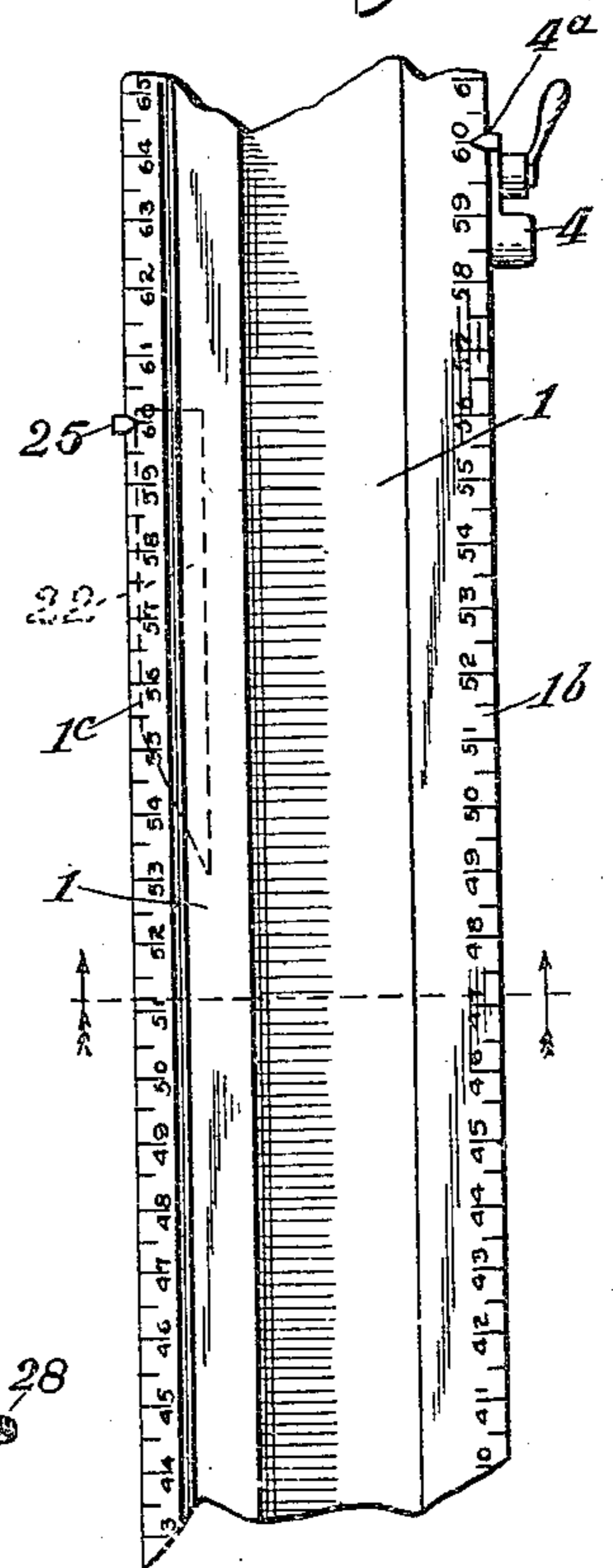


Fig. 5.

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UNITED STATES PATENT OFFICE.

HARRY A. SHIELDS, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO S. C. F. MACHINERY COMPANY, OF NASHVILLE, MICHIGAN, A CORPORATION OF MICHIGAN.

CLOTH-PILING MACHINE.

952,845.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed July 2, 1909. Serial No. 505,631.

To all whom it may concern:

Be it known that I, HARRY A. SHIELDS, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Cloth-Piling Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in cloth piling machines, and more particularly to cutters adapted to such machines having a reciprocating carriage, and its object is to provide a cutter adapted to sever the fabric when the latter is in motion, to provide an improved cutter adapted to sever the fabric at the ends of the pile; to provide automatic means for operating the cutter and adjustable for various lengths of fabric, and to provide the device with various new and useful features, hereinafter more fully described and particularly pointed out in the claims.

My invention consists essentially of relatively fixed and movable shearing blades mounted on the carriage of the machine; mechanism on the carriage adapted to operate the movable blade, and an adjustable member on the machine engaged by said operating means, and in various features of combination and arrangement, as will more fully appear by reference to the accompanying drawings, in which:

Figure 1 is an elevation, partly in section, of a device embodying my invention mounted on the carriage of a cloth piling machine; Fig. 2 a transverse section of the same on the line 2—2 of Fig. 1; Fig. 3 a detail of the cutting mechanism proper, shown in inverted plan view; Fig. 4 a detail in elevation of the roller gearing; Fig. 5 a detail showing the scales for adjusting the stop to operate the reversing mechanism of the carriage and the wedge to operate the cutter; Fig. 6 a transverse section on the line 6—6 of Fig. 5; and, Fig. 7 a perspective detail of a portion of the cutter operating mechanism.

Like numerals refer to like parts in all of the figures.

1 represents a portion of the frame of a cloth piling machine; 1^a the frame of the reciprocating carriage; 2 a gear engaged by a pinion 6, said gear and pinion mounted

on the carriage and driven by the driving shaft 5, on which shaft the pinion is splined and slidable.

3 is the lever adapted to reverse the motion of the carriage (the reversing mechanism being only partially shown, and comprising no part of my present invention).

4 is an adjustable stop engaged by the lever 3 to operate the reversing mechanism to reverse the movement of the carriage at each end of the stroke.

7 are the main feed rollers mounted on the carriage, and 8 a pair of auxiliary feed rollers below the same, and spaced apart therefrom. These rollers deposit the fabric 13 upon a suitable table 9 beneath the rollers. Mounted on the carriage, between the upper rollers 7 and the lower rollers 8, is a fixed shearing blade 14 and a co-acting movable shearing blade 15, normally located at the respective sides of the fabric, where it extends between the upper and lower rollers.

The movable blade 15 is mounted on a slide 16 and normally retracted clear of the fabric by springs 17. When the fabric is to be severed, this slide and blade 15 are given a sudden movement across the path of the fabric and are returned again quickly, by the springs 17.

18 is a sliding bar movable transversely of the carriage and mounted thereon. On this bar are lugs 19 near the respective ends thereof, which lugs engage one arm of bell crank levers 20, the other arm of the same engaging and moving the blade 15 toward the blade 14 to shear the fabric. These levers 20 are normally held in place by springs 33. This slide is provided with an arm 27 in which is a longitudinally movable rod 21, slidable in a lug 32 on the frame of the carriage. On this rod, and engaging the arm 27, is a spring 31 engaging the lug 32 to return the slide to normal position, as shown in the drawings. Opposite this spring 31 is a heavier spring 29, engaging the arm 27 at one end and a collar 30, fixed on the rod 21, and having an inclined end to engage and release a latch 26, which engages the arm 27, and holds the parts in normal position, until released by the collar as hereafter described.

In the end of the rod 21 is a roller 28, which traverses close to the frame 1 of the machine, on which frame is mounted an adjustable wedge 22 engaged by the roller to

move the rod longitudinally and compress the spring 29. This wedge is adjustable longitudinally of the frame 1 by means of a binding bolt 23 extending therethrough, and adjustable in a slot 24 in the frame. On each wedge 22 is an index 25, and a scale 1^c is on the frame to indicate proper adjustment of the wedge. On the stop 4 is also an index 4^a, and a scale 1^b is on the frame to indicate adjustment of this stop to reverse the movement of the carriage, these two adjustments being such that the fabric will be cut off the same length as the traverse of the carriage when the index of each is adjusted to the same number on the respective scales.

In operation, as the carriage reciprocates, the fabric 13 is fed downward by the rollers 7 and 8, and held tensioned therebetween. As the carriage approaches the end of the stroke and at a proper distance therefrom, the wedge 22 is engaged by the roller 28, and the rod 21 moved longitudinally, compressing the spring 29, and releasing the latch 26 by engagement of the collar 30 therewith. This permits the spring 29 to suddenly move the bar 18 longitudinally, and the lugs thereon engaging the levers 20, move the blade 15 across the path of the fabric and sever the same by co-action of the blades 14 and 15 in the manner of shears. The stroke of the bar 18 is such that the lugs 19 will slip off the ends of the levers 20 and pass the same, thus releasing the movable blade, which is immediately returned to place by the action of the springs 17. The roller 28 rides upon the wedge 22 until the carriage movement is reversed, and as it runs back down the incline of the wedge, the spring 31 restores the parts to the position shown in the drawings, the lugs 19 passing the ends of the levers 20 on the return stroke, and said levers are restored to a position by the springs 33, whereupon at the other end of the stroke, the fabric is again severed in like manner by a corresponding wedge 22 and repetition of the same operation.

By arranging the relative position of the scales 1^b and 1^c, the point where the fabric is severed by the blades, will reach the end of the pile of fabric at the same time that the motion of the carriage is reversed.

What I claim is:—

1. A cloth piling machine, comprising a frame, a reciprocable carriage mounted on the frame, two pairs of feed rollers mounted on the carriage, shear blades mounted on the carriage, and means between the respective pairs of rollers for operating the blades at each traverse of the carriage, and adjustably mounted on the frame.

2. A cloth piling machine, comprising a frame, a reciprocable carriage, a relatively fixed blade and a relatively movable blade mounted on the carriage, means for operating the movable blade also mounted on the

carriage, and an adjustable wedge mounted on the frame to engage and operate said means.

3. A cloth piling machine, comprising a frame, a reciprocable carriage on the frame, means for reversing the movement of the carriage, an adjustable stop on the frame to operate said means, shearing blades on the carriage, a rod on the carriage to operate said blades, and an adjustable wedge on the frame to operate said rod.

4. A cloth piling machine, comprising a frame, a carriage reciprocable on the frame, shearing mechanism on the carriage, an adjustable stop on the frame to reverse the movement of the carriage, an adjustable wedge on the frame to operate the shearing mechanism, an index on the wedge, an index on the stop, and a scale for each index.

5. A cloth piling machine, comprising a frame, a reciprocable carriage on the frame, an upper pair of rollers and a lower pair of rollers on the carriage, a pair of shear blades between the respective pairs of rollers, one blade being fixed and the other blade being movable, a longitudinally movable rod to operate the movable blade, a roller in the end of the rod, and an adjustable wedge on the frame engaged by the roller to operate the rod.

6. A cloth piling machine, comprising a frame, a carriage reciprocable on the frame, a shear blade fixed on the carriage, a shear blade movable on the carriage, bell crank levers to operate the movable blade in one direction, springs to move said blade in the opposite direction, a slide to operate said levers, a wedge on the frame to move the slide in one direction, and a spring to move the slide in the opposite direction.

7. A cloth piling machine, comprising a frame, a carriage reciprocable on the frame, a shear blade fixed on the carriage, a shear blade movable on the carriage, bell crank levers to move the movable blade, a slide having lugs to engage said levers and move the blade in one direction, a wedge adjustable on the frame and adapted to move the slide in one direction, and a spring to move the slide in the opposite direction.

8. A cloth piling machine, comprising a frame, a reciprocable carriage on the frame, a shear blade fixed on the carriage, a shear blade movable on the carriage, bell crank levers engaging the movable blade, a slide having lugs to engage the levers, a spring to move the slide in one direction, a latch to hold the slide, a longitudinally movable rod having a collar thereon to compress the spring and release the latch, a wedge on the frame to move the rod, and a spring to oppositely move the slide.

9. A cloth piling machine, comprising a frame, a carriage reciprocable on the frame, a fixed shear blade and a movable shear

blade on the carriage, a slide to operate the movable shear blade, an arm on the slide, a rod longitudinally movable in the arm, a latch engaging the arm, a collar on the rod to engage and release the latch, a spring between the arm and collar, a spring oppositely engaging the arm, and a wedge on the frame to move the rod.

10. A cloth piling machine, comprising a frame, a carriage reciprocable on the frame, a shear blade fixed on the carriage, a shear blade movable on the carriage, a pair of rollers above the blades, a pair of rollers below the blades, gearing connecting all of the rollers, bell crank levers to move the movable blade in one direction, springs to move said blade in the opposite direction, a slide having lugs adapted to move the levers and to slip off the ends of the same, springs to restore said levers to position, and means for reciprocating the slide.

11. A cloth piling machine, comprising a frame, a reciprocable carriage on the frame, shear blades on the carriage, a slide on the carriage adapted to operate one of the shear blades, an arm on the slide, a lug on the carriage, a rod slidable in the arm and lug and carrying a roller, a collar on the rod,

a spring on the rod between the collar and arm, a spring on the rod between the lug and arm said springs acting oppositely on the arm, a wedge on the frame engaged by the roller on the rod, a latch to hold the arm against the first named spring, and means for releasing the arm when the said spring has been compressed.

12. A cloth piling machine, comprising a frame, a carriage reciprocable on the frame, two pairs of rollers on the carriage and spaced apart, a pair of shear blades between the pairs of rollers, one of said blades being movable, bell crank levers to move the movable blade in one direction, springs to move said blade in the opposite direction, a slide having lugs thereon adapted to engage said levers and to slip over the ends of the same in opposite directions, springs to restore the levers to position, and means for reciprocating the slide at each traverse of the carriage.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY A. SHIELDS.

Witnesses:

GEORGIANA CHACE,
LUTHER V. MOULTON.