

(No Model.)

2 Sheets—Sheet 1.

W. SCHOFIELD.
YARN REELING MACHINE.

No. 400,494.

Patented Apr. 2, 1889.

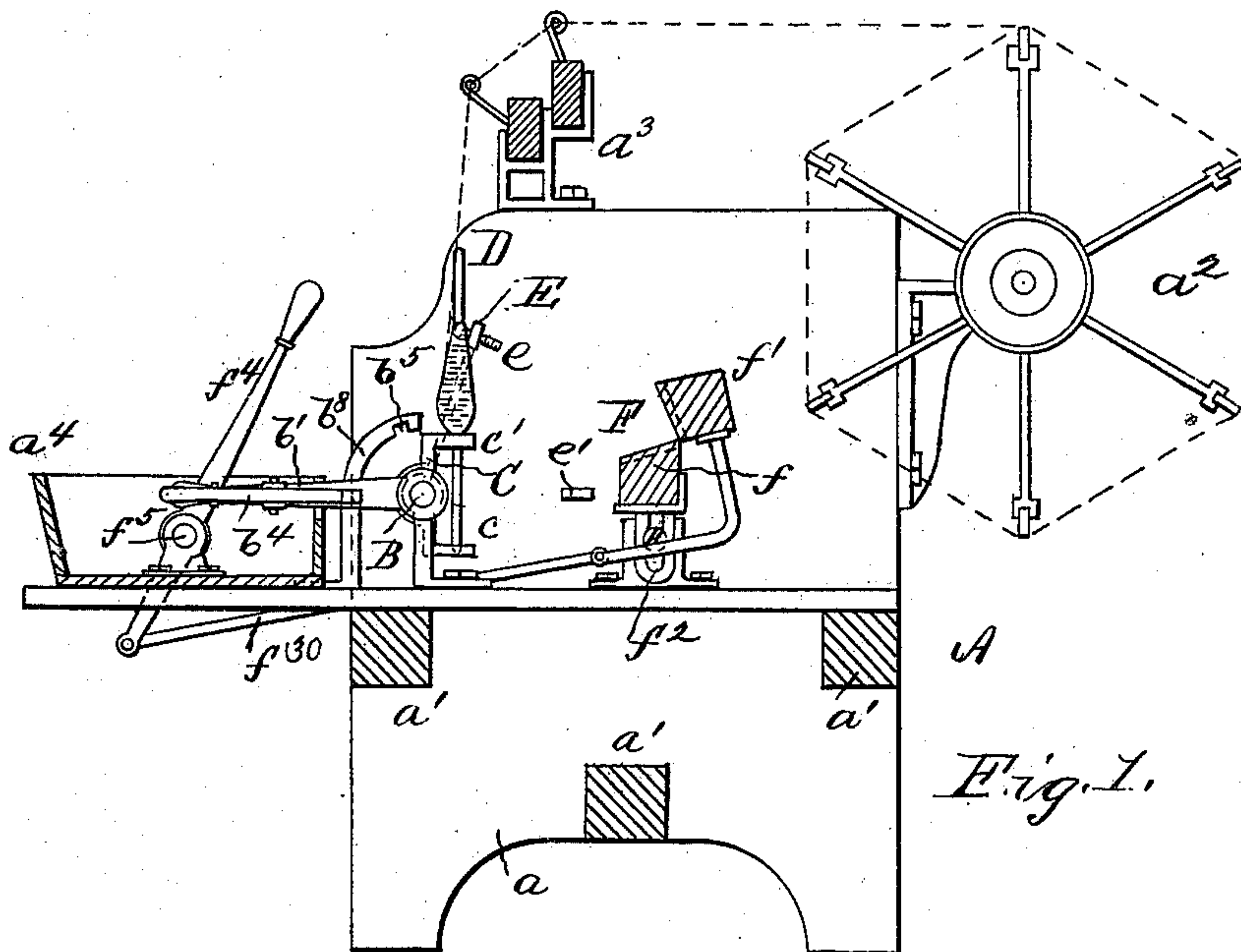


Fig. 1.

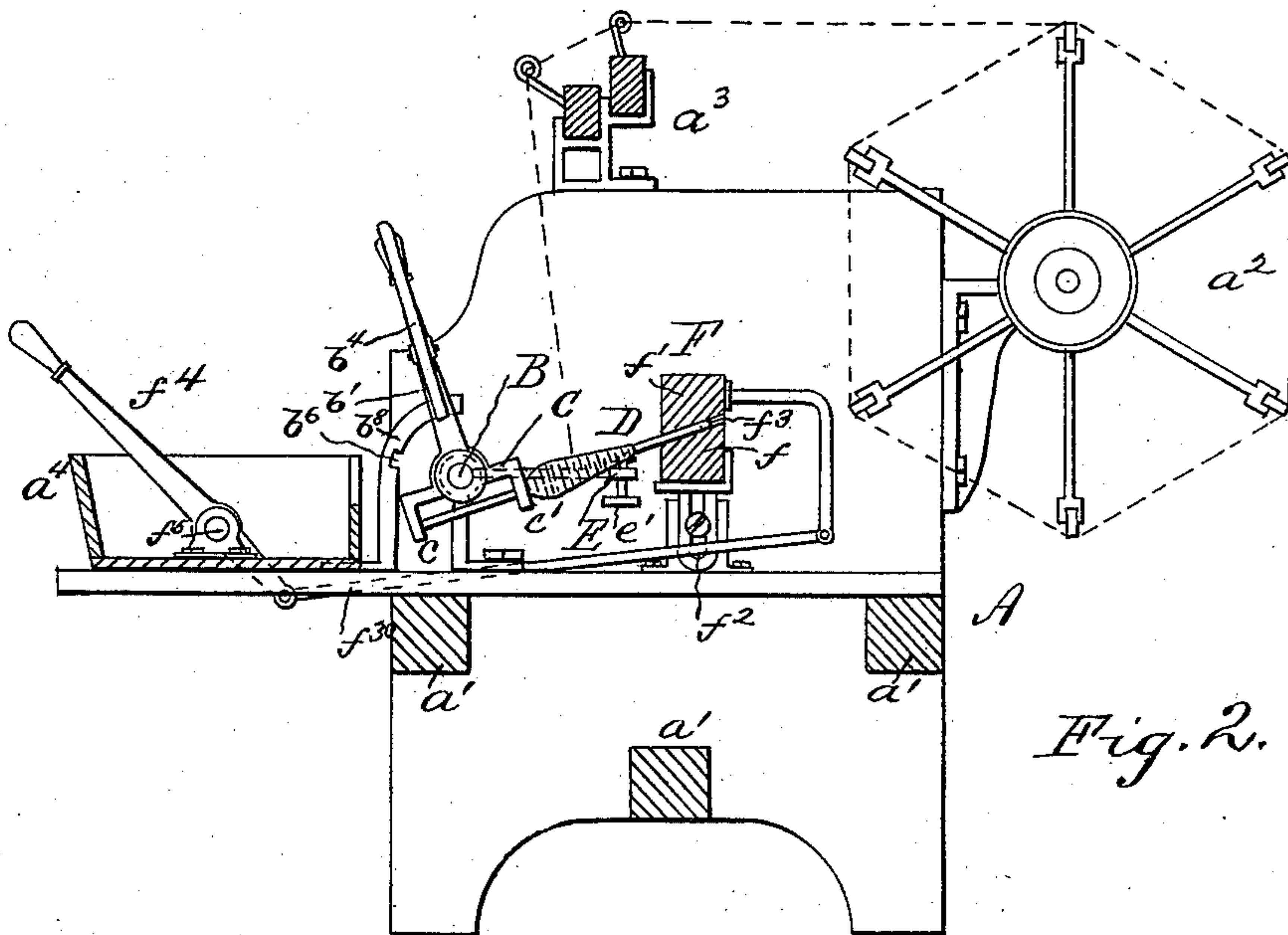


Fig. 2.

WITNESSES:

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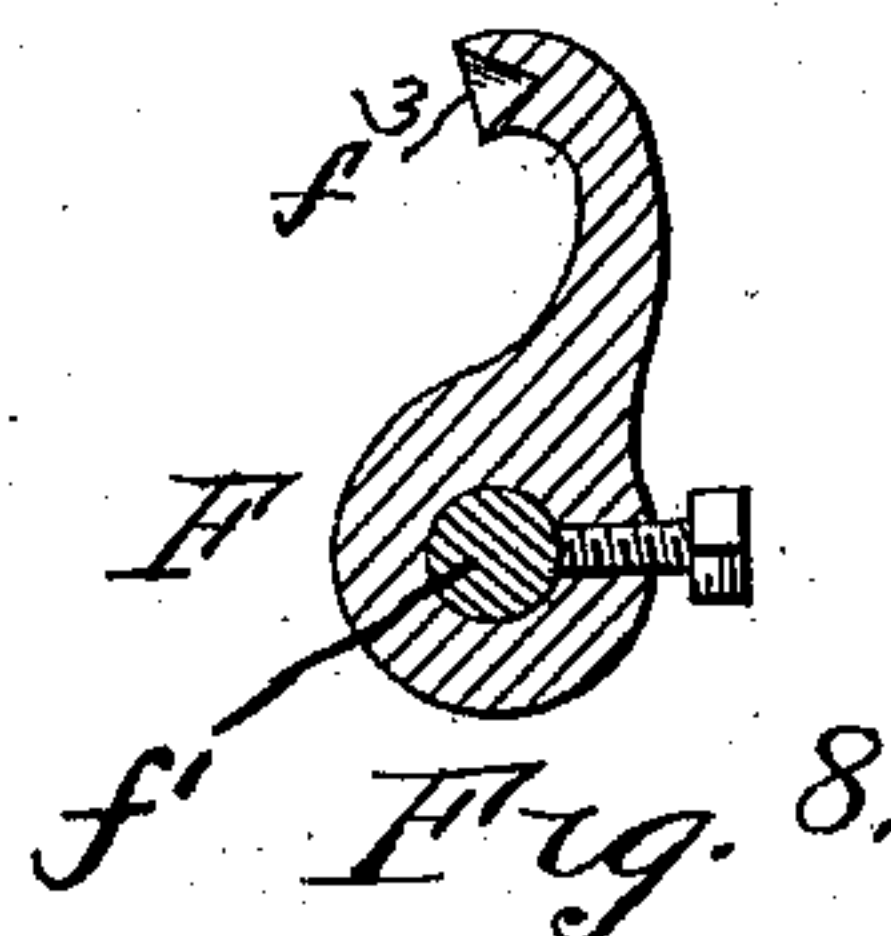
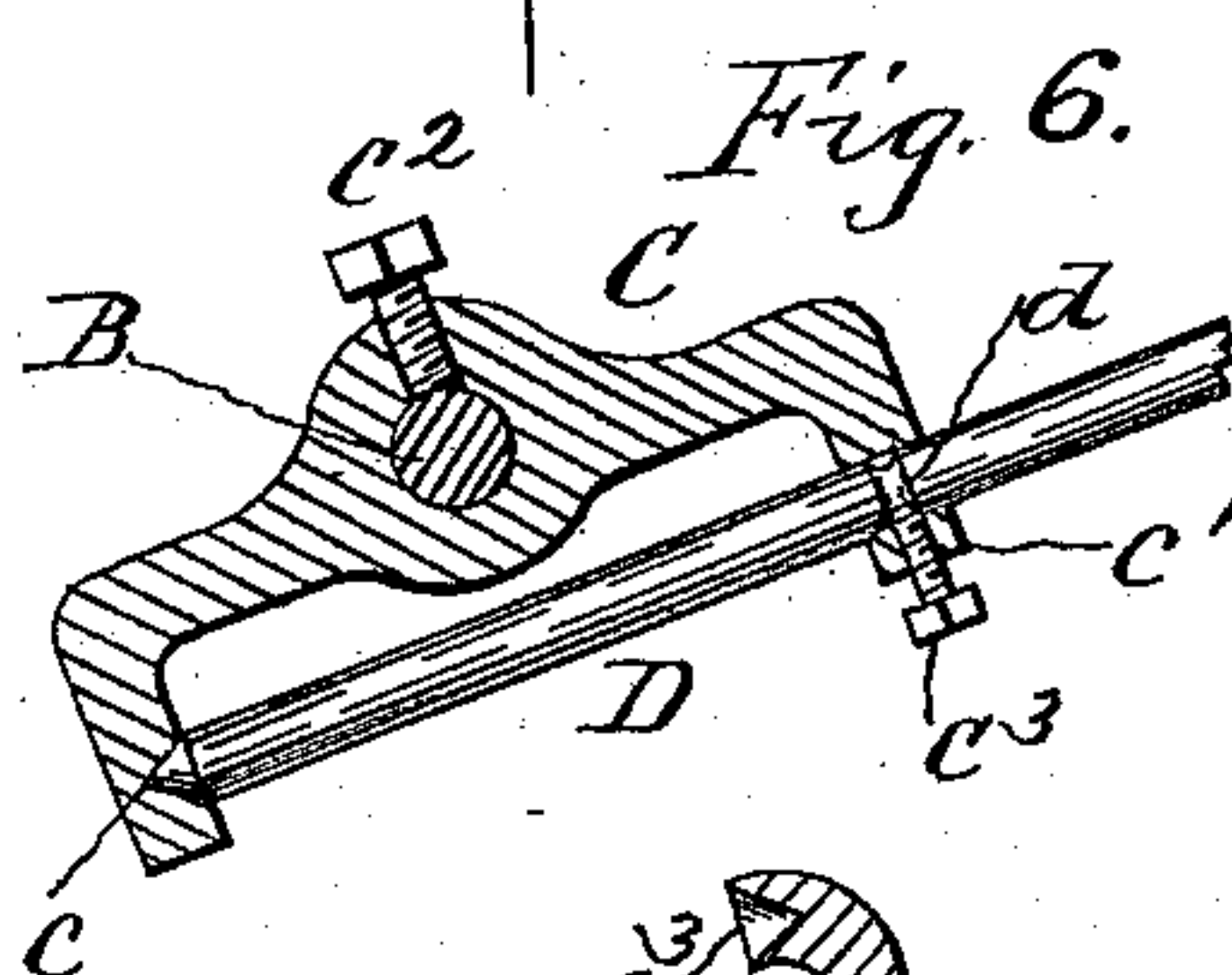
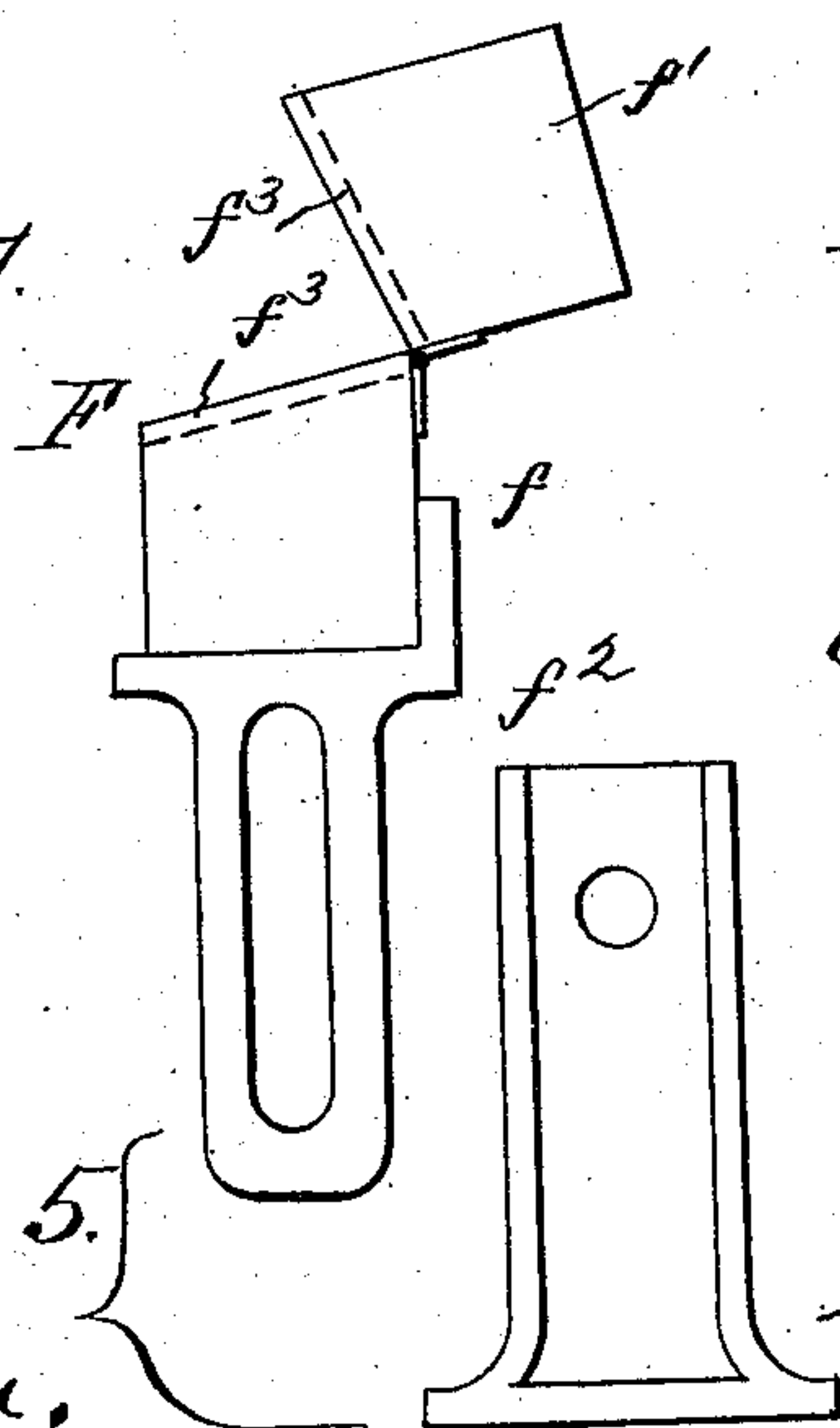
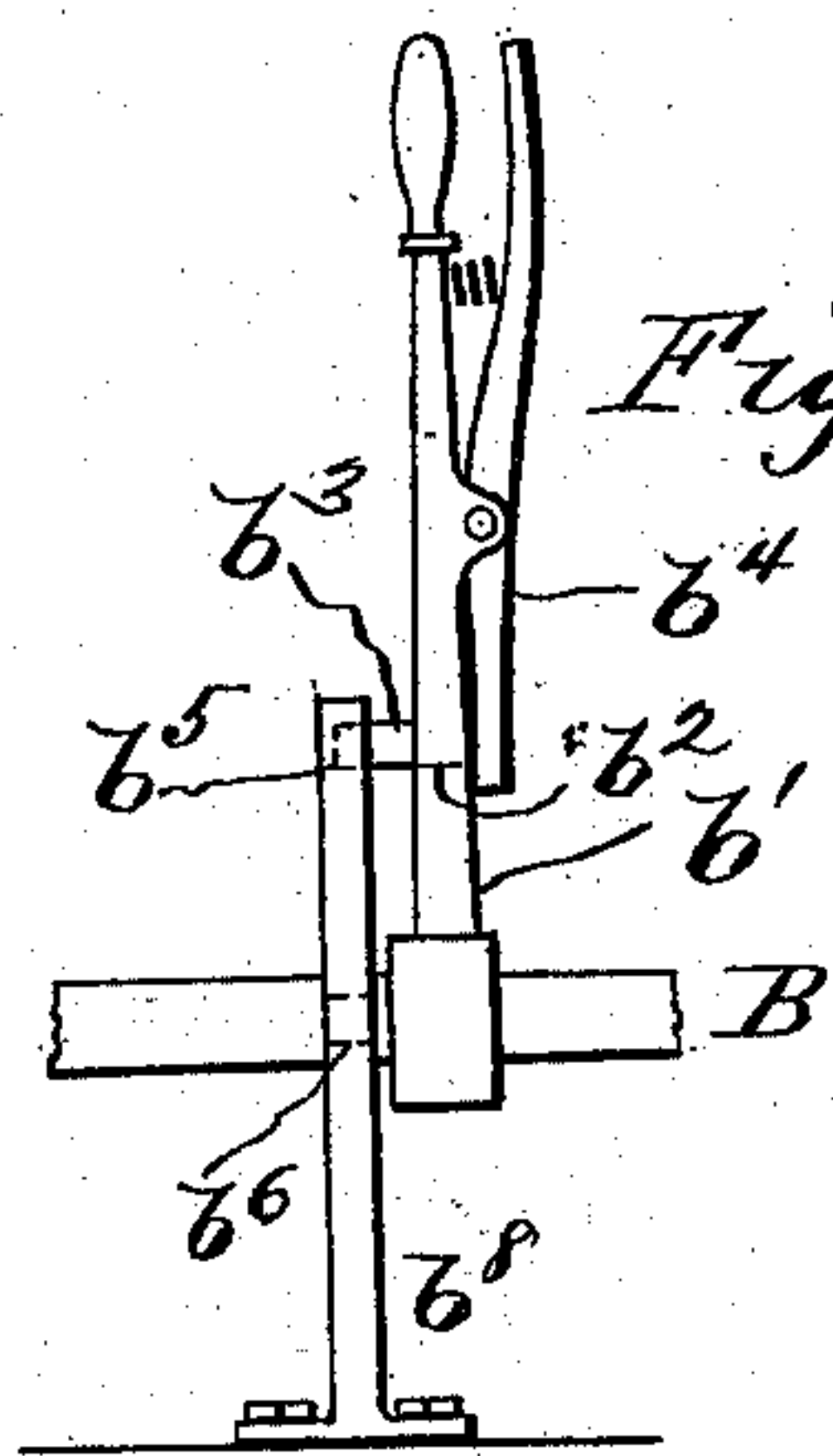
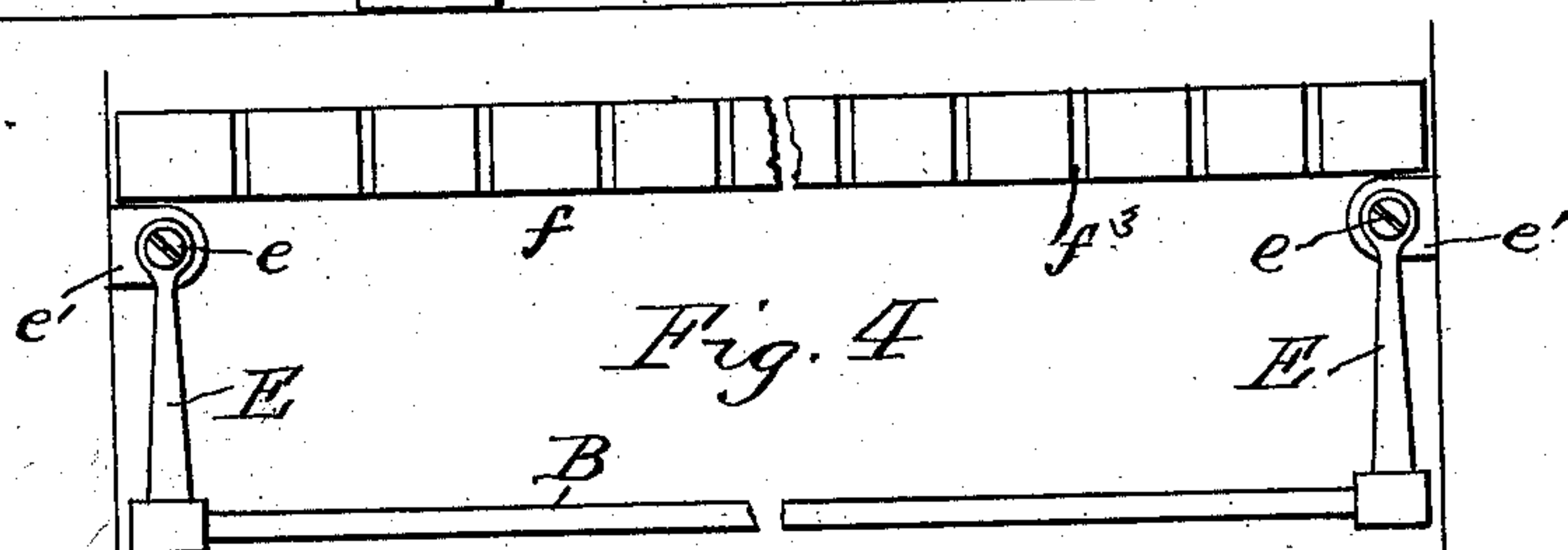
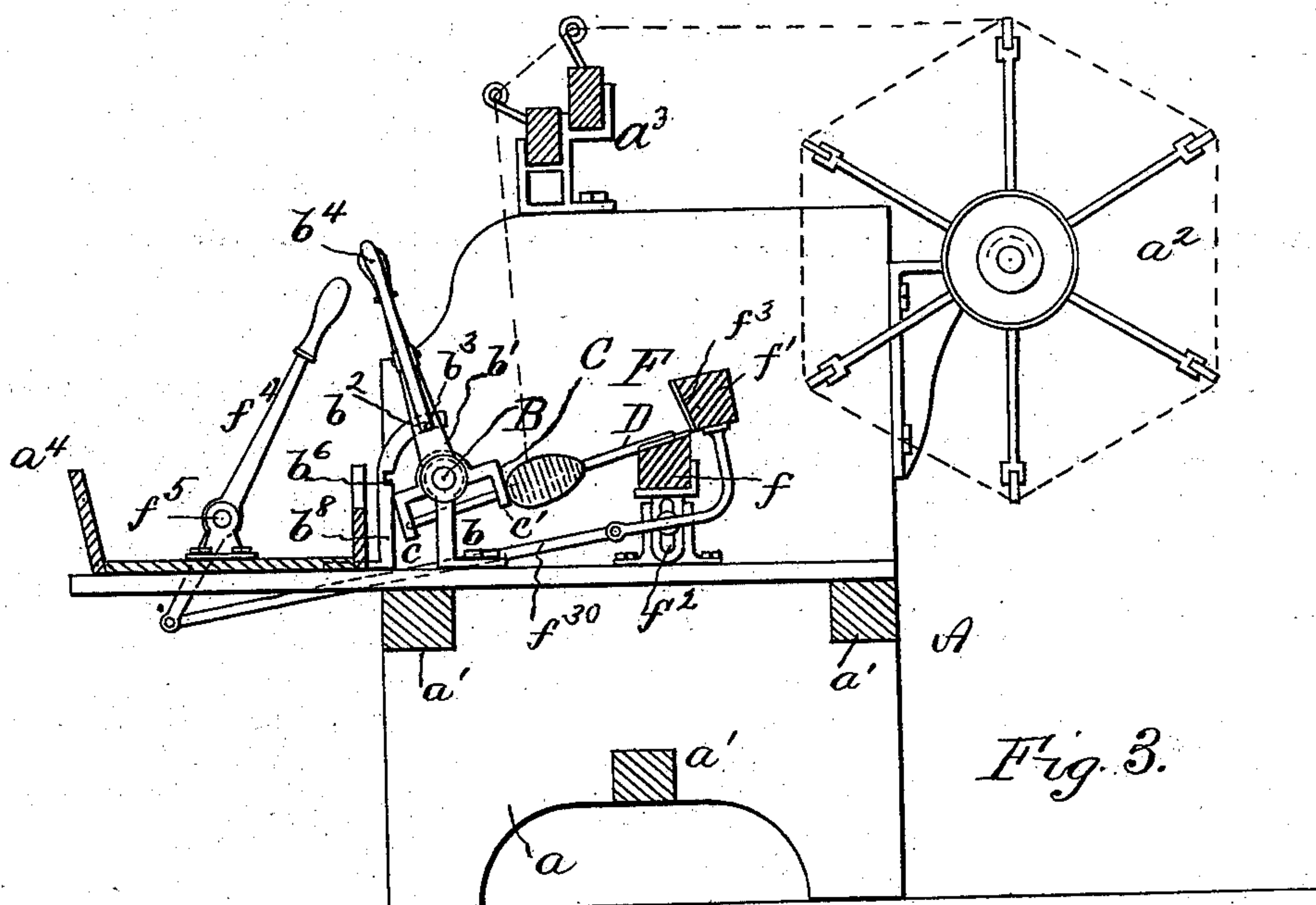
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2 Sheets—Sheet 2.

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WITNESSES: *Fig. 5.*

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UNITED STATES PATENT OFFICE.

WILLIAM SCHOFIELD, OF PHILADELPHIA, PENNSYLVANIA.

YARN-REELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 400,494, dated April 2, 1889.

Application filed January 2, 1889. Serial No. 295,140. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHOFIELD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Yarn-Reeling Machines, of which the following is a specification.

My invention has relation to worsted or other yarn reeling machines of the form in which the spindle supports or bearings are secured to or form a part of a movable bar or bars, so mounted and having actuating mechanism that a number or all of the spindles are simultaneously moved into different angular positions while the cops on the spindles are being unreeled so as to prevent the last portions of the cops slipping off of the spindles before they are reeled off thereof; and it has for its objects simplicity of construction of the operative parts of the spindle-supporting bar and the provision of a support for the upper or outer ends of the spindles when moved to a position to admit of the last portions of the cops reeling instead of slipping off the spindles, such supports for the outer ends of the spindles being then provided, as described, to prevent lateral strains on the spindles and consequent stopping of their rotation and breaking of the yarn.

My invention has for its further object to provide suitable devices attached to either the spindle bearing or supporting bar or to the supporting or bearing devices for the outer ends of the spindles, for regulating the bearing-contact between the outer ends of the spindles and supports therefor, and also to bring the said ends of all the spindles in the same or due alignment, so that all the spindles positively find their outer end support when moved to a position requiring such support.

My invention accordingly consists of the combinations, constructions, and arrangements of parts, as hereinafter more particularly described in the specification, and pointed out in the claims, reference being had to the accompanying drawings, wherein—

Figure 1 is a transverse section of a yarn-reeling machine embodying my improvements, showing the spindles in a vertical position. Fig. 2 is a like view showing the spin-

dles in an angular position approximating the horizontal and the supports for their outer ends formed or made. Fig. 3 is a like view showing the movable part of said supports away from the outer ends of the spindles. Fig. 4 is a plan, partly broken away, showing the fixed bar for the supports for the outer ends of the spindle, the spindle-bearing bar, and the devices on the latter, and for the ends or housings of the machine, for regulating the bearing-contact of the outer ends of the spindles in their supports, and for alignment of said ends on said supports, the same being drawn to an enlarged scale. Fig. 5 is a detail view, drawn to an enlarged scale, showing the fixed and movable bars forming the bearings or supports for the outer ends of the spindles, and also the adjustable brackets for fixed and movable bars, one part of said brackets being shown as detached from the other. Fig. 6 is a sectional elevation, drawn to an enlarged scale, showing the spindle-bearing bar, a bracket thereon, and a spindle in position in said bracket. Fig. 7 is an elevation, drawn to an enlarged scale, of spindle-bearing-bar-actuating mechanism for moving the same and locking devices for holding it in its adjusted positions, and Fig. 8 is a sectional elevation showing a modified form of support or bearing devices for the outer ends of the spindles.

A represents the yarn-reeling machine, comprising ends a , connecting-bars a' , reel a^2 , yarn-guide bars a^3 , and trough a^4 , of the usual or desired construction.

B indicates the spindle bearing or supporting bar, which may be of any suitable form. In the drawings I have shown it in the form of a round solid shaft, having mounted or secured thereon at suitable intervals boxes or brackets C, provided at one end with a step, c , and at the other with a bearing, c' , for the spindles D. The brackets or boxes C are adjustable on bar B by means of set-screws c^2 , (seen more plainly in Fig. 6,) and the spindles D are loose in their bearings in brackets or boxes C, so as to revolve as the cops thereon are unreeled, the spindles, if desired, being duly retained in position in the brackets or boxes C by means of set-screws c^3 in the ends c' of the brackets C engaging with an annular groove, d , in the spindles. (See Fig.

6.) The spindle-bearing bar B runs from end to end of the machine, if desired, and is suitably mounted in boxes or brackets *b*, secured to the frame-work or housings in any suitable manner or otherwise, as desired. At any convenient point along the bar B, preferably at or near its center, is secured a lever, *b'*, having a transverse opening or notch, *b²*, through which passes the end *b³* of a spring-actuated latch, *b⁴*, pivoted on lever *b'*, as more plainly shown in Fig. 7, which latch end *b³* engages with notches *b⁵* *b⁶* in the arm or bracket *b⁸*, secured to the frame-work of the machine adjacent to the lever *b'*, for purposes herein-
 15 after to be described.

At the ends of bar B, or other suitable parts along the same, are secured arms E F, having at their outer ends set-screws *e*, which contact with stops *e'*, secured to the frame-work
 20 of the machine, for a purpose to be hereinafter set forth.

Parallel with the bar B is located a supporting device, F, for the outer ends of the spindles when such support is required, and consists, as shown in Figs. 1, 2, 3, 4, and 5, of a
 25 lower bar, *f*, secured to brackets *f²*, bolted or otherwise attached to the frame-work of the machine, and of an upper bar, *f'*, hinged or pivoted at one edge or otherwise, as desired,
 30 to the lower bar, *f*, so that the bar *f'* can be moved into and out of contact with bar *f* to admit of the outer ends of the spindles finding bearings between or in the meeting surfaces of the bars *f f'*, such meeting surfaces
 35 being preferably provided with registering transverse grooves or bearings *f³* in line with the spindles on bar B. The said registering transverse grooves *f³* in the meeting surfaces of the bars *f f'* support the outer ends of the
 40 spindles when dropped or in an approximating horizontal position above, below, and on the sides of the same, so as to form an all-around bearing for said spindle ends to prevent straining movement of the spindles in
 45 any direction.

The brackets *f²* may be of any suitable construction; but I prefer to make the same in two parts, one sliding within the other and having a slot and set-screw connection of the
 50 well-known form, so that the height of the bars *f f'* may be adjusted, the parts of said bracket being more plainly shown in Fig. 5. The bar *f'* has a link-connection, *f³⁰*, with a lever, *f⁴*, pivoted at *f⁵* to the trough *a⁴*, or
 55 other suitable part of the machine, so that by actuating lever *f⁴* the bar *f'* is closed upon or moved off of the bar *f*.

The operation is as follows: When the cops are to be placed upon the spindles in the form
 60 of machine shown, the spindles are thrown into a vertical position, as indicated in Fig. 1, by depressing lever *b'* until the end *b³* of latch *b⁴* on said lever engages with the notch *b⁶* in arm *b⁸*, said latch engagement firmly
 65 holding bar B and the spindles thereon in said described position. The bar *f'* of supporting device F is then off of bar *f*, the actu-

ating-lever *f⁴* being in the position shown in Figs. 1 and 3. The greater portion of the
 70 cops is unreeled when the spindles are in the vertical position, as described, and as soon as this is effected the lever *b'* is then raised, the latch-bar *b⁴* being released in the act of raising said lever to turn bar B and drop the
 75 spindles D to an angular position approaching the horizontal, at which position their outer ends come in contact with or rest upon the bearings or grooves *f³* on the lower bar, *f*, of the supporting device F, as indicated in
 80 Fig. 3, the latch-bar *b⁴* meanwhile engaging with notch *b⁵* in arm *b⁸* to lock the bar B and spindles D in said last-described position. The lever *f⁴* is then moved to the position
 85 shown in Fig. 2, to close bar *f'* upon bar *f* to complete or provide an all-around bearing or support for the outer ends of the spindles, as shown in said last-named figure, so that the
 90 pulling strain of unreeling the cop cannot laterally move the ends of the spindles in any direction, and they do not bind in their bearings *c'*. Consequently stoppage of rotation of the spindles and breaking of the yarn due to such described binding of the spindles in
 95 their bearings *c'* is avoided. After the cops are all unreeled the bar *f'* is thrown off of bar *f* by reversely moving lever *f⁴*, so as to release the ends of the spindles from their support F and admit of raising them to a
 100 vertical position for a further supply of cops. The pressure of the outer ends of the spindles in the supporting device F is regulated by adjusting the screws *e* in the arms E on
 105 shaft B, so as to vary the extent or limit of throw of said arms against the stops *e'*, which of course also correspondingly varies the limit of movement of bar B and
 110 spindles D. After the spindles are dropped to the support F, and if any of the spindles at either end of the bar B are out of alignment with the others, by adjusting the screws
 115 *e* against the stops *e'* in the proper manner, all the spindles are brought into the same alignment. If desired, however, the same result can be effected by vertically adjusting the brackets *f²*, so as to elevate or depress bar
 120 *f*, and hence the latter, if deemed necessary, may be in one or more parts or sections, in which case the bar *f'* is correspondingly divided, and each section thereof has its separate actuating devices *f³* *f⁴*. Instead of using the fixed and movable bars *f f'*, a single
 125 movable bar or shaft, *f'*, with step-bearings *f³*, may be substituted, as indicated in Fig. 8.

I do not herein claim the movable spindle supporting or bearing bar B in itself, as it
 130 forms the subject-matter of another pending application, filed February 23, 1888, Serial No. 265,059. As the novel features of my invention may be varied without departing from the spirit of the invention, I do not limit
 135 myself to the same as illustrated and described.

What I claim is—

1. The combination, in a yarn-reeling ma-

chine, of the reel a^2 , of the yarn-guides a^3 , the movable bar B, having a number of spindles mounted thereon, actuating mechanism for moving bar B and locking it in its adjusted positions, and a movable supporting device, F, for the outer ends of the spindles, substantially as shown and described.

2. In a yarn-reeling machine, a movable spindle-supporting bar, B, in combination with a supporting device, F, for the outer ends of the spindles when moved to contact therewith, and actuating devices for said bar B and supporting device F, substantially as set forth.

3. In a yarn-reeling machine, the combination, with a movable spindle-supporting bar, B, and its actuating device, of the supporting device F, comprising a fixed bar, f , and a movable bar, f' , and actuating mechanism for the latter, substantially as set forth.

4. In a yarn-reeling machine, the combination, with movable spindle-supporting bar B and its actuating mechanism, of the arms E E, having set-screws e secured to bar B, stops e'

on the frame of the machine, and a supporting device, F, and actuating mechanism therefor, substantially as set forth.

5. In a yarn-reeling machine, the combination, with a movable spindle-supporting bar, B, and its actuating mechanism, of the vertically-adjustable bar f' , brackets f^2 , composed of sections, one of which is a sliding section having a set-screw attachment with the other section for adjusting bar f , bar f' , hinged to bar f , and actuating mechanism for bar f' , substantially as set forth.

6. In a yarn-reeling machine, the combination, with a movable spindle-supporting bar, B, of the spindle-end-supporting device F, having all-around bearings for the spindle ends, substantially as set forth.

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

WILLIAM SCHOFIELD.

Witnesses:

S. J. VAN STAVOREN,

FREDK. A. SOBERNHEIMER.