

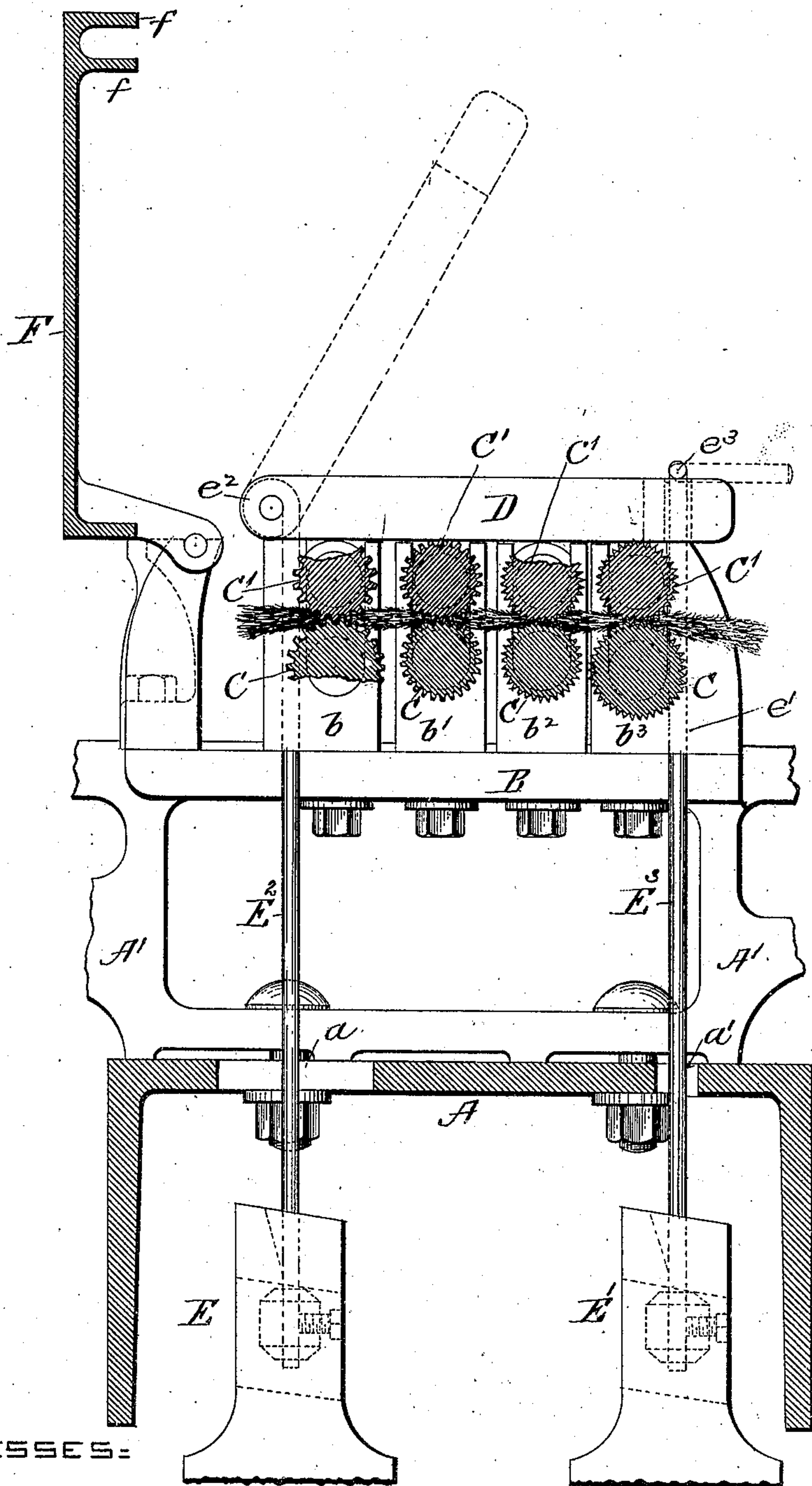
No. 806,282.

PATENTED DEC. 5, 1905.

L. W. PENNEY.
DRAWING FRAME.

APPLICATION FILED OCT. 8, 1904.

2 SHEETS—SHEET 1.



WITNESSES:

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2 SHEETS—SHEET 2.

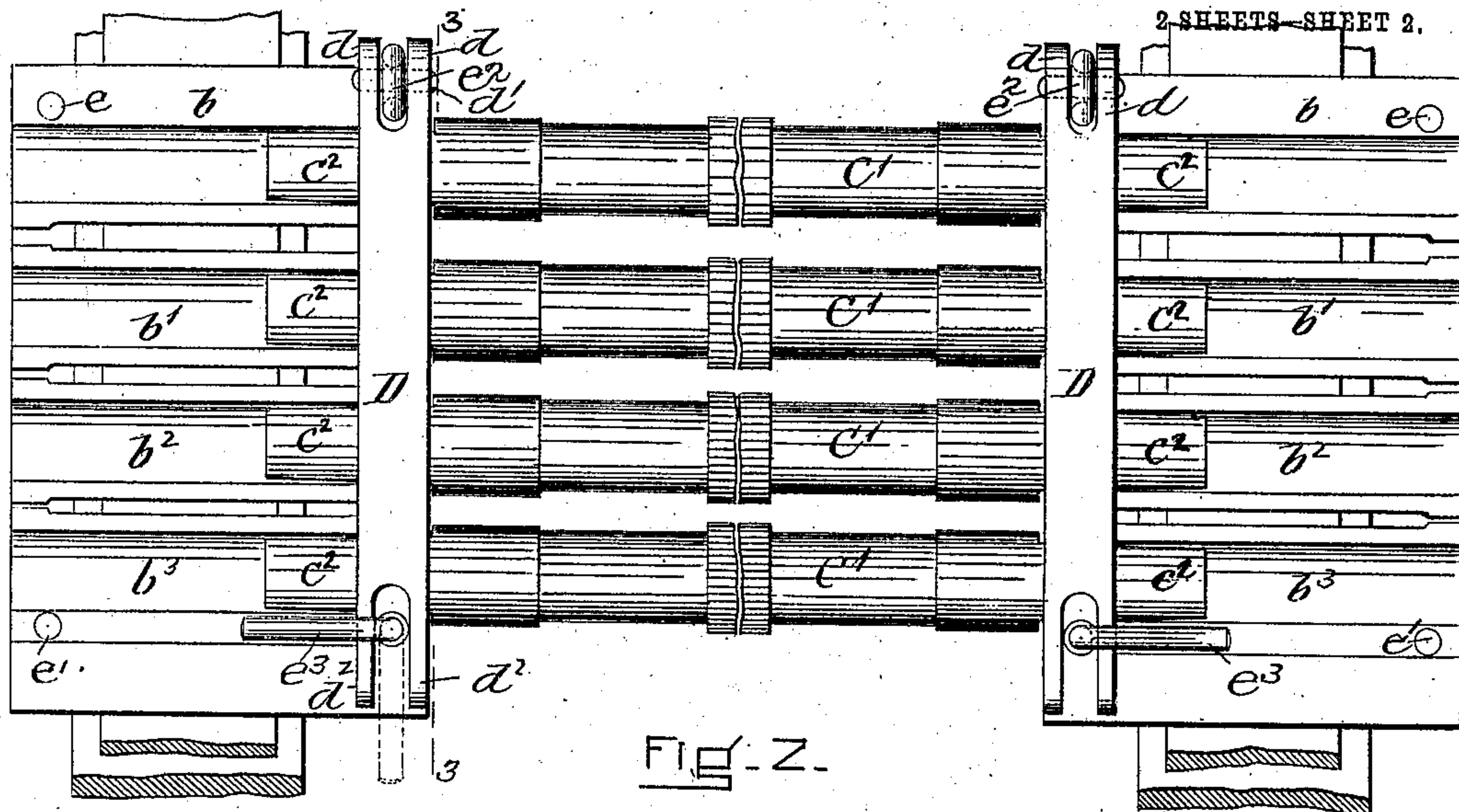


FIG. 2.

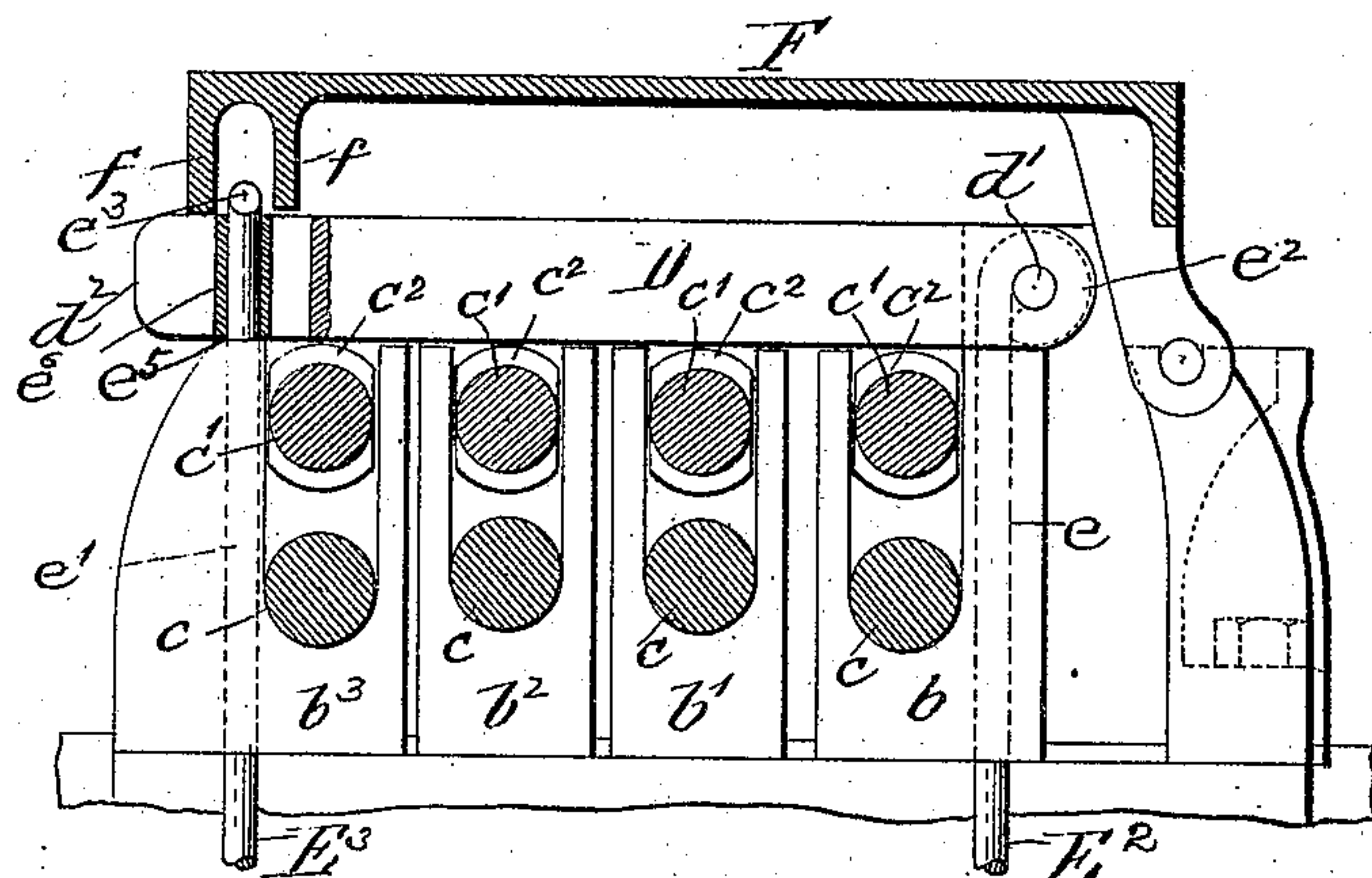


FIG. 3.

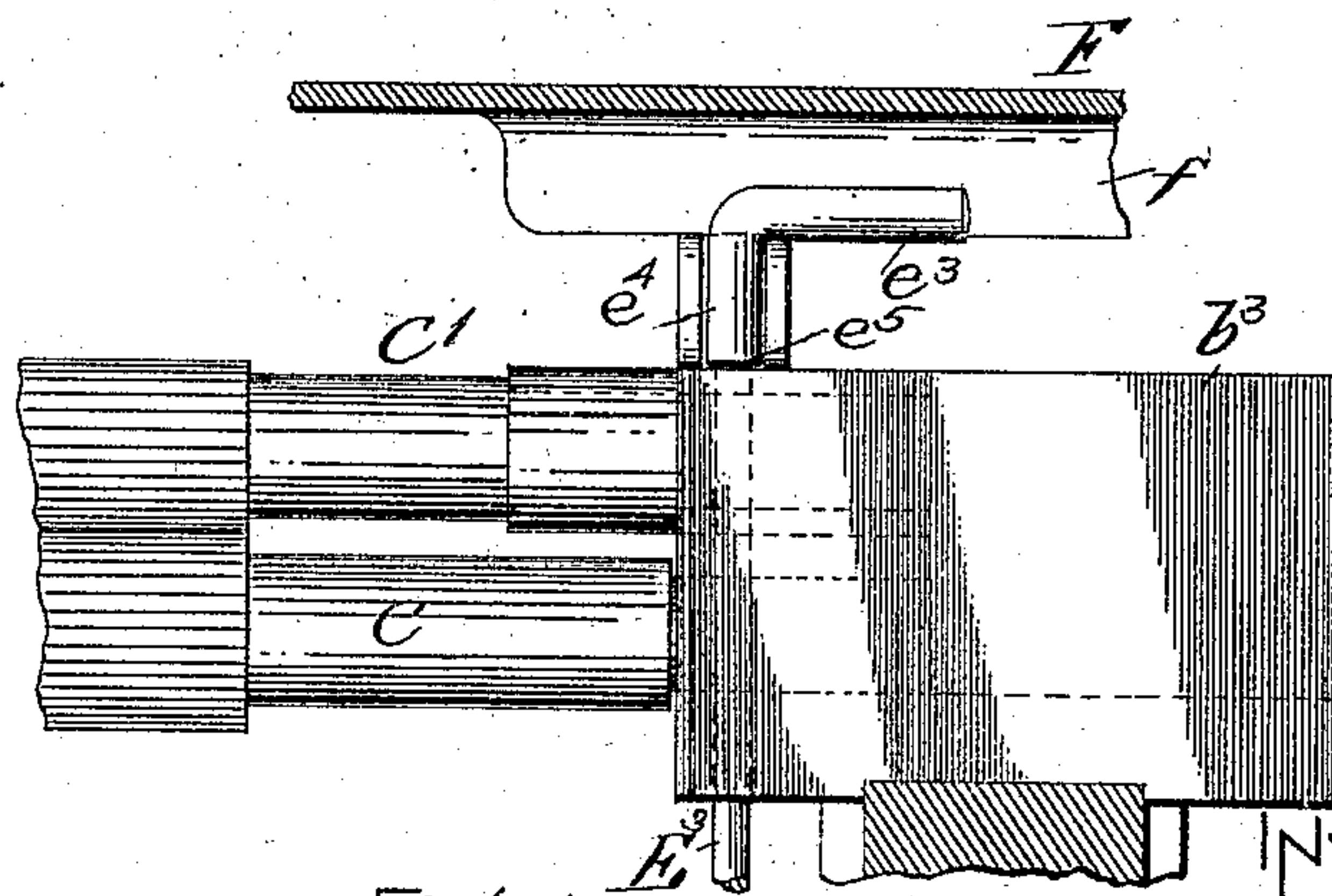


FIG. 4.

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UNITED STATES PATENT OFFICE.

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DRAWING-FRAME.

No. 806,282.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed October 8, 1904. Serial No. 227,639.

To all whom it may concern:

Be it known that I, LOREN W. PENNEY, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Drawing - Frames and the Like, of which the following is a specification.

The usual manner of yieldingly holding down the upper rolls of drawing-frames is by means of weights. The endeavor has been to so apply the weights that the tendency of the upper rolls to tilt or rock shall be minimized as much as possible. This tilting is a well-known fault, and my endeavor in the present invention has been accordingly to so apply the weights that the upper rolls will yield sufficiently when required by the thickness of the sliver and without undue tilting.

It is a further object of my invention to so apply the weights or by such means that the rolls may be released to be taken out without lifting the weights or separating them from the machine, and upon replacing the rolls they may be subjected to the retaining action of the weights with as little trouble as possible.

There are also embodied in my invention various other incidental improvements, all of which will be explained by reference to the drawings, in which I have shown enough of a machine to make my invention understandable.

Figure 1 is a vertical section of a portion of a drawing-frame embodying my invention with the cover open, Fig. 2 being a portion of a plan view; Fig. 3, a vertical section of the roll-supports, taken on line 3 3 of Fig. 2 with the cover closed; and Fig. 4, a detail taken in front elevation.

A is the bed, which may be supported in the usual way and carries supports A'. There are a number of these supports, although two only are shown, and on which is mounted a stand B, carrying a number of blocks b , b' , b^2 , and b^3 for the support of the rolls C and C', arranged in pairs, C representing the lower rolls and C' the upper rolls. The blocks act for the support of these pairs of rolls in the following manner: Each block has opening from its top surface a deep recess, the rounding bottom of which acts as a bearing and support for the journals c of the lower rolls C,

while the journals c' of the upper rolls C' are preferably mounted to turn in boxes or bearings c^2 , squared to fit into the recesses in the blocks and in which recesses also the boxes are vertically movable or adjustable, thereby providing for the vertical movement or yielding adjustment of the upper rolls. As shown, each block and recess is long enough to carry also the adjacent journals of another pair of rolls, the second pair, however, being omitted in the drawings. The blocks also, with the exception of the first set, are mounted upon their stand to be horizontally adjustable thereon in order that the rolls may be adjustably separated from one another, according as the length of staple which they work upon varies. The usual manner of locking them to the stand to permit of such adjustment is employed.

The rolls are shown constructed in the usual manner. They are fluted along their working portions, the fluted portions of each of the upper rolls C' meshing with its lower roll C. My invention is more especially concerned with the means for yieldingly holding down the upper rolls in their proper place and bearing with respect to the lower rolls. For this purpose there are shown cross-bars D, the ends of each of which rest upon the blocks b b^3 , respectively, each cross-bar lying above the journals and boxes of the upper rolls C' and closing the entrance to the recesses in which said journals and boxes are contained. These cross-bars are held in place by weights E E', applied at their ends through connecting or coupling rods E² E³. These coupling-rods bearing the weights connect with the ends of the cross-bar in the following manner: In the bed of the machine are formed holes or openings a a' , which register with the vertical holes e e' , respectively, in the blocks b b^3 , on which the ends of the cross-bar are resting. The coupling-rods are passed through these holes, the coupling-rod E² passing through the holes a and e and the coupling-rod E³ through the holes or openings a' and e' . In connection with the passage of the coupling-rod E² through the bed of the machine it is to be noted that the hole or opening a therein is made elongated or slotted, so that the coupling-rod may travel therein and not interfere with the adjustment of the block b , through which it is passed

Above the block b the upper end of the coupling-rod E^2 is bent over to form an eye e^2 , while the upper end of the coupling-rod E^3 , passed through the block b^3 , is turned over to form an arm e^3 . Each end of the cross-bar D is made cleft or forked, the prongs d of which at one end receive between them the eye e^2 on the end of the coupling-rod E^2 , and a hinge jointure is then made by a pin d' , passed transversely through the prongs and through the eye e^2 of the coupling-rod between them. On the other end of the cross-bar the prongs d^2 are made sufficiently wide apart to receive between them the upper end portion e^4 of the coupling-rod E^3 , which, as may be noted in Fig. 4, is enlarged at this point to form a shoulder e^5 , bearing against the top of the block e^3 , by which means the rod and attached weight are supported. This portion e^4 of the rod above the shoulder e^5 and between it and the bent arm e^3 is of a length or extension substantially the vertical thickness of the cross-bar D , so that with the end of the arm resting upon the block in normal position the arm e^3 on the end of the rod may be turned around to lie over the one or the other of the prongs d^2 , by which means the end of the cross-bar is jointed or locked to the coupling-rod E^3 with a yielding jointure and without the necessity of lifting the coupling-rod and attached weight. Instead of making the portion e^4 of the rod enlarged to form the supporting-shoulder e^5 the rod, as shown in Fig. 3, may have at this point an auxiliary sleeve e^6 , one end of the sleeve forming said shoulder and the other end bearing against the arm e^3 as a stop. Of course any other mechanical expedient may be resorted to to form this shoulder; but I prefer one or the other of the above means as being the most practicable.

In order to prevent the bars D from being accidentally unlocked, I prefer to provide a cover F , hinged to the upright F' and having at its front end ribs f , which straddle the arms e^3 of the rod E^3 when in position locking the cross-bar. (See Fig. 3.)

It will be seen that the cross-bar and attached weights at one end of the rolls are duplicated at the other ends, and with the parts thus constructed and combined when the rolls and cross-bars are in normal position the cross-bars will rest on top of the blocks b and b^3 , just clearing the journals, or rather the journal-boxes, of the upper rolls and be held in place at either end by the attached weights, the attachment being such that one end of the bar will be provided with a yielding hinge and the other end with a yielding lock, so that the parts may properly yield when required by the thickness of the sliver. Thus normally no stress will be exerted to press down the upper rolls upon the lower rolls. The pressure of the weights is nor-

mally received by the shoulder e^5 and not by the cross-bar D . When, however, there is any tendency on the part of one or more of the upper rolls to rise unduly, it or they will be held down by the combination of both weights E E' , acting on the cross-bar D , or by one of the weights, the opposite end of the cross-bar yielding or turning upon the pin d or the arm e^3 as upon a hinge. A single weight may therefore control any one of a number of rolls or all of them. It is also to be noted that the cross-bar will act as a lever to apply weight in a more efficient way than by direct action. The effect is that the upper rolls will be more evenly maintained. There will be less opportunity for the rolls to tilt, any undue tendency in this particular, whether on the part of one or more rolls, being immediately corrected. After the cover F is turned back the cross-bars may be removed and the rolls taken out simply by turning the arm e^3 into alinement with the slot in the end of the cross-bar. The cross-bar can then be turned back upon the pin d' as a hinge, (see dotted lines of Fig. 1,) when the rolls can be taken out, and this, moreover, without the necessity of lifting the weights. After the rolls are replaced the cross-bars can be turned down and locked simply by turning the arm e^3 of the coupling-rod over one or the other of the prongs d^2 on the end of the cross-bar. This operation also can be accomplished without the necessity of lifting the weights, at least when the cross-bars are in normal position resting upon their blocks, for, as before explained, the coupling- rods E^3 are supported by their shoulders e^5 , contacting with the blocks in such manner that their locking-arms e^3 may be turned over one or the other of the prongs d^2 without the necessity of lifting the weights. If there is sliver between the rolls sufficient to raise the locking ends of the cross-bars from their blocks, then it may be necessary to raise the weights slightly for the locking-arms to make their engagement; but this can be accomplished with very little trouble. Another benefit derived from the means shown of locking the ends of the cross-bars resides in the fact that it permits of the blocks and rolls being adjusted in their position, as before explained, for the slot in the locking end of the cross-bars is made sufficiently long to permit of their being adjusted some considerable amount and still receive the ends of the coupling-rods E^3 and the engagement of the locking-arms.

While I have shown my improved construction as applied to four pairs of rolls, it is evident that the number of pairs of rolls may be increased or decreased as desired, as, in fact, other structural parts of the machine may be varied without departing from the spirit of my invention.

What I claim as my invention is—

1. In a drawing-frame or similar machine, a series of rolls, bearings therefor, a yielding cross-bar for holding said rolls in their bearings, and means for yieldingly weighting said cross-bar at both ends thereof.

2. In a drawing-frame or similar machine, a plurality of pairs of rolls, bearings therefor, a yielding cross-bar for holding said rolls in their bearings, and weighted couplings making yielding connection with said cross-bar at both ends thereof.

3. In a drawing-frame or similar machine, a series of rolls, bearings therefor, a yielding cross-bar for holding said rolls in their bearings, and weight-carrying means connected with the respective ends of said cross-bar and adapted to hold the same against else than yielding, vertical movement.

4. In a drawing-frame or similar machine, a series of rolls, bearings therefor, a yielding cross-bar for holding said rolls in their bearings, weight-carrying means for making a yielding hinge connection with one end of said cross-bar, and a yielding lock connection with the other end thereof, whereby said cross-bar may be released and the rolls taken out.

5. In a drawing-frame or similar machine, a plurality of pairs of rolls, a bearing for each end of each pair of rolls, said bearings being arranged in blocks, a cross-bar adapted to rest on said blocks, and weighted couplings extending through said blocks, one to make a yielding hinge connection with one end of the cross-bar and means for yieldingly locking the other of said couplings to the other end of the cross-bar.

6. In a drawing-frame or similar machine, a plurality of pairs of rolls, a bearing for each end of each pair of rolls, said bearings being arranged in blocks, a cross-bar adapted to rest on said blocks, and weighted couplings extending through said blocks and adapted at their upper ends to engage said cross-bar, as and for the purposes set forth.

7. In a drawing-frame or similar machine, a plurality of pairs of rolls, a bearing for each end of each pair of rolls, a roll-retaining cross-bar adapted to rest on said bearings, weighted couplings, one adapted to engage each end of said cross-bar, one of said couplings forming a hinged connection therewith, and the other a lock connection therewith, as described.

8. In a drawing-frame or similar machine having one or more pairs of rolls, blocks forming bearings or supports for the ends of each pair of rolls, a pair of cross-bars, each adapted to rest upon one or more of said blocks and yieldingly retain said rolls, a yielding hinge for one end of each of said cross-bars, and a yielding lock for the other end thereof, whereby either one or both ends of said cross-bar may be lifted by the lifting of the ends of said rolls, and said cross-bars may be un-

locked and swung to release said rolls, as and for the purposes set forth.

9. In a drawing-frame or similar machine, a series of pairs of rolls, bearings or supports therefor, a cross-bar adapted to yieldingly retain the upper of said series of rolls in their proper bearing, and means for locking the free end of said cross-bar in place, comprising a weighted coupling having a bent arm at its upper end adapted to engage the upper surface of said cross-bar, and a cover hinged to said drawing-frame and provided with ribs adapted to engage the bent arm of said weighted coupling, as and for the purposes described.

10. In a drawing-frame or similar machine, a series of rolls, bearings therefor, a cross-bar for retaining said rolls in their bearings, a weight-bearing coupling adapted to connect with the end of said cross-bar, and means for supporting said coupling; whereby it may make connection with the end of said cross-bar without lifting its weight.

11. In a drawing-frame or similar machine, a series of rolls, bearings therefor, a cross-bar for retaining said rolls in their bearings, the free end of which cross-bar is made forked and means for locking the free end of said cross-bar in place with a yielding jointure comprising a weighted coupling having a bent arm adapted to engage the upper surface of said bar by a portion of said coupling passing through the forked end of the same.

12. In a drawing-frame or similar machine, the lower and upper rolls, supports or bearings for said rolls, a cross-bar for yieldingly retaining said rolls, a weight-bearing coupling, a portion of which when turned in one direction is adapted to engage with said cross-bar and when turned in another direction into disengagement therefrom, and means for supporting said weighted coupling whereby the engagement with, or release of said portion thereof from the cross-bar is effected without lifting the weighted coupling.

13. In a drawing-frame or similar machine, the lower and upper rolls, supports or bearings for said rolls, a cross-bar for their yielding retention, said cross-bar having a cleft or forked end, a weight-bearing coupling-rod adapted to pass through said cleft end of the cross-bar, a locking-arm upon the upper end of said rod adapted when the rod is turned to engage with one or the other of the prongs forming the forked end of the cross-bar, and a shoulder, forming means on said weight-bearing coupling-rod for supporting the same, whereby the engagement of said locking-arm with the end of the cross-bar, or its disengagement therefrom, may be accomplished without lifting said coupling-rod and weight.

14. In a drawing-frame or similar machine, the combination of a support, a number of

roll-bearing blocks mounted upon said support to be horizontally adjustable thereon, the rolls carried by said blocks, a yielding cross-bar for retaining said rolls in their proper place and plane, weighted couplings adapted to pass through said blocks and engage with the ends of said cross-bar resting upon the same, means for forming the engagement of said couplings at one end of said cross-bar to form a yielding hinge, and at the other end of said cross-bar a yielding lock, permitting of the release of said cross-bar and the adjustment of said blocks and rolls.

15. In a drawing-frame or similar machine, the lower and upper rolls, blocks affording bearings or supports for said rolls, a cross-bar for yieldingly retaining the upper of said rolls, the ends of which bar are supported to rest upon said blocks, a yielding hinge for retaining one end of said bar, a yielding lock for retaining the other end thereof, the same comprising a weight-bearing coupling-rod passing through said block, on the end of which the cross-bar is resting, a locking-arm formed on the end of said coupling-rod above said block and adapted to be turned into locking engagement with, or into disengagement from said cross-bar, a shoulder on said coupling-rod in normal engagement with said block for supporting the same, whereby said locking-arm may be turned into engagement with, or into disengagement from the end of said cross-bar without lifting the coupling-rod and weight.

16. In a drawing-frame or similar machine, a plurality of sets of opposed rolls, a single means adapted to be engaged by one roll of each of said sets upon displacement of such roll, a weight arranged to be applied to said roll-engaging means upon displacement of a

roll, and means normally relieving said roll-engaging means of the weight.

17. In a drawing-frame or similar machine, a plurality of sets of opposed rolls, a single means arranged to be engaged by one roll of each of said sets upon displacement of such roll, means for applying pressure to said roll-engaging means upon displacement of a roll, and means whereby said roll-engaging means is normally relieved from such pressure.

18. In a drawing-frame or similar machine, a plurality of sets of opposed rolls, a single means adapted to be engaged by one roll of each of said sets upon displacement of such roll, a weight arranged to be applied to said roll-engaging means upon displacement of a roll, and means normally relieving said roll-engaging means of the weight, said roll-engaging means adapted to be placed and removed without moving the weight.

19. In a drawing-frame or similar machine, a plurality of sets of opposed rolls, a bar adapted to be engaged by one roll of each of said sets upon displacement of such roll, a weight arranged to be applied to said bar upon displacement of a roll, and means normally relieving said bar of said weight, said bar being adapted to be placed in operative position and removed without moving the weight.

20. In a drawing-frame or similar machine, a plurality of sets of opposed rolls, a plurality of variously-disposed weights, and means whereby all of said weights are adapted to be applied to any of the aforesaid rolls.

LOREN W. PENNEY.

Witnesses:

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