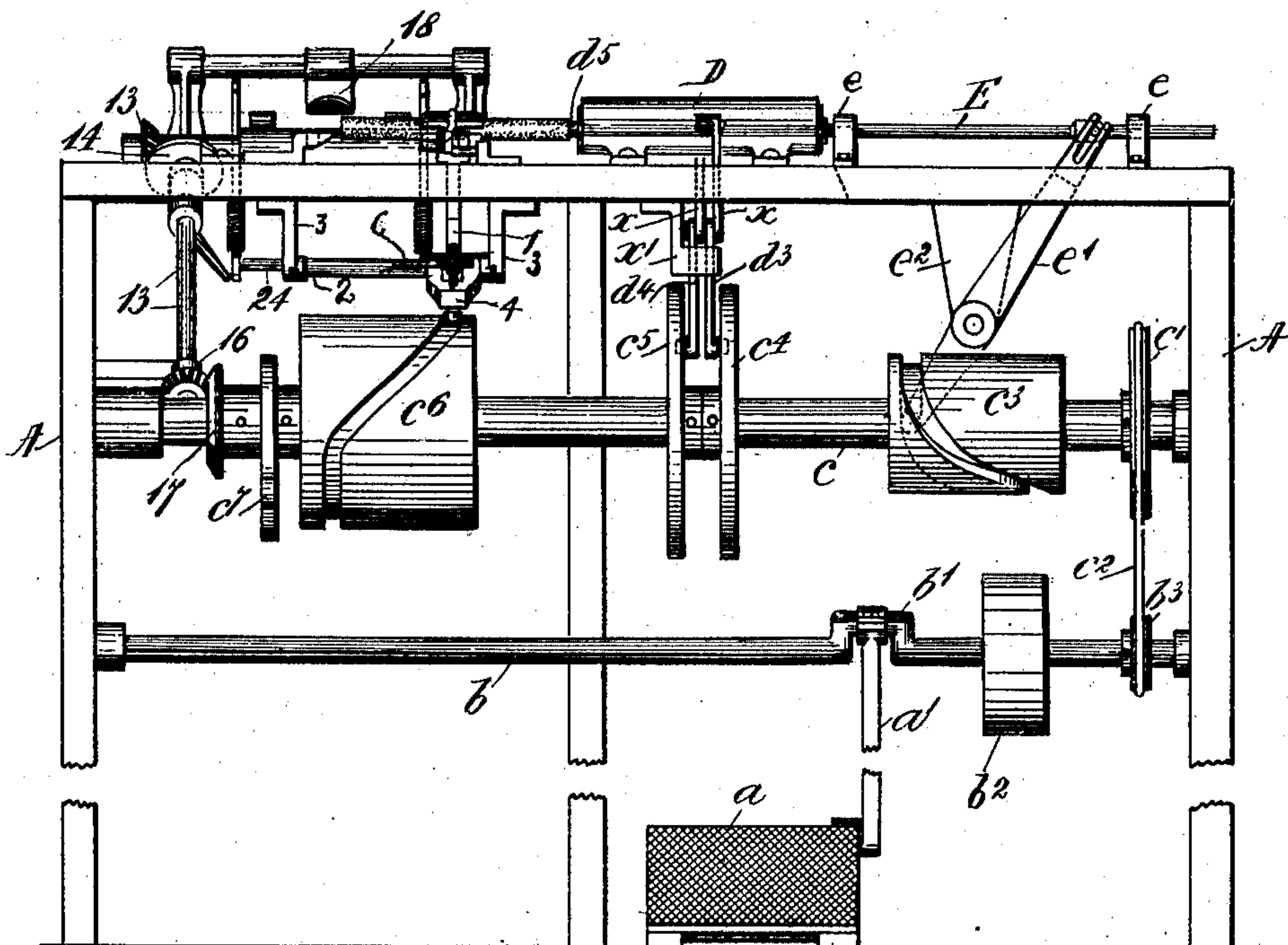
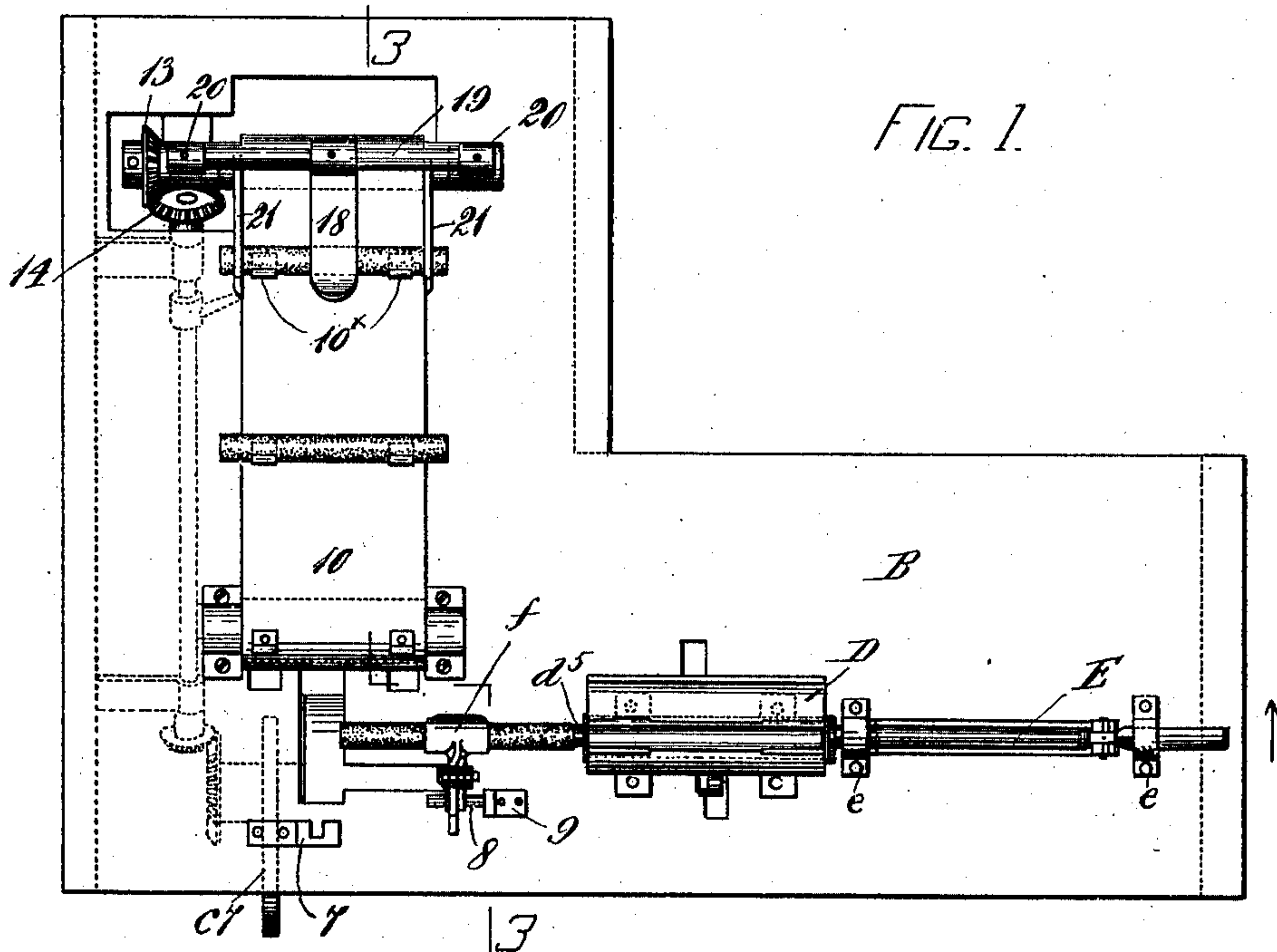


C. COCONIS.
MACHINE FOR MAKING CIGARETTES.
APPLICATION FILED MAY 26, 1909.

983,480.

Patented Feb. 7, 1911.

3 SHEETS—SHEET 1.



WITNESSES

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FIG. 2.

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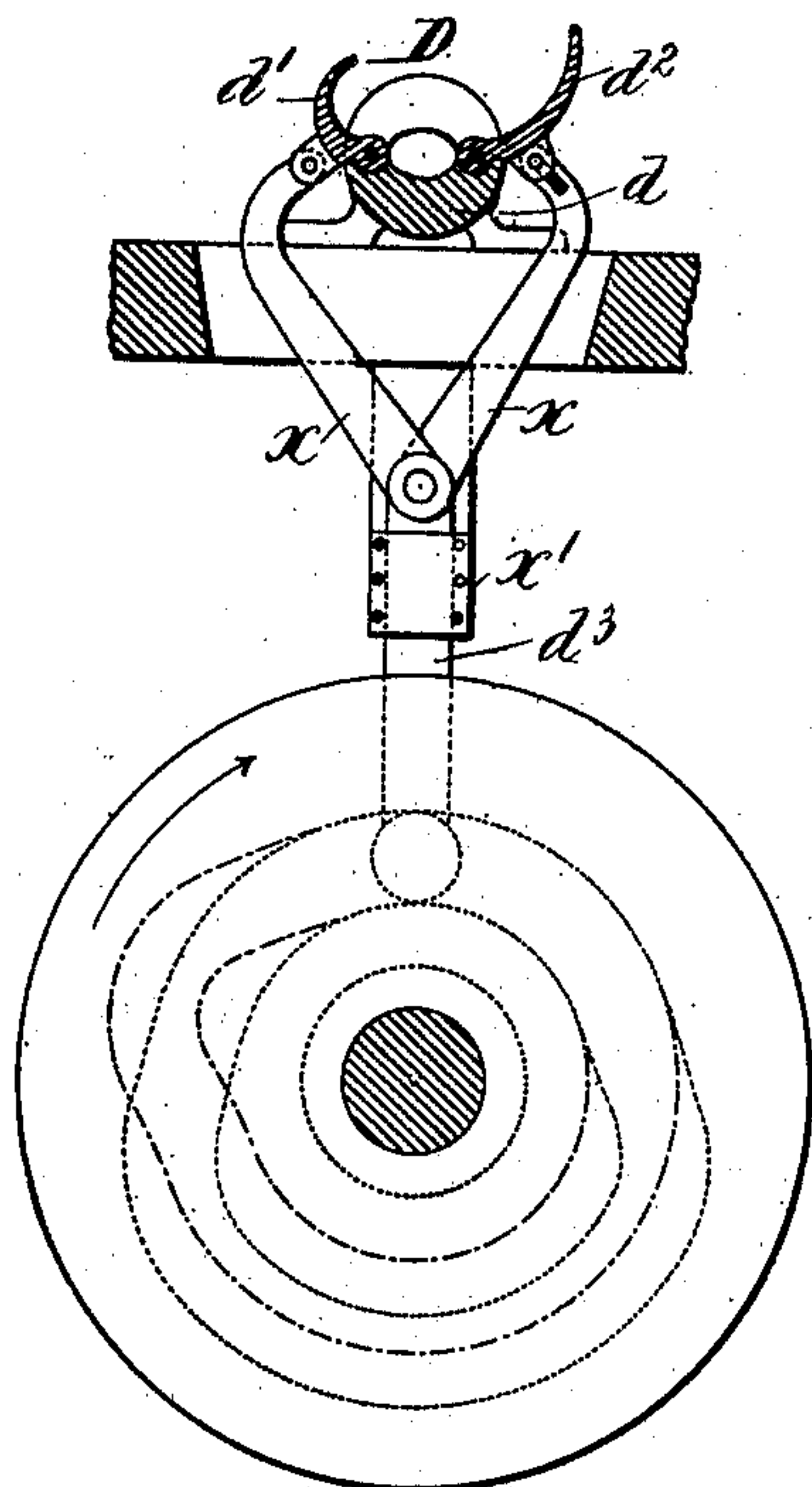


FIG. 4.

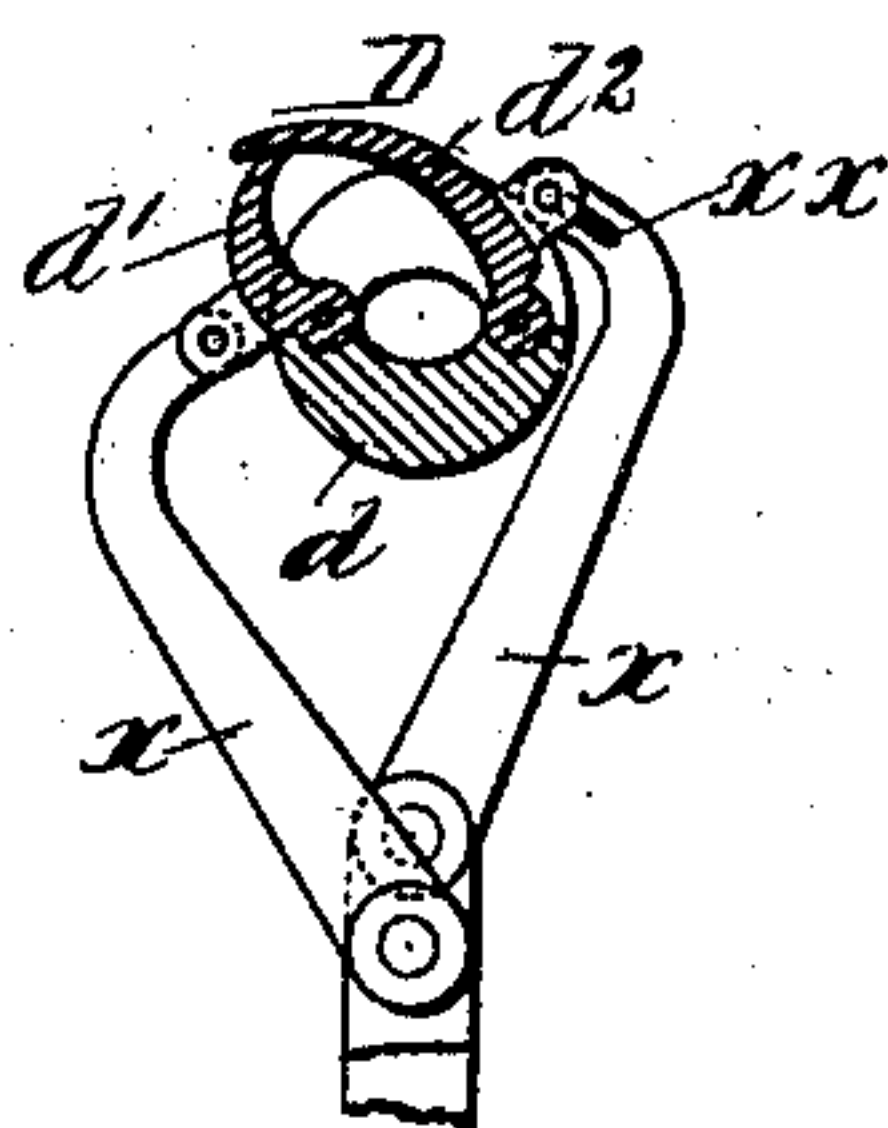


FIG. 5.

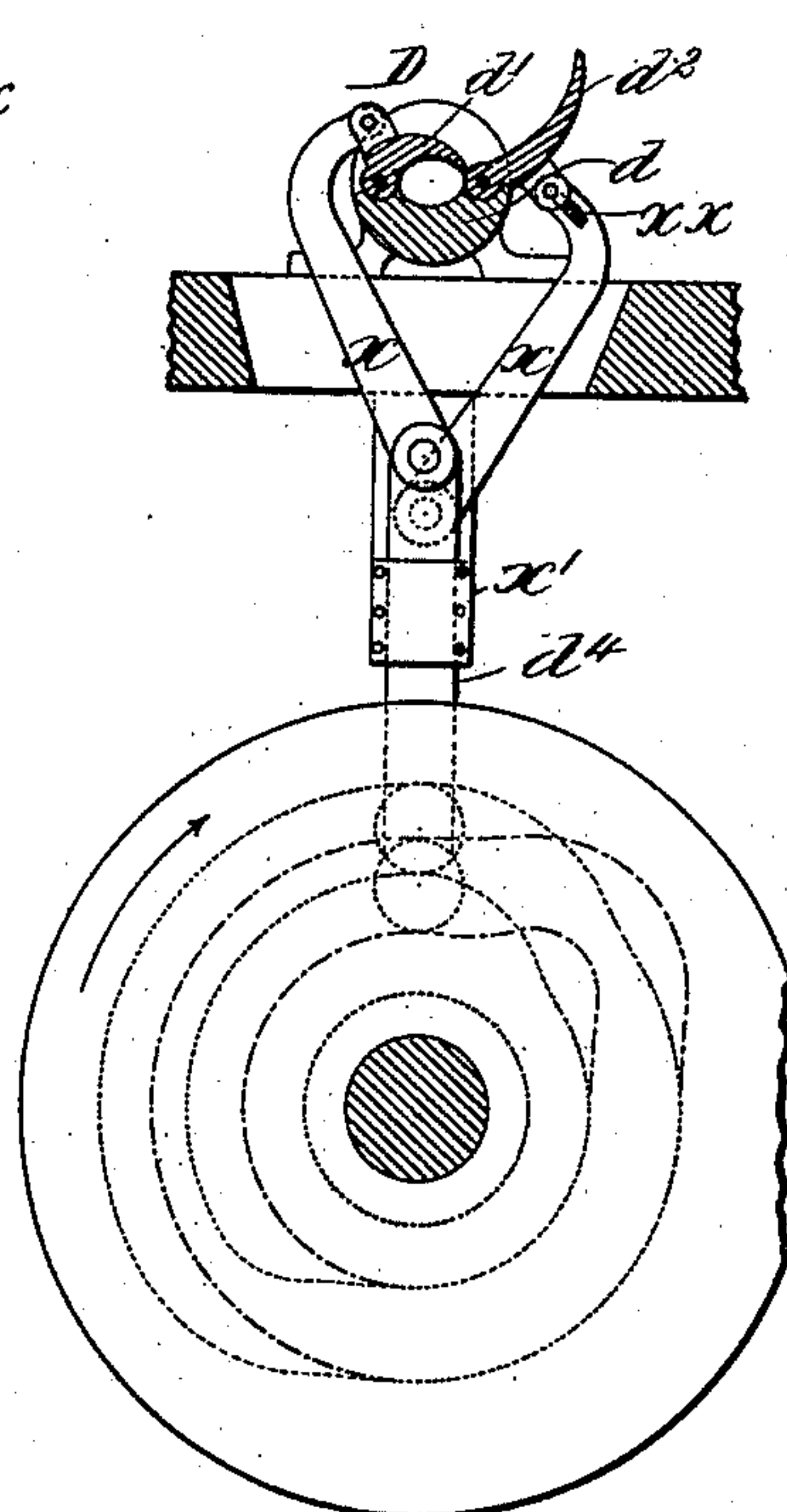


FIG. 6.

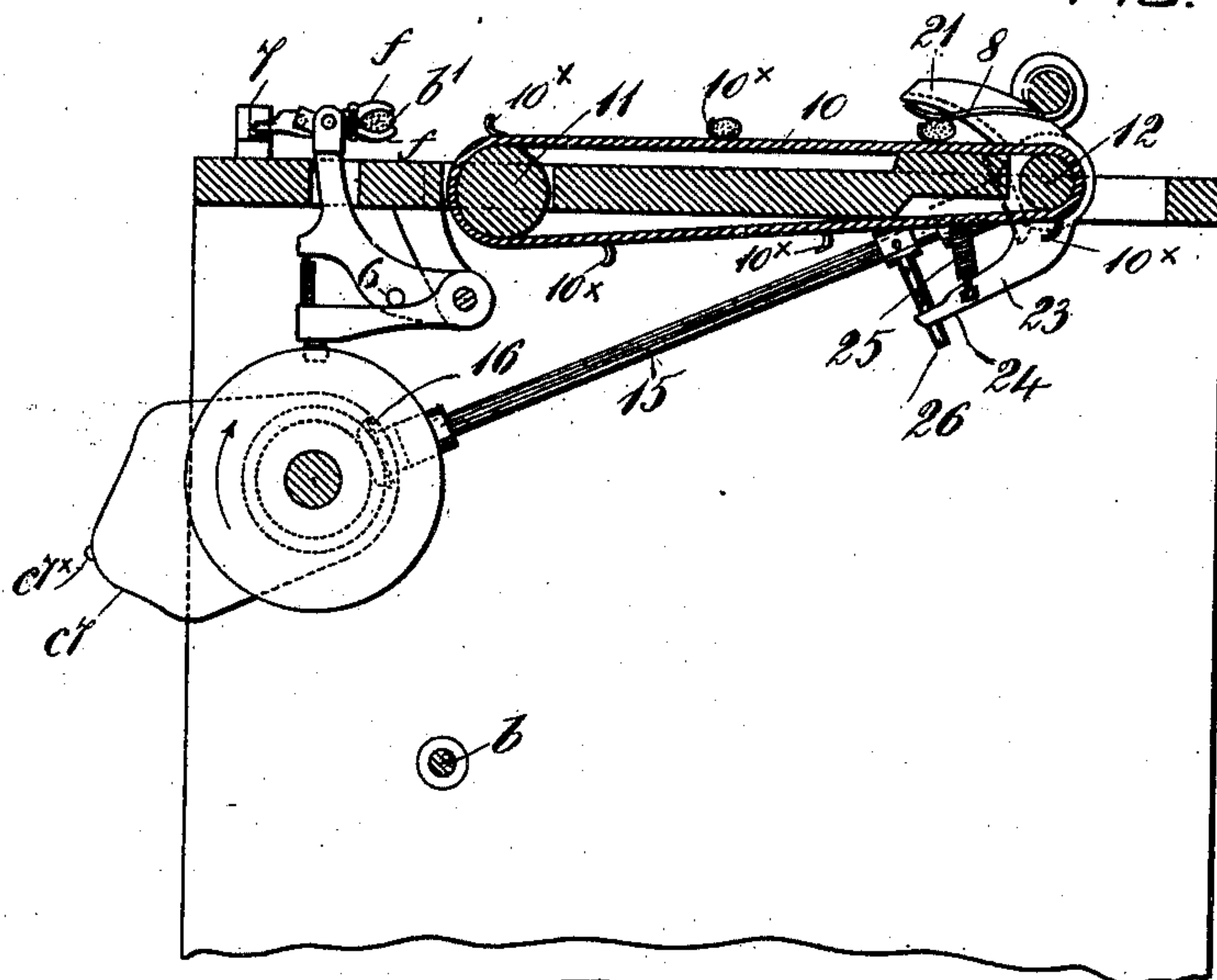


FIG. 3.

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3 SHEETS—SHEET 3.

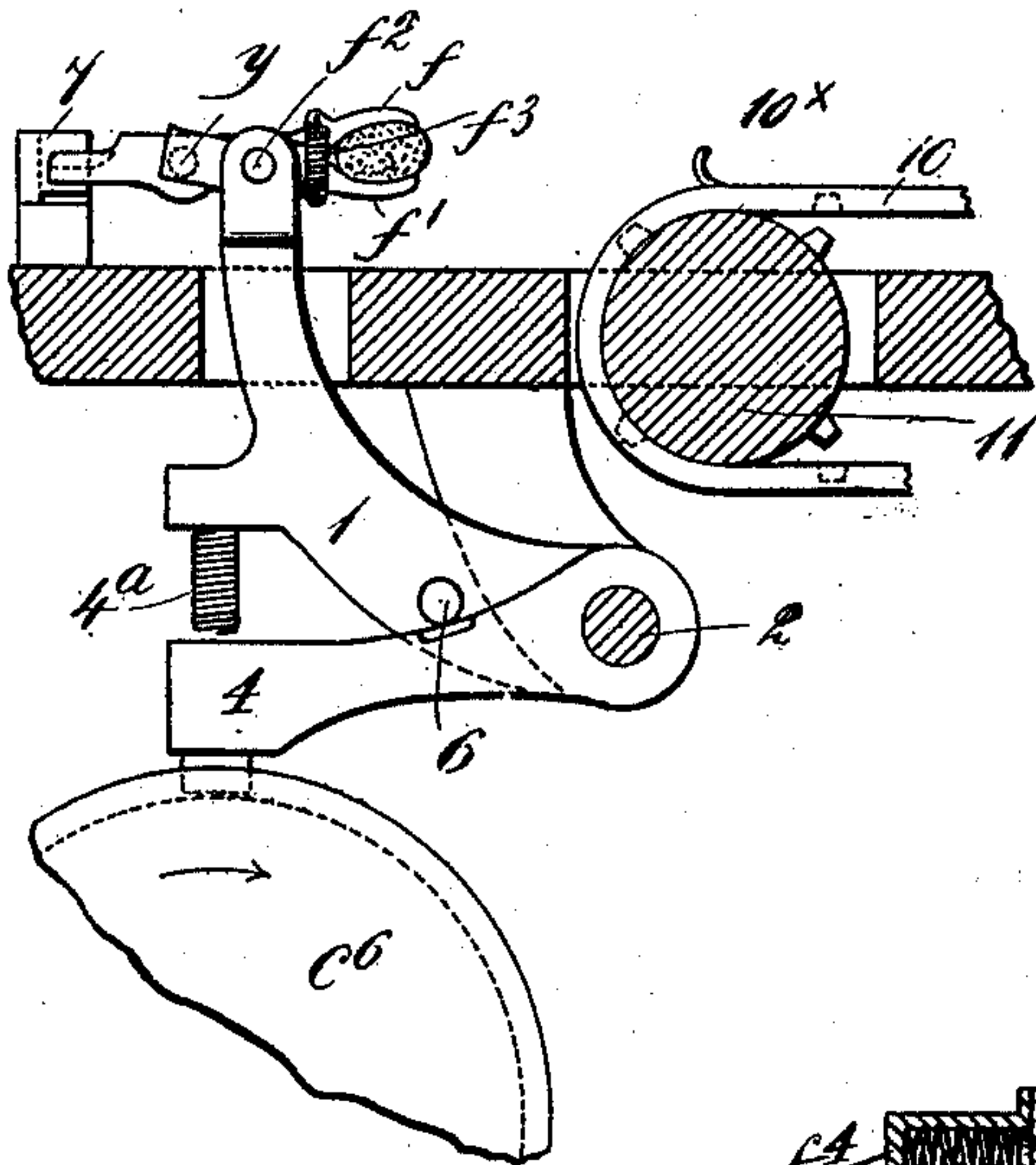


FIG. 7.

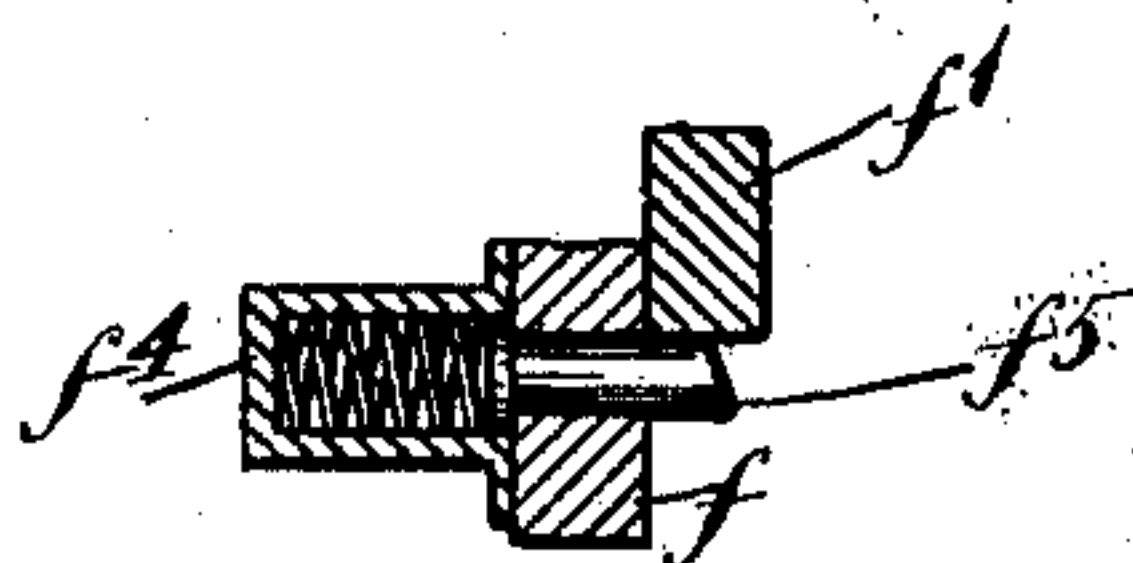


FIG. 9.

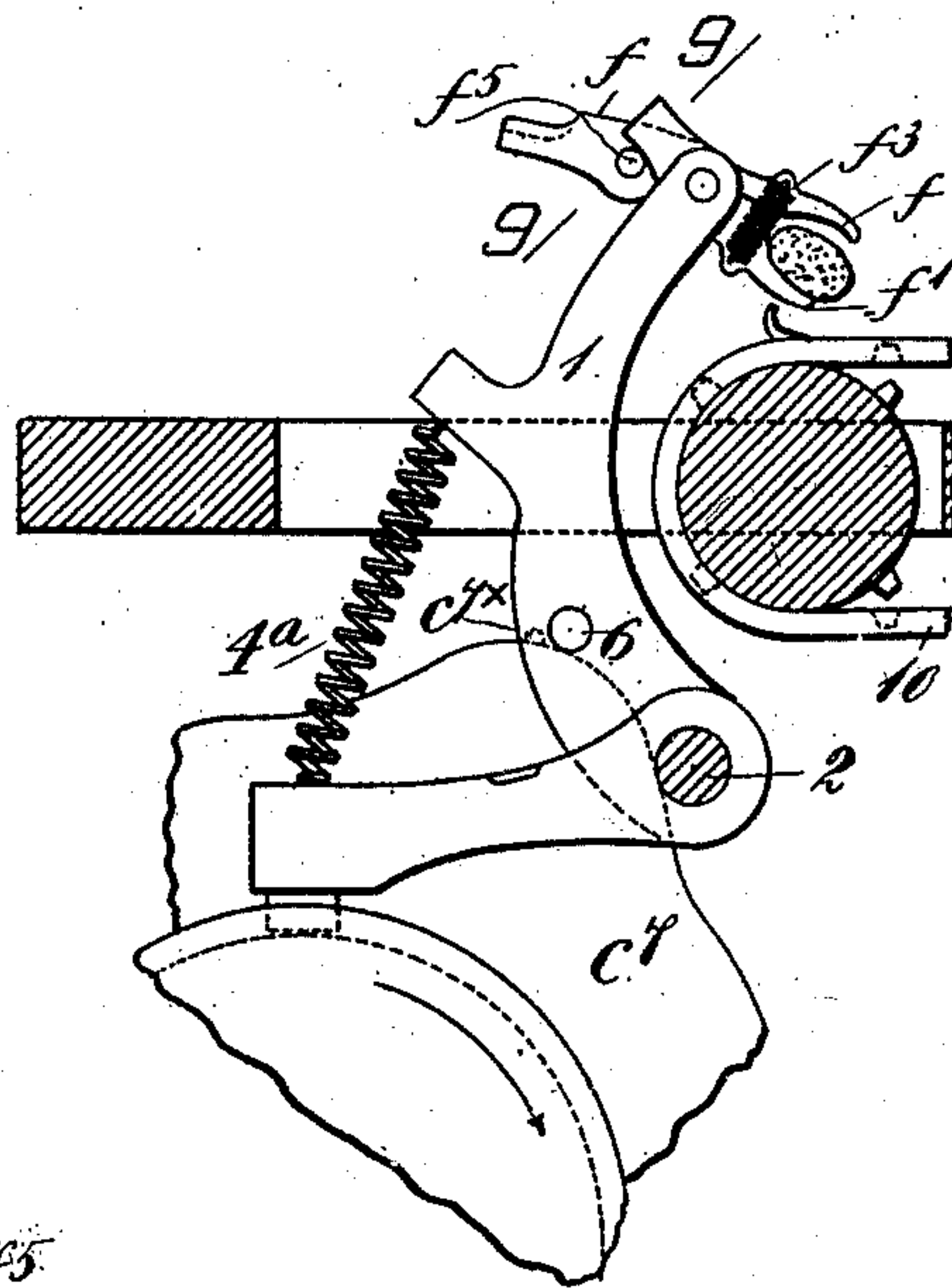


FIG. 8.

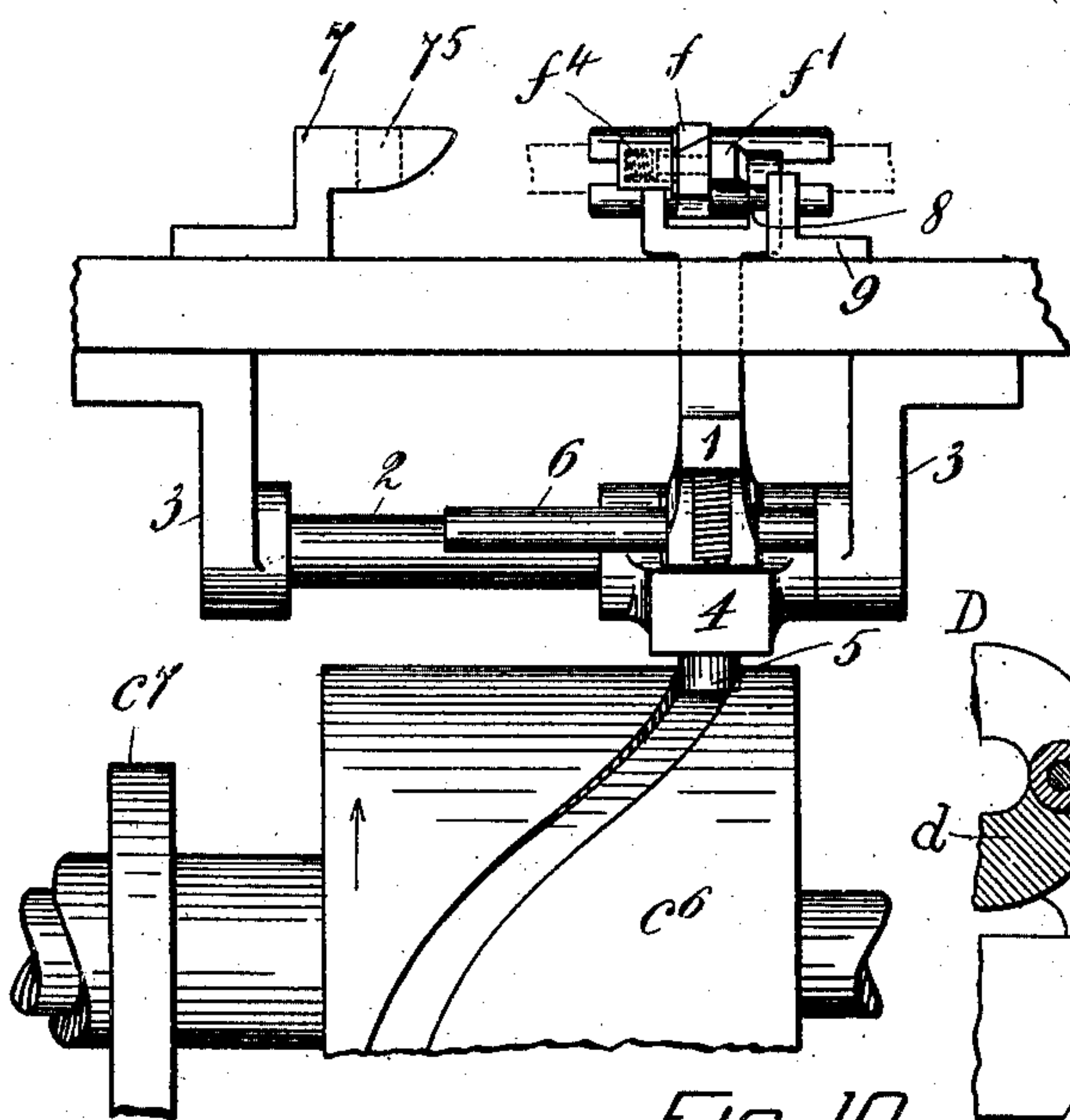


FIG. 10.

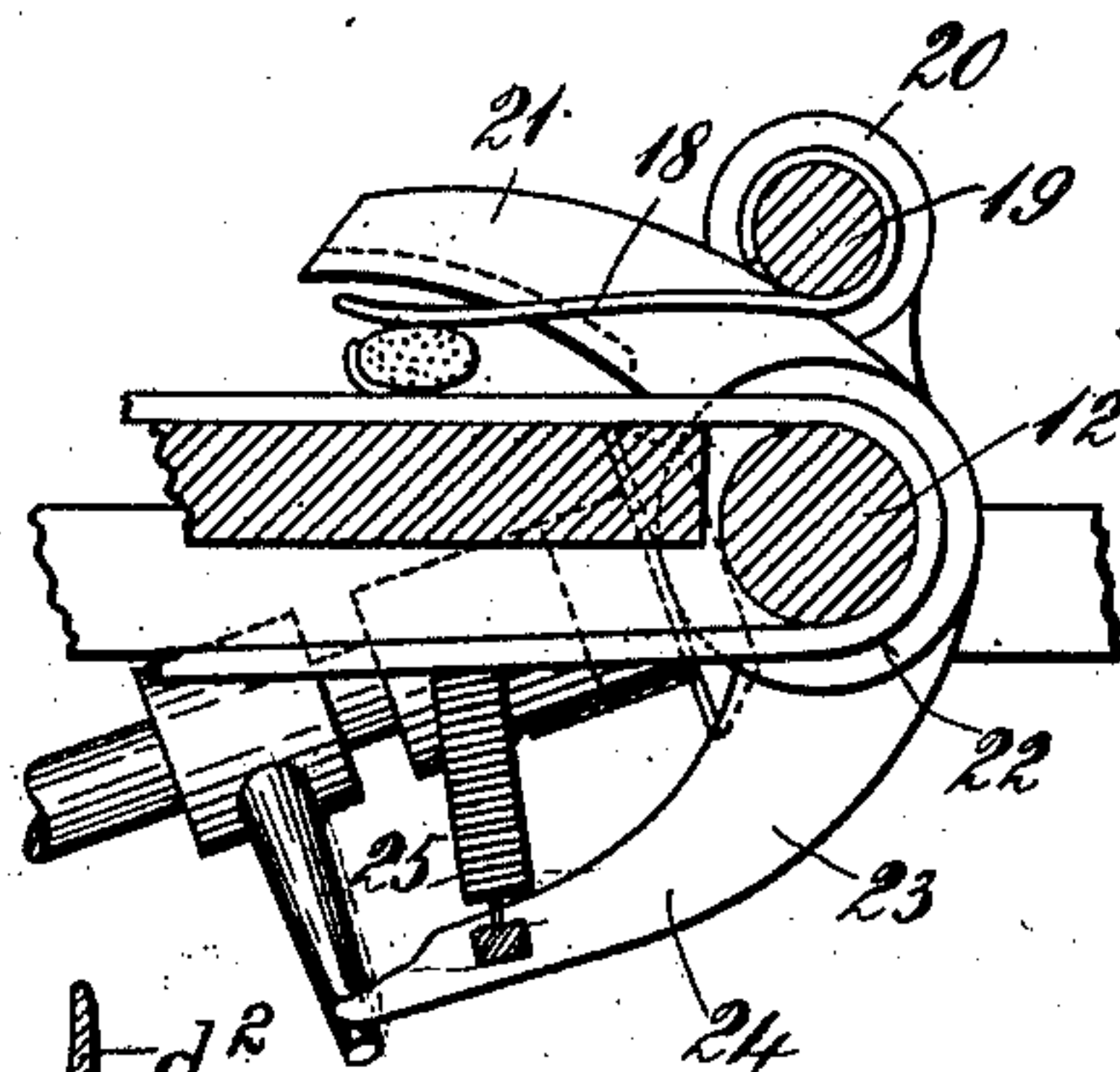


FIG. 11.

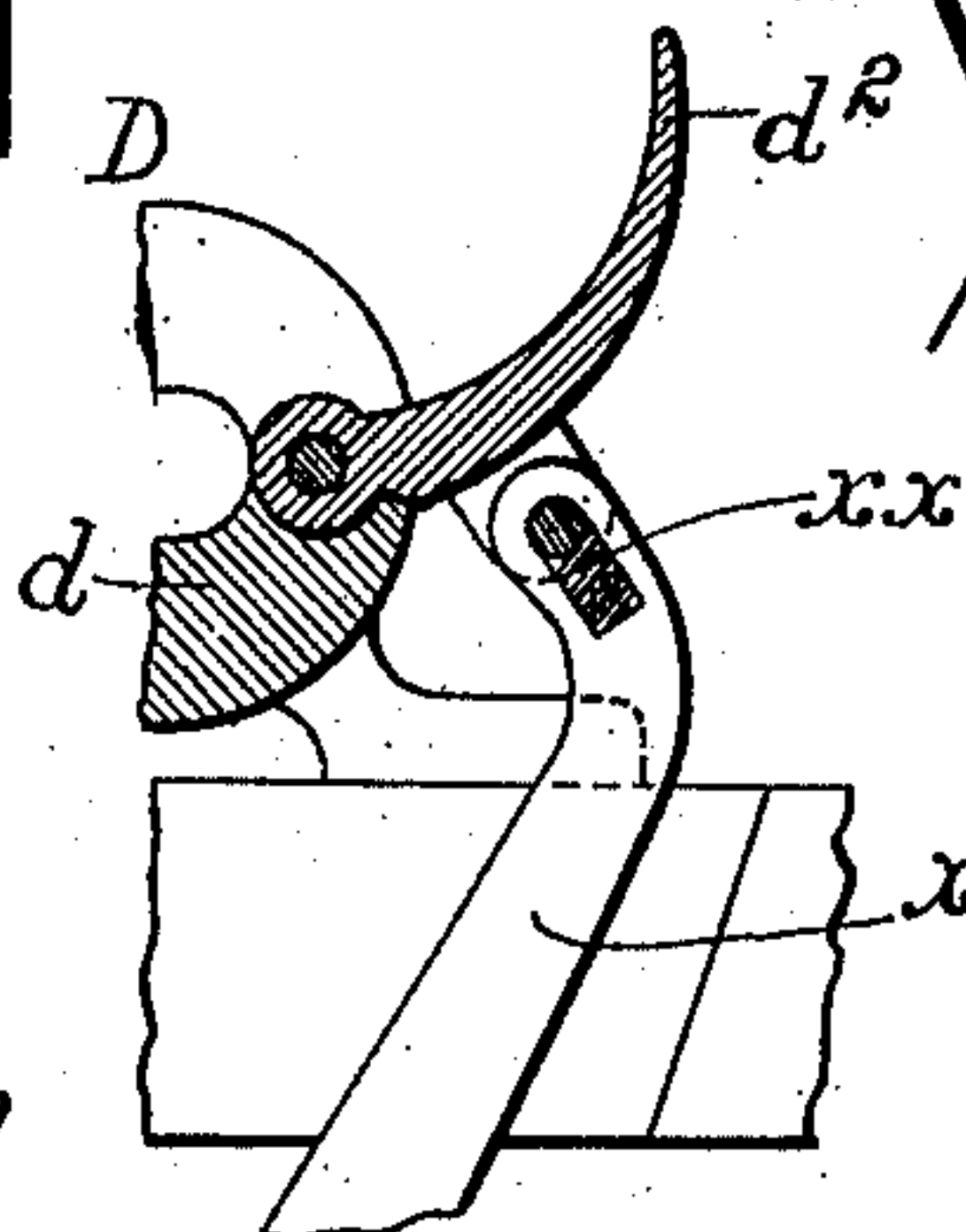


FIG. 12.

WITNESSES

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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING CIGARETTES.

983,480.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed May 26, 1909. Serial No. 498,390.

To all whom it may concern:

Be it known that I, CONSTANTINE COCONIS, a subject of the Sultan of Turkey, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Machines for Making Cigarettes, of which the following is a specification.

My invention relates to improvements in machines for making cigarettes and consists in the provision of a tobacco former and casing filler; an automatic trimming mechanism for removing surplus tobacco and finishing the cigarette, and automatic means to take the filled casing from the former and filler and deliver it to the trimmer.

In the drawings, Figure 1 is a plan view of my device; Fig. 2 is a front elevation, looking in the direction of the arrow in Fig. 1; Fig. 3 is a cross section on line 3—3 of Fig. 1; Figs. 4, 5, and 6 are details of the tobacco former and filler and the actuating mechanism; Figs. 7, 8, 9, and 10 are details of the automatic means for taking the filled casing from the filler to the trimmer; Fig. 9 being a section on line 9—9 of Fig. 8, and Fig. 11 is a detail of the trimming mechanism. Figs. 4 to 11, inclusive, are upon a larger scale than Figs. 1 to 3, inclusive. Fig. 12 is a detail showing the connection between the wing d^2 of the forms and its actuating link.

Machines for the making of cigarettes are well known and operate successfully so far as the rapid production of cigarettes is concerned. But all such machines with which I am acquainted have for their primary object the production of large quantities of cigarettes by methods as nearly automatic as may be, and, mechanically taking the tobacco at one end discharge the finished cigarette at the other. These machines are, in general and relatively speaking, large and costly and subject to this disadvantage, that the charge of tobacco for the making of a cigarette being taken from the source of supply by machinery, the element of human intelligence at this stage, is eliminated.

Cigarette tobacco of all grades contains a considerable proportion of short fiber, which in use, tends to be drawn from the cigarette into the mouth of the smoker. In hand made cigarettes, the workman, in preparing the tobacco for wrapping, deftly arranges a proper proportion of the short fiber, which

works to the bottom of the mass, at the center of the charge, so that the longer fibers act as a screen and prevent the short fibers from being drawn out of the cigarette. This is one element of superiority of hand-made cigarettes over machine made cigarettes of corresponding quality in materials. In my machine the taking and placing of the charge of tobacco is performed by hand and subsequent steps in the making of the same are performed automatically by the machine.

The mechanism is mounted and assembled within and upon a table of suitable dimensions having two end frames A which serve to support the treadle a , the treadle shaft b , and a cam shaft c , the surface B of the table carrying the other moving parts of the mechanism. The treadle a actuates the shaft b by a crank b^1 and connecting rod a^1 in the customary way. Upon the shaft b is a fly-wheel b^2 and a grooved pulley b^3 which co-operates with a larger grooved pulley c^1 upon the cam shaft by means of a belt c^2 to transmit the motion of the treadle shaft b to cam shaft c . Upon the cam shaft c are mounted and suitably disposed and secured a series of cams designed, upon the rotation of the cam shaft c , to actuate in proper sequence the various parts of the mechanism arranged upon the surface, B, of the table. These cams are respectively lettered c^3 , c^4 , c^5 , c^6 and c^7 .

The former and filler D is made up of a body portion d secured upon the upper surface B of the table in line with and over the shaft c . Pivoted upon the body portion d are two wings d^1 and d^2 . The wing d^1 is stopped in its backward movement so that when the wing d^2 is moved toward its closed position it will rest against the upper edge of wing d^1 (see Fig. 5). The inner configuration of the body d and the wing d^1 is such as may be desired to produce a cigarette of any desired cross sectional shape; in the drawings the configuration shown would produce a cigarette oval in cross section. The wings d^1 and d^2 are connected by cam rods d^3 and d^4 and links x with the cams c^4 , c^5 , the rods d^3 , d^4 being supported in a bearing x^1 (see Fig. 2). The cams c^4 and c^5 are shown as plate cams which actuate the wings d^1 and d^2 positively in both directions. To one side of the former and filler D, and in line therewith, is mount-

ed a plunger E, which is capable of longitudinal movement in bearings e , and which is in line with the open bore of the former and filler D when the wings are closed.

5 This plunger is actuated by a lever e^1 pivoted in a bearing e^2 upon the under side of the table and over the cam shaft, one end of the lever engaging a cam slot in cam c^3 , and the other end of the lever e^1 , which is

10 forked and slotted, passing through a slot in the table and engaging points upon the plunger E. The lever e^1 is offset, one side of the lever being upon one side of the bearing e^2 and the other side upon the other side

15 of the bearing e^2 , so that the pin in the lever e^1 , which engages the cam c^3 , engages that cam upon the side (see Fig. 2). The rod d^3 is actuated by cam c^4 and serves to control the movement of wing d^1 of the former and

20 filler D. The cam rod d^4 in like manner is controlled by the cam c^5 and controls the wing d^2 (see Figs. 4 and 6).

The mode of operation of the parts thus far described is as follows: The former and

25 filler D being opened (see Fig. 4), the operator properly places a suitable charge of tobacco in it, and at the same time places a paper tube or casing upon the discharge spout d^5 , which tapers slightly to its outlet,

30 in order that the casing, as it is forced on may bind sufficiently. The treadle a being now actuated, cam c^5 will move cam rod d^4 upward throwing wing d^2 over to closed position against the upper edge of wing d^1

35 (see Fig. 5). The wing d^2 is pivoted to the upper end of the link x which connects wing d^2 with cam rod d^4 in a slot, and a small spiral spring x presses the pivot constantly to the forward end of the slot.

40 The object of this construction is to allow for slight inequalities or imperfections in the mechanism and to permit the wing d^2 to be thrown against the upper edge of wing d^1 with a slight capacity for yielding and

45 self-adjustment. The contour of cam c^5 is such that this closed position of the wing d^2 against the upper edge of wing d^1 will be held while the cam c^4 next operates wing d^1 , which, as it closes, sweeps the inner face of

50 wing d^2 and carries all tobacco fibers before it into the space defined by the inner surfaces of body d and wing d^1 and suitably compacts the charge. Cam c^3 now actuates the plunger E through the pin and slot and

55 lever connection and the plunger is forced into the bore of the former and filler D, pushing the tobacco before it through the spout b^5 and into the casing. The various cams now reverse the movement of the parts

60 they respectively actuate and return all parts to original position. The filled casing is now removed from the spout by fingers f, f^1 .

Finger f^1 is fixed at the upper end of a

65 carrier 1, which passes through a slot in

the table and has a hub sliding upon a rod 2 carried in bearings 3 fast to the bottom of the table A (see Fig. 10). The hub of carrier 1 is embraced between the forked ends of actuator 4 also sliding on rod 2. The

70 actuator 4 has a cam roll 5 which engages the cam slot of cam c^6 . The carrier 1 also has a pin 6 projecting in line with rod 2. The carrier 1 and the actuator 4 are connected by a spring 4^a so that the parts tend

75 to assume the position shown in Fig. 7. The finger f is mounted upon a pivot f^2 so that the two blades f, f^1 are organized as the blades of a pair of shears are organized, with a normal tendency to a closed position

80 under the stress of spring f^3 . Mounted upon finger f (see Fig. 9) is a casing f^4 containing a spring actuated bolt f^5 and mounted upon the table is a cam stop 7.

In Figs. 1, 2 and 3 and, on a larger scale,

85 in Figs. 7 and 10, the mechanism is shown as having just grasped the filled casing. Rotation of the cam c^6 will now carry the fingers, grasping the cigarette to the left (Figs. 1, 2 and 10) until the free end of pin 6

90 passes the bearing 3 and stands in the path of cam c^7 . As the carrier 1 is shifted the rear end of finger f encounters with its upper beveled surface the beveled end of 7 (see Fig. 10) and as the movement finishes

95 the finger f is separated from the fixed finger f^1 leaving the cigarette lying in the hollow of finger f^1 and the rear end of fingers f, f^1 , in range with the slot 7⁵ in stop 7 (see Figs. 1 and 10) and also with the transverse

100 portion of the slot in the table. As the fingers are opened by the stop 7 the bolt f^5 (Fig. 9) is shot forward locking the fingers in open position. The cam c^7 now engages

105 pin 6 and swings the carrier 1 to the position shown in Fig. 8 and, at the end of the movement, a jar is given to the carrier by the projection c^{7x} to insure the prompt discharge of the cigarette onto the traveling

110 belt 10. The cam c^7 now permits spring 4^a to lower carrier 1 to the position shown in Fig. 7, but with the fingers f, f^1 still locked open by bolt f^5 . Cam c^6 now shifts the carrier to the right and as the limit of move-

115 ment to the right is approached a pin 8 secured in a standard 9 contacts with the free end of pin f^5 and forces it backward, until, when the cam has moved the carrier 1 to the extreme position, right, the pin f^6 is

120 completely forced back, unlocking the fingers f, f^1 , and permitting spring f^3 to snap the fingers upon a filled casing, which has, in the mean time, been completed, and the parts are ready again to perform the cycle of operations.

125

The traveling belt 10 is mounted upon rollers 11 and 12 carried in bearings upon the table (see Figs. 1 and 3). Roller 12 carries a bevel gear 13 meshing with a gear 14 upon a shaft 15 disposed beneath the

130

table and supported in suitable bearings. The lower end of shaft 15 carries a bevel gear 16 meshing with an interrupted bevel gear 17, that is, a gear having a suitable number of teeth to turn the gear 16 as many turns or parts of turns as may be desired to give the necessary travel to belt 10, with a space carrying no teeth, (see Fig. 2) so that, when this toothless section is passing gear 16 no motion is imparted to that gear and the belt 10 remains at rest. The effect of this arrangement is to give an intermittent motion to belt 10 and it is designed at each motion of the belt to carry it along a distance equal to the space dividing one stop 10^x on the belt 10, from the next stop. The cigarette having been deposited upon the belt 10 the next movement will carry the cigarette forward and the second movement will bring it in contact with a very light flat spring 18 which will force the cigarette back against stops 10^x and then yieldingly hold the cigarette as shown in Fig. 3. This spring 18 is mounted upon a rod 19 fixed in bearings 20. Loosely mounted upon the shaft or roller 12 at either side of the belt 10 are knives 21, each mounted upon a hub 22 and carrying on the opposite side of the hub an arm 23 projecting forward (see Figs. 3 and 11). The arms 23 are rigidly connected by a bar 24, and, connecting this bar with the under side of the table is a spring 25. Upon the shaft 15 is secured a projecting arm 26, which is arranged, as shaft 15 is revolved, to engage the free end of arm 23 and rock the knives 21 on the shaft 12 until the arm 26 passes free of the arm 23, when the arms 23 and knives 21 are drawn upwardly by spring 25 until movement is stopped by the contacting of knives 21 with the bar 19. In this operation, the ends of the cigarette are trimmed, but the lifting of the knives does not disturb the cigarette which is held in place by the spring 18. The next movement of the belt 10 will discharge the finished cigarette and by the same movement present another cigarette to be operated upon by the knives.

50 The positive movement of the belt 10 with its roller 11 is secured by a suitable number of pins 12^x disposed upon the outer surface of the roller and engaging holes in the inner surface of belt 10, while the driving roll 12 may be likewise provided with similar belt engaging pins (not shown) in order that the belt may be positively actuated.

What I claim is:—

1. In a cigarette machine, in combination, a former comprising two movable members; means for operating said members so as to shift one member against the other to close said former and then operate the other member to compress the contents of said former; means for ejecting the contents of

said former; means to hold a casing in position to receive the ejected contents, and automatic means to shift each casing away from said holding means after it has been filled and to trim it while the machine is operating to fill the next casing.

2. In a cigarette machine, in combination, a former comprising a body with two movable wings pivoted thereto, one of said wings being made wider than the other; means for operating said wings so as to close the wide wing against the narrow wing to close said former and swing the narrow wing inwardly under the wide wing while the latter is closed to compress the contents of said former, and means to eject the contents of the former while said contents is held compressed by the narrow wing.

3. In a cigarette machine the combination with means for filling cigarette casings of the automatic shifting mechanism above described made up of a sliding carrier 1; a pair of coöperating fingers *f*, *f*¹ adapted to grip the cigarettes made by the filling means, said fingers being pivoted upon the upper end of said carrier and means to actuate the carrier to and from the filling means and to close and open the fingers at the proper time.

4. In a machine of the character described, in combination, casing filling mechanism; an intermittently operated belt conveyer; means to transfer the filled casings from the filling mechanism to the conveyer; a pair of cutters, one at each side of the conveyer, to which the filled casings are presented by the conveyer; means for operating the cutters while the conveyer is at rest so as to trim the ends of each filled casing as it is presented to the cutters by the conveyer, and a stationarily supported spring for engaging the filled casings as they are presented to the cutters and for holding each of said casings against displacement while it is being operated upon by the cutters.

5. In a machine of the character described, in combination, casing filling mechanism; an intermittently operated belt conveyer provided with the hooks 10^x; means to transfer the filled casings from the filling mechanism to the hooks of the conveyer; a pair of cutters, one at each side of the conveyer, to which the filled casings are presented by the conveyer; means for operating the cutters while the conveyer is at rest so as to trim the ends of each filled casing as it is presented to the cutters by the conveyer, and the stationarily supported spring 18 for holding the filled casings against displacement while they are being operated upon by the cutters.

6. In a machine of the character described, in combination, casing filling mechanism; the intermittently operated belt conveyer 10 provided with hooks 10^x; means to transfer

the filled casings from the filling mechanism to the hooks of the conveyer; the two cutters 21, one at each side of the conveyer, to which the filled casings are presented by the conveyer; means for operating the cutters while the conveyer is at rest so as to trim the ends of each filled casing when it is presented to the cutters by the belt conveyer, and the

spring 18 for holding the filled casings against displacement while they are being 10 operated upon by the cutters.

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Witnesses:

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D. E. WALATOVA.