

No. 711,034.

Patented Oct. 14, 1902.

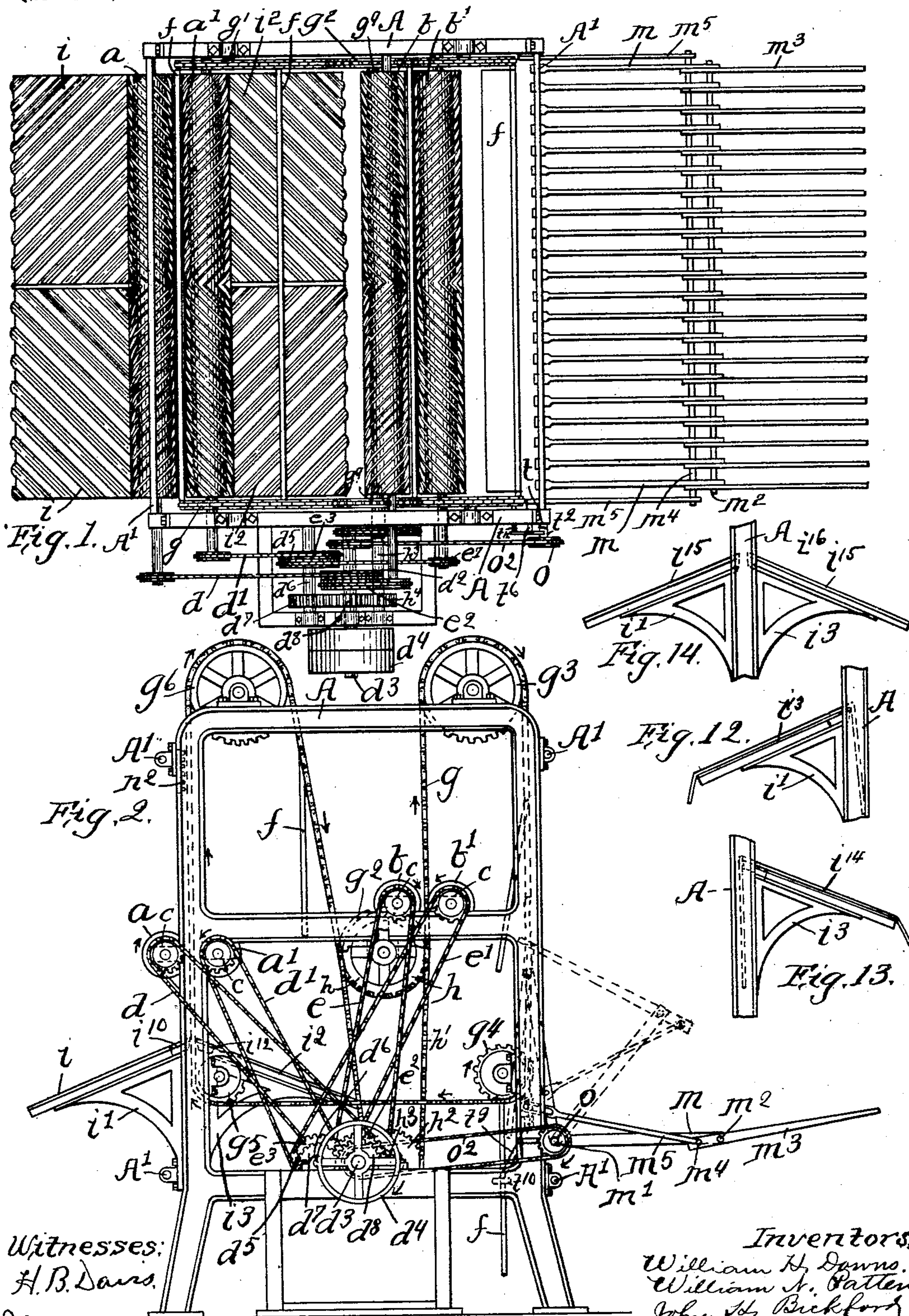
J. H. BICKFORD, W. N. PATTEN & W. H. DOWNS.

PUTTING OUT MACHINE.

(Application filed June 10, 1899.)

(No Model.)

4 Sheets—Sheet I.



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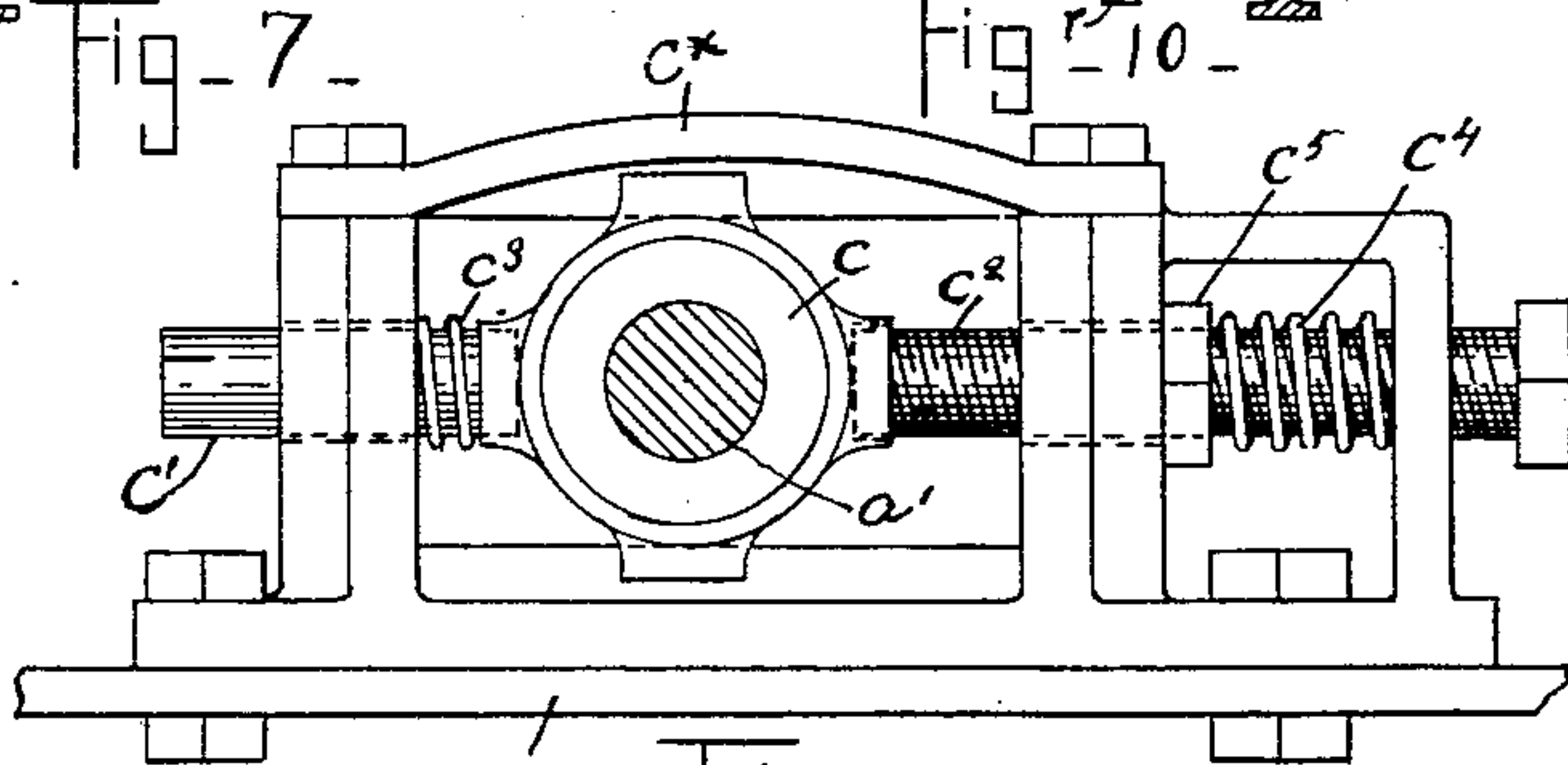
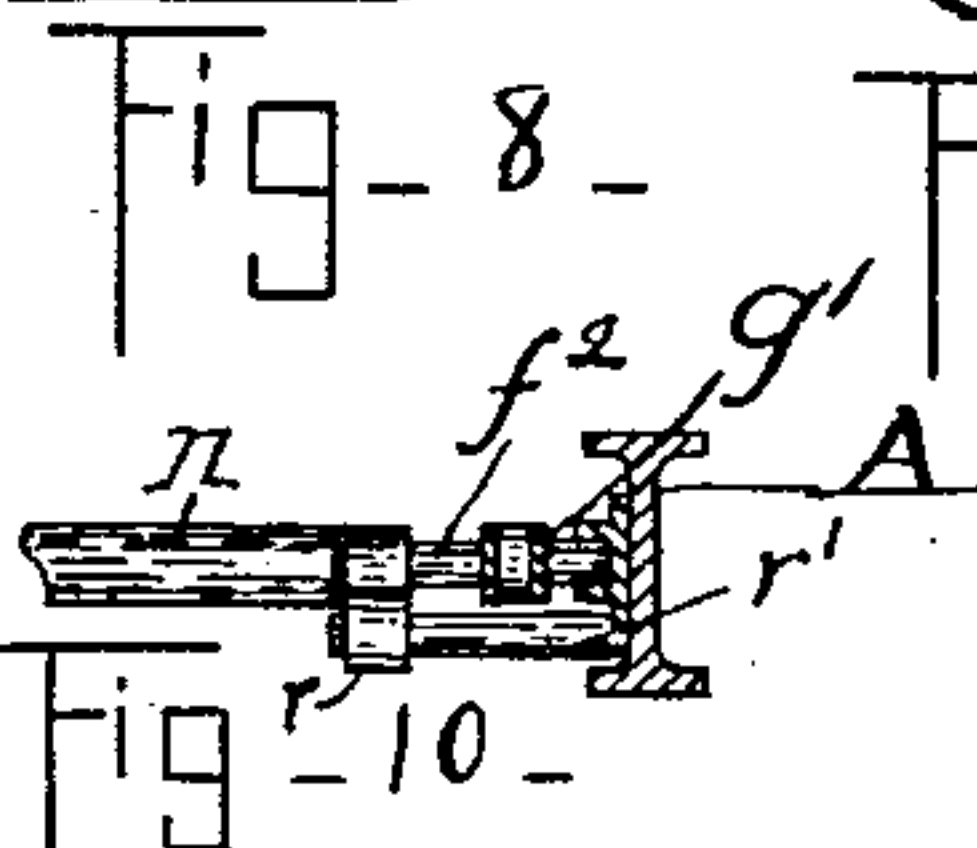
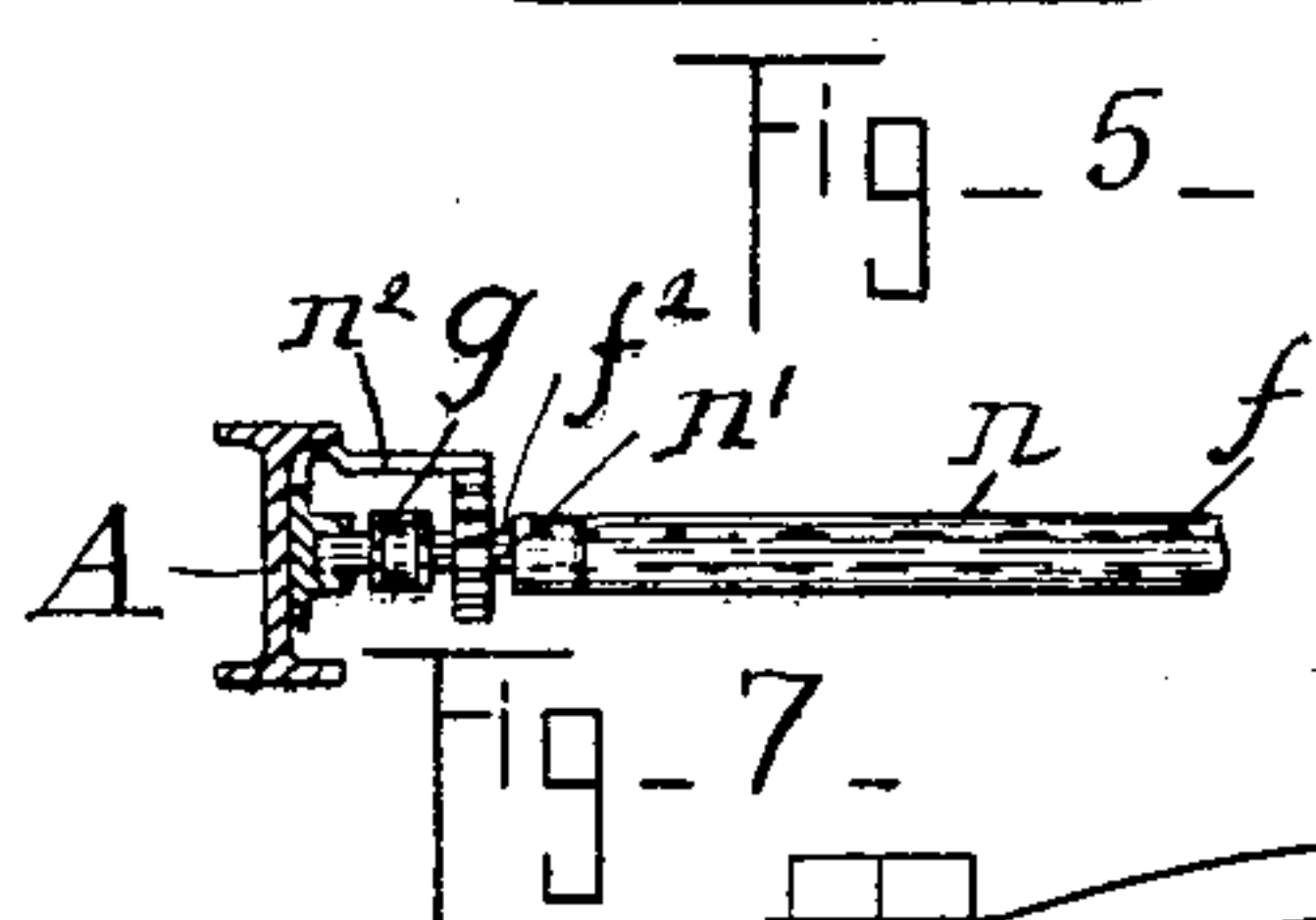
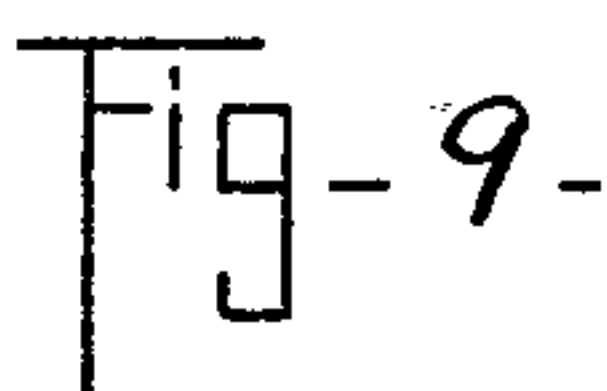
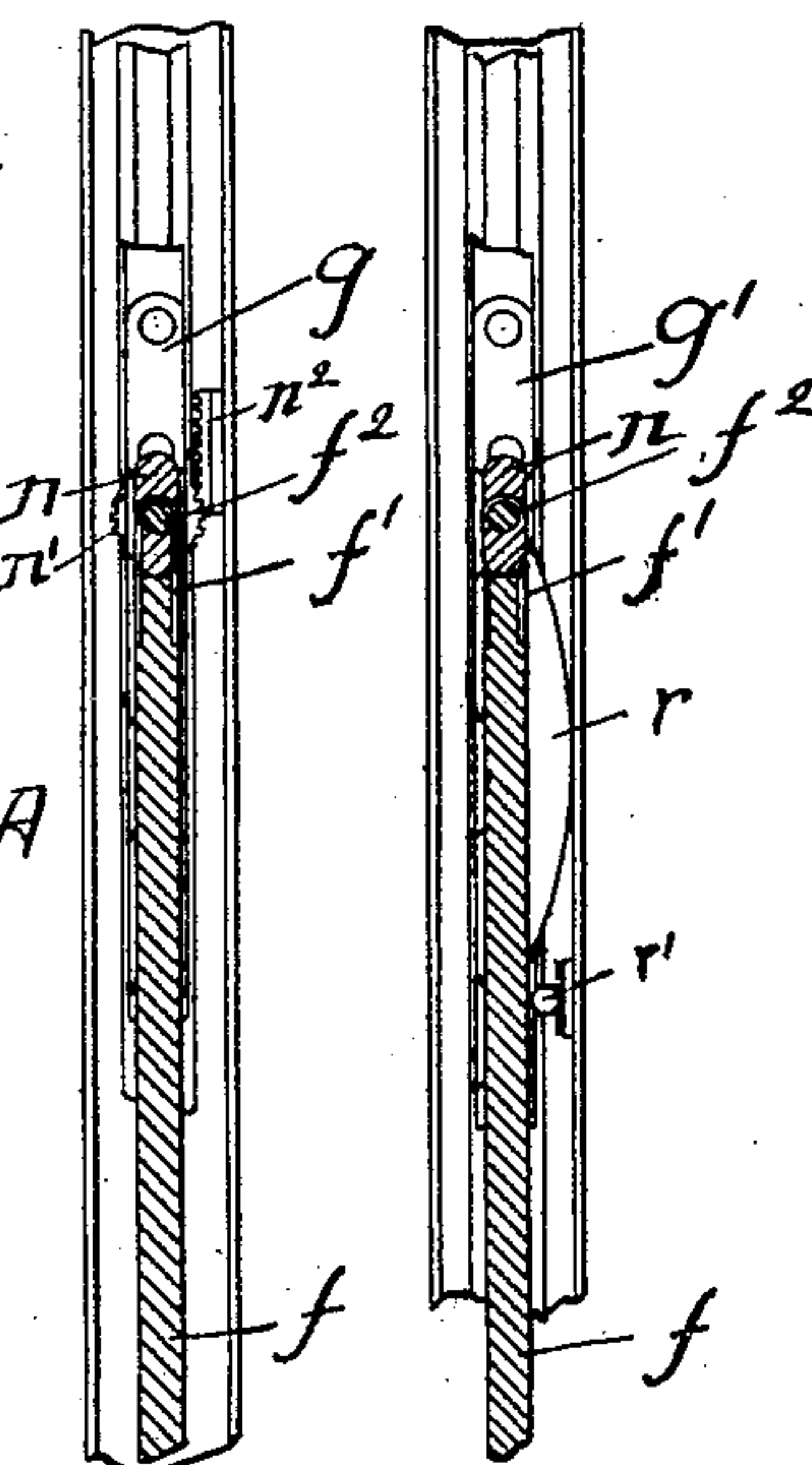
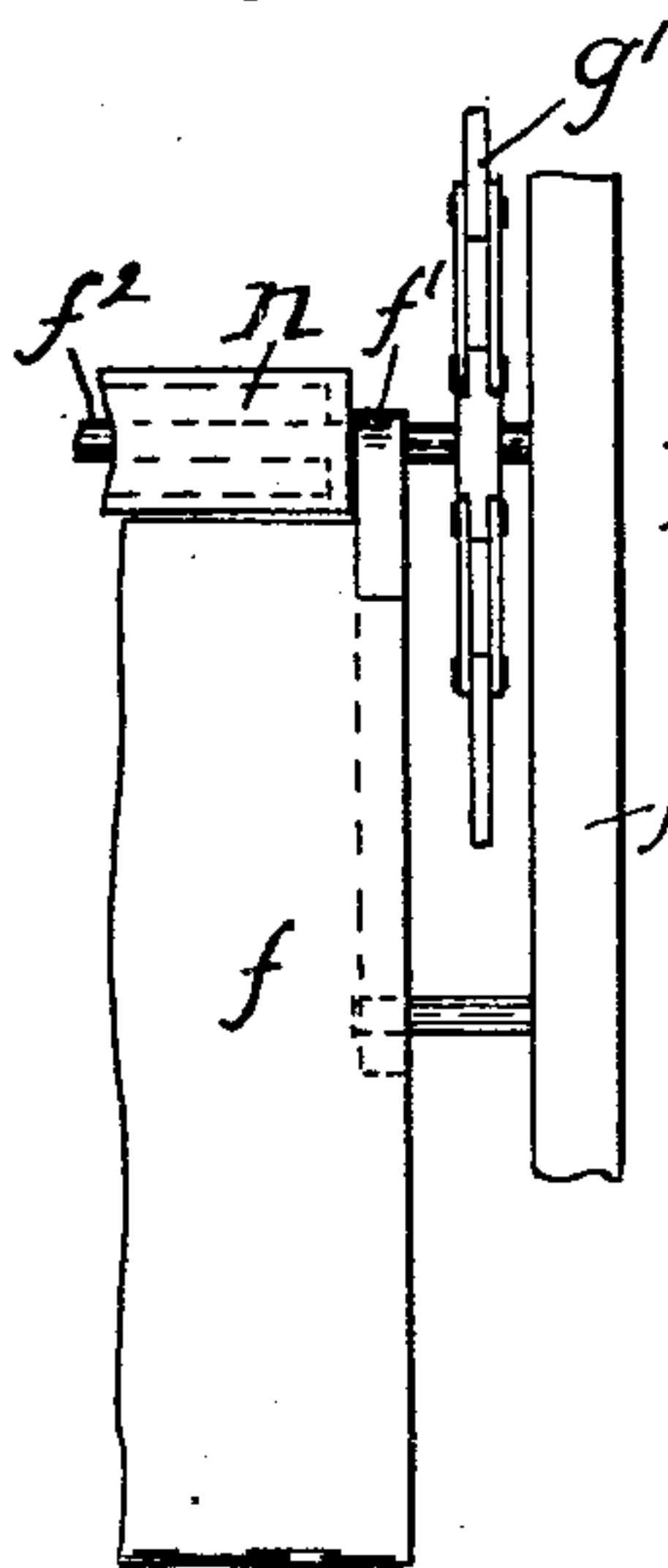
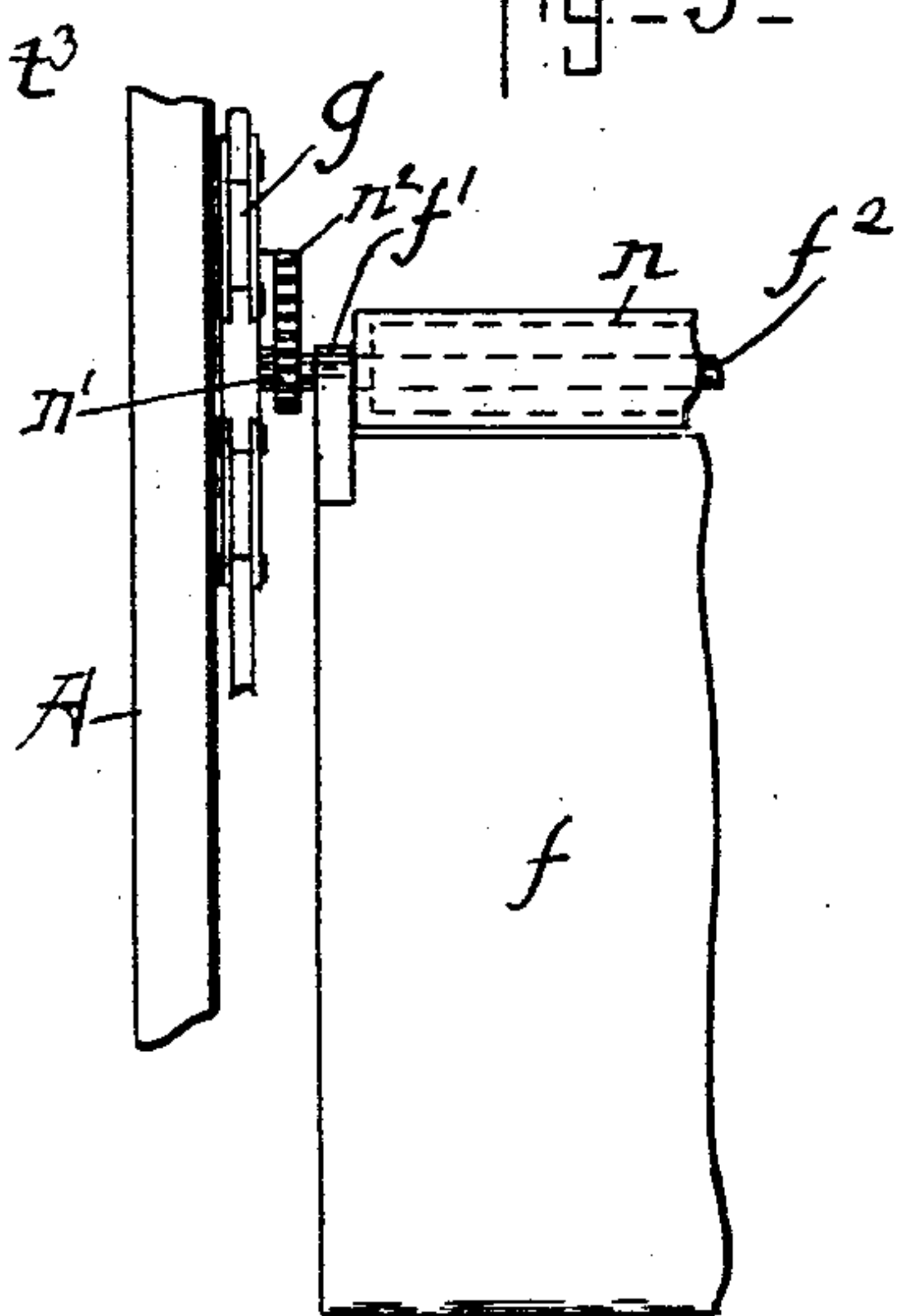
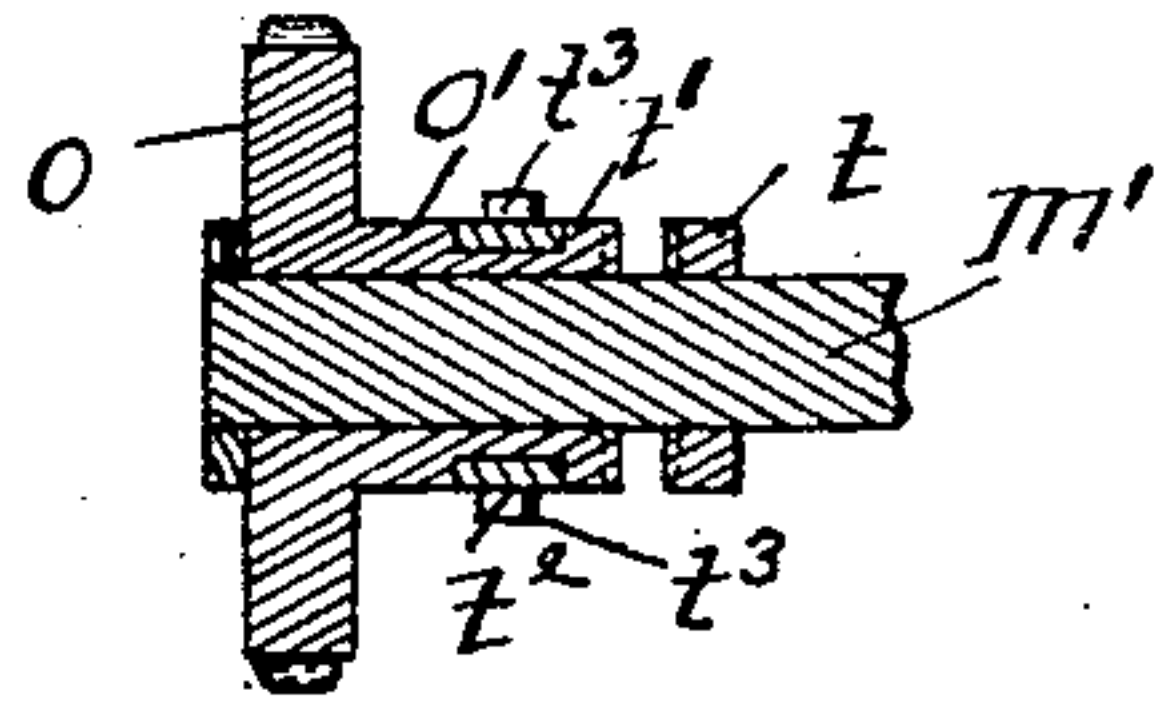
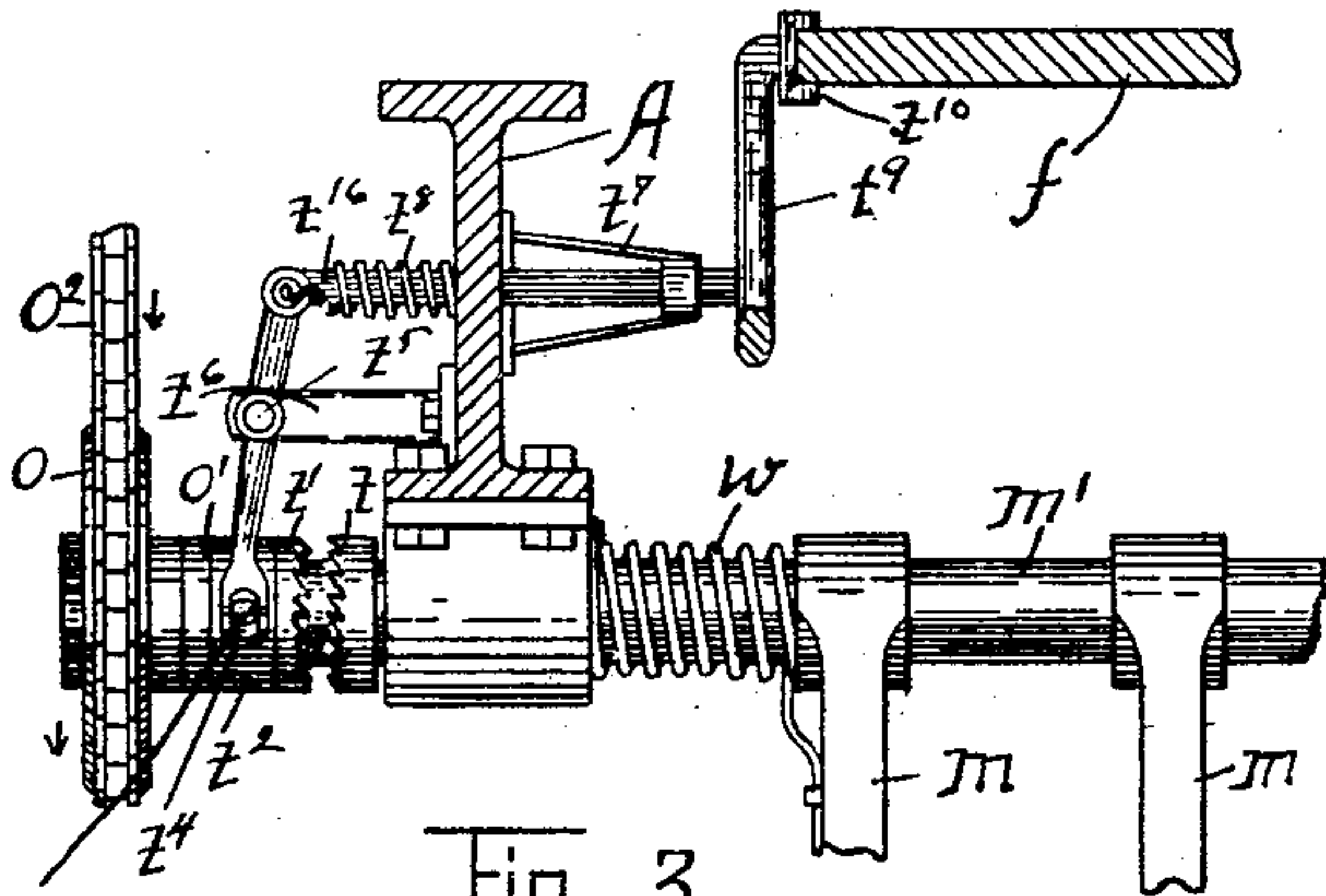
J. H. BICKFORD, W. N. PATTEN & W. H. DOWNS.

PUTTING OUT MACHINE.

(Application filed June 10, 1899.)

(No Model.)

4 Sheets—Sheet 2.



Witnesses: A Fig-11-
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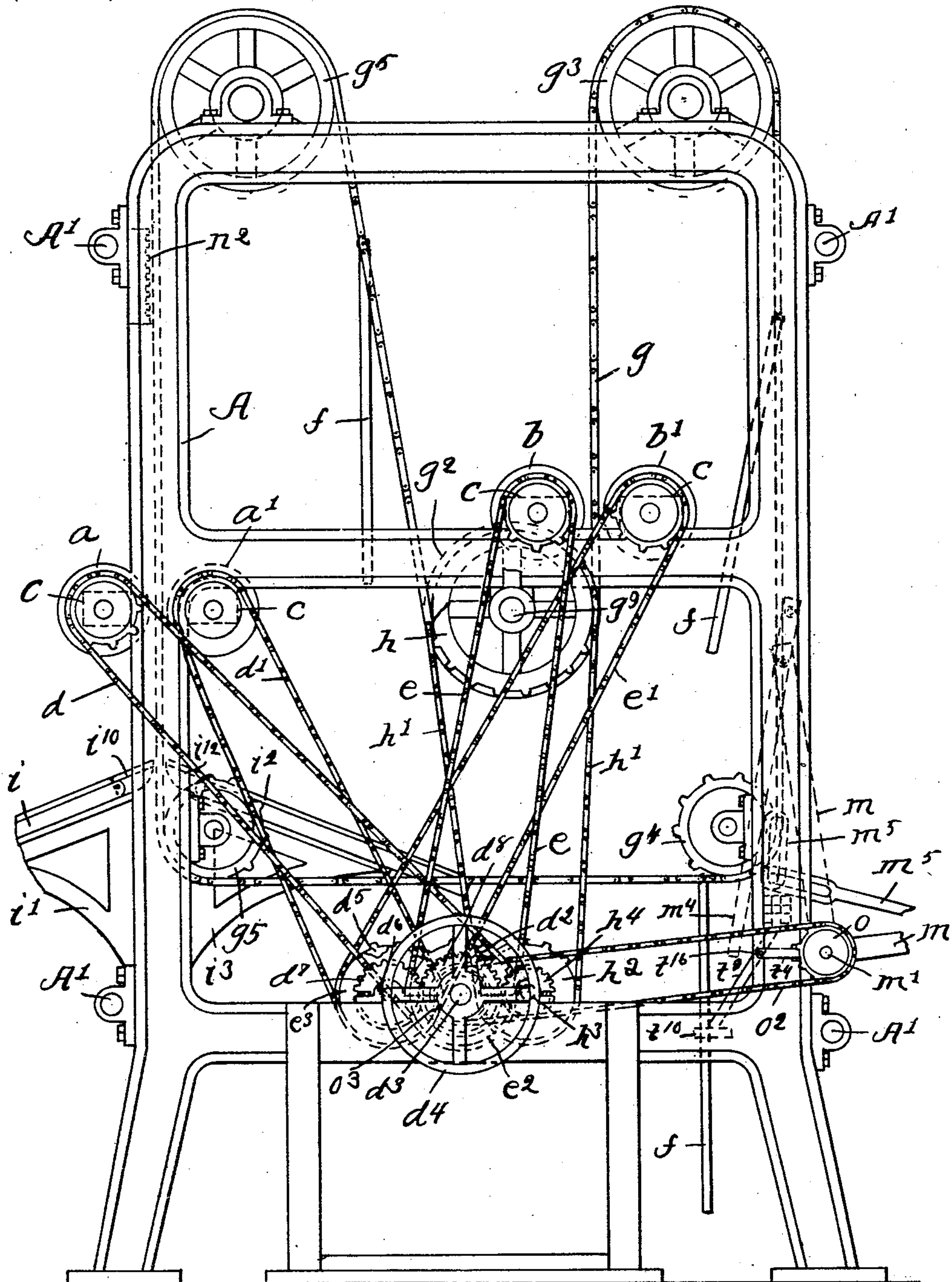
J. H. BICKFORD, W. N. PATTEN & W. H. DOWNS.

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(No Model.)

4 Sheets—Sheet 3.



Witnesses:

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Fig. 15.

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4 Sheets—Sheet 4.

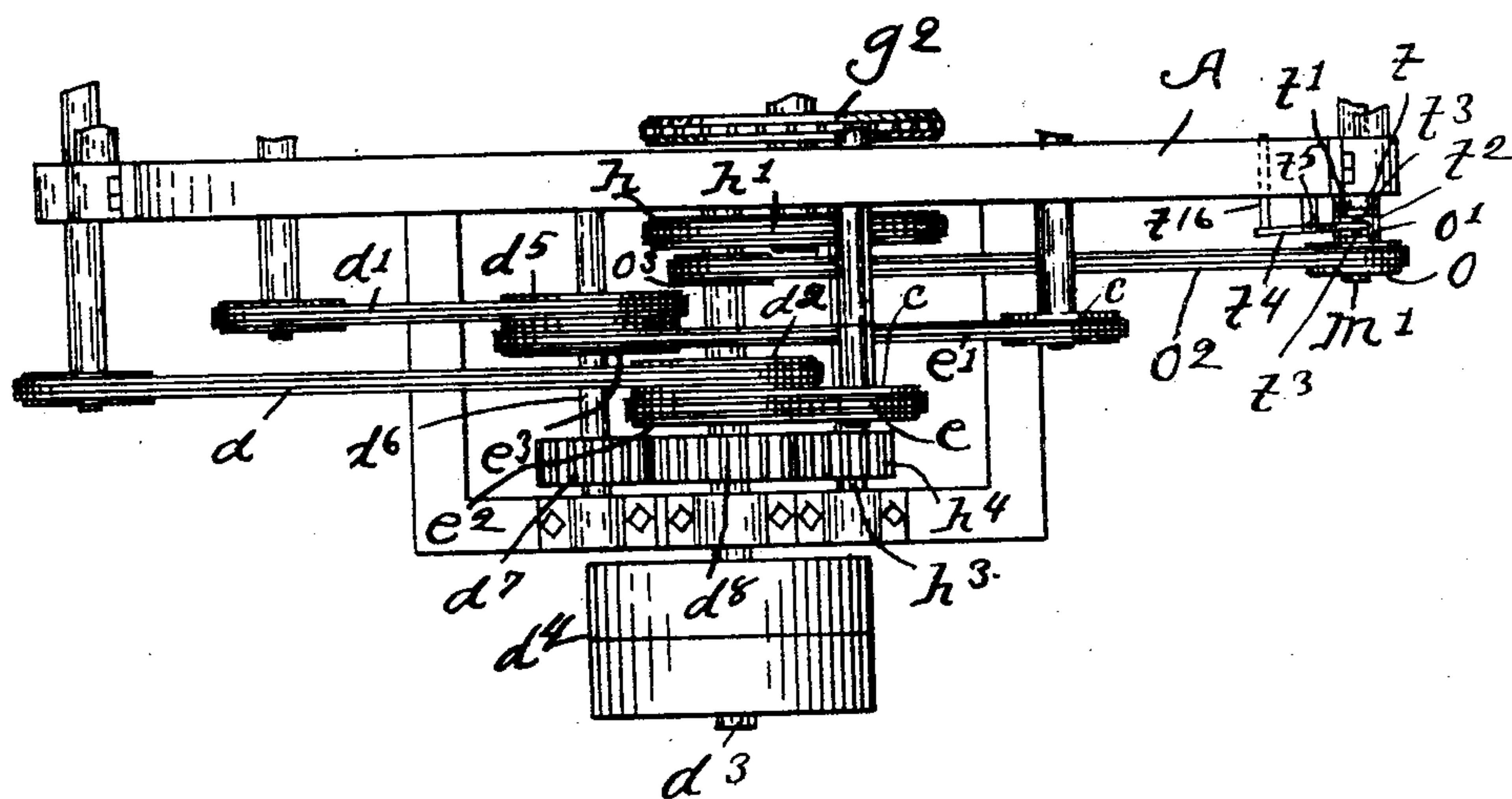


Fig. 16.

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UNITED STATES PATENT OFFICE.

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PUTTING-OUT MACHINE.

SPECIFICATION forming part of Letters Patent No. 711,034, dated October 14, 1902.

Application filed June 10, 1899. Serial No. 720,024. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. BICKFORD, WILLIAM N. PATTEN, and WILLIAM H. DOWNS, of Salem, county of Essex, and State of Massachusetts, have invented an Improvement in Putting-Out Machines for Hides or Skins, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to putting-out machines for hides or skins; and it has for its object to improve the construction of the machine to the end that the capacity of the machine is very materially increased and the work more effectively accomplished.

The invention consists in the employment of two pairs of putting-out or operating rolls, one or more carriers for the hides or skins, and an endless conveyer therefor by which the hides or skins are subjected to the action of first one and then the other pair of operating-rolls. The two pairs of operating-rolls are located side by side in different vertical planes, and the carriers carrying the hides or skins are drawn through one pair of rolls and then through the other pair in a vertical direction.

The invention also consists in providing a support, as a table, upon which the hide or skin is placed by the operator, which is so located with relation to the moving carriers that the hide or skin may be removed from the support by a rising carrier. Such a support is preferably inclined and its surface preferably corrugated, and one of its edges terminates adjacent the path of movement of the carriers, so that as said carriers rise they will engage the under side of the hide or skin, which hangs over or projects beyond the edge of the support, and will remove said hide or skin as the carrier engaging it continues to rise.

To assist the operator as much as possible and enable him to dispose the hides or skins properly for the carriers to engage and remove them, we prefer to employ a table having its top composed of two sections inclined toward each other, the adjacent edges of said sections being located so as to permit of the passage between them of the carriers, and in

such case the hides or skins will be laid upon these two sections, and the carrier coming up between them will engage the hide or skin thereon and lift it from the support. The corrugations in the surface of the hide or skin support are preferably arranged in two sets or groups, being disposed diagonally or obliquely with relation to the support and at approximately right angles to each other, and such corrugations act to spread the hide or skin more or less as it is drawn from the support by the rising carriers.

The invention also consists in means for automatically discharging the hides or skins from the machine, and in carrying out this part of our invention a discharging device is provided which is adapted to occupy such a position relative to the descending carrier that as said descending carrier is swung a little out of its perpendicular position the hide or skin thereon will be deposited upon said discharging device as the carrier continues to descend, after which said discharging device will be operated to discharge the hide or skin from the machine.

Figure 1 shows in plan view a putting-out machine for hides or skins embodying this invention. Fig. 2 is a side elevation of the machine shown in Fig. 1. Fig. 3 is a detail of the clutch mechanism and means for operating the discharging device; Fig. 4, a longitudinal sectional detail of the clutch mechanism. Figs. 5, 6, and 7 are details of the means for moving the hide or skin along on its carrier for a short distance after passing through one pair of operating-rolls and before it passes through the other pair of rolls. Figs. 8, 9, and 10 are details of the means employed for moving the carrier carrying the hide or skin out of vertical position in order that the hide or skin carried by it may be deposited upon the discharging device; Fig. 11, a detail showing one of the bearings provided for the operating-rolls whereby they are permitted to yield laterally. Figs. 12 and 13 are modifications of the support for the hide or skin, and Fig. 14 a modification showing the support for the hides or skins as two sections separated a short distance to provide for the passage of the hide or skin carriers; Fig. 15, a side elevation of the machine, on an en-

larged scale; and Fig. 16, an enlarged detail view of the roll-operating mechanism.

The main framework of the machine consists, essentially, of two upright side frames A A, secured together by rods A', a number of such rods being provided.

$a a'$ represent one pair of operating-rolls, and $b b'$ the other pair of operating-rolls. These operating-rolls are preferably all made substantially alike—that is to say, they consist of cylinders having thereon helical ribs or blades arranged to converge toward the middle of the roll and the rolls of each pair arranged to revolve toward each other whereby they may act as putting-out rolls. The journals of one roll of each pair, or it may be the journals of both rolls, are set in bearings c^x , secured to the frame, which bearings are adapted to yield laterally. Referring to Fig. 11, one of said yielding bearings is shown, wherein it will be seen that c represents the box which receives the journal, and said box has projecting from it at each side of it a horizontal guide-rod $c' c^2$, one of said guide-rods, as c' , passing freely through a hole provided for it in the bracket or frame and having mounted upon it a spiral spring c^3 , one end of which bears against the box and the other end bears against the bracket, and the other guide-rod, as c^2 , likewise passing freely through a hole in the bracket or frame and also having mounted upon it a spiral spring c^4 , one end of which bears against the bracket or frame and the other end bears against a nut c^5 , screwed onto the guide-rod. The nut c^5 limits the movement of said box in one direction. We desire to state, however, that any other form of yielding bearing may be provided for the journals of the operating-rolls without departing from this invention, and, furthermore, we do not desire to limit our invention to the use of yielding bearings for the operating-rolls.

The operating-rolls $a a'$ are driven by sprocket-chains $d d'$, and the operating-rolls $b b'$ are driven by sprocket-chains $e e'$, said sprocket-chains passing around sprocket-wheels secured to the journals of said rolls.

A sprocket-chain d passes around the sprocket-wheel d^2 , secured to a shaft d^3 , to which the main driving-pulley d^4 is secured, and the sprocket-chain d' passes around the sprocket-wheel d^5 , secured to a shaft d^6 , bearing a pinion d^7 , which is engaged and driven by a pinion d^8 , secured to the main driving-shaft d^3 . The sprocket-chain e passes around the sprocket-wheel e^2 , which is secured to the main driving-shaft d^3 , and may be formed integral with or secured to the sprocket-wheel d^2 , and the sprocket-chain e' passes around the sprocket-wheel e^3 , which is secured to the shaft d^6 , and may be formed integral with or secured to the sprocket-wheel d^5 . The said driving sprocket-wheels may be composed of a hub having formed thereon two sets of sprocket-teeth, or two sprocket-wheels may be secured together side by side. We do not,

however, desire to limit our invention to any particular way of rotating said operating-rolls.

The carriers for the hides or skins, a number of which we prefer to employ, each consists of a flat board f of suitable size and shape, having at its upper edge a number of ears f' with holes through them, which receive a rod f^2 , whereby it may be loosely suspended upon and supported by said rod f^2 , and the rod f^2 , upon which said carrier is suspended, is journaled at its ends in the links of a pair of sprocket-chains $g g'$, which are located near the opposite sides of the machine, said sprocket-chains each being made as an endless chain and serving as a conveyer for the supports. The endless sprocket-chains $g g'$ pass over and are supported upon and driven by a number of sprocket-wheels, and, as herein shown, each chain passes around the sprocket-wheels g^2, g^3, g^4, g^5 , and g^6 , all of said sprocket-wheels being idle except one, which will be positively driven, and, as herein shown, the sprocket-wheel g^2 is positively driven, it being secured to a shaft having thereon a sprocket-wheel h , over or around which passes a sprocket-chain h' , which passes around a sprocket-wheel h^2 , secured to a shaft h^3 , bearing a pinion h^4 , which is engaged and driven by the pinion d^8 on the main driving-shaft. The sprocket-wheels g^2 at each side of the machine are secured to a rod or shaft g^9 , so that the driving mechanism at one side of the machine will rotate both of the sprocket-wheels in unison.

It will be seen that as the sprocket-wheels g^2 revolve the endless chain conveyers carrying the hide or skin carriers will be moved along continuously. The sprocket-wheels g^5 and g^6 are located one below and the other above the operating-rolls $a a'$ in vertical alignment, so that the hide or skin carriers will be carried upward in a vertical direction and drawn through said pair of rolls in order that the hide or skin thereon may be acted upon by said rolls.

The sprocket-wheels g^2 and g^3 are located one above and the other below the operating-rolls $b b'$, so that the hide or skin carriers will be carried upward in a vertical direction and drawn through said pair of operating-rolls in order that the hide or skin thereon may be acted upon by said rolls. The sprocket-wheels g^3 and g^4 are located one above the other, so that the supports may descend in a vertical direction unless otherwise moved, as will be hereinafter explained, and the sprocket-wheels g^4 and g^5 are located in substantially the same horizontal plane at the lower part of the machine, all as best shown in Fig. 2. The several hide or skin carriers are connected with the sprocket-chains $g g'$ at substantially regular distances apart. A support for the hide or skin is located in front of the machine beneath the first pair of operating-rolls, which is herein shown in Fig. 2 as a table, its top comprising two oppo-

sitely-inclined sections i^2 , located quite close together, leaving a space between them for the passage of the carriers, and said inclined sections i^2 each have a corrugated surface.

5 The section i is supported on brackets i' , secured to the frame of the machine, or it may be otherwise supported, and it has along its rear edge a narrow strip i^{10} , which is hinged to the section and forms a part of it. The
10 section i is located in a plane just above the sprocket-wheels g^5 , and its rear edge terminates adjacent the path of movement of the carriers, so that as the carriers successively rise they pass by the rear edge of the section,
15 lifting the hinged edge strip i^{10} . The corrugations on the top surface of the section i are arranged in two sets or series, as shown, disposed diagonally or obliquely to the section and extended in opposite ways, thereby lying
20 at approximately right angles to each other. The other section i^2 , like the section i , is located at the opposite side of the path of movement of the carriers, and it has a hinged edge strip i^{12} , and its upper surface is corru-
25 gated, like the surface of the section i . The section i^2 is supported by brackets i^3 , which are secured to the side frames, or it may be otherwise supported. The front edge of the section i^2 terminates close to the rear edge of
30 the section i , so that the two hinged edge strips i^{10} and i^{12} come together, or substantially so, and as the hide or skin carriers rise between the two sections said hinged edge strips yield. The hide or skin is laid upon
35 the support i and i^2 , and when the carriers rise they will pass up between the sections of said support and will engage the hide or skin thereon and lift it from the support. As the hide or skin is drawn off of the support it
40 will be spread more or less by the corrugations.

It will be seen that it is possible for the operator to place the hides or skins one by one on the support quickly, after which they may
45 be removed therefrom by the rising carriers, which are carried by the continuously-moving chains, and as a consequence the capacity of the machine is very materially increased.

50 By providing a support for the hide or skin it will be seen that the carriers may be moved continuously and the work of the operator is very much facilitated.

In some instances we may employ but a
55 single section, as i^{13} , located in front of the rising carriers, as shown in Fig. 12, or a single section, as i^{14} , in rear of the rising carriers, as shown in Fig. 13, in which instances it is obvious that the hide or skin will be laid upon
60 the section so as to hang over the edge and the rising carrier will come up beneath it and remove it, or in lieu of two sections i^{13} i^{14} , arranged as shown and each having a hinged edge strip, a single angularly-formed support
65 i^{15} may be provided, having a central transverse slot or passage i^{16} through it, as shown in Fig. 14. The hide or skin carrier rising above

the support and taking the hide or skin therefrom is then drawn in between the operating-rolls $a a'$, which act upon the hide or skin. 70
As the hide or skin carrier continues to rise it is brought into engagement with the means provided for moving along the hide or skin a short distance on its carrier, or, in other words, shifting the position of the hide or 75
skin thereon, a result which is desired for the purpose of presenting that portion of the hide or skin to the action of the next pair of operating-rolls which was not acted upon by the operating-rolls $a a'$. On the rods f^2 , upon 80
which the carriers are freely suspended, a long flat strip n is secured, which serves as and forms the upper edge of the carrier over or upon which the hide or skin is laid, and as said strip n is rigidly secured to the rod it 85
will be seen that by rotating said rod the strip n will be turned and the hide or skin consequently moved along. To rotate the rod f^2 , a pinion n' is secured to one end of it, and on the framework of the machine a rack- 90
toothed bar n^2 is secured in proper position to be engaged by said pinion as the carrier rises, and when said pinion is in engagement with said fixed rack and the carrier continues to rise the rod f^2 and strip n thereon will 95
be rotated. Means may be provided at both ends of the carrier for rotating the rod f^2 and strip n ; but, as herein shown, means are provided only at one end thereof.

We do not desire to limit our invention to 100
any particular location of the means employed for moving the hide or skin on the carrier so long as it is arranged to act after the carrier has passed through the operating-rolls $a a'$ and before it passes through the operating- 105
rolls $b b'$.

As a means of discharging the hide or skin from the machine after it has been acted upon by both pairs of operating-rolls a discharging device is provided, which, as herein shown, 110
consists of an open frame composed of a number of parallel bars m , secured at one end to a shaft m' , having its bearings in ears or brackets on the side frames and extending from side to side of the machine, the oppo- 115
site ends of said bars m being secured to or connected with a rod m^2 , and another similarly-constructed open frame composed of a number of parallel bars m^3 secured together by a rod m^4 at one end and loosely mounted 120
upon the rod m^2 at a short distance from the rod m^4 , the opposite or outer ends of said bars being left free, or they may be connected together, if desired.

The open frame $m m' m^2$ is adapted to move 125
from an upright or vertical position to a horizontal position, as represented by dotted and full lines in Fig. 2, by the turning of the shaft m' , and the open frame $m^3 m^4$ is adapted to fall backward upon the aforesaid open 130
frame, turning on the rod m^2 as a pivot, when said open frame $m m' m^2$ is in its upright or vertical position, as represented by dotted lines, Fig. 2, and to occupy a horizontal po-

sition in extension of said open frame $m m'$ m^2 when the latter open frame is moved into its horizontal position. To move the open frame $m^3 m^4$ so that it shall fold upon the open frame $m m' m^2$ when the latter is in its upright position and shall occupy a position in extension thereof when the latter is in its horizontal position, we have loosely connected to one end of the rod m^4 a link m^5 and have connected the opposite end of said link, which is slotted, to a stud on the frame, and as the open frame $m m' m^2$ is moved from the upright to the horizontal position the said open frame $m^3 m^4$ carried by it will be moved into its extended position, and when said open frame $m m' m^2$ is moved from its horizontal to its upright position the said open frame $m^3 m^4$ will be caused to fold backward upon the aforesaid open frame and occupy the position shown by dotted lines in Fig. 2.

When the two open frames constituting the discharging device are in upright position, they will occupy a position between the sprocket-wheels g^3 and g^4 in line with the descent of the hide or skin carrier.

A sprocket-wheel o is secured to the hub o' , loosely mounted on the shaft m' , and a sprocket-chain o^2 passes around said sprocket-wheel o , which also passes around a sprocket-wheel o^3 , secured to the shaft d^3 .

The loosely-revolving hub o' is adapted to be connected with the shaft m' by a clutch, the parts of which are adapted to be automatically thrown into and out of engagement, and when the parts thereof are in engagement the shaft m' will be positively turned to lower the open frames or move them from a vertical to a horizontal position.

The clutch herein shown consists of a toothed member t , rigidly secured to the shaft m' , and a similar toothed member t' , formed on the hub o' , which is turning loosely on the shaft, and a ring t^2 is loosely mounted on said hub o' , within which the hub is free to revolve, and said ring has projecting from it laterally studs t^3 , which are engaged by a yoke t^4 , pivoted at t^5 to a bracket t^6 on the outside of one of the side frames, said yoke moving on its pivot to slide the hub o' along on the shaft m' , so that its toothed member t' will engage the toothed member t on the shaft. It is herein designed that said clutch shall be operated automatically, and to accomplish this result a pin t^{16} is connected to the pivoted yoke t^4 and passes through the side frame and is suitably supported by a bracket t^7 , located on the inside of said frame, and said pin is adapted to be moved longitudinally in one direction by any one of the descending hide or skin carriers and to be moved in the other direction by a spring t^8 , mounted on the pin. To thus positively move the pin t^{16} , the arm t^9 is pivoted to the inside of the side frame at a point above the pin and projects downward more or less obliquely, crossing and bearing

upon the end of the pin, and said arm t^9 bears at its lower end a cam-like plate t^{10} , which lies in the path of movement of the descending hide or skin carriers, and whenever said cam-like plate is engaged by one of said descending carriers the pivoted arm t^9 will be moved to in turn move outward the pin t^{16} , and thereby throw the clutch member t' into engagement with the clutch member t to turn the shaft m' and positively lower the discharging device. The clutch members remain in engagement as long as the descending carrier is in engagement with the cam-like plate; but just as soon as said cam-like plate is disengaged the clutch members will be separated.

A strong spiral spring w is mounted on the shaft m' , one end of which is connected with the side frame and the other end with the open frame $m m' m^2$, and said spring w is employed to raise the discharging device into its upright position, and consequently as said discharging device is positively lowered said spring will be wound up.

In order that the descending hide or skin carrier shall deposit its hide or skin upon the upright discharging device, it is caused to swing to one side as it descends, so that the hide or skin borne by it shall hang free from the carrier, and the discharging device passes along beneath the hide or skin as the carrier continues to descend, and as soon as said carrier has descended so that the upper end of the discharging device occupies a position substantially on a level with the upper edge of the carrier it will engage the hide or skin and begin to lift it from said carrier as the carrier continues to descend.

To swing the hide or skin carrier to one side so that the hide or skin may hang away from its carrier and pass down over the discharging device, we have herein secured to one edge of each carrier a strip r , having a curved face which serves the purpose of a cam, and at a predetermined point on the side frame have secured a pin r' , which lies in the path of movement of said cam r , and as the carrier descends said cam will strike the pin r' and the carrier will be moved inward, as represented in Fig. 2.

We claim—

1. In a machine for treating hides or skins, the combination of a pair of operating-rolls, one or more carriers for the hides or skins, means for moving said carriers with a hide or skin thereon between said operating-rolls, and a table provided with an inclined stationary top, said top located beneath said operating-rolls adapted to receive upon it the hide or skin, one edge of said table terminating adjacent the path of movement of the carriers, whereby the hide or skin may be removed from the support by a rising carrier, substantially as described.

2. In a machine for treating hides or skins, 130

the combination of a pair of operating-rolls, one or more carriers for the hides or skins, means for moving said carriers with a hide or skin thereon between said operating-rolls, and a table having a corrugated surface located beneath said operating-rolls adapted to receive upon it the hide or skin, one edge of said table terminating adjacent the path of movement of the carriers whereby the hide or skin may be removed from the support by a rising carrier, substantially as described.

3. In a machine for treating hides or skins, the combination of a pair of operating-rolls, one or more carriers for the hides or skins, means for moving said carriers with a hide or skin thereon between said operating-rolls, and a table located beneath said operating-rolls the top comprising two stationary sections located quite close together leaving a space between them for the passage of the carriers, the sections of the top of said table inclining toward each other and adapted to receive upon them the hide or skin which is removed therefrom by a rising carrier, substantially as described.

4. In a machine for treating hides or skins, the combination of a pair of operating-rolls, one or more carriers for the hide or skin and means for moving them between said rolls, a pivoted discharging device to receive the hides or skins from said carrier and discharge them from the machine, said discharging device being operated by the hide or skin carriers, substantially as described.

5. In a machine for treating hides or skins, the combination of a pair of operating-rolls, one or more carriers for the hide or skin and means for moving them between said rolls, means for moving said carriers out of vertical position as they descend and a pivoted folding discharging device for the hide or skin upon which the hide or skin is deposited by said descending carrier, and means for operating said discharging device to receive the hide or skin from the descending carrier and thereafter discharge it from the machine, substantially as described.

6. In a machine for treating hides or skins, the combination of two pairs of operating-rolls located in different vertical planes, whereby the hide or skin is adapted to leave one pair of said rolls before it enters between the rolls of the other pair, one or more carriers for the hides or skins, endless chains supporting them, sprocket-wheels over which said chains pass located in planes above and below said operating-rolls, and sprocket-wheels g^2 over which said chains also pass located below the second pair of operating-rolls, substantially as described.

7. In a machine for treating hides or skins, the combination of a support upon which the hide or skin is laid, consisting of a table, its top comprising two sections located close together and each section having obliquely-dis-

posed corrugations on its surface arranged in two sets or series at approximately right angles to each other and one or more carriers adapted to rise through the table and remove the hide or skin therefrom, substantially as described.

8. In a machine for treating hides or skins, the combination of a support for the hide or skin, consisting of a table its top comprising two sections located close together and the adjacent edges of said sections provided with yielding strips, and one or more carriers adapted to rise through the table and remove the hide or skin therefrom, substantially as described.

9. In a machine for treating hides or skins, the combination of operating-rolls therefor, one or more carriers for the hide or skin and means for moving them between said operating-rolls, a folding discharging device to receive the hides or skins from said carrier and discharge them from the machine, and means for operating the same, substantially as described.

10. In a machine for treating hides or skins, the combination of a pair of operating-rolls, one or more carriers for the hides or skins, means for moving said carriers with a hide or skin thereon between said operating-rolls and a table located beneath said operating-rolls adapted to receive upon it the hide or skin and hold it in the path of movement of said carriers, to be removed therefrom by a rising carrier, said support having an obliquely-corrugated surface, the corrugations being arranged in two sets at approximately right angles to each other, substantially as described.

11. In a machine for treating hides or skins, the combination of two pairs of operating-rolls, one or more carriers for the hides or skins and means for moving them between the rolls, means for moving the hide or skin along on its carrier during the passage of the carrier from one set of rolls to the other, and a table having an inclined stationary top, said table adapted to receive upon it the hide or skin, one edge of said table terminating adjacent the path of movement of the carriers, substantially as described.

12. In a machine for treating hides or skins, the combination of two pairs of operating-rolls, one or more carriers for the hide or skin and means for moving them between the rolls, means for moving the hide or skin along on its carrier during the passage of the carrier from one set of rolls to the other, and a folding discharge device for the hide or skin, substantially as described.

13. In a machine for treating hides or skins, the combination of two pairs of operating-rolls, one or more carriers for the hide or skin and means for moving them between the rolls, a table having an inclined stationary top, said table adapted to receive upon it the hide or

skin, one edge of said table terminating adjacent the path of the carriers, means for moving the hide or skin along on its carrier during the passage of the carrier from one set
5 of rolls to the other, means for moving the carriers out of a vertical position as they descend, and a folding discharge device for the hide or skin, substantially as described.

In testimony whereof we have signed our

names to this specification in the presence of 10
two subscribing witnesses.

JOHN H. BICKFORD.
WILLIAM N. PATTEN.
WILLIAM H. DOWNS.

Witnesses:

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CORA L. PAGE.