

No. 846,966.

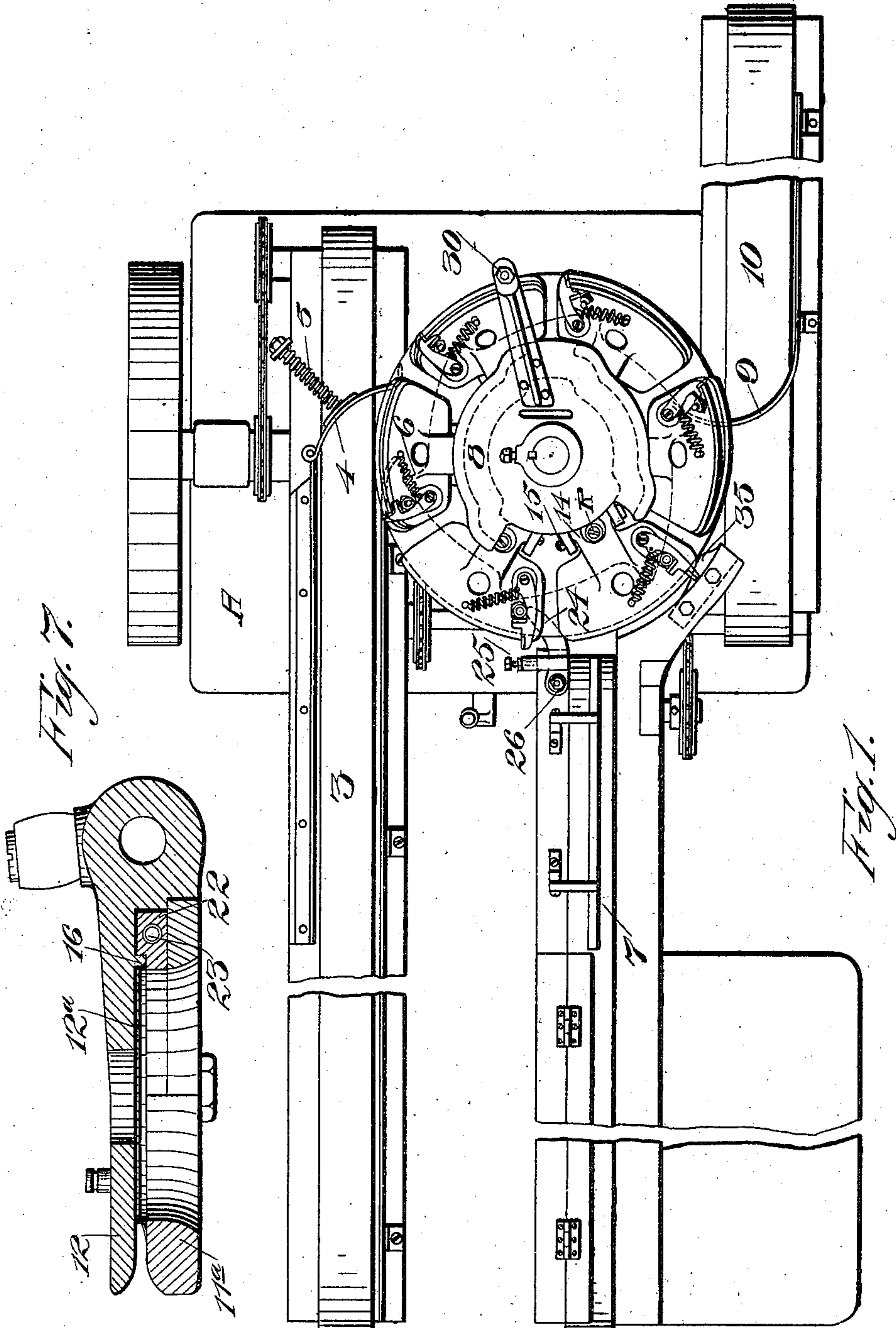
PATENTED MAR. 12, 1907.

N. TROYER.

CAN HEADING MACHINE.

APPLICATION FILED JULY 24, 1905.

5 SHEETS—SHEET 1.



Witnesses.  
Chas. Berg  
J. J. Monroe

Inventor:  
Nelson Troyer  
By Geo. H. Strong, atty.

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5 SHEETS—SHEET 2.

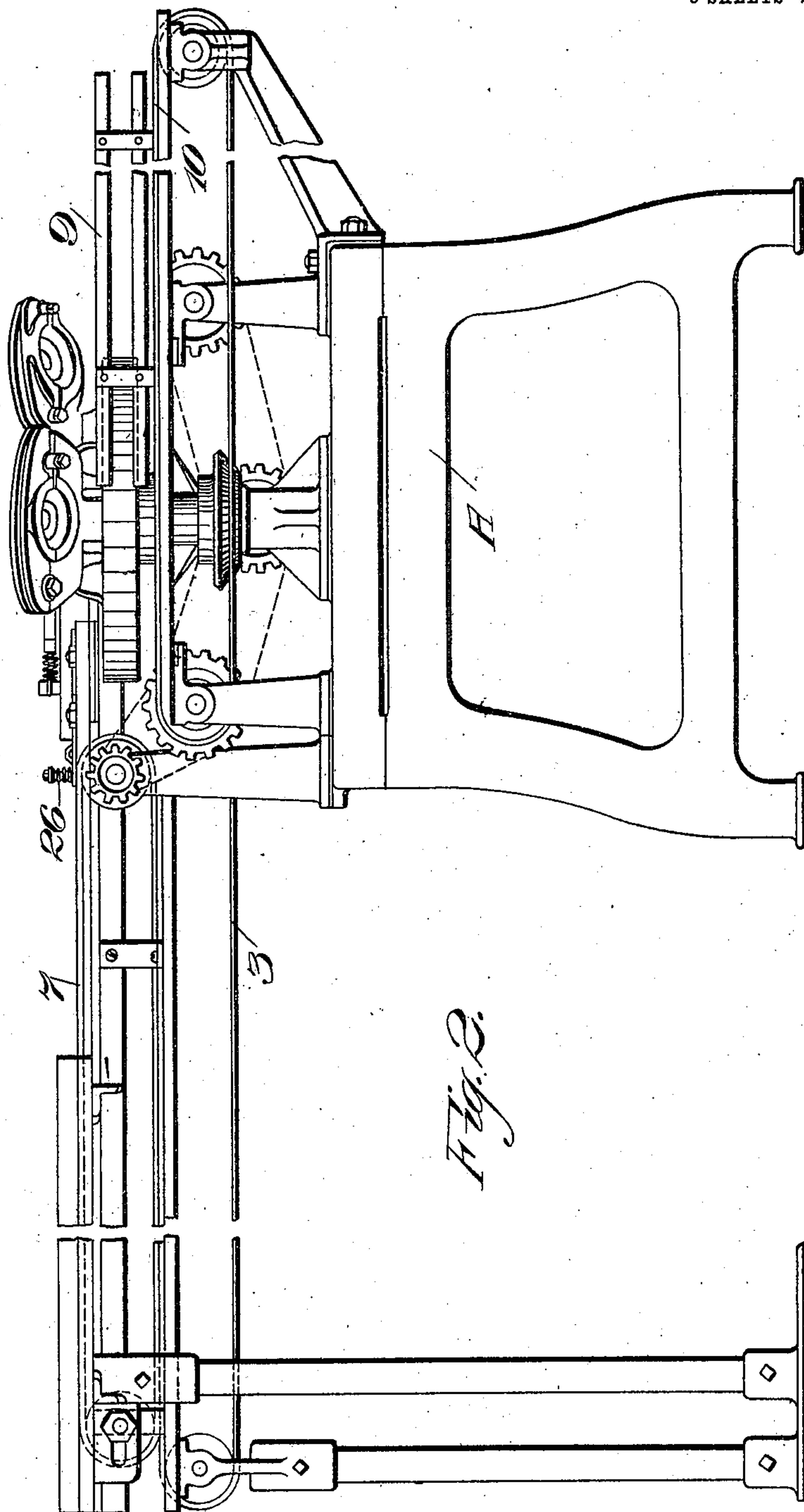


Fig. 2.

Witnesses.  
*F. L. Loring*  
*J. A. Bourse*

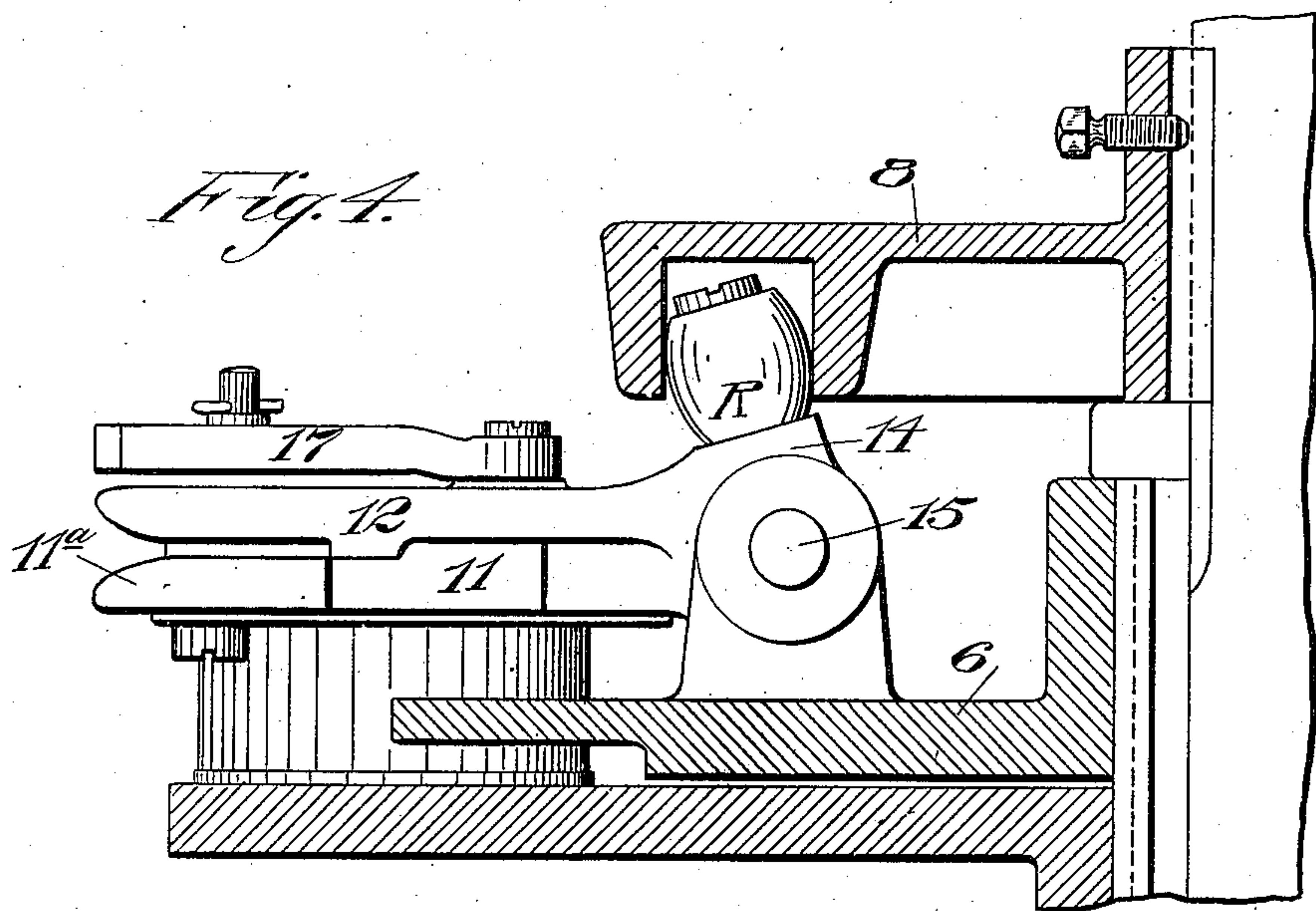
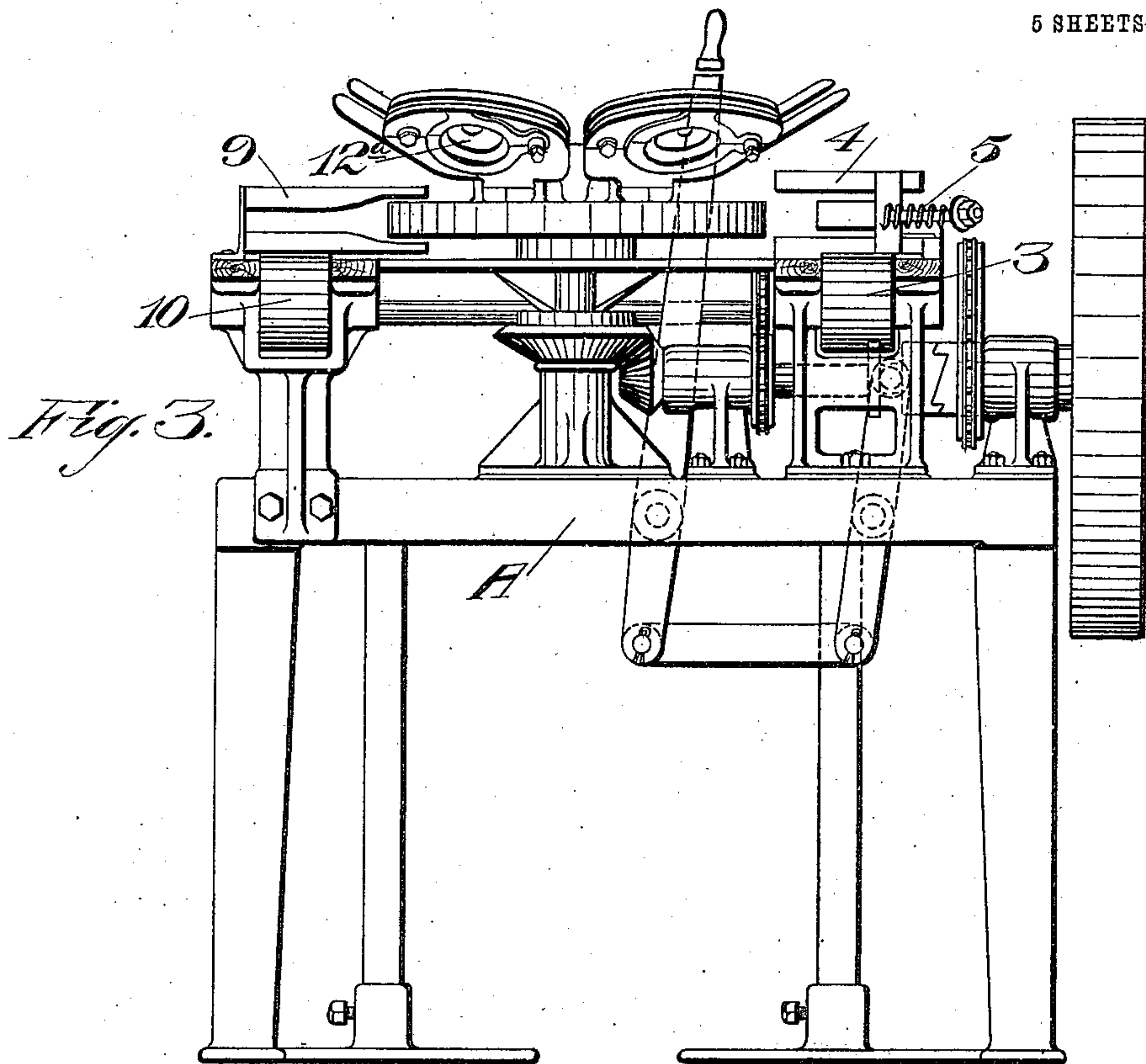
Inventor:  
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5 SHEETS—SHEET 3.



Witnesses.  
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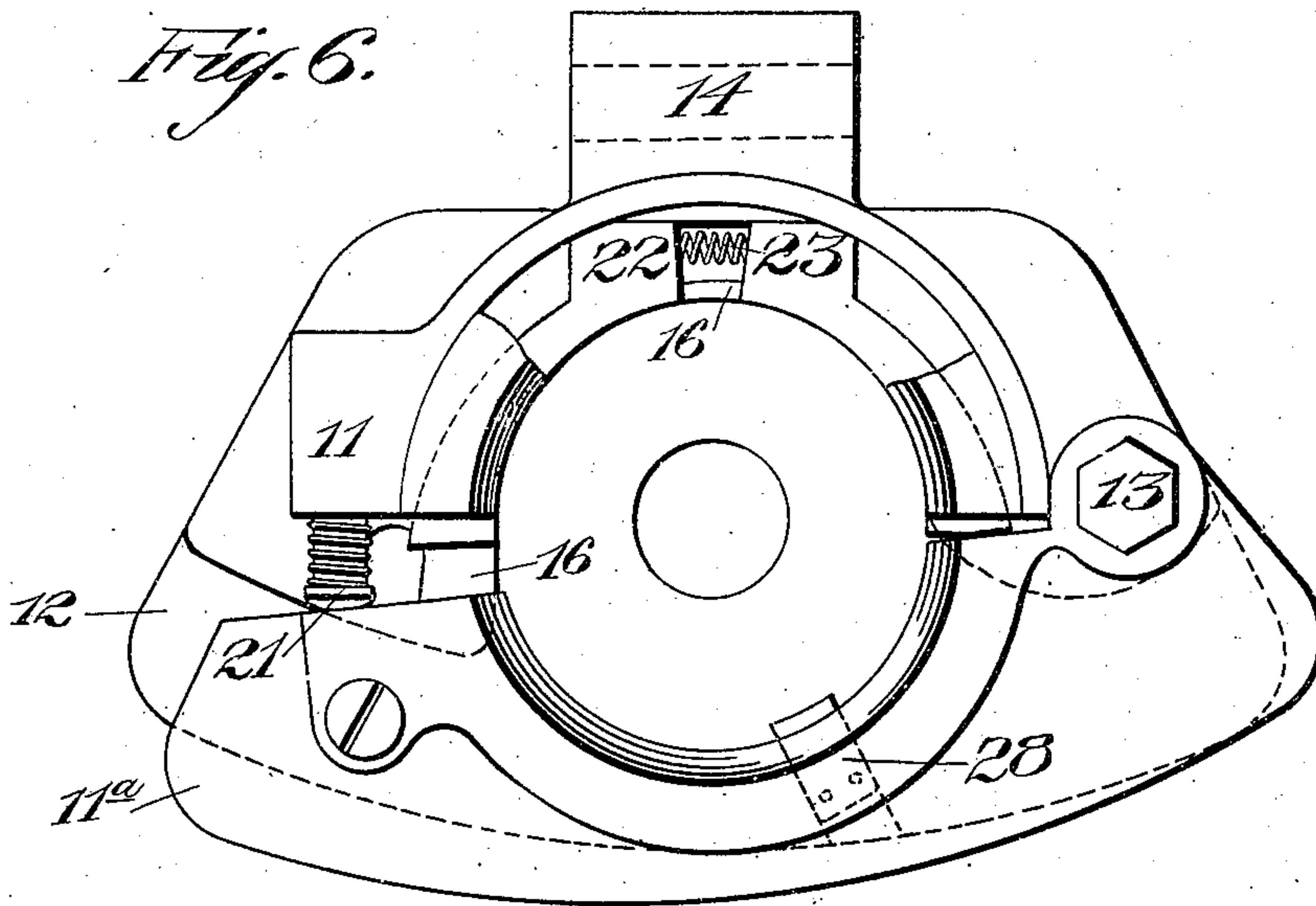
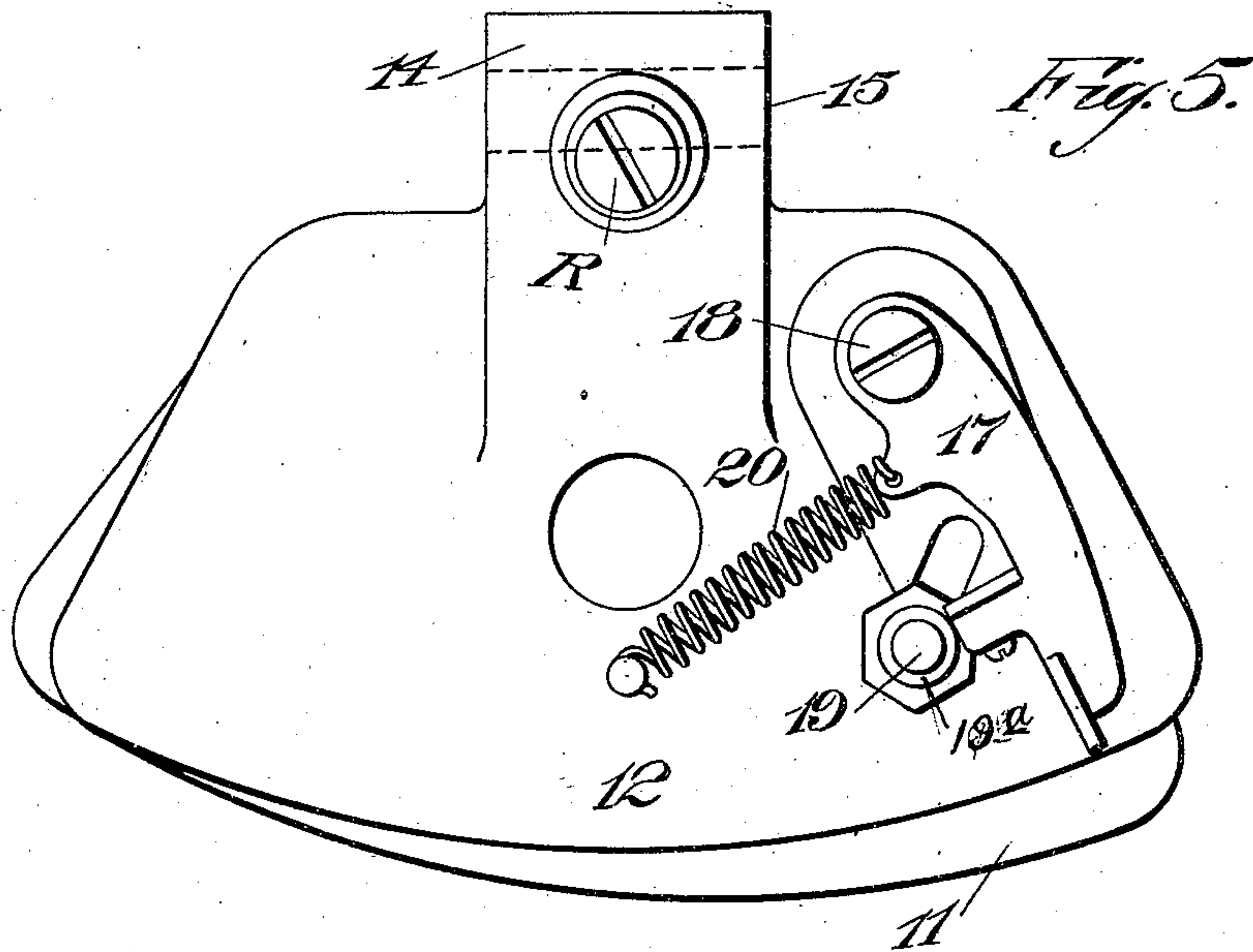


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5 SHEETS—SHEET 4.



Witnesses.  
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*J. H. Hulse*

Inventor:  
*Nelson Troyer*  
*By Geo. H. Strong*

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5 SHEETS—SHEET 5.

Fig. 8.

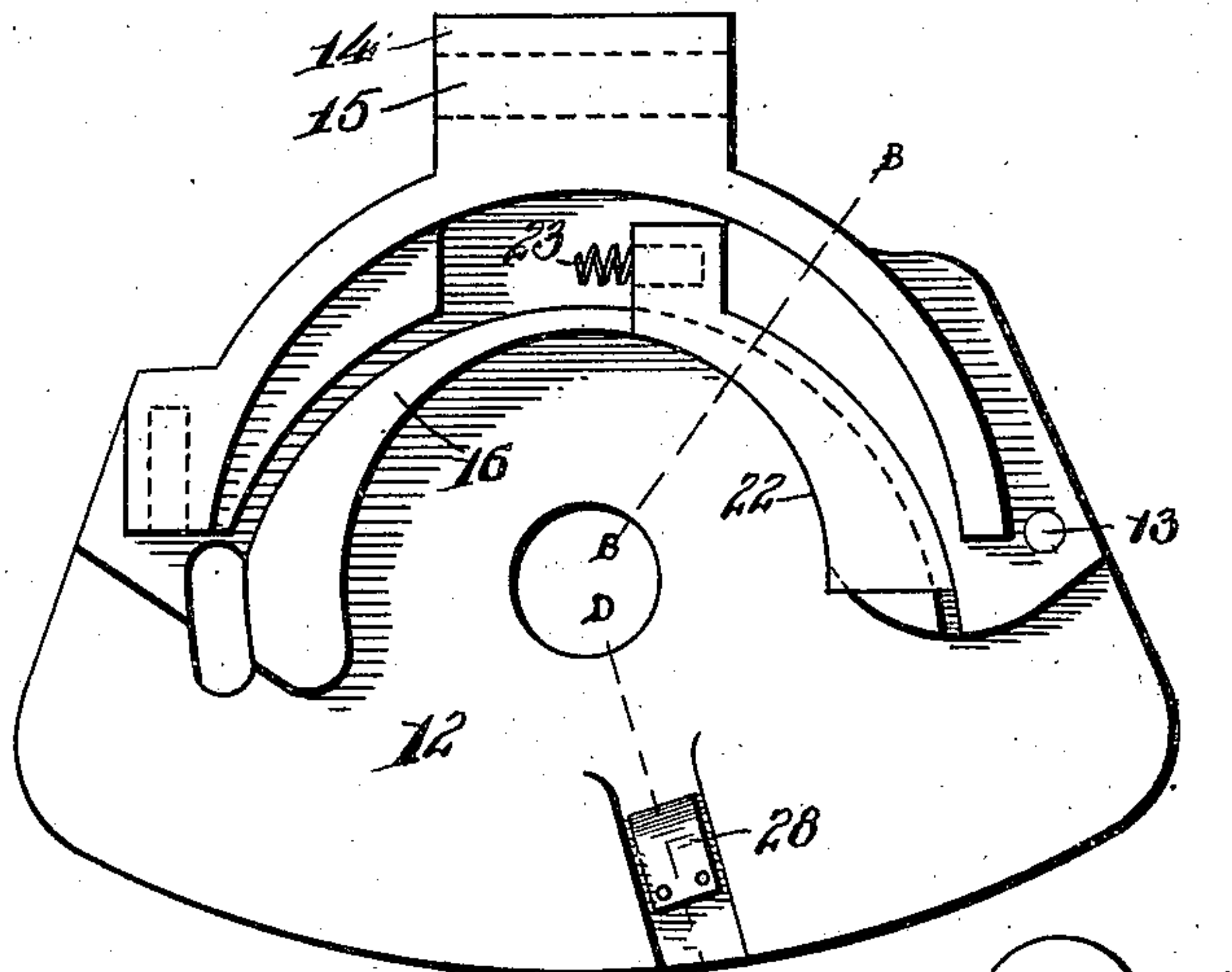


Fig. 10.

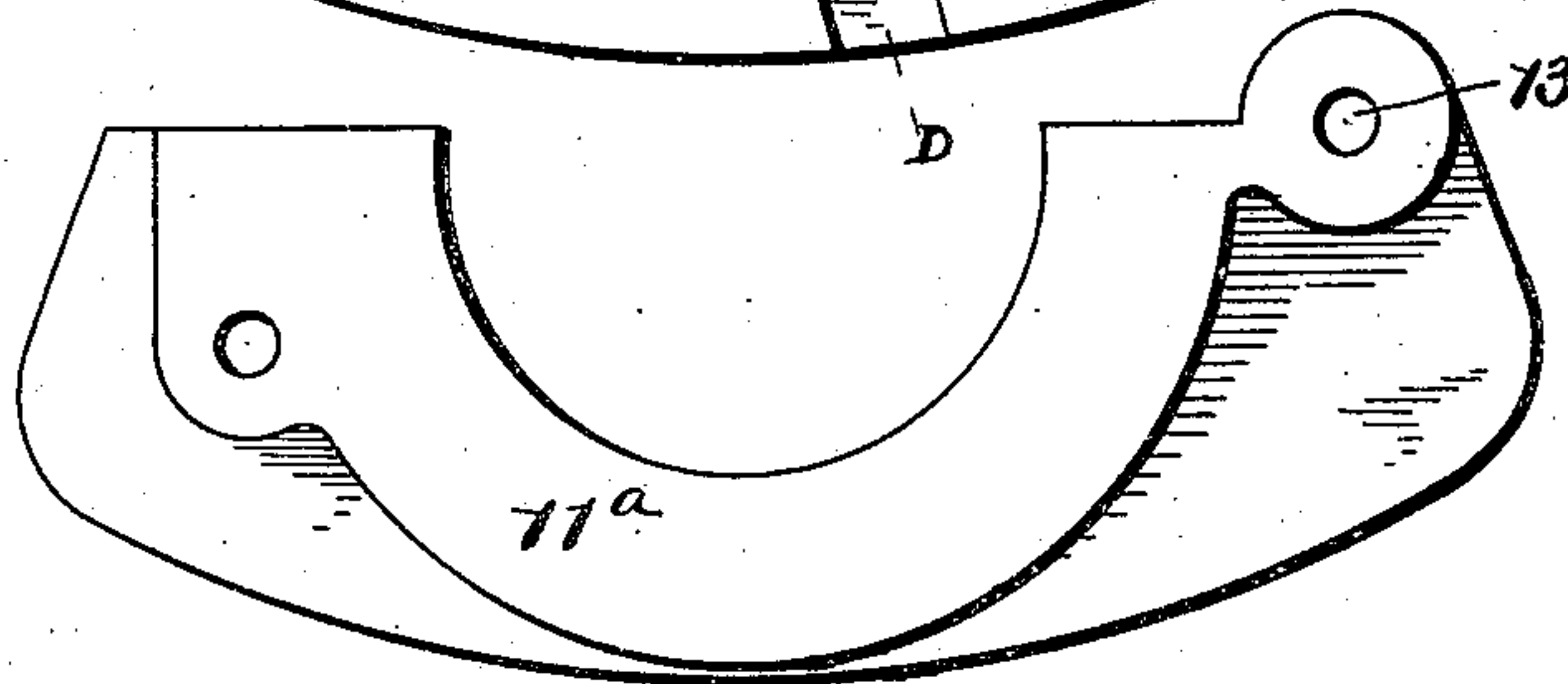


Fig. 11.

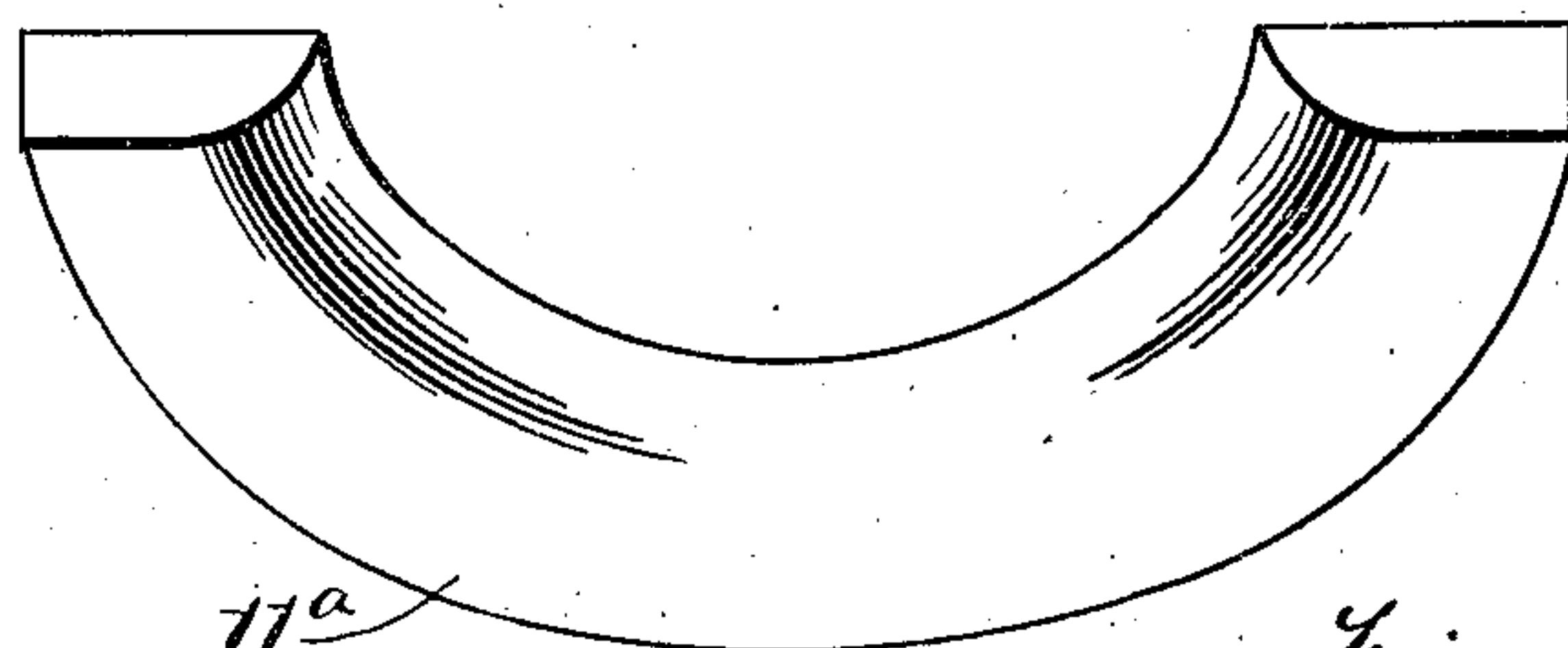


Fig. 12.

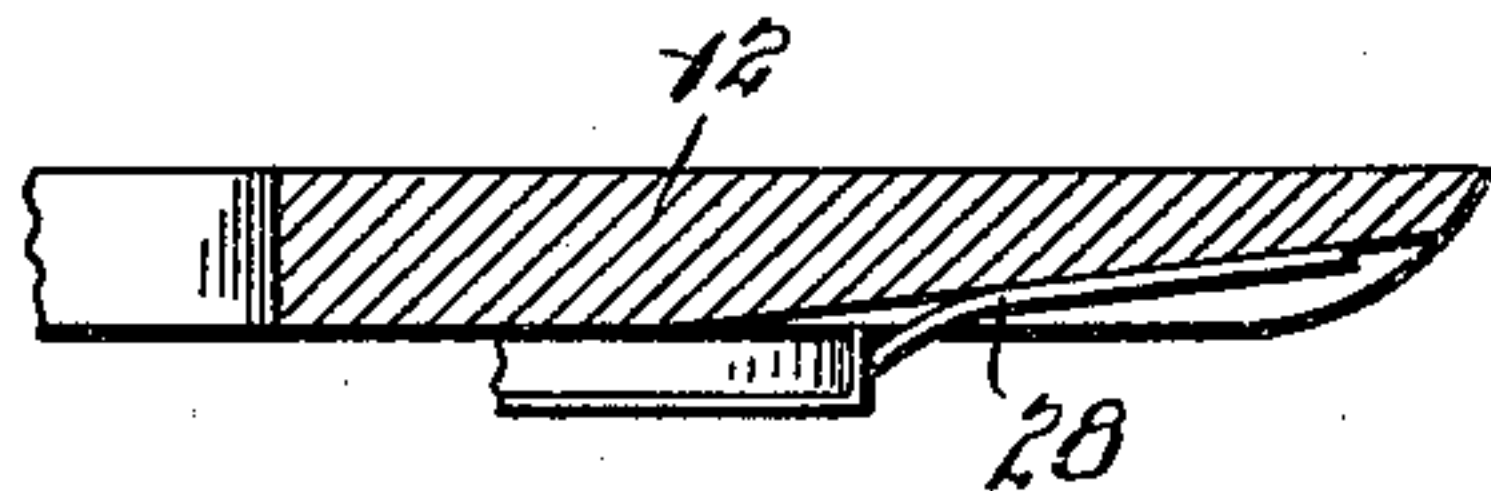


Fig. 13.

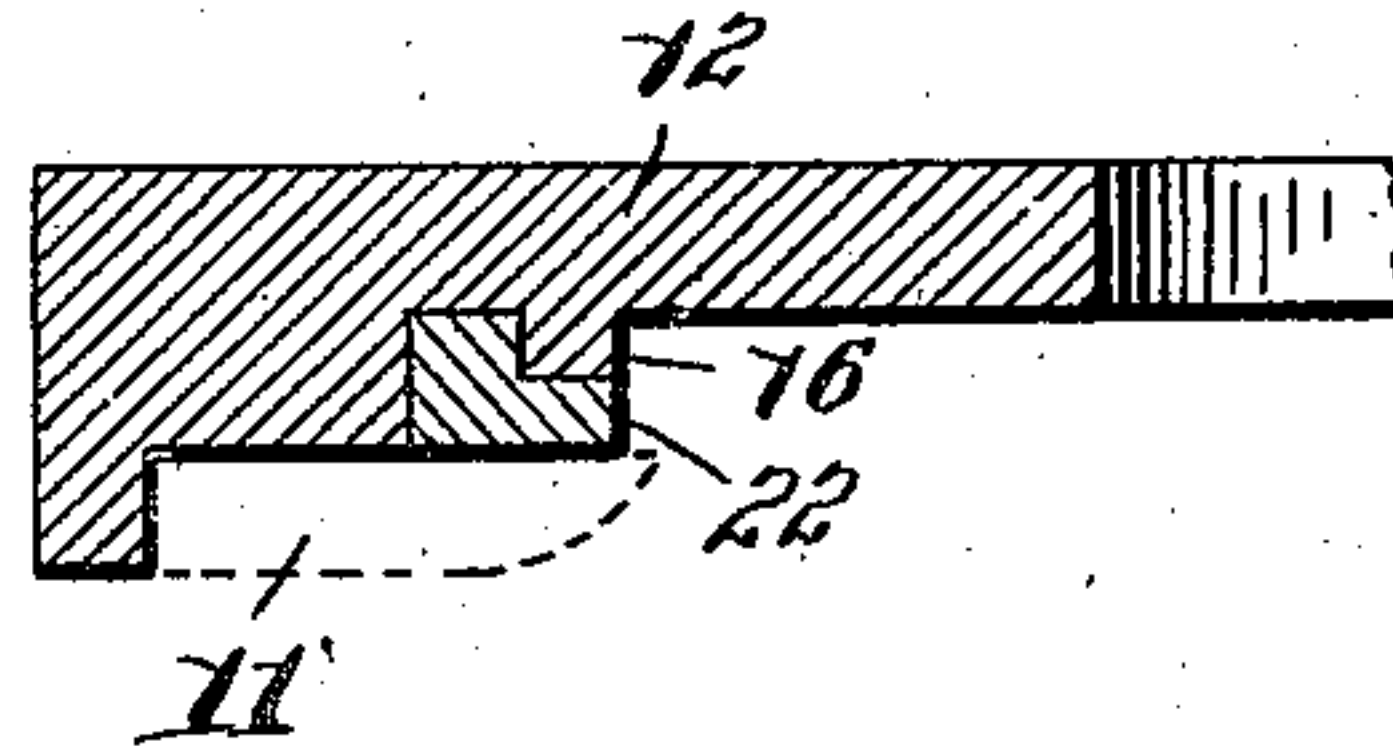
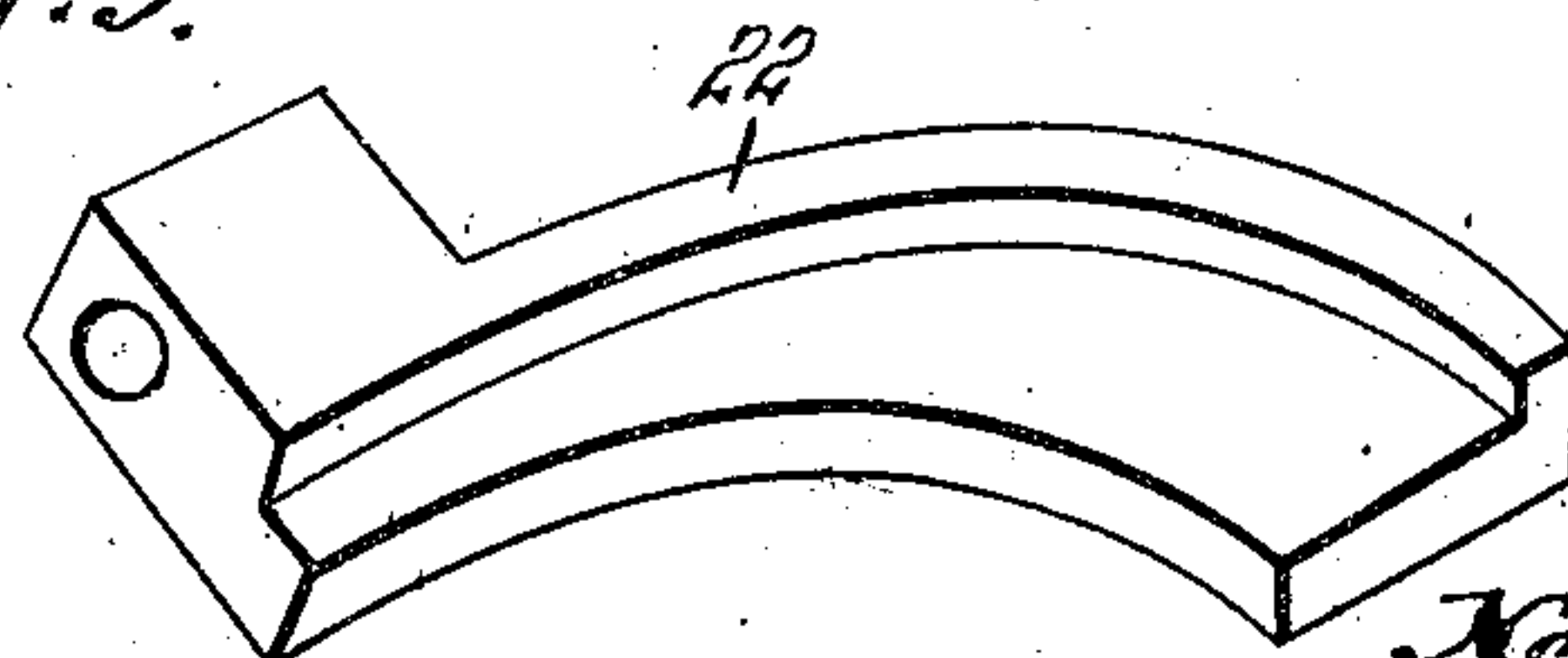


Fig. 9.



Inventor

Nelson Troyer

Witnesses  
L. H. Strong  
C. W. Fowler

By Geo H. Strong  
his Attorney



# UNITED STATES PATENT OFFICE.

NELSON TROYER, OF PORTLAND, OREGON.

## CAN-HEADING MACHINE.

No. 846,966.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed July 24, 1905. Serial No. 270,976.

*To all whom it may concern:*

Be it known that I, NELSON TROYER, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Can-Heading Machines, of which the following is a specification.

My invention relates to a machine which is designed for placing the heads on can-bodies either before or after filling.

It consists in the combination of mechanism whereby the cans and heads are automatically brought together, the heads pressed upon the cans, and the cans thus headed discharged from the machine.

It also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a plan view of the apparatus. Fig. 2 is a side elevation. Fig. 3 is an end view. Fig. 4 is a partial section of the apparatus. Fig. 5 is a plan view of the head-carrying jaws. Fig. 6 is a bottom view of the head-carrying jaws. Fig. 7 is a sectional view of the can-head carrier. Fig. 8 illustrates an interior view of the plate 12, showing one of the segments 22 removed. Fig. 9 is an inverted view of a removed segment. Fig. 10 is a view of the bearing-plate 11<sup>a</sup> removed. Fig. 11 is a view of the fixed semi-circle 11<sup>a</sup> removed. Fig. 12 is a section on the line D D of Fig. 8. Fig. 13 is a section on the line B B of Fig. 8.

It is the object of my invention to provide an apparatus by which completed can-bodies and completed heads are brought together and the heads placed upon the can-bodies.

The apparatus may be mounted upon any suitable frame or support, as at A, and comprises a table upon which cans are successively delivered from a traveling feed-belt 3, which approaches the table tangentially upon one side. Contiguous to the table is a curved bar 4, normally pressed inwardly toward the table by a spring, as at 5, which springs yields, as required. This curved bar directs the cans inwardly upon the table, and each can as it enters is received by the concavity of a horizontal revoluble turret 6, which moves above the table, being driven by suitable gear mechanism, here shown as located beneath the table. The heads which are to be placed upon these cans are brought to the apparatus upon the opposite side by means of a carrying-belt 7, upon which the

heads are placed by an operator. This belt travels toward the periphery of the table, a little to one side of the center, in such a manner that the heads thus carried will be fed into slotted receiving-jaws, within which they are retained in such a manner as to be subsequently forced upon the ends of the cans, which are delivered to the apparatus as previously described. These head-carrying jaws are hinged and revoluble with the can-carrying turret and are actuated by a stationary cam 8, so that as they are revolved the jaws are carried into a position to receive the can-heads. Then a further revolution causes the blade 24 to push the can-head into place. A further continuance of each revolution brings the can-head in line above a can which is delivered to the apparatus, as previously described. A still further revolution operates to force the can-head-carrying jaw downwardly and to place the head upon the can. A further revolution releases the head from the jaw, raises the jaw free from the can, and the can is taken from the machine by a curved guide 9 and delivered upon a discharge-belt 10 tangent to the table upon the side opposite to the feed-belt.

The can-head carrier consists of two plates 11<sup>a</sup> and 12, pivoted together upon one edge, as shown at 13, so that the lower plate may be oscillated about this pivot to a limited extent, as will be hereafter described. The upper plate has a journal-lug 14 projecting from it, and similar lugs are fixed upon the revoluble carrier. A horizontal pin 15 connects the jaws with the lugs of the carrier, so that the whole jaw may be raised and depressed during its revolution, as previously described. As many of the jaws are thus journaled about the apparatus as can be accommodated, and they are so placed that when the cans are received from the feed-belt into the concavity of the turret, the cans will approximately register with an opening in the lower plate of the jaw in which the can-head is carried.

That portion of the plate 12 which is nearest to the hinge at 15 extends downwardly below the main portion of the plate, as is plainly shown in Fig. 7, and it has a semicircular ledge upon which the rear semicircular portion 11 of the lower plate is fixed. This lower plate consists of a fixed and a movable portion 11 and 11<sup>a</sup>, the portion 11<sup>a</sup> being the semicircular part which is fixed to the part 12, as previously stated. In front of the



ledge upon which the part 11 is fixed is a semicircular groove or channel forming a guide within which segments 22 are slidable, as will be hereafter more fully described, and in front of this groove is a raised portion or ledge 16, extending around the under face of the plate 12 to a point where it forms a support or bearer for the pivoted and movable portion 11<sup>a</sup>. The depth of this ledge 16 holds the portion 11<sup>a</sup> at such a distance from the face of the plate 12 that an open groove or channel is formed between the front part of the plate 12 and the movable part 11<sup>a</sup> of sufficient depth to allow a can-head to be inserted between these two, and when the can-head is pressed back against the rear semicircular fixed portion and held in place it will be in such position that when the jaw 11<sup>a</sup> is closed and latched the can-head will register with the can-body to which the head is to be applied. The part 11<sup>a</sup> of this lower plate is turnable about a hinge-pin 13, so as to be opened and closed with relation to the fixed semicircular portion 11. When the parts 11 and 11<sup>a</sup> are closed together, they form a complete circular opening, and this opening is flared or divergent downwardly, as shown. When thus closed together, the plates are held in their closed position by means of a latch 17, pivoted, as shown at 18 and having a notch adapted to engage with the upwardly-projecting pin 19, which is fixed to the lower plate and projects up through a slot in the upper plate. This slot has its curve on the radius about the fulcrum-pin 13 of the two plates and is of sufficient length to allow the necessary movement of the lower plate to open and release the head and can when they are united and ready to be discharged.

The latch 17 is acted upon by a spring, as at 20, which pulls it toward the pin 19, and when the notch in the latch registers with the pin or antifriction-roller 19<sup>a</sup>, carried by the pin, the latter will drop into the notch, and the plate 11<sup>a</sup> will be held in the closed position against 11. When by swinging the latch outward (as will hereafter be described) the plate 11<sup>a</sup> is released, this plate will be moved outward by means of the spring-actuated pin 21, guided within the rear stationary part 11 and acting against the outer end of the part 11<sup>a</sup>.

Between the semicircular rim 16 of the chamber 12<sup>a</sup> and the rear segment 11 are two slidable segments 22. These segments are of such length that they register with the rear portion 11. They are separated in the center at the rear, and when the plate 11<sup>a</sup> is opened these segments are forced apart by a spring 23, so that the free ends of the segments follow the part 11<sup>a</sup> when it is opened, and when this part is closed against the part 11 it presses upon the ends of the segments 22, and thus forces them together against the

pressure of the spring 23. The lower edge of the semicircular rim 11 is beveled or divergent, as shown, and this projects a little and forms, with the segments 22, a ledge and groove to hold the can-head in place. A spring 28 engages the opposite edge of the can-head after it is seated, and it is thus held until it has been placed on the can. The open channel above the plate 11<sup>a</sup> is of such a depth as to admit one of the can-heads which is brought and delivered thereto by the carrying-belt 7, as previously described. This can-head while being thus partly delivered into the circular chamber 12<sup>a</sup> is accurately placed by means of a blade 24, which is pivoted exteriorly to the circle of travel of the jaws, and its end enters the channel between the plates, and as the jaw revolves this blade acts to press the can-head into its proper position. The blade is held up against the stop 25 by a spiral spring, as at 26, and the point of the blade enters the slot or channel between the jaw-plates a little less than the diameter of the can-head, and this blade yielding as the jaw passes will pass over the edge of the can-head and will seat it against the curved rim 16. In this position the flange of the can-head lies in the groove between the part 11 and the surface of the plate 12 and with its periphery against the rim 16 and is prevented from dropping out by the slight overlap of the edge of the part 11.

As the slot between the plates 11 and 12 and through which the can-head was introduced remains open, I have shown a flat spring 28 fixed in the upper plate and projecting into the channel between the two plates. This spring is compressed and yields to allow the can-head to pass it and immediately springs outward against the edge of the can-head flange, and thus serves to hold the can-head against the rim 16. In this condition the jaw continues its travel and passing over a portion of the cam 8 will be raised so as to clear the top of a can which is delivered from the carrying-belt beneath the jaw. The can-head-carrying jaw is then closed, and the beveled opening of the plates 11 11<sup>a</sup> centers the can, and the pressure applied to the jaw will force the can-head upon the top of the can. The roller R engages cam 8 and moves the jaw. The continued rotation of the apparatus carries the jaws in such position that the latch 17 will be brought into contact with a stationary stud or arm 30 and will be forced back, so as to allow the outside hinged portion 11<sup>a</sup> of the lower plate to open. This releases the can and head, and the jaw is then raised to clear the can by the further action of the cam 8. This allows the can to be delivered away from the apparatus and upon the discharge-belt, as previously described. After the can has been removed from its position beneath the jaw the jaw is again lowered by gravity and by the conformation of



the cam 8 into position in readiness to receive another can-head. Thus each of the jaws which are hinged around the periphery of the apparatus will successively receive a can-head from the carrying-belt, and it will be accurately placed within the jaw by the blade 24 and will be raised above the height of the can, which is delivered beneath the jaws by the carrying-belt 3 and the curved guide 4. The jaws will then be depressed, and the beveled opening in the lower jaw will guide the can into the flange of the can-head, and the jaw will be forced down, so that the can-head will be fixed upon the end of the can. The jaws will then be opened to release the can and head, which will be delivered, as previously stated, to the discharge-belt. The operation is smooth and continuous, and an apparatus of this description will handle and head a hundred and twenty cans a minute. It will be understood that these can-head holding and carrying jaws may be made with openings of any desired size to suit the cans to be headed.

The carrying-belt is designed to run continuously and need not stop when the machine is stopped, so if the machine is stopped when the supply of cans runs out the feed-belt will carry a new supply into position before starting the machine, and no attendant is necessary for this purpose.

After a can has been discharged the movable plate 11<sup>a</sup> is again closed and latched by means of a fixed lug or projection 35, with which it contacts as the parts continue their revolution.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A can-heading machine, comprising a horizontal table and turret revoluble above the table, a can-carrying belt tangent to one side of the table, a curved yielding arm fixed in the path of the belt to divert the cans from the belt and deliver them successively to the turret, a second can-head belt traveling toward the side of the table, jaws hinged to the turret having an opening into which the can-heads are delivered from the belt, means for holding the can-heads in position within the jaws, means by which the cans successively delivered to the apparatus are caused to register with the can-heads, means for forcing the can-heads upon the can ends, releasing the cans, and discharging them from the apparatus.

2. In a can-heading machine, a horizontal circular table, a turret revoluble with relation thereto, and means by which cans are delivered to the turret and revoluble therewith, jaws hinged and revoluble with the turret, said jaws having slotted openings presented toward the periphery of the apparatus, an endless traveling belt delivering heads into the slots of the jaws successively,

a spring-pressed blade projecting into the line of travel of the jaws and entering the slots so as to contact with and seat the can-heads therein.

3. In a can-heading apparatus, a horizontal table, a revoluble turret or carrier for the cans, jaws hinged with relation to and carried by the turret, said jaws comprising an upper single plate, a lower plate consisting of two segments hinged at one side forming when closed a circular conical opening to fit over and direct the can end, and a circular chamber within which the can-heads are received and registered with the can position.

4. In a can-heading machine, a head receiving and holding device, comprising a chambered upper plate having a segmental semicircular rim at the rear, a lower plate consisting of two segments, the rear half being fixed to the upper plate and the front half hinged to the said upper plate, said lower plates having semicircular downwardly-diverging openings, a spring by which the hinged lower portion is normally held open, and a latch by which said segment is locked when closed against the rear fixed portion.

5. In a can-heading machine, a head-carrying jaw consisting of an upper plate having a chamber and segmental and beveled rim on its lower face, a lower plate one half of which is fixed to the upper plate and forms a channel with the rim thereof, the other half being hinged at one side to open and close with relation to the fixed half, segments slidable between the upper and the fixed lower plate, acting in conjunction with the rim to hold the flange of the can-head, a spring by which the hinged section of the lower plate is normally held open, a latch, and a stud engaged by said latch by which the movable segment of the lower plate is locked when closed, and a spring fixed to the upper plate adapted to engage the outer edge of the can-head flange whereby the head is locked in position to register with the opening in the lower plate of the jaw.

6. In a can-heading machine, a head-carrying jaw comprising a single upper plate and a two-part lower plate, means for closing and opening one of said lower plates to hold and release a can-head, means for revolving and raising said jaw, means for placing a can in the path of travel, and beneath the jaw, means for depressing the jaw and forcing the can-head upon the end of the can, means for releasing the can, raising the jaw, and discharging the can.

7. In a can-heading machine, a horizontally-revoluble turret, with can receiving and carrying pockets, hinged can-head-carrying jaws registering with the turret-pockets, said jaws comprising an upper single plate and a lower plate formed of sections hinged at one side, means for placing and holding can-heads within the jaws, means for tilting the



jaws upwardly, means for delivering cans beneath the jaws, means for pressing the heads upon the cans, releasing the cans and heads, and raising the jaws to allow the cans to be  
5 discharged.

8. In a can-heading machine, a horizontally-revoluble turret, with can receiving and carrying pockets, hinged can-head-carrying jaws registering with the turret-pockets, a  
10 stationary cam, said jaws including an upper single plate and a lower plate formed of sections hinged at one side, contacts carried by

the jaws and engaging with the cam to raise and lower the jaws at fixed intervals, means for placing cans in the turret-pockets to register with the can-heads within the jaws. 15

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

NELSON TROYER.

Witnesses:

J. H. AMOS,

B. LEE PAGET.