

No. 891,178.

PATENTED JUNE 16, 1908.

C. H. DE LA MONTE.
PUNCH SHIFTING MECHANISM.
APPLICATION FILED NOV. 9, 1907.

Fig. 1.

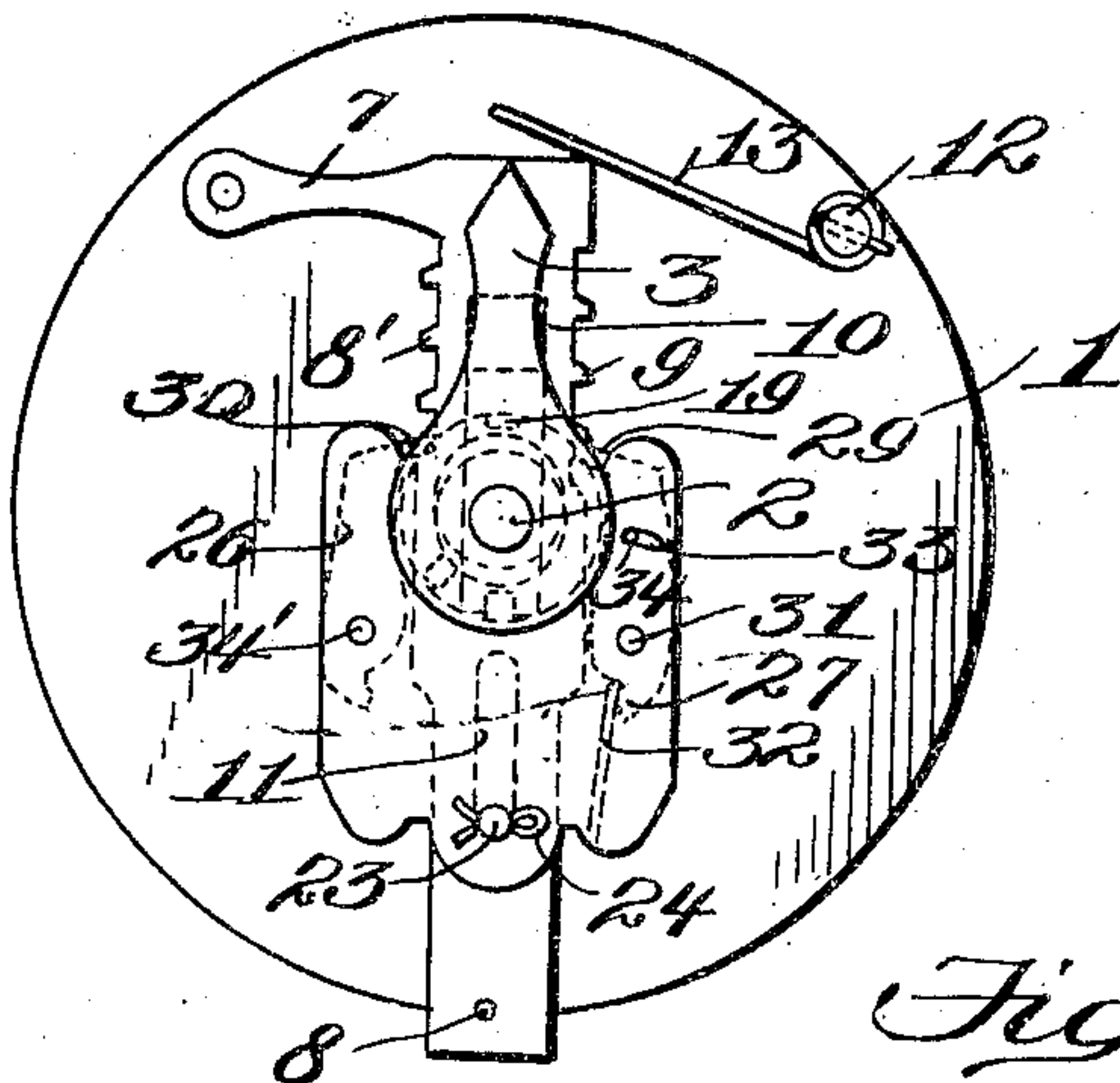


Fig. 2.

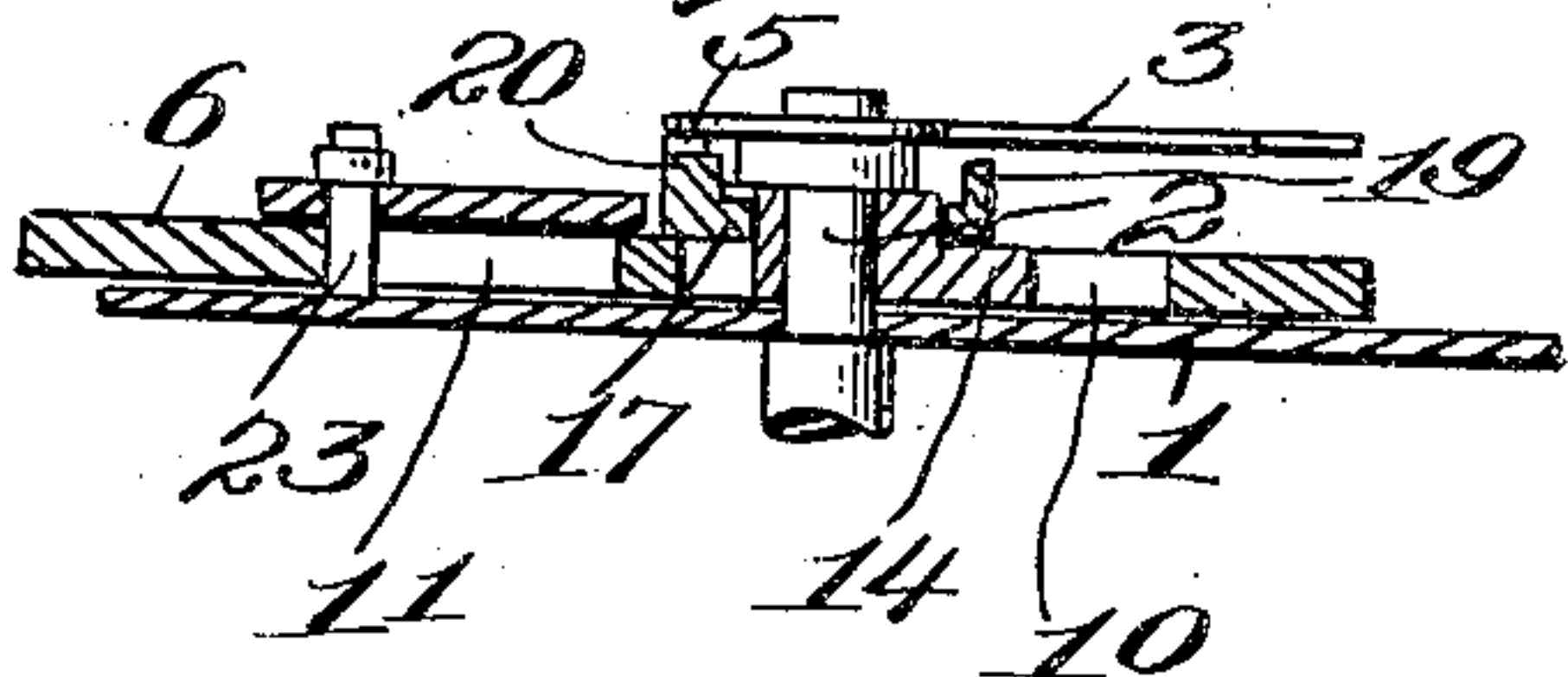


Fig. 3.

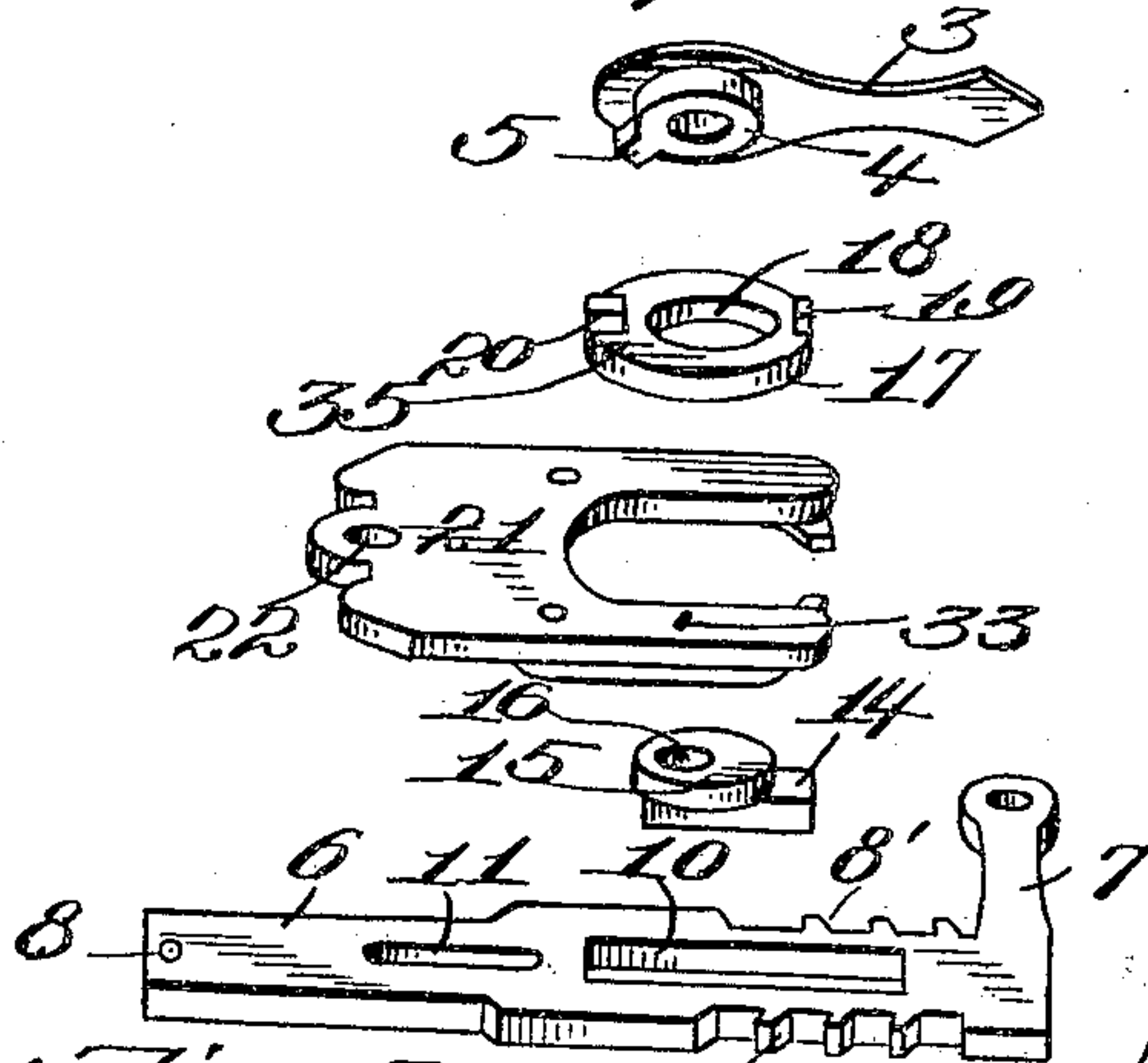


Fig. 4.

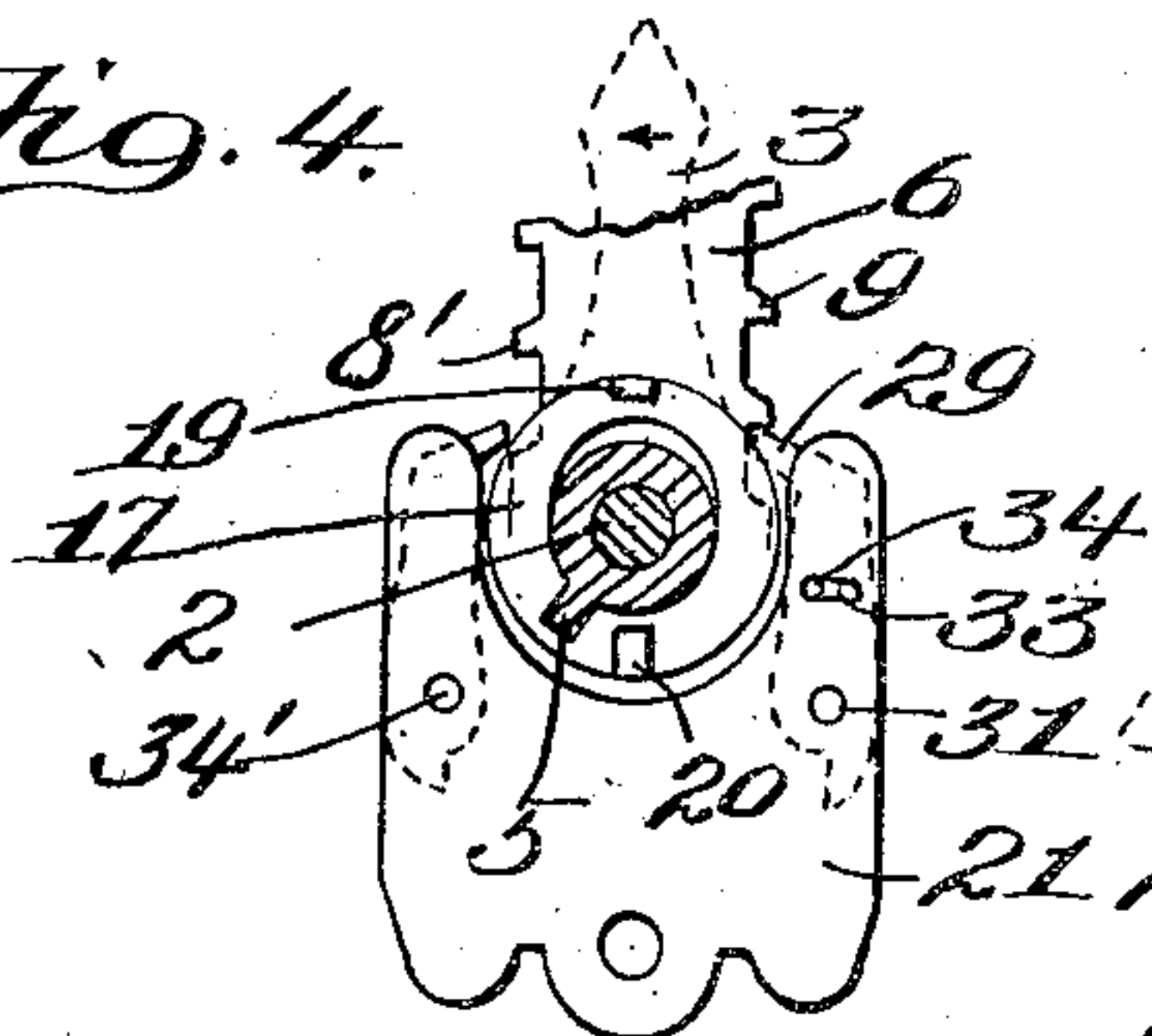


Fig. 5.

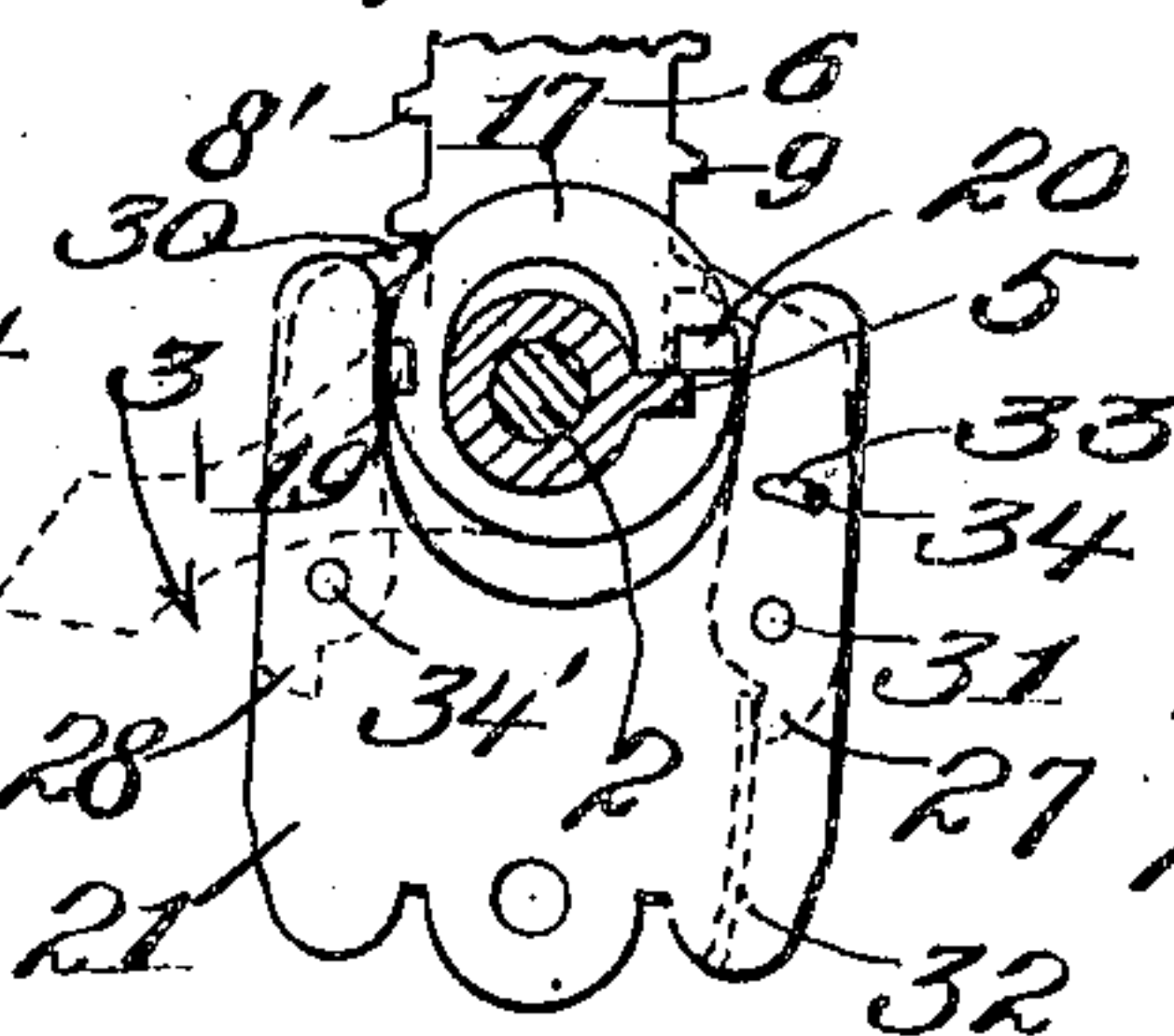
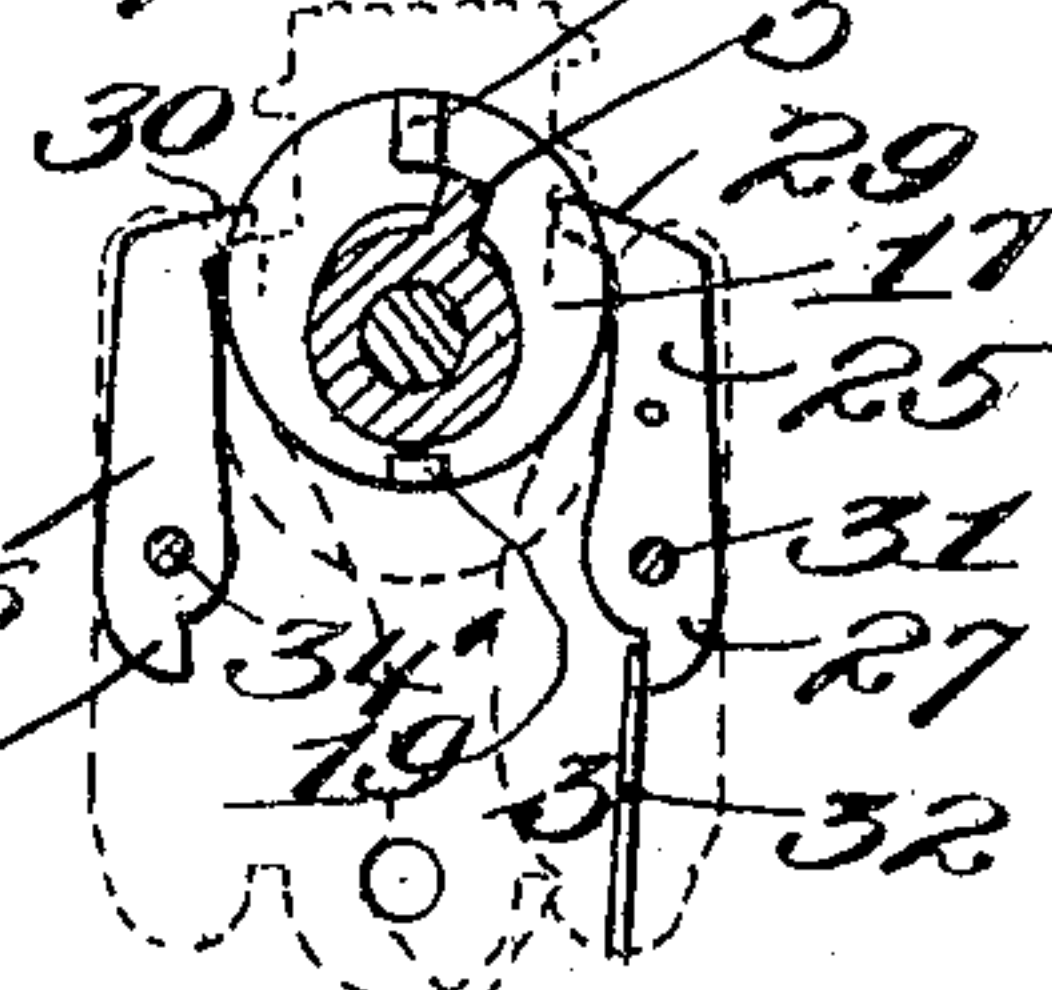


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

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PUNCH-SHIFTING MECHANISM.

No. 891,178.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed November 9, 1907. Serial No. 401,506.

To all whom it may concern:

Be it known that I, CASCIOUS H. DE LA MONTE, a citizen of Mexico, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Punch-Shifting Mechanism, of which the following is a specification.

This invention relates to punch shifting mechanism, for use in connection with speed recorders; and the object thereof is to provide a mechanism of such class whereby the punch of the recording instrument will be intermittently shifted at predetermined intervals so that an accurate record will be had upon the recording dial of the instrument.

Further objects of the invention are to provide a punch-shifting mechanism which shall be simple in its construction, strong, durable, efficient in its operation, readily set up with respect to the punch as well as with respect to the main staff of the clock mechanism of the recording instrument, readily shifted to normal position and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings wherein like characters denote corresponding parts throughout the several views, and in which—

Figure 1 is a plan view of a punch-shifting mechanism in accordance with this invention; Fig. 2 is a sectional view; Fig. 3 is a perspective view with the parts disassembled; Fig. 4 is a plan showing the mechanism in its normal position; Fig. 5 is a plan showing the position of the mechanism during its shifting thereof, and, Fig. 6 is a like view showing the position of the mechanism just prior to the shifting thereof.

Referring to the drawings, 1 denotes a pillar plate of a clock mechanism forming a part of a speed recording instrument and 2 the main staff of said mechanism, the staff 2 projecting above the plate 1 and carrying a hand

3 having its lower face formed with a boss 4 from which extends a protuberance 5. The hand 3 is fixed to the staff 2 so that it will rotate therewith, the speed of the staff being at the desired rate (by way of example once every six hours).

Mounted upon the plate 1 is a punch-shifting member comprising an elongated flat bar 6 having projecting from one end thereof an angularly-extending finger piece or arm 7 for returning the shifting member to normal position when occasion so requires. To enable the shifting of the punch by the member the bar 6 is formed with an opening 8 to permit of said bar 6 surrounding the punch so that when the member is shifted the punch will be carried therewith. The opening 8 is of a diameter with respect to the diameter of the punch as not to retard the vertical movement of the punch during its operation. Projecting from each side edge of the bar 6 is a series of stops to arrest the movement of the bar. The stops upon one side edge are indicated by the reference character 8' and the stops upon the other side edge by the reference character 9. The stops 8' are alternately disposed with respect to the stops 9. The bar 6 is furthermore provided with an elongated, rectangular slot 10 and an elongated slot 11, the latter being of less length than the former but extends in the same direction. Connected to the pillar plate 1, as at 12, and bearing against one end of the bar 6, is a leaf-spring 13, the function of which is to move the punch-shifting member when the latter is released.

The bar 6 is arranged approximately centrally of the upper face of the pillar plate 1 and has mounted therein a rectangular block 14 which carries a disk 15 having an eccentrically-disposed opening 16 through which the staff 2 extends. The block 14 not only constitutes a support for the disk 15 (the latter being positioned above the bar 6) but also acts, in connection with the slot 10, as a guide for the punch-shifting member when the latter is moved through the medium of the spring 13. Mounted for rotation upon the bar 6 on a portion of the block 14, as well as surrounding the disk 15, is a disk 17 having an eccentrically-disposed opening 18, the opening 18 being such as to snugly receive the disk 15, but not to retard the movement of the disk 17 when the latter

is rotated in a manner as hereinafter referred to. Projecting upwardly from the upper face of the disk 17 is a pair of lugs 19, 20, the latter being of greater width than the former, but the distance from the wall of the opening 18 to the inner face of the lug 20 is the same as from the wall of the opening 18 to the inner face of the lug 19.

Mounted upon the bar 6 is an oscillatory U-shaped plate 21 having an opening through which extends a stud 23 for pivotally connecting the plate 21 with the plate 1. The stud 23 extends through the slot 11 and carries at its outer end a cotter pin 24 for maintaining the plate 21 in position. The stud 23 not only constitutes a means whereby the plate 21 is pivotally connected with the plate 1, but also, in connection with the slot 11, constitutes a guide for the bar 6 and a means, in connection with the end walls of the slot 11, for limiting the movement of the bar 6 in either direction. Depending from the lower face of the plate 21 at each side and extending to one end thereof, is a locking member to arrest the movement in one direction of the punch-shifting member. These locking members are indicated by the reference characters 25 and 26, and are each provided with a nose 27, 28, respectively. Each of the locking members at its outer end terminates in an angularly-disposed protuberance, the protuberance of the member 25 being indicated by the reference character 29 and that of the locking member 26 by the reference character 30. The normal position of the protuberances 28, 29 is in alternate engagement with the stops 8, 9. This action is had owing to the oscillations of the plate 21 and the manner in which said plate is oscillated will be hereinafter referred to.

The locking member 25 is pivoted to the lower face of the plate 21, as at 31, and bearing against the nose 27 of the member 25 is a spring 32 carried by the plate 21, the function of the spring being normally to retain the protuberance 29 at one side of one of the stops 9. To limit the inward, as well as the outward movement of the locking member 25 the plate 21 is formed with a transverse slot 33 in which extends a lug 34 depending from the lower face of the member 25. The locking member 26 is fixed to the plate 21 through the medium of the holdfast device 34'. The pivoting of the locking member 25 allows for the return of the punch-shifting member to its initial position. This is evident owing to the fact that during the act of returning the punch-shifting member to its initial position the protuberance 29 will cause the shifting of the locking member 25 when said protuberance is engaged by the stops 9 during the return of the punch-shifting member to its initial position.

The plate 21 surrounds the eccentrically-mounted disk 17, and, during the revolving

of the disk 17 the plate 21 will oscillate upon its pivot 23. This is evident owing to the manner in which the disk 17 is mounted, as what may be termed the high part 35 of the disk 17 will, during the revolving of the disk, intermittently engage the opposing portion of the plate 21 and oscillate it upon its pivot. The disk 17 is revolved through the medium of the protuberance 5 alternately engaging with the lugs 19 and 20. As the staff 2 revolves the hand 3 will be carried therewith, causing the protuberance 5 to engage, by way of example, the lug 20, the latter being positioned in the path of the protuberance 5, as shown in Fig. 4. As the hand 3 rotates the protuberance 5, by its engagement with the lug 20, will carry the disk 17 therewith, as shown in Fig. 5 and cause the high part 35 of the disk to engage the plate 21 and shift it. (The engagement is shown in Fig. 5.) As the disk 17 is revolved in a manner as stated, and when the lug 20 assumes the position in alinement with the staff 2, said lug 20 will then have been moved out of the path of the protuberance 5, the latter clearing the lug 20 and discontinuing the movement of the plate 17. (See Fig. 6.) A further revolution of the staff 2 will cause the protuberance 5 to engage the lug 19 and the disk 17 will be revolved in the same manner as stated in connection with the engagement of the protuberance with the lug 20, the high part of the disk 17 engaging the plate 21 and shifting it in the opposite direction. When the plate 21 is shifted in one direction, as shown in Fig. 5, the protuberance 29 will be moved out of the path of the stops 9, but the protuberance 30 will be moved in the path of the stops 8' and consequently arrest the movement imparted to the punch-shifting member by the spring 13. When the plate 21 is moved in the opposite direction the protuberance 30 will be moved out of the path of the stops 9 and the protuberance 29 will be moved in the path of the stops 8, consequently arresting the movement of the punch-shifting member. By such an arrangement it is evident that the punch-shifting member will have an intermittent movement imparted thereto, thereby carrying the punch therewith. The engagement of the protuberance 5 with either the lug 19 or 20 during the rotation of the hand 3 will be had so that the operation will be the same whether the protuberance 5 engages the lug 19 or the lug 20, owing to the fact that the inner face of the lug 19 is the same distance from the wall of the opening 18 of the disk 17 as the distance between the inner face of the lug 20 and the wall of the opening 18.

From the foregoing construction and arrangement of parts it is evident that an intermittently slidable punch-shifting member operated by a continuous rotary motion is

set up and furthermore that the distance traveled by said member during each actuation thereof will be the same. This is evident owing to the equidistant spaces formed between the stops of each series and by such an arrangement the dial punch will always be positioned in such relation with respect to the dial as to accurately record upon the dial at the desired point. Furthermore owing to the actuation of the mechanism from the main staff of the clock of the instrument the shifting actuation of the punch-shifting member will be had at the proper intervals.

15 What I claim is—

1. A punch-shifting means for speed recorders comprising an intermittently-shiftable punch-shifting member, and a combined rotating and oscillatory mechanism for releasing said member to permit of the shifting thereof in a step like manner.

2. A punch-shifting means for speed recorders comprising an intermittently-shiftable punch-shifting member, a combined rotating and oscillatory mechanism for releasing said member to permit of the shifting thereof in a step like manner, and means for shifting said member when released.

3. A punch-shifting means for speed recorders comprising a punch-shifting member operated at predetermined intervals, and a combined rotatable and oscillatory mechanism operated from the clock mechanism of the recorder for releasing said member to permit of the shifting thereof.

4. A punch-shifting means for speed recorders comprising a punch-shifting member operated at predetermined intervals, a combined rotatable and oscillatory mechanism operated from the clock mechanism of the recorder for releasing said member to permit of the shifting thereof, and means for shifting said member.

5. A punch-shifting means for speed recorders comprising a punch-shifting member provided with a plurality of stops and actuated at predetermined intervals, an oscillatory means engaging with said stops for arresting the movement of the member at predetermined intervals, and a rotating mechanism operated from the clock mechanism of the recorder and engaging the said means for oscillating it, thereby releasing said member to allow of the shifting thereof.

6. A punch-shifting means for speed recorders comprising a punch-shifting member provided with a plurality of stops and actuated at predetermined intervals, an oscillatory means engaging with said stops for arresting the movement of the member at predetermined intervals, a rotating mechanism operated from the clock mechanism of the recorder and engaging the said means for oscillating it thereby releasing said member to allow of the shifting thereof, and

means engaging the said member for shifting it when released.

7. A punch-shifting means for speed recorders comprising the combination with the main staff of the clock mechanism of the recorder, of a punch-shifting member, an oscillatory means engaging the said member for releasing it at predetermined intervals, an eccentrically-mounted means engaging the said oscillatory means for operating it at predetermined intervals, and means carried by the clock mechanism and engaging the said eccentrically-mounted means at predetermined intervals for operating it.

8. A punch-shifting means for speed recorders comprising the combination with the main staff of the clock mechanism of the recorder, of a punch-shifting member, an oscillatory means engaging the said member for releasing it at predetermined intervals, an eccentrically-mounted means engaging the said oscillatory means for operating it at predetermined intervals, means carried by the clock mechanism and engaging the said eccentrically-mounted means at predetermined intervals for operating it, and means engaging with said member for shifting it when released.

9. A punch-shifting means for speed recorders comprising the combination with the main staff of the clock mechanism of the recorder, of a punch-shifting member provided with a plurality of stops and operated at predetermined intervals, an oscillatory means carrying a pair of protuberances alternately engaging with said stops at predetermined intervals, an eccentrically-mounted means engaging with said oscillatory means for operating it at predetermined intervals, and means rotated by said main staff and engaging with said eccentrically-mounted means for rotating it.

10. A punch-shifting means for speed recorders comprising the combination with the main staff of the clock mechanism of the recorder, of a punch-shifting member provided with a plurality of stops and operated at predetermined intervals, an oscillatory means carrying a pair of protuberances alternately engaging with said stops at predetermined intervals, an eccentrically-mounted means engaging with said oscillatory means for operating it at predetermined intervals, means rotated by said main staff and engaging with said eccentrically-mounted means for rotating it, and means for shifting said member when released.

11. A punch-shifting means for speed recorders comprising a punch-shifting member, means for shifting said member in one direction, a guide for said member, an oscillatory means alternately engaging with said member for intermittently arresting the shifting movement thereof, an eccentrically-mounted means engaging with said oscillatory means

for actuating it at predetermined intervals, and means operated from the clock mechanism for rotating the said eccentrically-mounted means.

- 5 12. A punch-shifting means comprising a punch-shifting member, an oscillatory plate, a pair of locking members carried thereby and adapted to alternately engage the shifting member to arrest the movement thereof,
10 means for operating said oscillatory means,

and means for shifting said member when released.

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

CASCIOUS H. DE LA MONTE.

Witnesses:

HARRY R. KEEN,
E. A. HENKLE.