

No. 785,182.

PATENTED MAR. 21, 1905.

W. S. PERRY.

TALKING MACHINE MOTOR AND GOVERNOR.

APPLICATION FILED AUG. 2, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

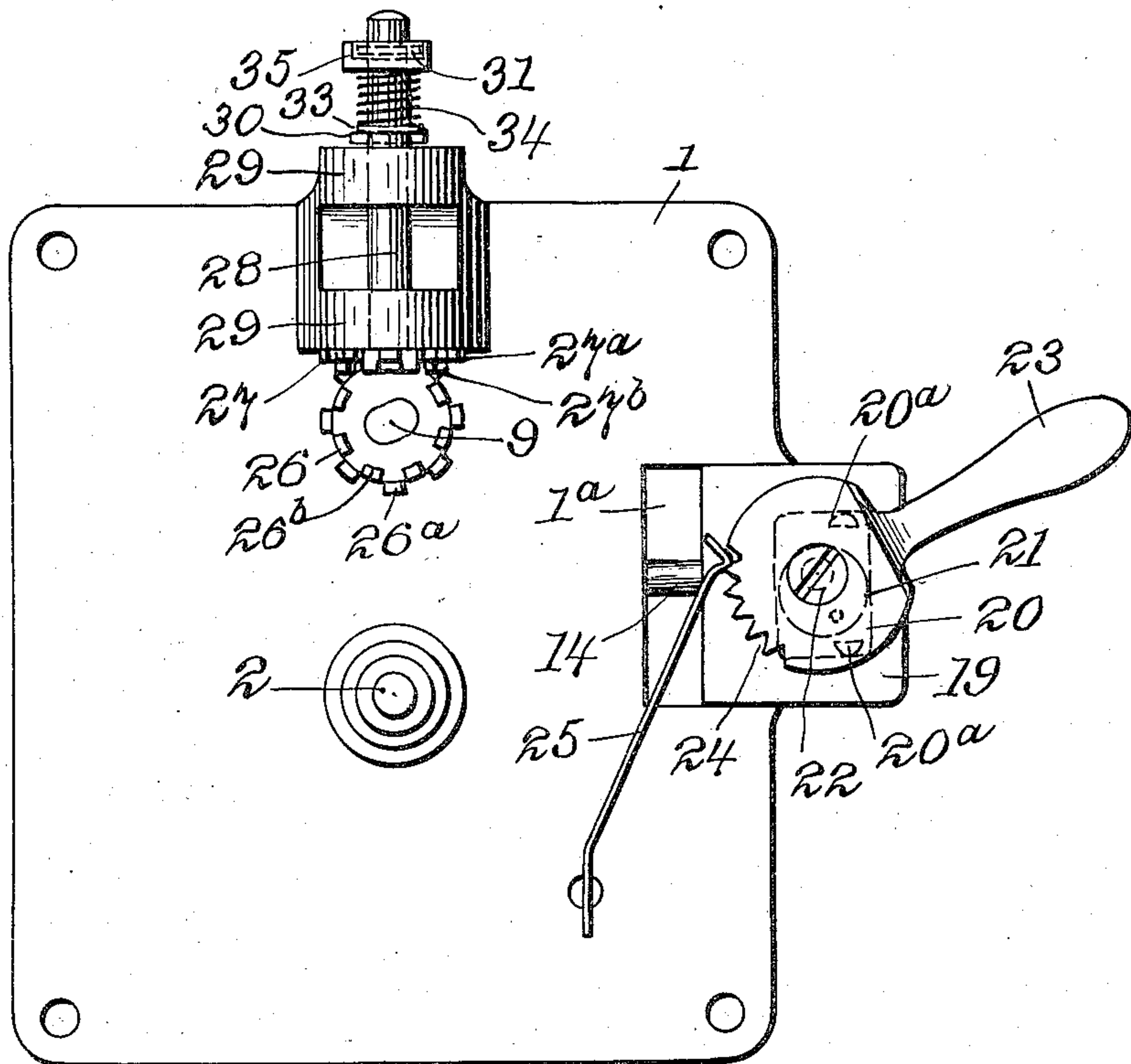
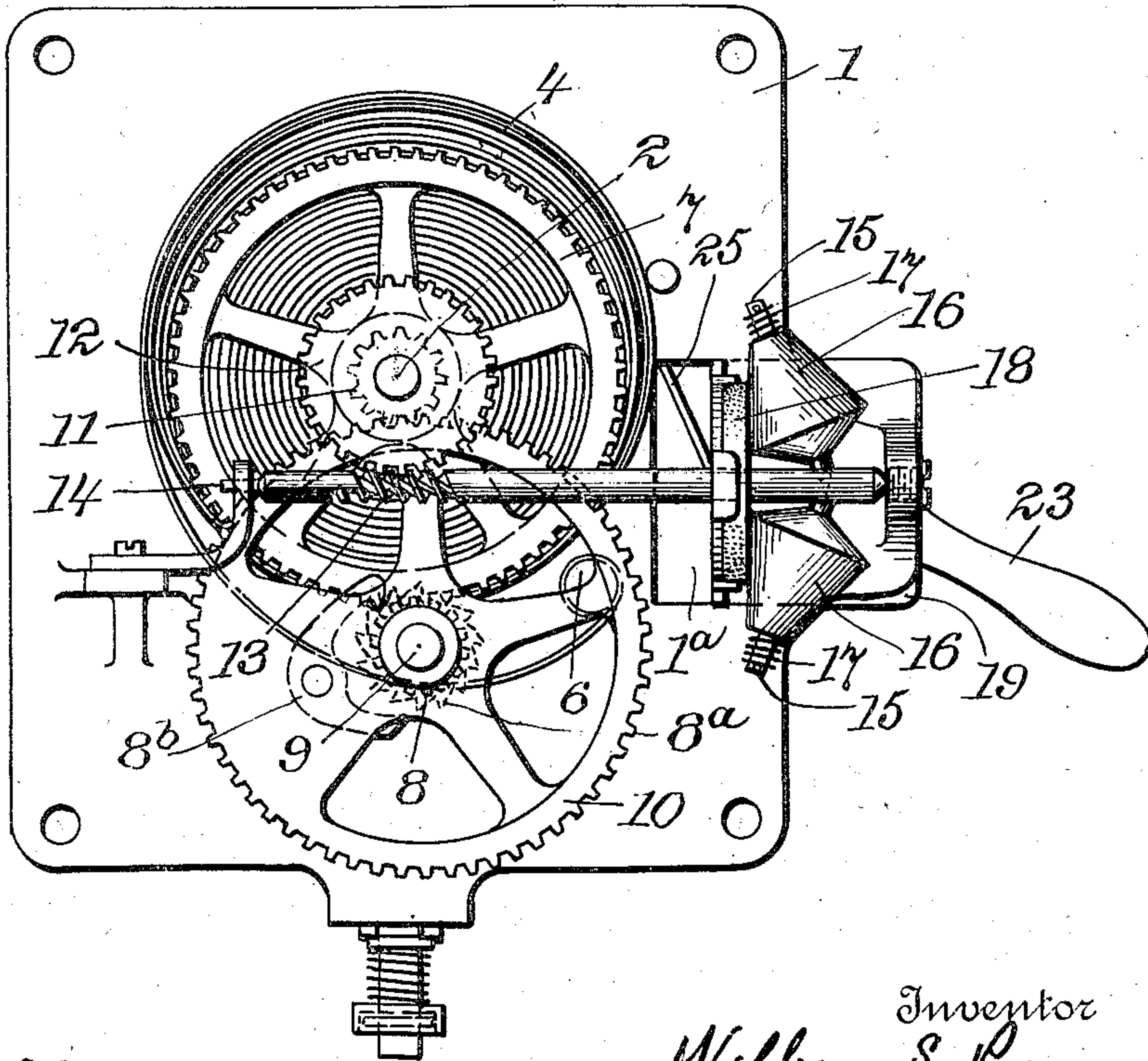


Fig. 2.



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Fig. 3.

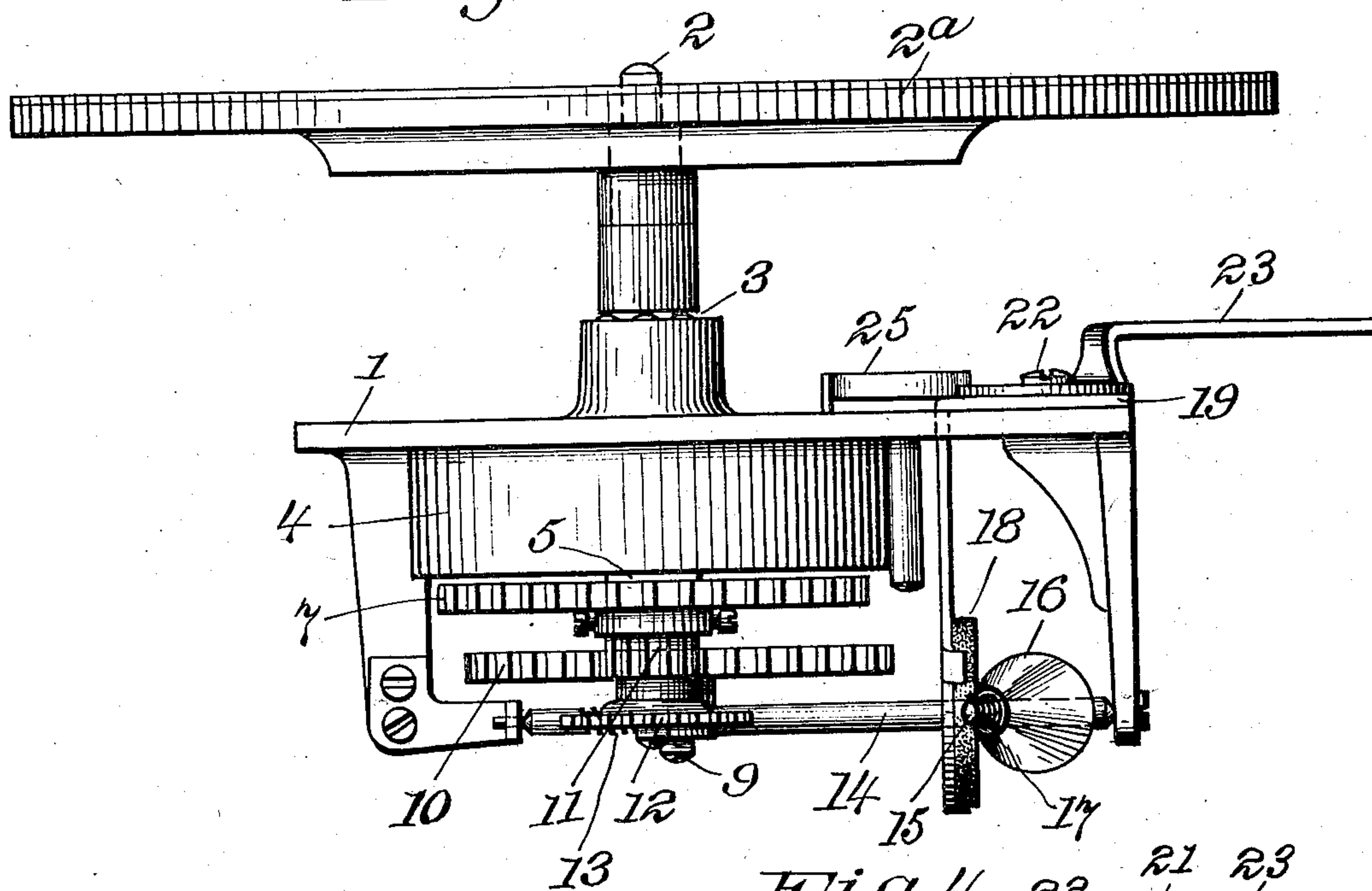


Fig. 4.

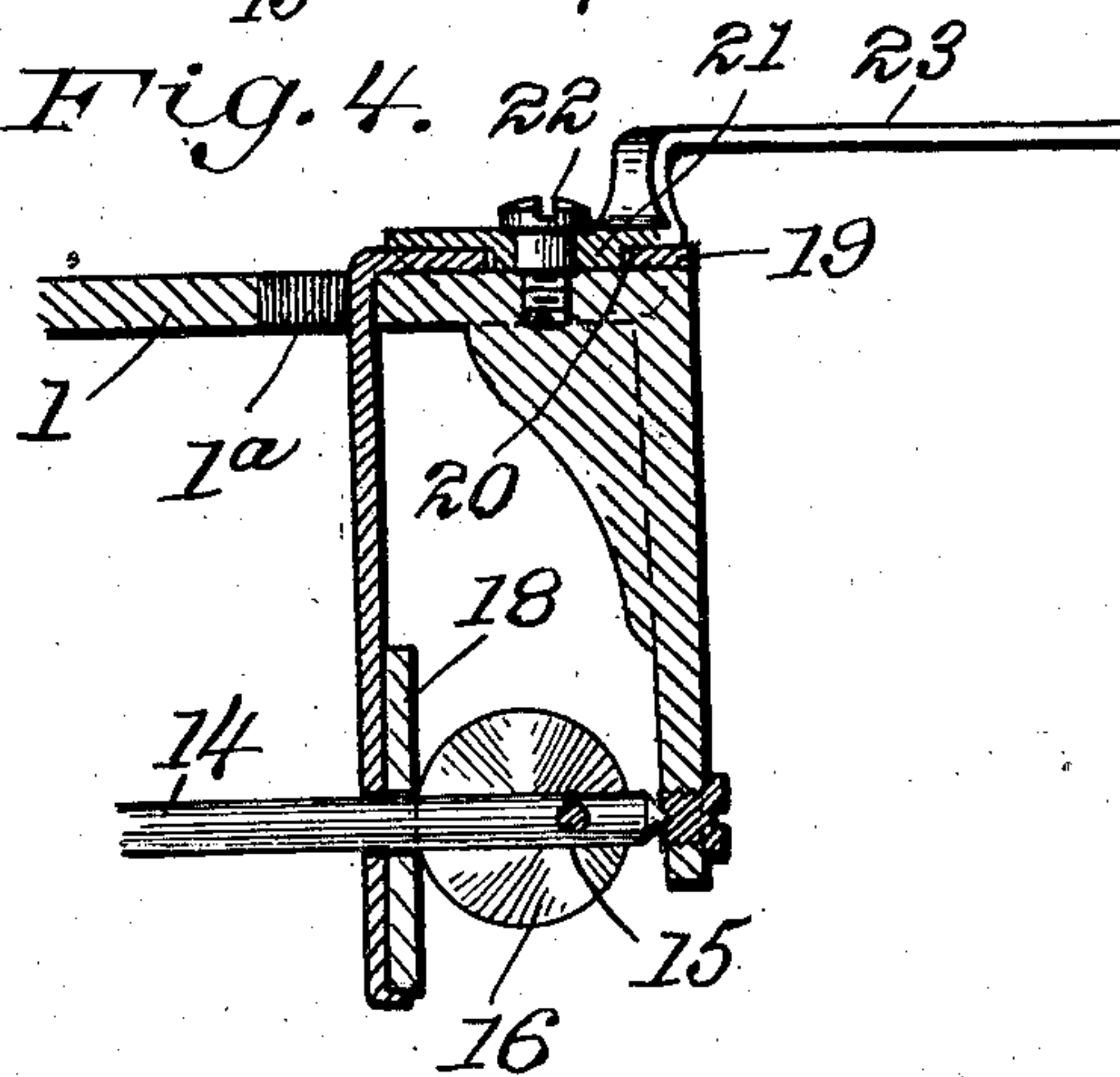
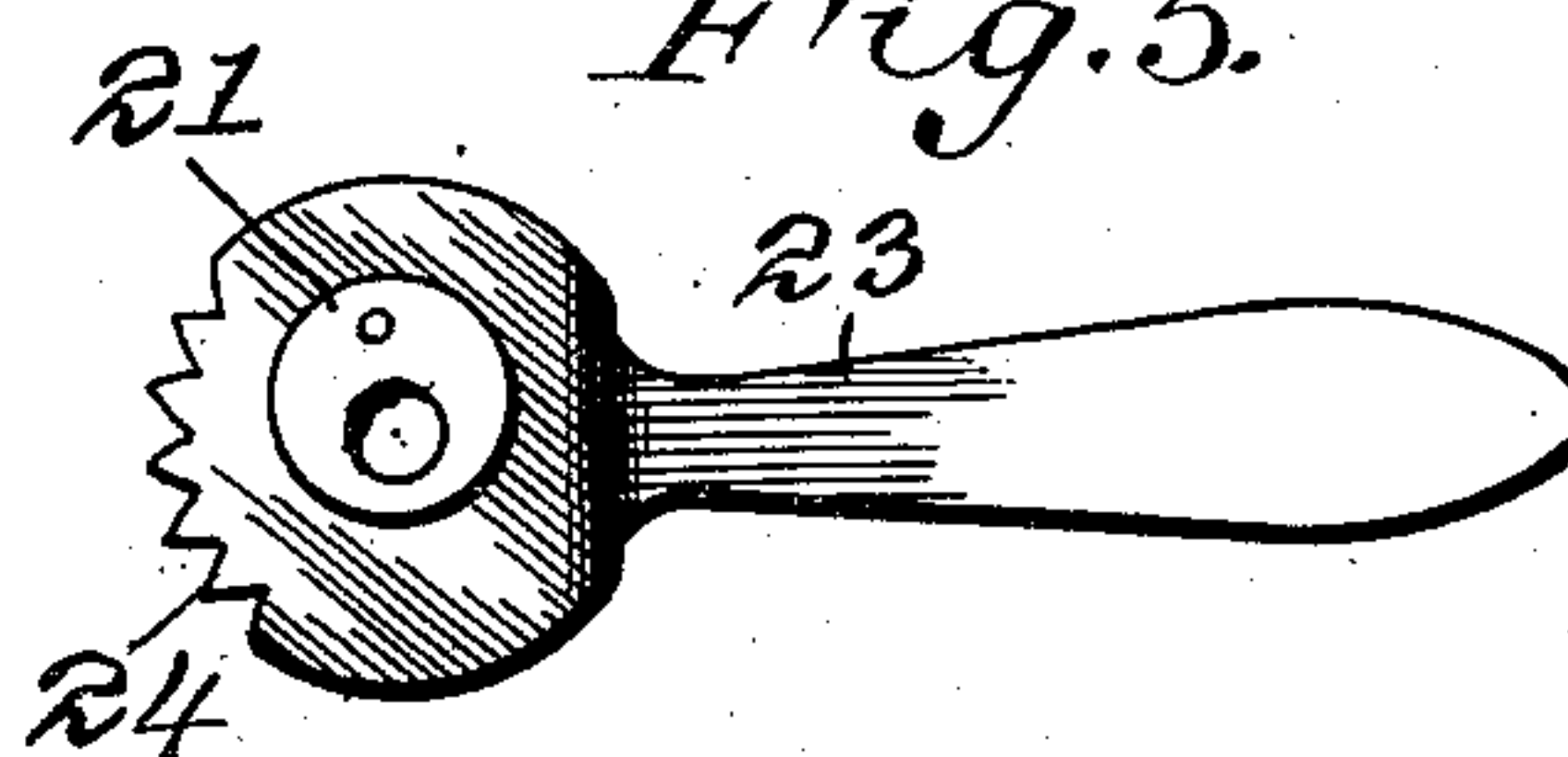


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

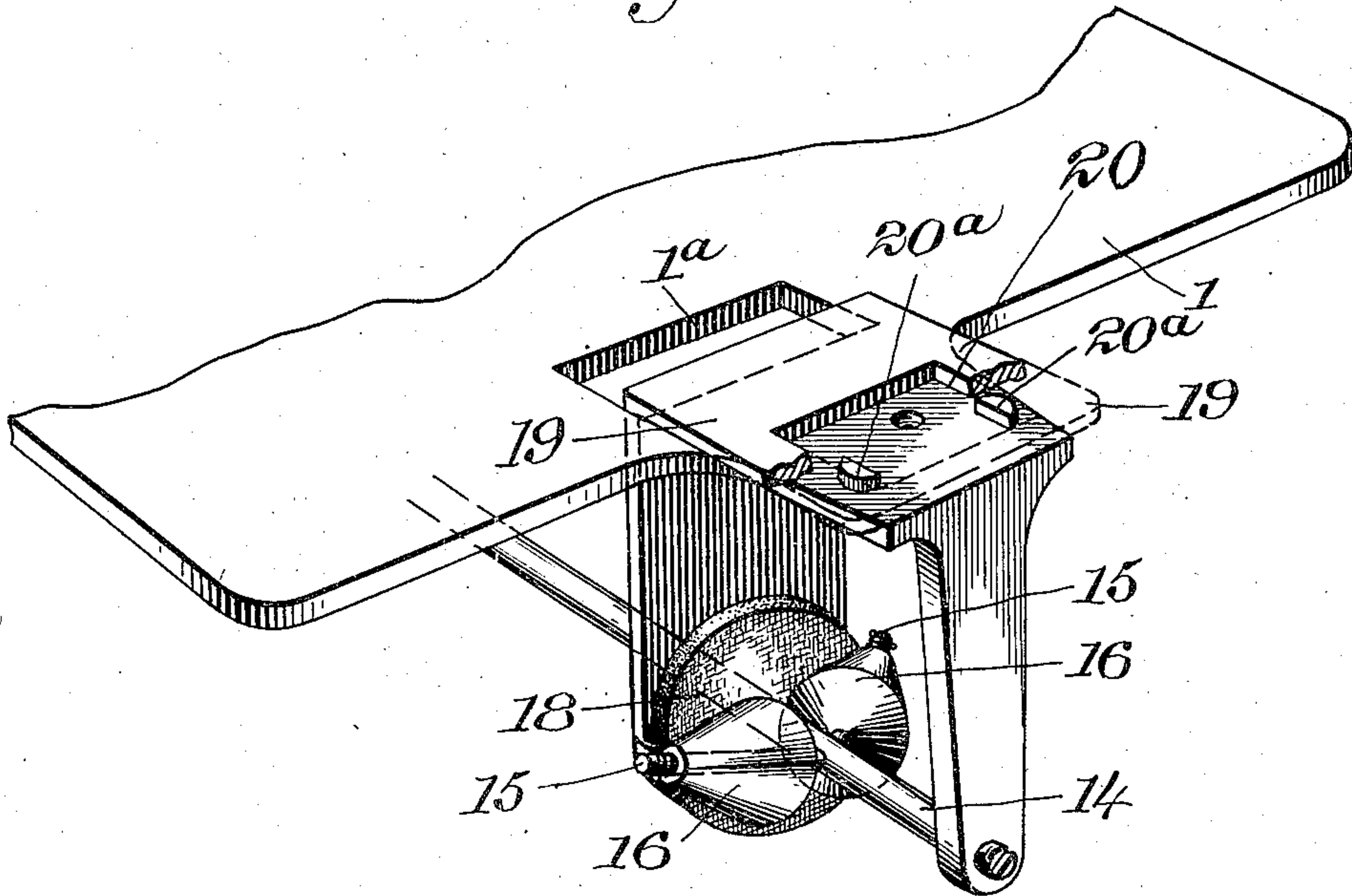
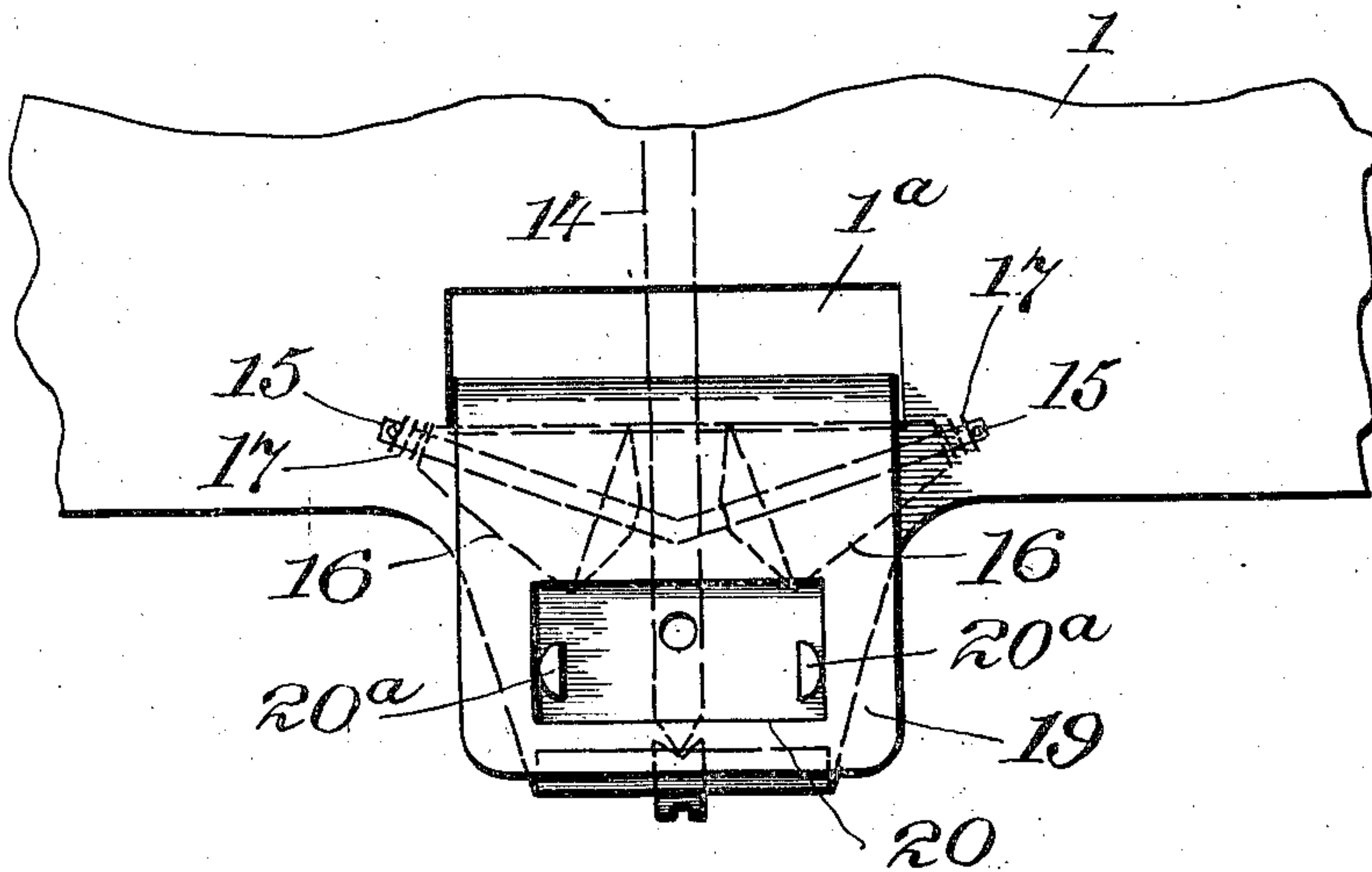


Fig. 7.



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UNITED STATES PATENT OFFICE.

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TALKING-MACHINE MOTOR AND GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 785,182, dated March 21, 1905.

Application filed August 2, 1904. Serial No. 219,166.

To all whom it may concern:

Be it known that I, WILLIAM S. PERRY, a citizen of the United States of America, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Talking-Machine Motors and Governors, of which the following is a specification.

My invention relates generally to spring-driven or other motors, and more specifically consists of an improved form of smoothly-governed spring-motor designed for use in talking-machines.

My invention has the additional purpose of producing such motor and governor at small cost.

The best form of apparatus embodying my invention at present known to me is illustrated in the accompanying three sheets of drawings, in which—

Figure 1 is a plan view of the base-plate of the motor with parts showing on the upper side thereof. Fig. 2 is a bottom view of the same. Fig. 3 is a side elevation. Fig. 4 is a detail sectional view showing the governor adjustment. Fig. 5 is a detail view of the governor-adjusting handle. Fig. 6 is a detail perspective view, with parts broken away, of the governor-adjusting device; and Fig. 7 is a plan view of the governor-adjusting device with the handle removed.

Throughout the drawings like reference-figures indicate like parts.

1 is the base-plate, in which is journaled the vertical shaft 2, carrying the rotating table 2^a. Shaft 2 has ball-bearing 3 or other proper bearing on the base-plate.

4 is a spiral spring, the inner end of which is fastened to the barrel 5, surrounding the shaft 2, the other end of which is fastened to the stud 6 on the base-plate. The barrel 5 carries the gear-wheel 7, which meshes with the pinion 8 on the stud-shaft 9. This pinion 8 is made integral with or connected to a ratchet-wheel 8^a, which, through the agency of the spring-pawl 8^b, is so connected to the gear-wheel 10 as to transmit the motion of

the pinion 8 thereto in one direction. The gear 10 meshes with the pinion 11, and by the above-described train of gearing the unwinding action of the spring is transmitted to the shaft 2.

On the lower end of shaft 2 is mounted the worm-wheel 12, which meshes with the worm 13 on the governor-shaft 14. This governor-shaft is carried in suitable bearings (shown clearly in Figs. 2 and 3) and has the two opposite oblique projections 15 15, which are inclined at the same angle to the shaft. On these projections are mounted governor-weights 16 16, normally forced inward toward the governor-shaft by the springs 17 17. When these governor-weights are made of conical shape, as shown, the supporting projections 15 15, on which they are mounted, are preferably cylindrical in cross-section, so that said cone-shaped weights may rotate thereon as cones rotating about their axes. These weights 16 16 are wedge-shaped and are preferably made in the form of cones, as shown, as this is the cheapest form of wedge and the one best adapted for my purpose. These cone-shaped weights 16 16 or one element of the cone-surface of each are adapted to come in contact with the friction-pad 18, which preferably is made in annular shape, surrounding the governor-shaft and having its surface a plane at right angles to the axis of said governor-shaft. This friction-pad is movable lengthwise of the governor-shaft by reason of its mounting on the base-plate. This mounting consists of a rectangular flange 19, cut away at 20 and guided by lugs 20^a 20^a, entering said opening 20. This friction-pad mounting is therefore capable of movement by reason of the above-described cut-away portion 20 and the opening 1^a in the base-plate, through which it extends. Further engaging this opening 20 is the eccentric 21, mounted on the pivot-screw 22 and controlled by the handle 23. The inner end of the handle 23 has a suitable number of notches 24 formed therein, with which the locking-spring 25 engages, as clearly shown in Fig. 1.

The winding mechanism consists of the gear-wheel 26 on the upper end of the shaft 9, which is provided with a series of radial gear-teeth 26^a and a series of crown gear-teeth 26^b, the crown-teeth being spaced between the radial teeth. This meshes with another gear-wheel, 27, having radial teeth 27^a and crown gear-teeth 27^b. Gear-wheel 27 is mounted on shaft 28, which is journaled in bearings 29, and has a cross-pin 31, with which the winding-key 32 may engage when the collar 35 is forced back sufficiently against the resistance of the spring 34. The other end of the spring 34 rests against the collar 33, held in place by the pin 30, also passing through the shaft 28.

The method of operation of my invention is as follows: The spring being wound up by the winding-gear, the parts being in the relation shown in Fig. 6, as soon as pressure is removed from the winding-key 32 the collar 35 is forced out, disengaging the same. When the friction-pad roller 18 is slid out of contact with the governor-weights by rotation of the handle 23, the spring causes the clockwork to begin to run down, rotating the governor-shaft 14 at a high rate of speed. Centrifugal force tending to drive the governor-weights 16 16 away from the shaft wedges them down upon the friction-pad 18 until further increase of speed is checked. It is evident that adjustment of position of the friction-pad will vary the speed in the usual way and that when the same is forced up to its limiting position the governor, and consequently the clockwork of the motor, will be locked against all movement. If the friction of the cones 16 16 on their supporting projections 15 15 is not too great, the cones will tend to rotate on said projections, and thus have a combined sliding and rolling motion over the face of the friction-pad. This I find to produce a more even frictional resistance than is produced when the wedge-shaped bodies are incapable of rotation.

The advantages of my invention comprise the smoothness and accuracy of working of the governor and its simplicity and great cheapness of construction and the compact form of the motor mechanism as a whole.

It is evident, of course, that various changes could be made in the details of construction shown without departing from the spirit and scope of my invention. The governor might be used to advantage in other forms of spring-motor. Other means of mounting the friction-pad and regulating the same might be employed. Other forms of wedge-shaped governor-weights or slidable bodies might be substituted for the cones shown without departing from the wedge principle of action; but these and similar mechanical modifications I should still consider within the scope of my invention.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. The combination of a rotatable governor-shaft, an oblique projection therefrom, a body of material arranged to slide toward and from the shaft on said oblique projection, yielding means tending to force said body toward the shaft, and a friction-pad whose face forms a plane perpendicular to the axis of rotation of the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force.

2. The combination of a rotatable governor-shaft, an oblique projection therefrom, a body of material arranged to slide toward and from the shaft on said oblique projection, yielding means tending to force said body toward the shaft, and a friction-pad whose face forms a plane perpendicular to the axis of rotation of the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force, said friction-pad being adjustable lengthwise of the governor-shaft.

3. The combination of a rotatable governor-shaft, an oblique projection therefrom, a body of material arranged to slide toward and from the shaft on said oblique projection, yielding means tending to force said body toward the shaft, and a friction-pad whose face forms a plane perpendicular to the axis of rotation of the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force, said slidable body having a portion of its face presented to the friction-pad, parallel thereto.

4. The combination of a rotatable governor-shaft, two oppositely-arranged arms projecting obliquely therefrom at equal angles thereto, a wedge-shaped body mounted and sliding on each arm, springs normally tending to force said wedge-shaped bodies toward the shaft, and a friction-pad whose face forms a plane perpendicular to the axis of rotation of the governor-shaft, and which touches said wedge-shaped bodies when the same are forced away from the governor-shaft.

5. The combination of a rotatable governor-shaft, an arm projecting therefrom, a cone-shaped weight mounted and sliding on said arm with its apex pointing outward, a spring normally tending to force said weight toward the shaft, and a friction-pad whose face is parallel to the adjacent element of the surface of the cone-shaped weight at every position of said weight.

6. The combination of a rotatable governor-shaft, a projecting arm therefrom, an annular friction-pad surrounding said shaft, and a weight mounted and sliding on the projecting arm and adapted to be wedged in between the projecting arm and the friction-pad, when forced away from the governor-shaft.

7. The combination of a revolving wedge-shaped body adapted to move radially of its plane of revolution, a friction-pad with which it may be wedged into contact, and mechanism through which centrifugal force produces such wedging action.

8. The combination of a revolving and rotatable cone-shaped governor-weight, and a friction-pad with which it may be wedged into contact, by the centrifugal force generated by its revolution.

9. The combination of a rotatable governor-shaft, a body of material mounted to slide toward and from said shaft, yielding means tending to force said body toward the shaft, and a friction-pad whose face is inclined to the line of travel of the body toward and from the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force.

10. The combination of a rotatable governor-shaft, a body of material mounted to slide toward and from said shaft, yielding

means tending to force said body toward the shaft, and a friction-pad whose face is inclined to the line of travel of the body toward and from the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force, said friction-pad being adjustable lengthwise of the governor-shaft.

11. The combination of a rotatable governor-shaft, two oppositely-arranged arms projecting therefrom at equal angles thereto, a wedge-shaped body mounting and sliding on each arm, springs normally tending to force said wedge-shaped bodies toward the shaft, and a friction-pad whose face is inclined to the line of travel of the two wedge-shaped bodies, and which touches said bodies when the same are forced away from the governor-shaft.

12. The combination with a centrifugal governor of a friction-pad, a slide on which said pad is mounted, and eccentric mechanism for moving said slide, together with a notched disk on said eccentric-shaft and a locking-spring engaging the notches.

Signed at New York, N. Y., this 28th day of July, 1904.

WILLIAM S. PERRY.

Witnesses:

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