

No. 659,739.

Patented Oct. 16, 1900.

G. W. GOMBER.
PHONOGRAPH.

(Application filed Apr. 8, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

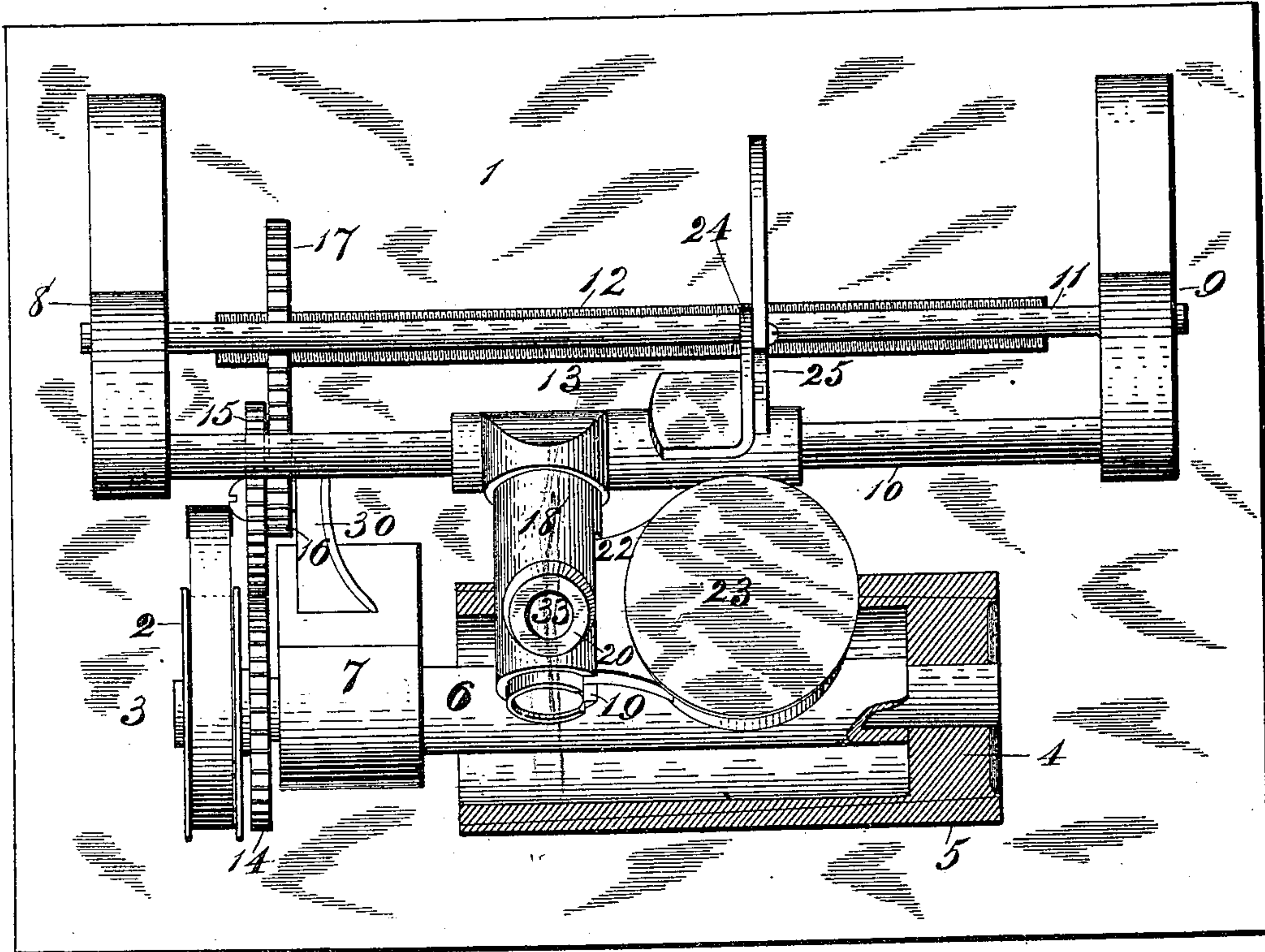


Fig. 4

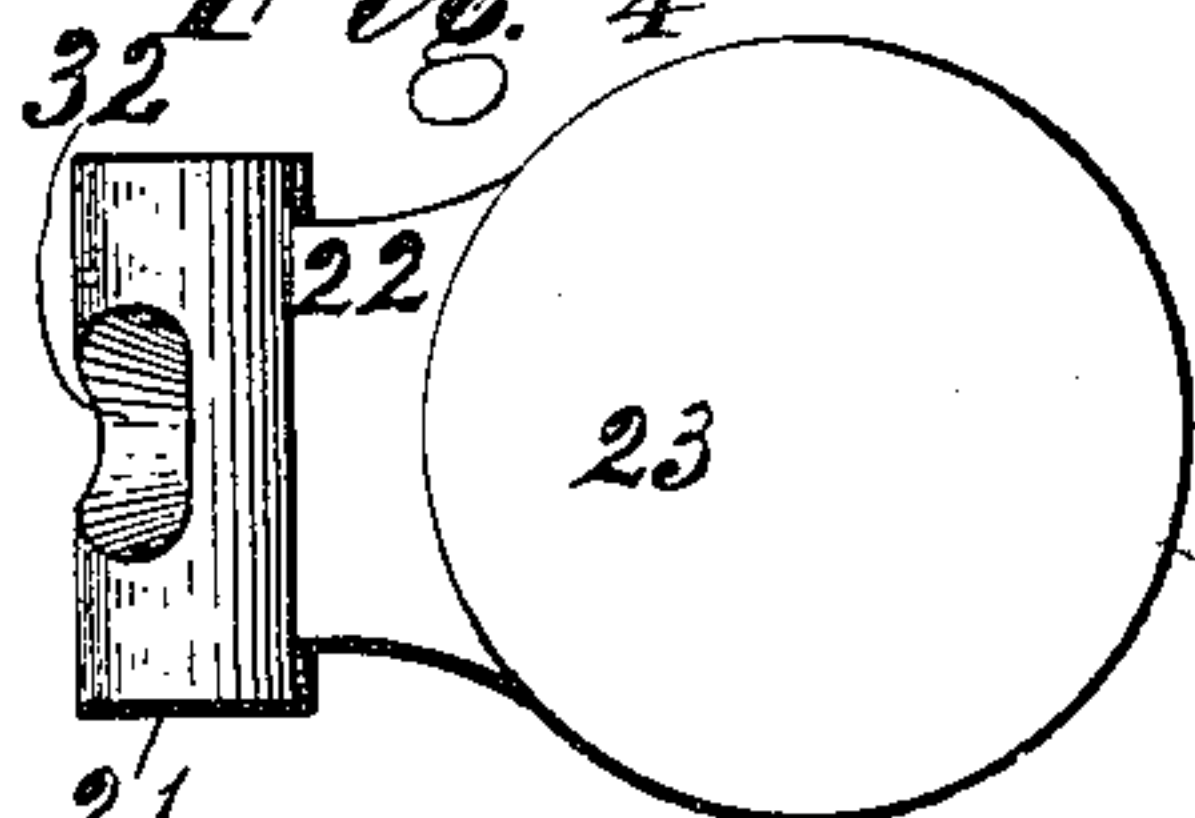


Fig. 3

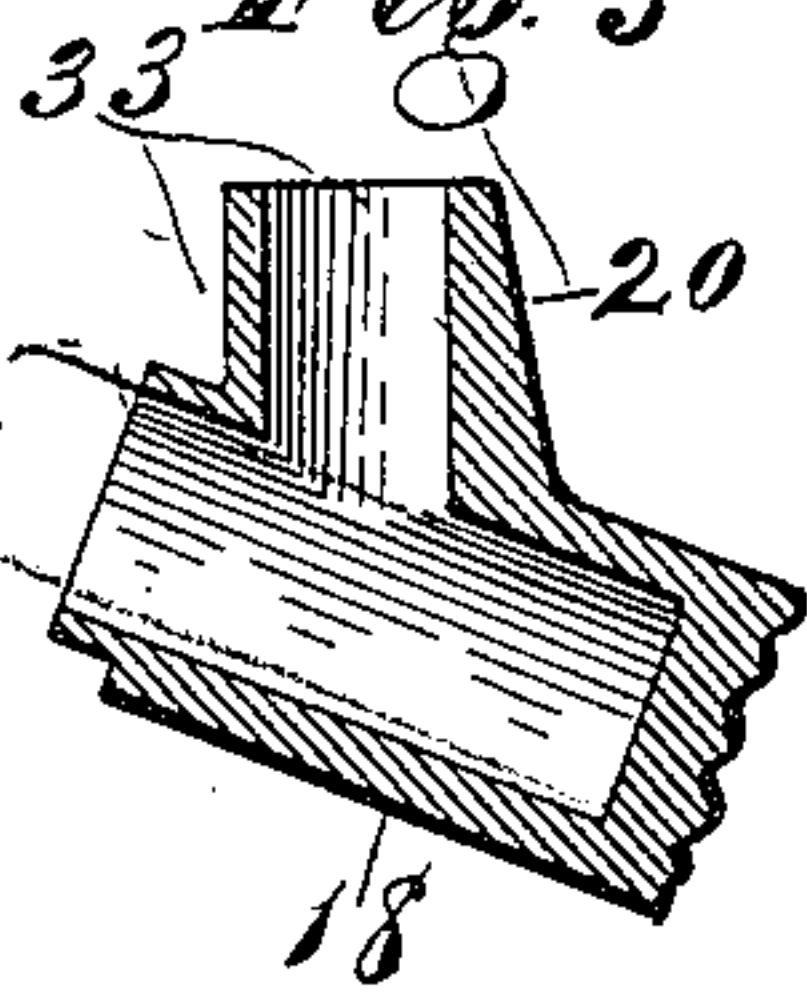


Fig. 2

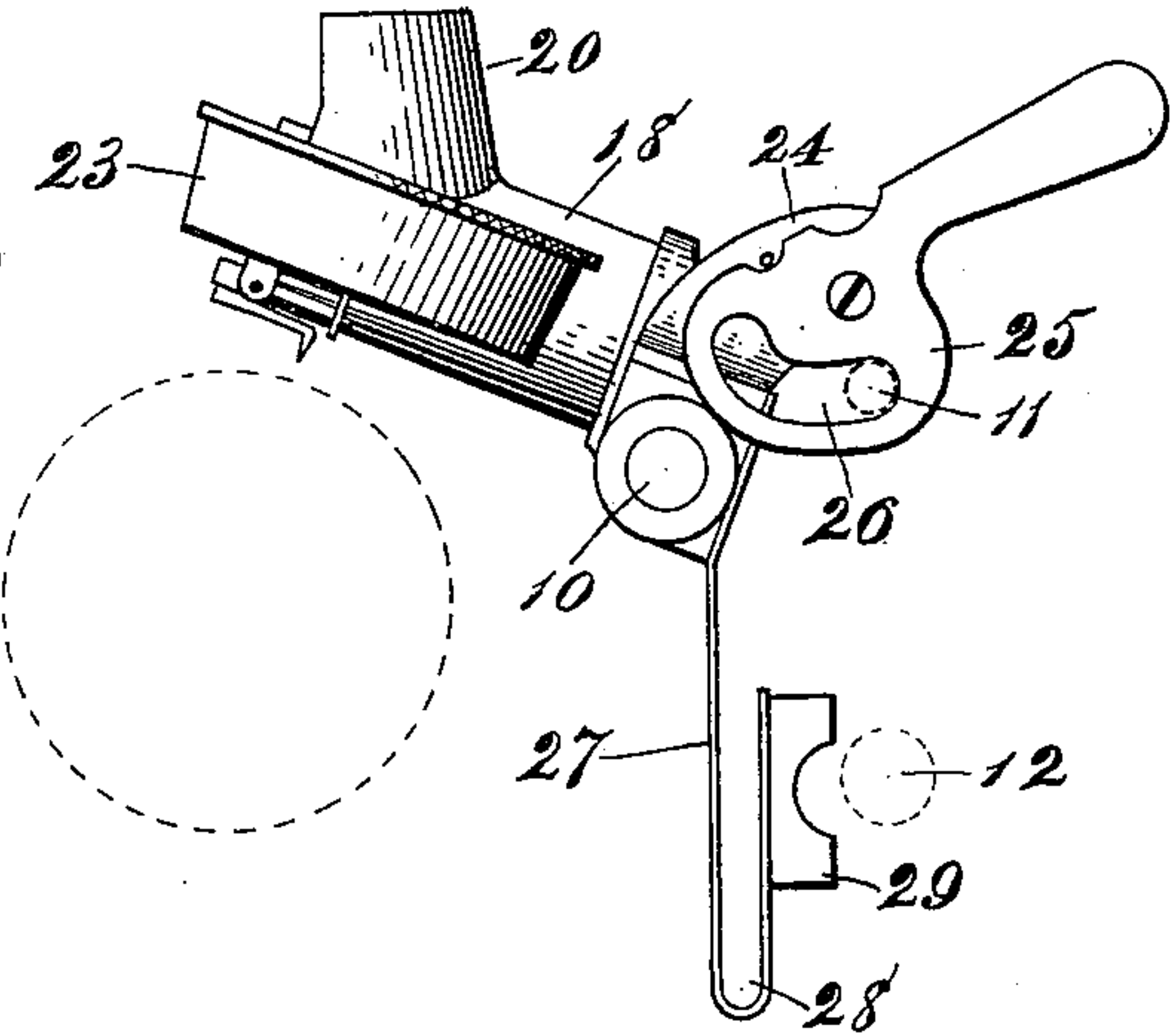


Fig. 5

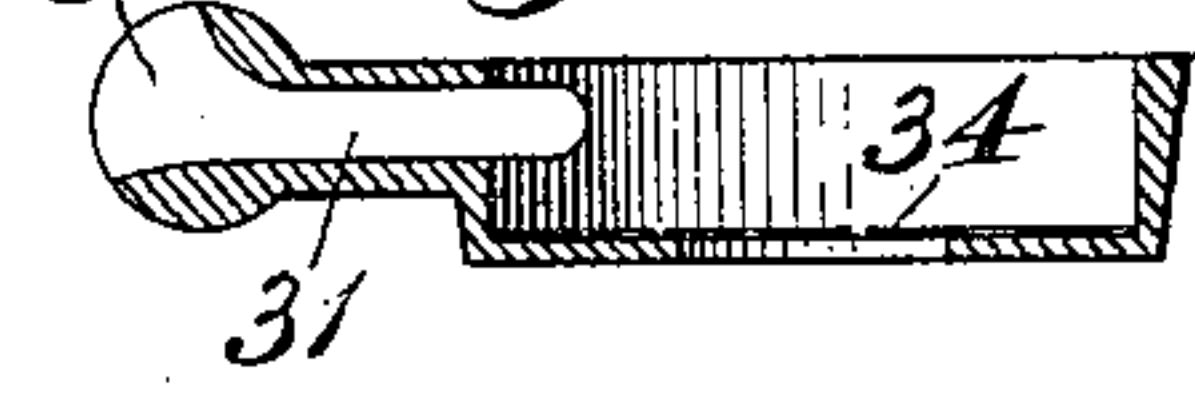


Fig. 6



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2 Sheets—Sheet 2.

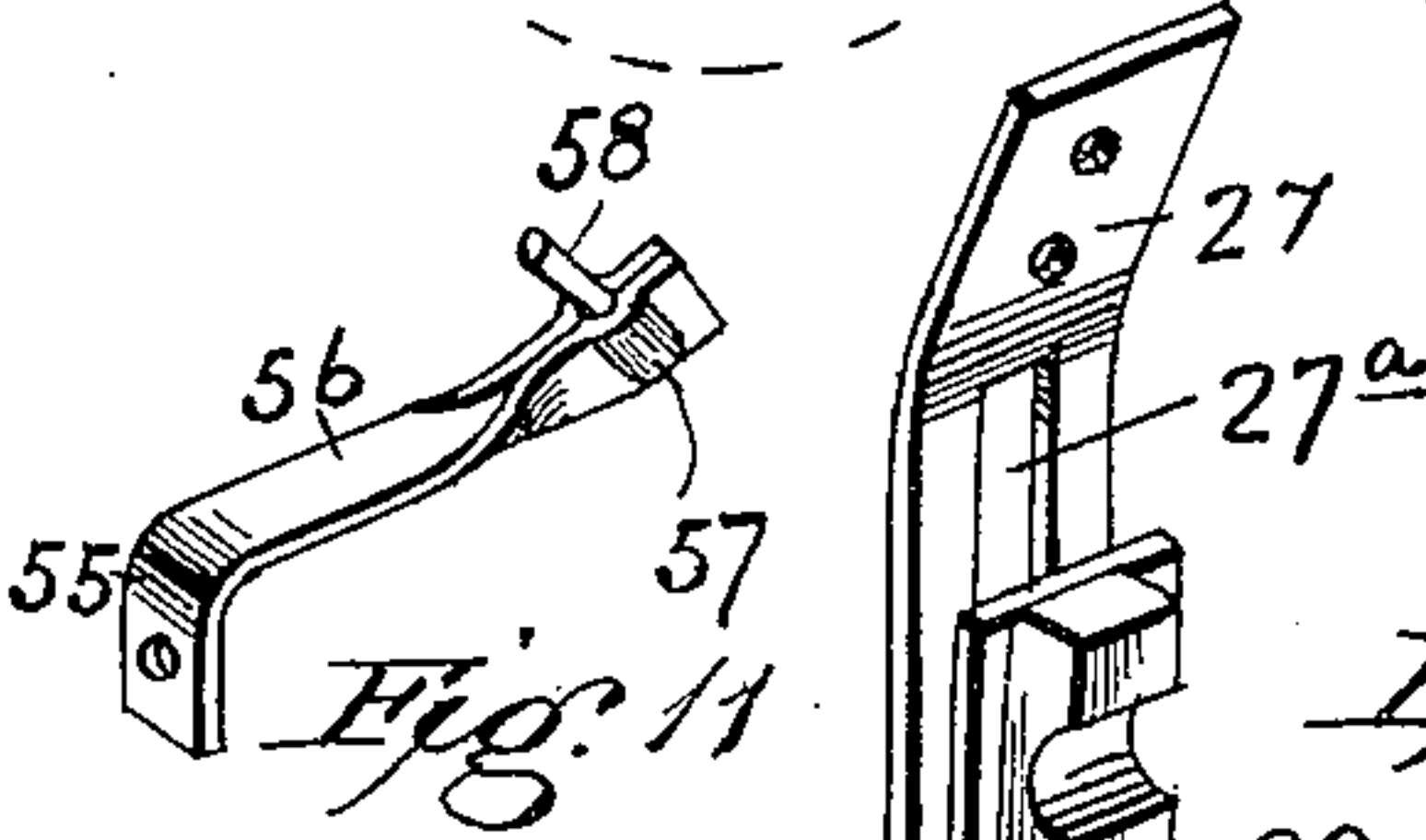
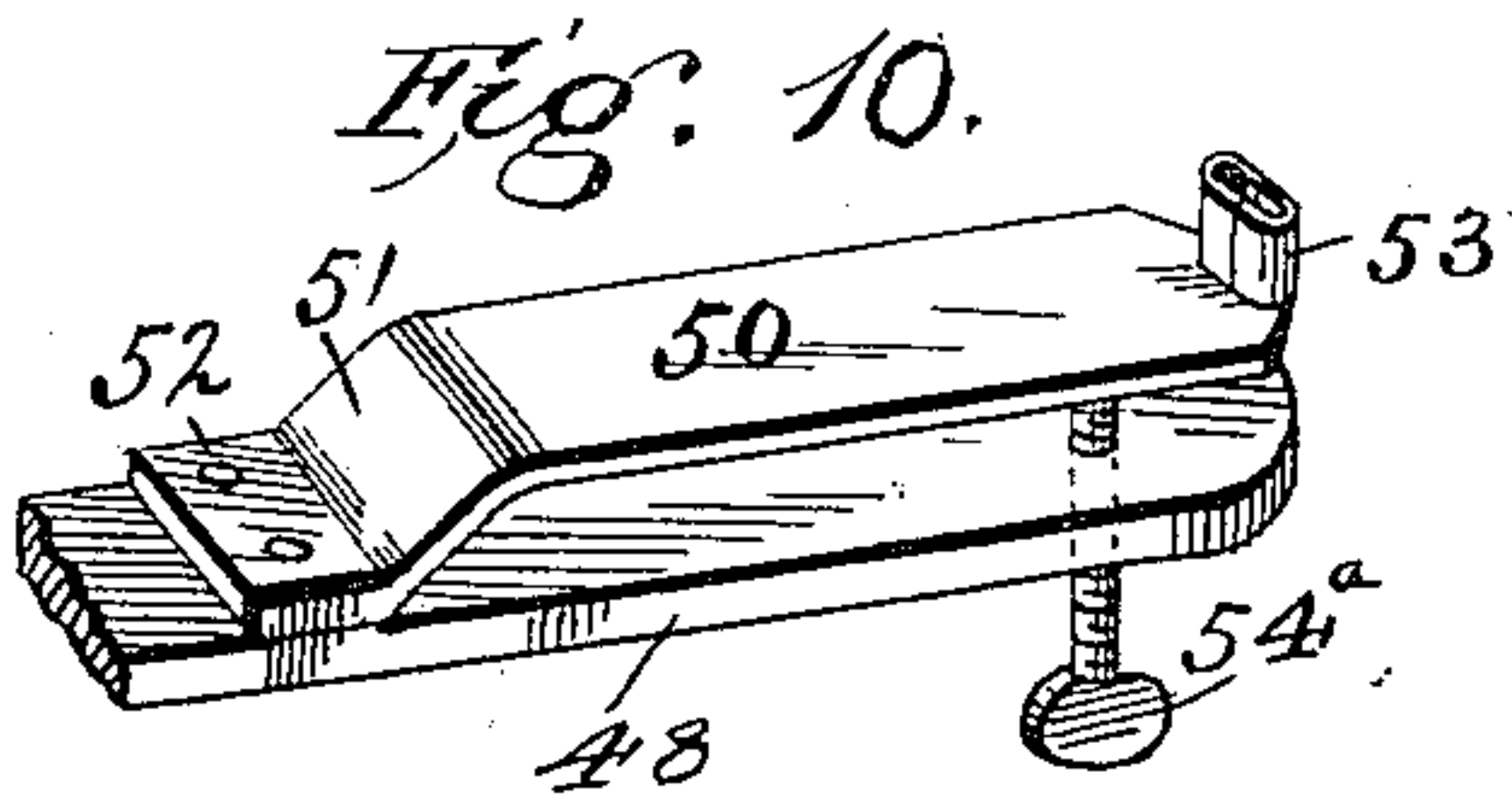
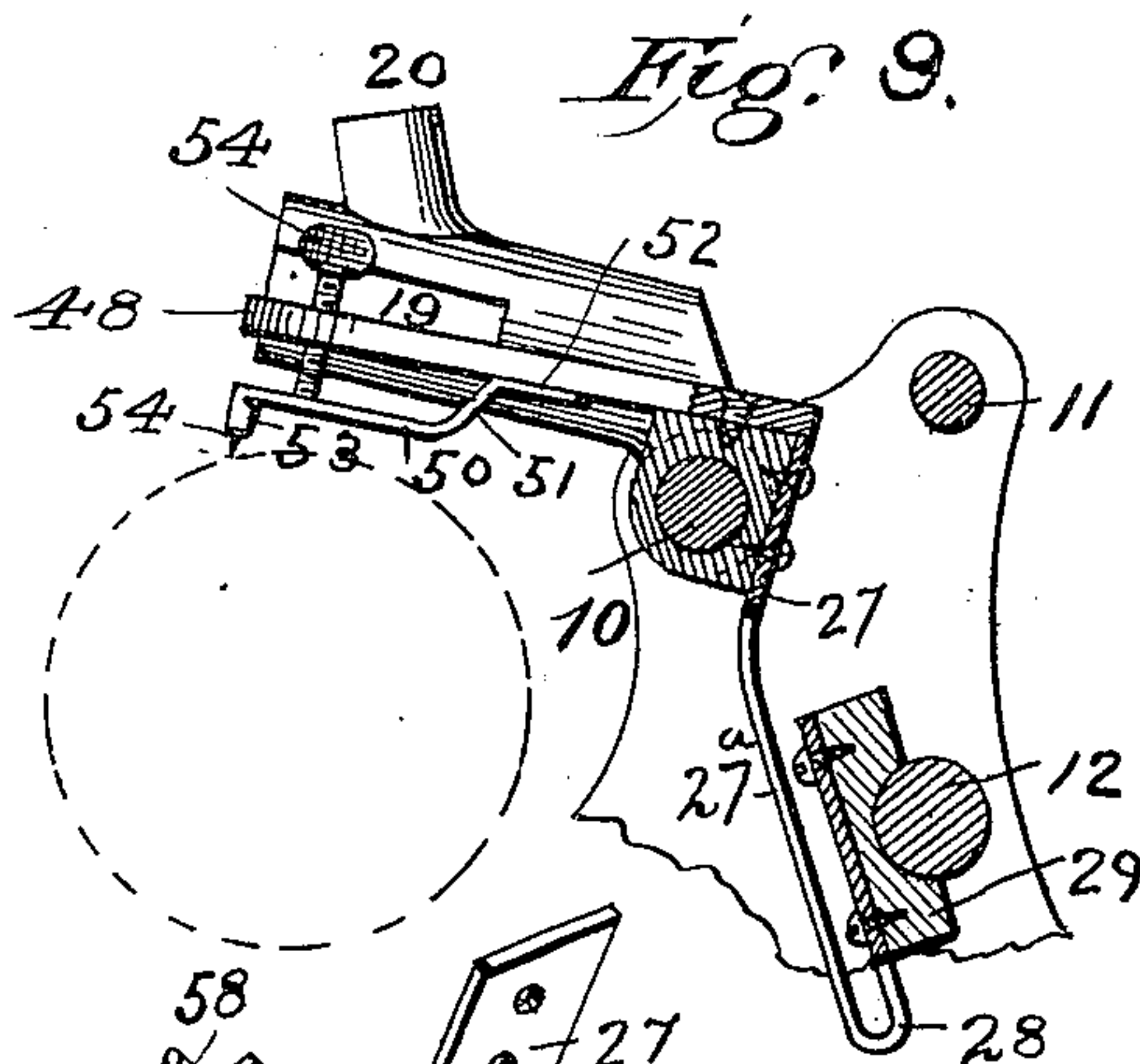
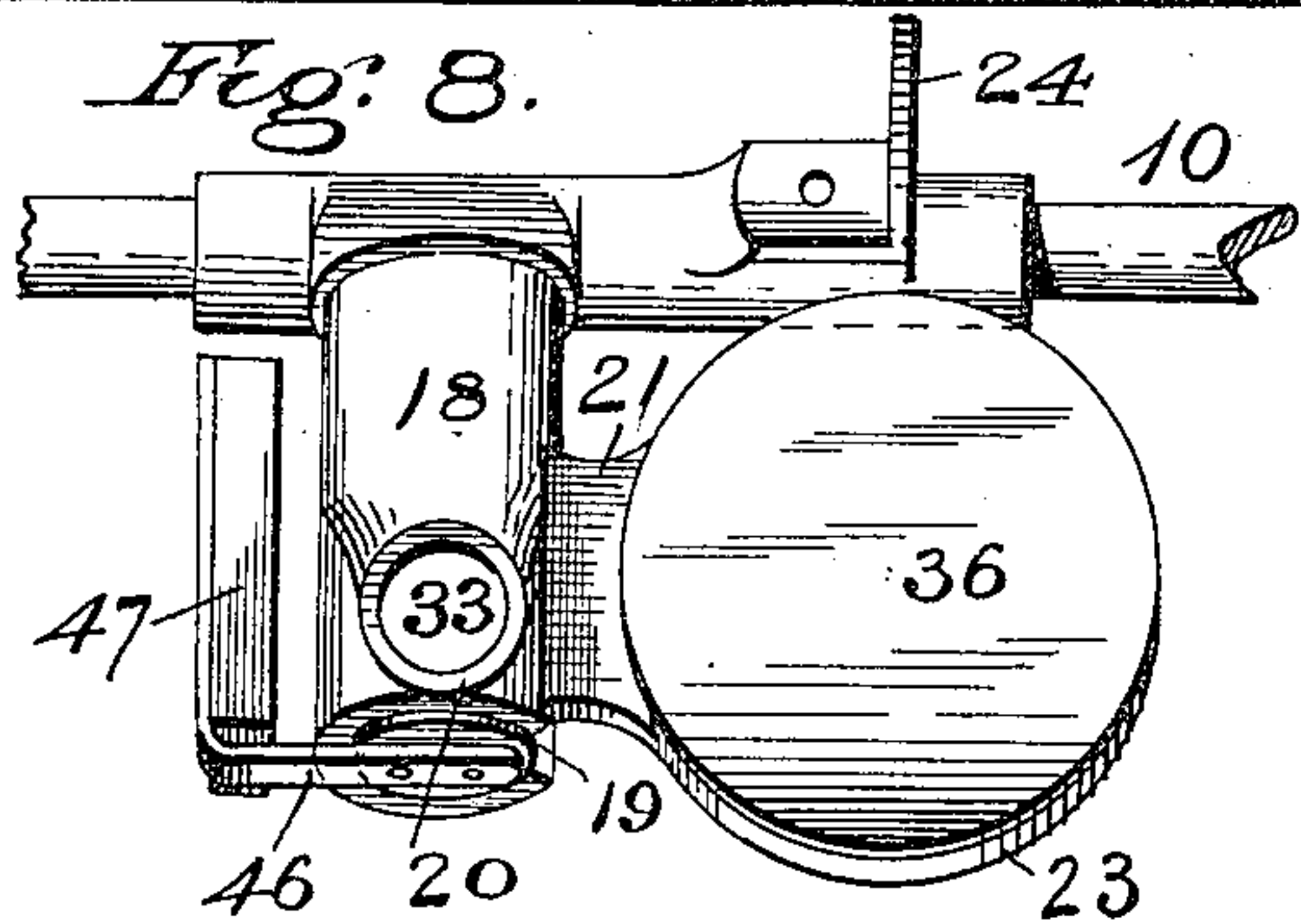
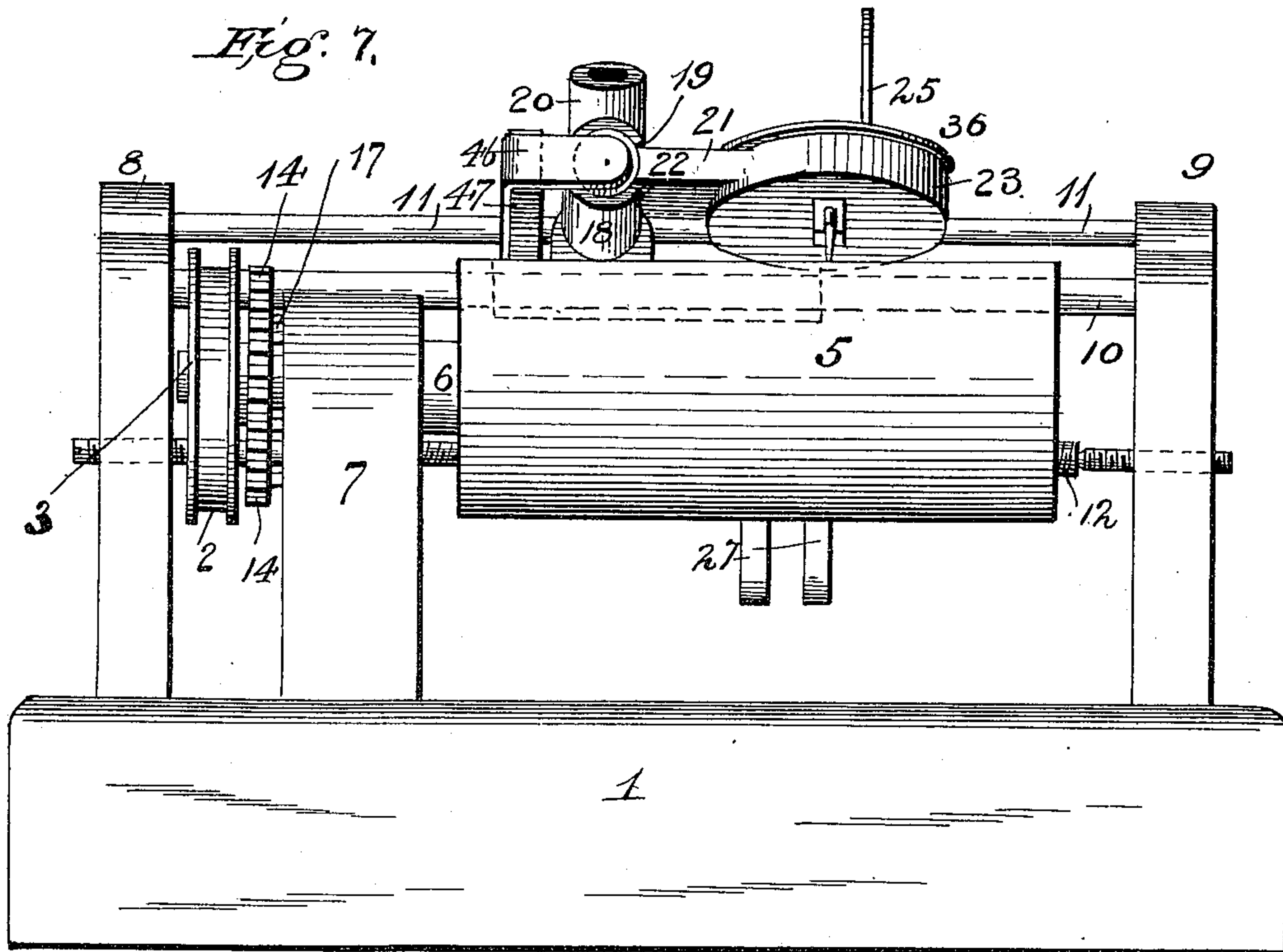
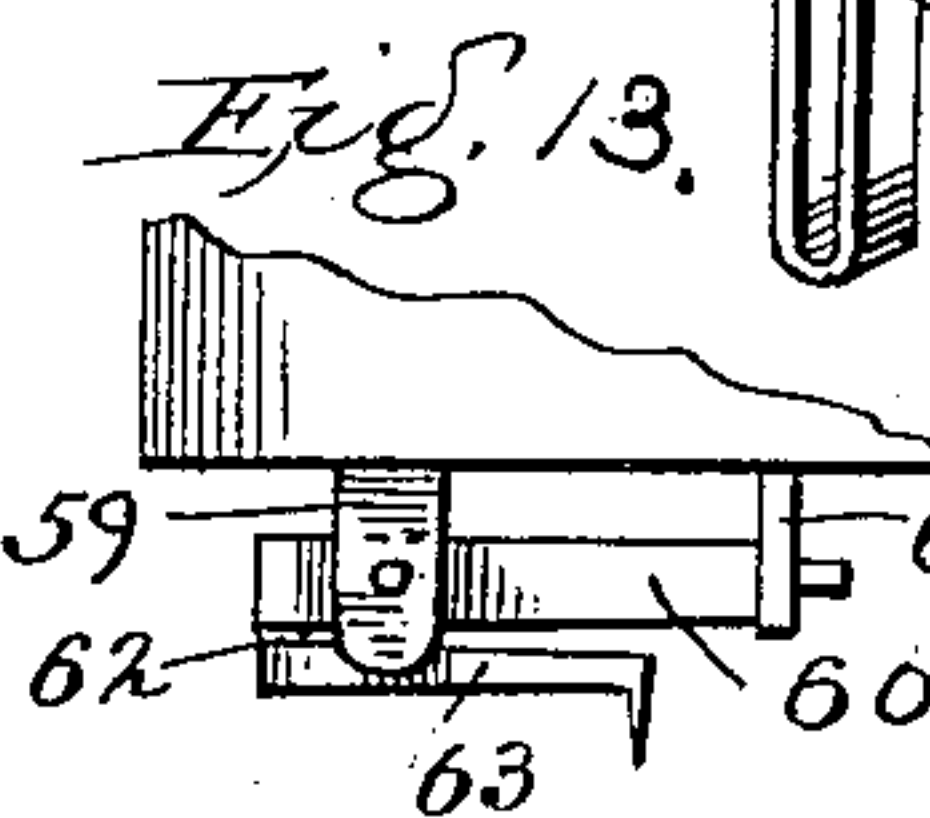


Fig. 12.
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UNITED STATES PATENT OFFICE.

GEORGE W. GOMBER, OF CONYNGHAM, PENNSYLVANIA, ASSIGNOR, BY
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PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 659,739, dated October 16, 1900.

Application filed April 8, 1897. Serial No. 631,268. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. GOMBER, a citizen of the United States, residing at Conyngham, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Talking-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to talking-machines, and the advantages and details of construction thereof will be pointed out in the following specification and claims and illustrated in the accompanying drawings.

My object is to provide a machine of simple and inexpensive construction which while reliably performing the work required of a machine of the most elaborate and expensive workmanship may yet be placed upon the market at a low price.

To attain the foregoing end, it will therefore be apparent that the prime object will be to so construct and combine the various elements necessary to constitute a completely-operative talking-machine that each of said elements may be readily formed without the necessity of employing expensive machinery for such purpose, all of which will be readily apparent from the accompanying drawings, in which—

Figure 1 is a top plan view of my invention, the tablet and mandrel being shown in section. Fig. 2 is a side elevation of the carriage and parts moving therewith. Fig. 3 is a section of the tubular holder on the carriage. Fig. 4 is a top plan view of the sound-box and neck therefor. Fig. 5 is a central section of the same with its lid or cap removed. Fig. 6 is a central section of said sound-box cap. Fig. 7 is a front elevation of Fig. 1, showing a counterbalance for the sound-box body. Fig. 8 is a top plan view of the sound-box and carriage shown in Fig. 8. Fig. 9 shows a side elevation of carriage, showing sound-box removed and paring-knife in position. Fig. 10 is a detail of the paring-knife holder. Fig. 11 is a slightly-enlarged detail

of stylus-holder. Fig. 12 is a perspective detail of the nut-section and carrying-spring therefor. Fig. 13 is a side view, on an enlarged scale, of the stylus mechanism shown in Fig. 2.

The numeral 1 designates the casing, designed to reliably house the spring-actuated or other form of motor, from which motion is communicated by suitable means to the wheel 2, which is fixedly secured to one end of the mandrel-shaft 3, while to the other end of said shaft is fixedly secured the tablet-mandrel 4, carrying the tablet 5. Said shaft is adapted to rotate in a tubular bearing 6, which is securely mounted in post 7, said post being erected on the housing 1. Upon said housing are also erected standards 8 and 9, designed to form a suitable support and mounting for guide-shafts 10 and 11 and the threaded shaft 12, all of which are substantially parallel to the axis of the tablet-spindle. Guide-rod 10 forms the main guideway for the carriage 13, determining the direction of its lateral movement, while guide-rod 11 passes through cam-slot 26 of cam 25 and forms a continuous bearing (parallel to the main guide-rod 10) for the outer or longer wall of said cam-slot, and said cam having pivotal connection with the carriage 13 by means of the arm 24, fixed thereto, it follows that the position of said slot with relation to said shaft determines the plane in which the lateral movement of the carriage shall take place, so that by a proper manipulation of the cam the sound-box is lowered into or lifted out of its operative position. Fixedly secured to the shaft 3 is the gear 14, which meshes with the gear 15, which carries gear 16. Said gears 15 and 16 rotate upon an axle fixedly secured to the arm 30, which arm projects from post 7. Gear 16 meshes with gear 17, said gear 17 being fixedly secured to threaded guide-rod 12, so that motion from axle 3 is imparted thereto; but owing to the size and arrangement of said gears guide-rod 12 rotates much more slowly than the mandrel, the object of which will be pointed out hereinafter.

If found desirable, guide-rod 12 may be

held in position by center points secured in posts 8 and 9 and taking into center bores in the ends of said guide-rod adapted to form suitable bearings for said center points.

5 The carriage 13 is provided with the tubular projection 18, constituting the sound-box. Said box is provided with the lateral slot 19 and the nozzle 20. Said sound-box, with its slot 19, is adapted to receive the head and
10 neck 21 and 22, respectively, of the sound-box 23. The width of said slot is somewhat greater than the thickness of said neck, thus permitting a slight upward and downward play of the sound-box, which is necessary in
15 the performance of its work. The tubular holder 18, by means of its nozzle 20, is designed to receive and support the usual flexible tube, and owing to the support the carriage receives from guide-rod 11 through the mediation of arm 24 and cam 25 the delicate operations of the sound-box are in no way affected by the weight of the carriage or by
20 any other weight that may be imposed thereon, (as by the mounting of flexible tubes or the like.) If found desirable, the outer end of the sound-box 18 may be provided with a cap or other retaining device, (not shown,) though it is thought that the sound-box head will reliably retain its position by gravity, as the
30 outer end of the holder is inclined upward.

Fixedly secured to the carriage 13 is the arm 24, to which is pivotally secured the cam 25, having the cam-slot 26, and, as already pointed out, the position of said slot with relation to shaft 11 determines the depending
35 position of the carriage and sound-box and the plane in which they travel back and forth. It will also be observed that the carriage 13 is further provided with the slotted strap-spring 27, bent upon itself, forming the loop 28. This construction permits the use of a
40 longer piece of spring metal, and thereby secures greater resiliency. Said spring is designed to carry the threaded block 29, secured thereto at its free end. I prefer to provide
45 the slot 27^a nearly the entire length of said spring to give greater resiliency and also permit the threaded block to be attached in position by screws entered from the rear side thereof, as shown in Fig. 10. It will
50 be observed that when the carriage is in such position as to bring the pivoted arm of the sound-box into contact with the tablet the nut-section is also brought into engagement with the threaded shaft 12, and vice versa. When by a proper movement
55 of cam 25 the stylus-point is brought into contact with the tablet and the nut-section 29 into engagement with the threaded shaft 12, lateral motion will be imparted to the carriage through said nut-section 29 and
60 spring 27 as the tablet-spindle rotates. Since threaded shaft 12, as already shown, rotates slowly, a coarser thread can be employed in producing a standard or any given record
65 than could otherwise be used.

In the neck of the sound-box is the recessed

cavity 31, which extends outwardly through the sound-box head and terminates in the flared mouth 32, while its inner end opens
70 into the inner space inclosed by the sound-box. When the sound-box is in its operative position in its receiver or holder 18, the mouth 32 of cavity 31 will register with the communicating orifice 33 of nozzle 20, so that
75 there shall be no obstruction to sounds or vibrations between the sound-box 34 and the mouth of the flexible tube communicating with orifice 33.

The depending flange 35 of lid 36 does not
80 form an obstruction to the free passage of sounds back and forth, since said flange is provided with a series of apertures disposed around its entire periphery a short distance
85 apart. If preferred, that portion of the cap contiguous to the opening in the neck may be entirely cut away. Lid 36 may be held in its proper position on the sound-box by frictional contact or by a screw-threaded union, as preferred.
90

I will now refer to the details involved in producing other parts of a completely-operative talking-machine, the construction thereof being of the simplest character. In Figs. 7
95 and 8 I have shown a modified construction to be employed where it is deemed necessary to more reliably poise the sound-box in its operative position, and with this end in view I attach preferably to the outer end of the
100 head 23 the laterally-extending arm 46, having connection with the counterpoise 47, the latter being formed of suitable material and size and preferably disposed in a plane parallel with the holder 18. By a nice adjustment of the parts forming the counterpoise
105 it will be apparent that the sound-box will be held in very sensitive or light contact with the tablet, and it will be further apparent that these parts may be very cheaply constructed and assembled.
110

As it is essential to a completely-operative talking-machine that a paring device shall be provided, I have produced a device of this character of very simple and ready construction, which I have illustrated in Figs. 9 and
115 10. This paring device consists of the support or body 48, one end of which may be attached to any convenient point of the carriage, preferably at the base of the support or standard 24, after the sound-box has been removed
120 from the holder 18. Said support 48 may be attached in any preferred manner and is provided upon its under side with the depending spring or knife-holder, which is of special construction and is more clearly illustrated in
125 Fig. 10. Said spring-support consists of the main section 50, the upwardly-inclined section 51, and the anchoring-section 52, which is attached to the body 48 by screws or otherwise. The free end of the main section 50 is
130 provided with the downwardly-extending integrally-formed socket 53, in which the knife 54 is seated and reliably held to its work. The socket 53, it will be observed, is readily formed

by properly cutting away and bending the free end of the section 50. In order that the position of the knife may be readily adjusted, I seat in or near the outer end of the holder or body 48 the adjusting-screw 54^a, which passes entirely through said support, the free end bearing against the upper side of the free end of the main section 50.

In Figs. 10 and 11 I have illustrated a cheap but effective means of mounting the stylus-point. By reference to Fig. 11 it will be observed that the said holder is formed from a strip of suitable material, thus providing the anchoring-section 55 for connection with the sound-box body or base and with the inwardly-reaching section 56, designed to lie substantially parallel with the lower surface of the sound-box body or support, while the free end is so bent that the edges thereof will rest alongside of each other, and it will be seen that if the point of a suitable tool or other object is placed between said edges before they are brought entirely together the socket 57 will be formed, in which the stylus-point 58 may be reliably seated and efficiently held by further closure of the edges, thus making it possible to strike the entire holding device from a single piece of material at one operation.

It is thought that the several parts constituting my improved simplified talking-machine will be found as thoroughly efficient as those of more elaborate design and construction, thus enabling me to accomplish the object specified.

The operation of the paring device, it is thought, will be clearly apparent, though it may be stated that after the device is secured in its operative position the knife may be brought into engagement with the surface of the tablet by a proper manipulation of the regulating-screw 54^a, the tension of the spring being so disposed that it will extend normally upward—that is to say, if the set-screw should force the knife too deeply into the tablet the recession of the knife will follow the withdrawal of said screw, thus producing a device of positive character.

In Fig. 13 I have illustrated in side elevation a stylus-holding device especially designed for use upon a sound-box whereon no weight is used. It will be seen that the standard 59 is erected directly upon the lower face of the body of the sound-box and is preferably bifurcated, thus providing a seat for the outer end of the pivoted lever 60 and the guides for controlling the lateral swing of the stylus-arm, the inner end of said lever reaching over the central part of the sound-box, with which it is coöperatively united by means of the usual link 61. The outer or pivoted end of the lever 60 extends slightly past the standard and is provided with a vertically-disposed aperture, in which is seated the lug or journal 62, formed upon the stylus-arm 63. It will be observed that the construction just

described is of great simplicity, rendering the device especially applicable to a sound-box pivoted in the manner specified in this application. I admit that this method of mounting the stylus-arm would be found more or less impractical upon a sound-box not provided with a weight and mounted in the manner common for mounting sound-boxes. I claim, however, great advantages for the construction, owing to the simplicity thereof, when it is used in connection with the means I have set forth for sensitively holding the sound-box body in its operative position, as the stylus-point will yieldingly follow the line of record or inscribe the same upon the tablet, as will be readily apparent.

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

1. As an improvement in talking-machines, the combination with a sound-box carriage, of a slotted power-transmitting spring, bent back upon itself, and a nut-section secured to the free end of said spring, the screws being opposite to and accessible through the slot in the spring, substantially as set forth.

2. In talking-machines, the combination of a sound-box, a supporting-post and a tubular holder open at its free end and having a longitudinal slot into which fits the neck of the sound-box, said holder being provided with a transmitting orifice or nozzle, all arranged as set forth.

3. As an improvement in talking-machines, the combination with the sound-box carriage, of a controlling-lever pivotally mounted on said carriage and having upon its enlarged end the cam-slot 26, and a guide-rod working in said slot, substantially as described and for the purpose set forth.

4. As an improvement in talking-machines, the combination with a supporting-post and tubular bearing extending through the same, a shaft working in said bearing which extends along and supports the shaft nearly its entire length, and a mandrel secured to the shaft, substantially as set forth.

5. As an improvement in talking-machines, the combination with a sound-box carriage, of a tubular sound-box mounted thereon open at its outer end and provided laterally with a longitudinal slot cutting said open end, a sound-box provided with a hollow head and diminished neck, the axis of the head being located at one side of and in a line parallel to a tangent of the sound-box, the head fitting within the holder and the neck entering the slot thereof, and sound-transmitting opening communicating through the head and neck with the interior of the sound-box, substantially as set forth.

6. As an improvement in talking-machines, the combination with a sound-box carriage, of a tubular holder mounted thereon, a sound-box having a hollow head located to one side of and its axis in a line parallel to a tangent

of the sound-box, and a counterpoise upon the head adapted to counteract the weight of the sound-box, substantially as set forth.

7. As an improvement in talking-machines, the herein-described tablet-paring knife, consisting of the base or body; a depending spring secured thereto and having its free end so bent and shaped as to provide a socket adapted to receive and retain the cutting-blade, and means for moving the knife in or out of the path of the tablet-surface, substantially as described and for the purpose set forth.

8. As an improvement in talking-machines, the combination with a sound-box having a bifurcated post secured directly to the lower surface thereof, of a pivoted lever mounted on said post, a link connecting the lever and sound-box, said lever having an aperture in its opposite end; a stylus-carrying arm mounted in said aperture and having its lateral movement circumscribed by the bifurcated ends of said standard and further designed to carry the stylus-point, all operatively combined and arranged in the manner and for the purpose set forth.

9. In talking-machines, a sound-box hav-

ing a bifurcated standard and a depending link, a lever pivoted in said standard and connected with said link, and also having an aperture, a stylus having a lug seated in said aperture whereby the lateral swing of the stylus is controlled as set forth.

10. In phonographs, a sound-box having a head 21 and neck 22, a carriage having a slotted tubular projection, said neck fitting the slot and said head telescoping in the tubular projection, all combined as set forth.

11. In phonographs, a sound-box having a perforated flange, a carriage for said box having a nozzle and an air-passage connecting said box and nozzle, all arranged as set forth.

12. In phonographs, a sound-box carriage provided with a paring device having a spring, a knife supported by said spring and means to adjust the position of the knife, all arranged as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. GOMBER.

Witnesses:

H. F. GOMBER,

JOHN F. ROBBINS.