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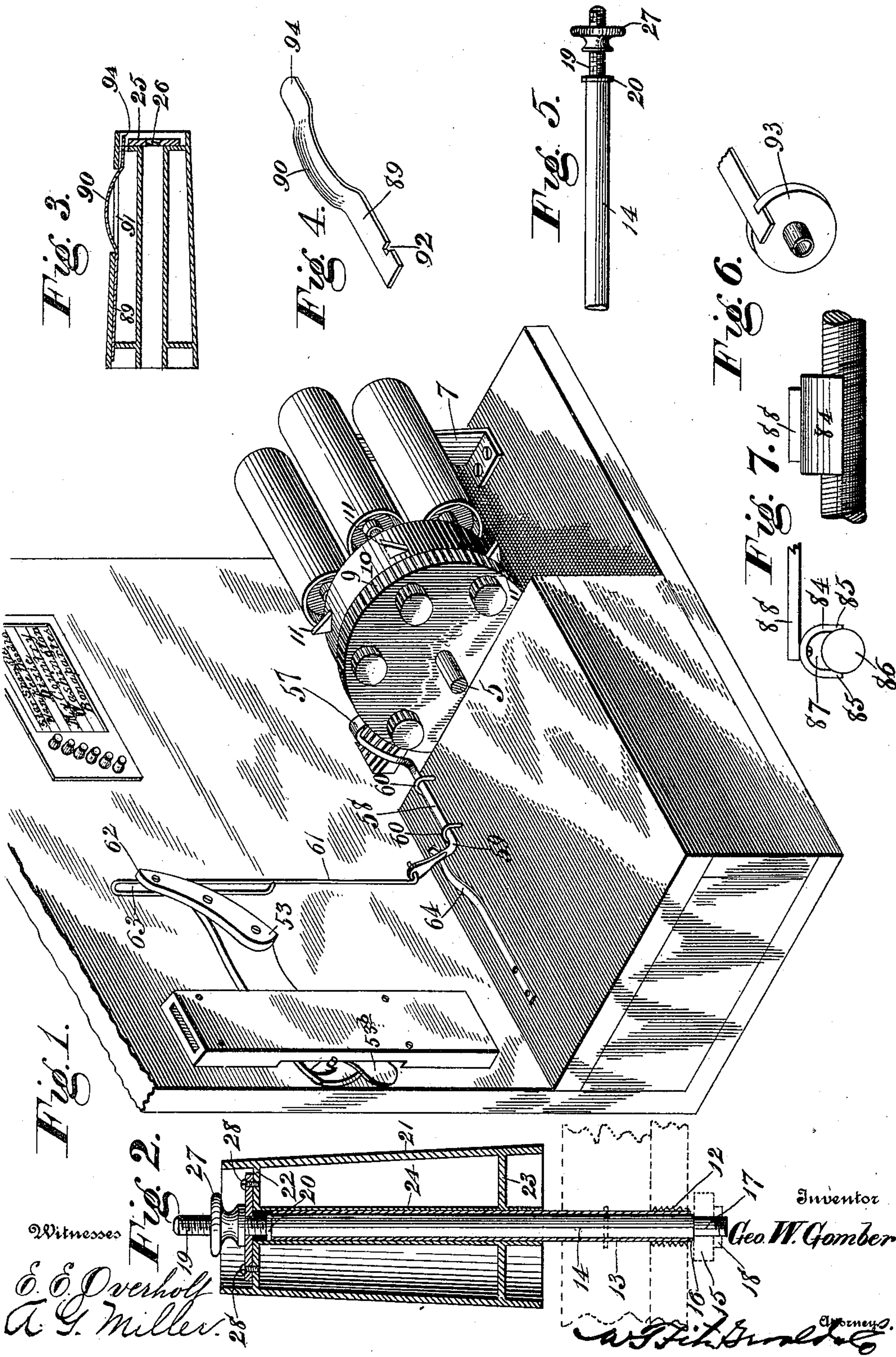
Patented Oct. 16, 1900.

G. W. GOMBER.
TALKING MACHINE.

(Application filed May 13, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses
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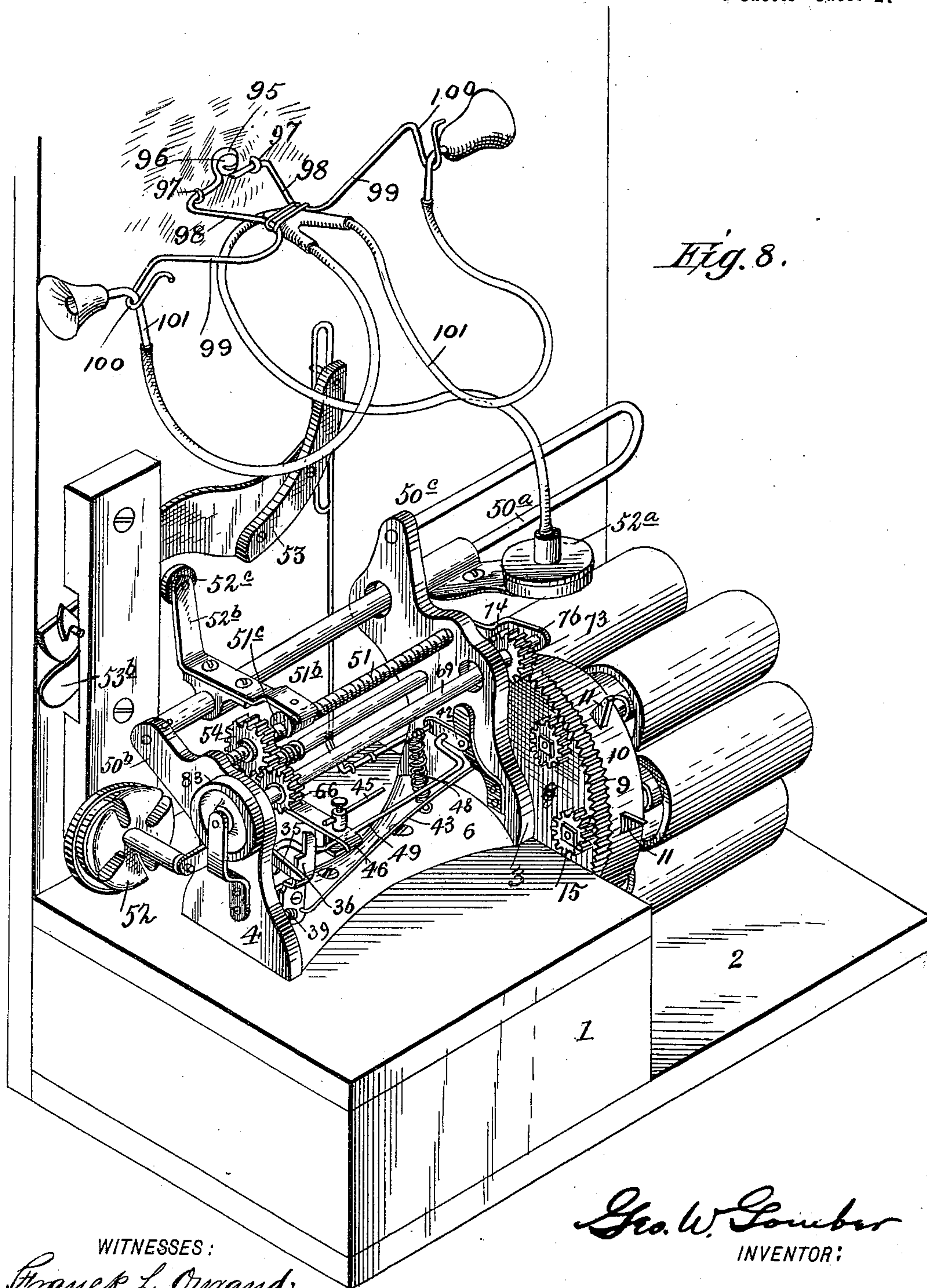
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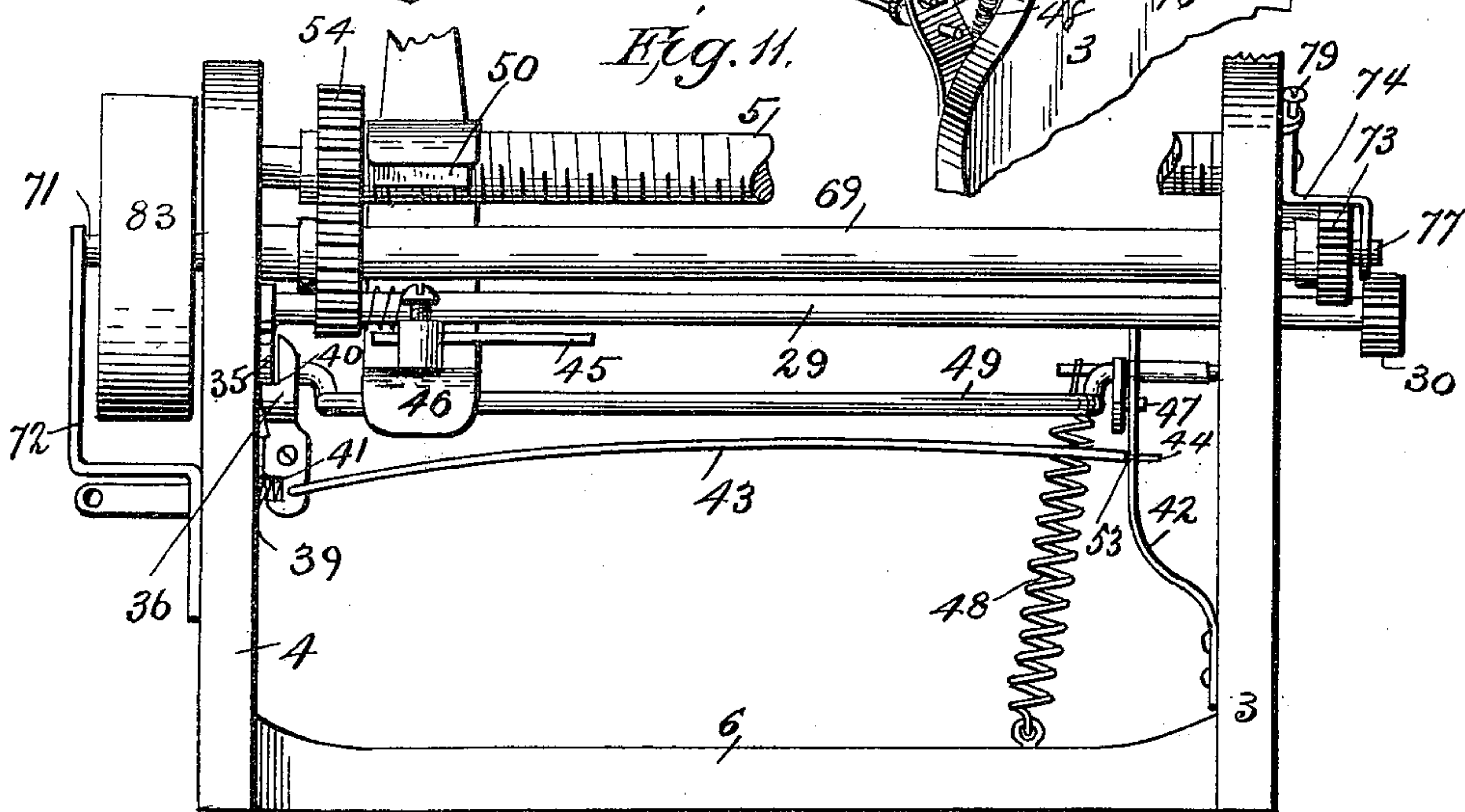
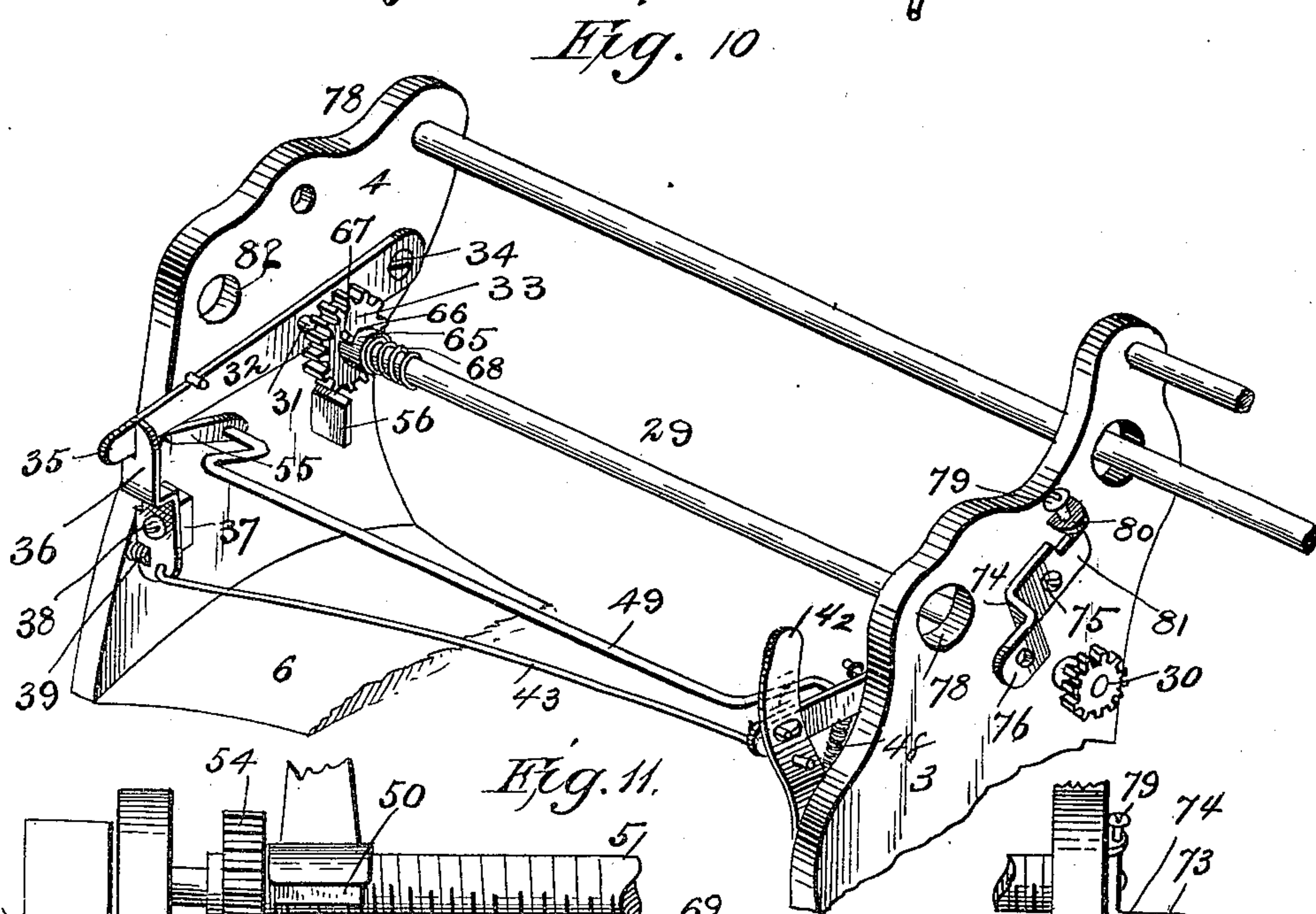
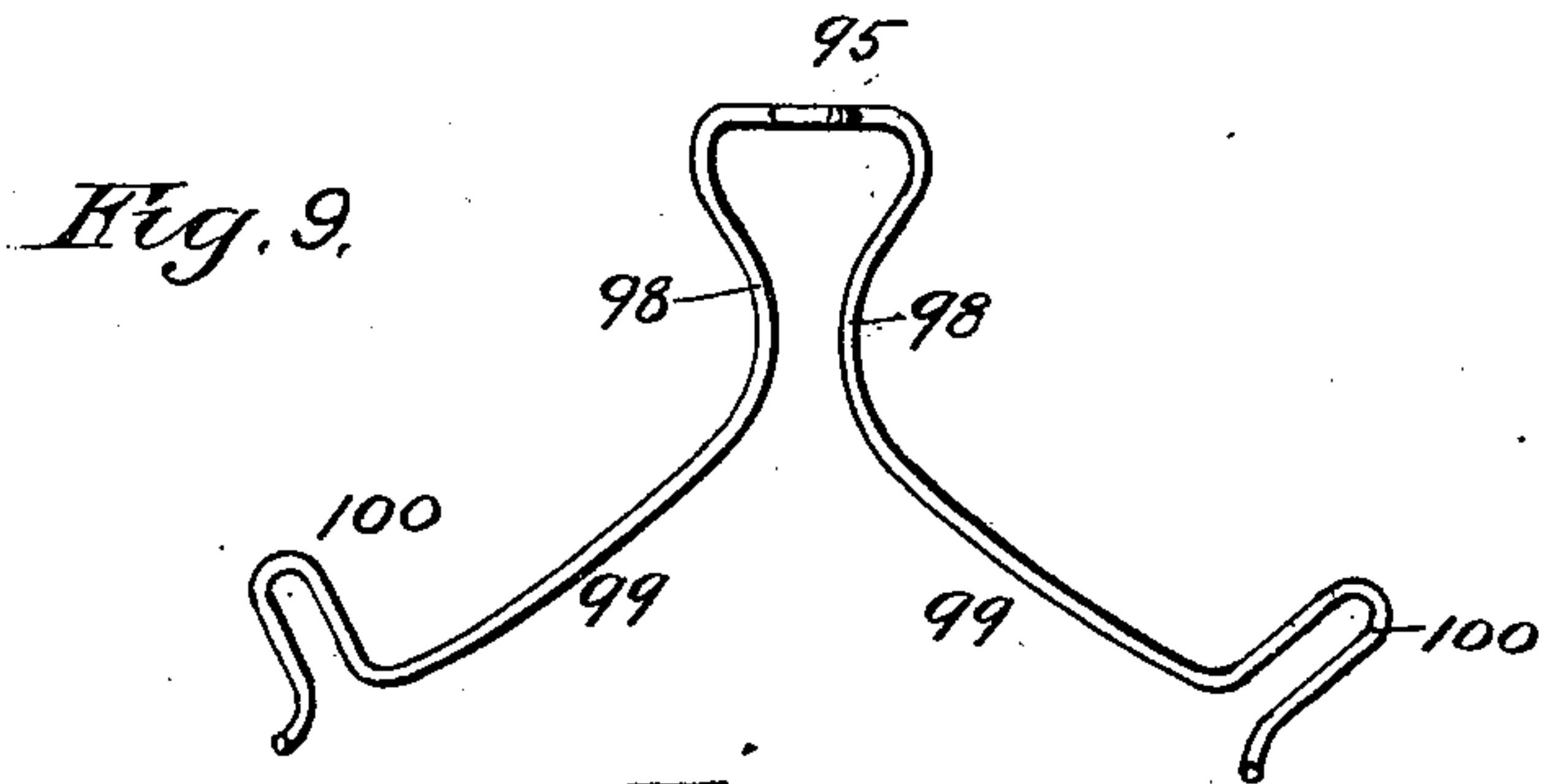
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UNITED STATES PATENT OFFICE.

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TALKING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 659,740, dated October 16, 1900.

Application filed May 13, 1899. Serial No. 716,671. (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 relates to phonographs, and more particularly to that variety thereof comprising a rotatable tablet-magazine and individual selective mechanism; and it consists in certain novel features of combination and construction of parts, the preferred materialization of which will be hereinafter fully set forth, it being understood that such substantial equivalents and modifications as fairly fall within the scope of my invention are comprehended by me.

The object, therefore, among others, of my present invention is to simplify some of my previous work which has been fully set forth in several applications which I have heretofore filed in the United States Patent Office.

As I shall hereinafter specifically point out the simplified parts of my invention, I deem it unnecessary to enter elaborately into a description of all the essential elements of a phonograph or talking-machine and will therefore confine the present application both in respect to the drawings and the specification to a showing which will make clear my present ideas regarding a simplified form of manifestation for what I regard the essential features of my work. In applications heretofore filed by me will be found many parts which are in my present case wholly eliminated or substituted by a much simpler form of mechanical expression. I refer particularly to means for locking the tablet-magazine at the instant the selected tablet has been brought into coöperation with the diaphragm, and, further, to means for permitting the driving-gear for the tablet to at first move out of the way of the individual tablet-gears and afterward drop instantly into mesh with one of said gears when the latter

has been brought into an adjusted position for coöperation with the stylus.

A further object of this invention is to provide means for effecting the longitudinal adjustment of the mandrel and the tablet carried thereon, that the stylus will at once find the line of record without the necessity of first traveling over the usual blank end of the tablet.

Further objects and advantages will be made fully apparent from the accompanying drawings, in which—

Figure 1 is a perspective view of the tablet-magazine and a portion of the framework, illustrating a locking detent or pawl designed to hold the magazine in an adjusted position. Fig. 2 is a longitudinal central section of a mandrel, illustrating the means I employ to adjust the same longitudinally upon its supporting-shaft. Fig. 3 is a central section of the mandrel removed from its supporting-shaft. Fig. 4 is a perspective view of the spring employed to hold the tablet in position upon its mandrel. Fig. 5 is a side view of the supporting-spindle upon which the mandrel rotates. Fig. 6 is a detail view illustrating the preferred means for holding the tablet-securing spring in place. Fig. 7 illustrates an end view and a side elevation of the means I employ to detachably connect the driving-arm of the carriage to the threaded shaft. Fig. 8 is a perspective view of my talking-machine complete. Fig. 9 is a detail view of the supporting-rack designed to hold the tubes while not in use. Fig. 10 is a perspective view of the standards employed to support the several parts of my driving mechanism and diaphragm-carriage, the main portion of said parts being removed. Fig. 11 is a front view of the driving mechanism between the standards as illustrated in Fig. 8.

In order to conveniently refer to the several details of my invention and their coöperating accessories, numerals will be employed, of which 1 is the supporting-base, which may be constructed in any preferred way and is designed to provide a housing for the electric or other form of motor employed to drive the mechanism.

Upon the base portion 1, which also com-

prises the extension or subbase 2, I mount the standards 3 and 4, which are designed to support the mechanism employed to actuate the carriage and the tablet-magazine, which latter is supported upon a suitable shaft 5, properly secured in position by means of the standard 3 and the base-section 6, the outer end of said shaft being supported in suitable bearings carried by the standard 7, properly mounted in position upon the extension 2. Upon the shaft or axle 5 thus provided I fixedly secure, so that it will rotate with said shaft, the driving head or disk 8, the peripheral face of which is provided with the teeth 9, and fixedly secured to said disk or head or integrally formed therewith is the outwardly-directed flange or collar 10, the peripheral face of which is designed to carry a series of graduated or disalined stops or lugs 11, or said stops may be replaced by a series of disalined or graduated slots, as I have fully explained in a previous application.

It will be understood that the disk or head 8 may be made of any preferred diameter as may be necessary to accommodate eight, ten, twelve, or more mandrels, and in order that the spindles may be properly supported in their operative positions I provide at equidistant points near the edge of said head suitably-threaded apertures designed to receive the threaded end 12 of the tablet-supporting sleeve 13, as it is by this means that I am enabled to rigidly secure said sleeve in position, and thereby provide reliably-efficient means to support and sustain the outer or free end of said sleeve and the mandrel carried thereon without the necessity of a special support or standard for said end, a valuable desideratum, inasmuch as it has been common heretofore to individually support the tablets by means of bearing-points carried upon an auxiliary or outer head.

In order to afford an adjustability for the mandrel, to the end that said spindle may be moved longitudinally and then firmly though rotatably secured in place, I provide the driving-shaft 14, which is designed to be snugly received by the sleeve 13, while the extreme inner end of said shaft is designed to extend sufficiently beyond the inner face of the head 8 to afford a seat for the individual tablet-gear 15, a shoulder 16 being formed upon said shaft as it emerges past the face of the head 8, thereby providing the reduced portion 17, upon which said gear is firmly secured in place by means of the nut 18. By this construction it is obvious that the shaft 14 is left free to turn within the sleeve 13, though it is firmly supported by said sleeve. It will be observed that the opposite or outer end 19 of the shaft 14 is threaded from the point where it leaves said sleeve, and in order to prevent an inward movement of the shaft I prefer to form the fixed or integral collar or annular rib 20 thereon, which may extend outward sufficiently to coincide with the peripheral face of said sleeve. The sleeve

and shaft thus mounted in position are ready to receive the mandrel 21, which may be made substantially of the usual or any preferred construction and may be very cheaply made of some light rigid material, as paper, though it is interiorly provided at each end with the disks 22 and 23 and with the longitudinally-disposed core 24, which is provided with a bore of proper diameter to snugly receive the sleeve 13, thereby permitting said core to rotate freely upon said sleeve, and in order to adjust said core and sleeve telescopically or longitudinally with respect to each other I provide the end plate 25, which may be permanently secured to the outer face of the disk 22 in any preferred way, though best results will follow when said plate is yieldingly secured in place in order that compensation may be made for inaccuracies of construction in centering the threaded aperture 26, designed to receive the threaded end 19.

By providing that the inner end and main portion of the core 24 shall be supported by the sleeve 13 it is obvious that the extreme outer end of the mandrel is supported by the plate 25 and the threaded end 19 of the spindle. Inasmuch as the threaded aperture 26 is designed to cooperate with the threaded end 19, it is clear that the mandrel may be readily adjusted longitudinally upon the sleeve 13 by simply rotating the mandrel in the proper direction, thus throwing the mandrel close against or toward the free edge of the flange 10, or said mandrel may be reversely rotated and disposed as far as desired away from said flange, it being understood that the plate 25 may be readily secured in an adjusted position by means of the locking or jam nut 27, which is designed as a follower for said plate. If the plate 25 is yieldingly or loosely secured in place upon the disk 22, as by means of the screws 28, it will insure that the mandrel will be truly rotated, since there will be no tendency to throw the inner end of the tablet out of place by the action of the jam-nut against the plate 25.

Referring now to another feature of my invention to which I desire to call special attention, it will be observed by reference to Fig. 10 that the shaft 29, which is employed to rotate the tablet-magazine by means of the gear 30, is mounted at its inner end in suitable bearings in the standard 3, said bearings being of proper character to permit a slight downward movement of the outer end of said shaft, said outer end being seated in suitable bearings 31, carried by the lever 32. The lever 32 is designed to impart a slight upward-and-downward movability to the outer end of the shaft 29 and the gear 33 fixedly mounted thereon, as it will be observed that the inner end of said lever is pivotally secured in place upon the inner face of the standard 4 by means of the screw or lug 34, while the outer free end 35 of said lever is supported in its adjusted position by means of the movable standard

36, which is pivotally secured in position upon the bracket 37 by means of the bolt or rivet 38, the upper end of said movable standard being disposed normally outward by means of the spring 39.

By reference to Fig. 11 it will be observed that upon the outer edge of the movable standard 36 are formed the upper and lower notches or shoulders 40 and 41, respectively, the office of the former being to support the outer free end 35 of the lever while it is in an elevated position, the notch 41 being designed to afford a seat for the spring 39, and in order to provide means for actuating the movable standard 36 I connect the lower end thereof with the locking-spring 42 by means of the rod 43, the inner end 44 of which is reduced and is designed to be loosely received by an aperture provided in the spring 42 in order to afford requisite play between said parts during the recession or inward movement of the spring 42 caused by the adjustable finger 45 upon the arm of the carriage, which has been fully described in a previous application and which I deem unnecessary to herein specifically refer to. It may be stated, however, that when the arm 46 of the carriage has moved sufficiently to the right to bring the adjustable finger 45 into engagement with the spring 42 said spring will be moved toward the standard 3, and thereby release the lug 47 from its loosely-fitting aperture in said spring, and will thereby permit the spring 48 to elevate the cam-shaft 49 and incidentally raise the arm 46 of the carriage, so that the threaded block 50 will be elevated or lifted out of engagement with the threaded shaft 51, and thus place the carriage in position to be brought back to the initial or starting point by means of the governor and spring 52, the office of which has been set forth in a previous application. The reduced end 44 is provided in order that said end may play loosely in its aperture provided in the spring 42 during the inward movement of said spring, which movement must be sufficient to release the lug 47 and leave the free end thereof bearing directly against the face of the spring. By the recession of the spring 42 from the shoulder 53 the spring 39 is left free to act, which will instantly cause the upper end of the movable standard 36 to move into the path of the end 35 of the lever, and thereby bring the shoulder 40 in position to receive said lever, and thus hold the outer end of the shaft 29 and the gear 33 upward in engagement with the gear 54, fixedly secured to the threaded shaft 51, thereby imparting power to the shaft 29 for the purpose of rotating the tablet-magazine.

In order to insure that the free end of the lever 32 will be raised at the instant the carriage-arm 46 is elevated by the cam 49, I fixedly secure to said shaft immediately below the free end 35 of said lever the finger 55, which is clearly shown in Fig. 10. It will at once be appreciated that when the tablet-magazine has been sufficiently rotated to

bring the selected tablet into coöperation with the diaphragm said magazine must be instantly checked against further movement and positively and firmly held until the selection has been given off, and with this object in view I secure to the inner face of the standard 4, at a point immediately below the gear 33, the fixed detent or tooth 56, the office of which is to take between two of the teeth of said gear at the instant the free end of the lever has been lowered by the downward action of the arm 46 upon the cam-shaft 49. It is therefore clear that the detent 56 will act instantly upon the gear 33 and hold the same against any further movement and will as quickly check the impetus of the tablet-magazine, and thus insure that the stylus will drop at once into the line of record.

In Fig. 1 I have illustrated in perspective another means which may be employed to instantly check the impetus of the magazine, and thereby at once prevent further movement thereof, which consists of the detent or pawl 57, preferably integrally formed with the crank-shaft 58, having the crank-terminal 59, said crank-shaft being properly held in position, as by the loops or staples 60. The free end of the crank 59 is pivotally connected by means of the rod or link 61 to the free end of the weighted coin-controlled lever 62, as by means of the slotted section 63 of said link.

In order to more clearly illustrate how the driving mechanism is designed to actuate the diaphragm-carriage and contiguous parts, I will briefly describe said carriage, as follows: A track 50^a is properly mounted at one end in the extension or bracket 50^b, while the opposite end of said track is bent upon itself and the free end thereof rigidly secured in the extension or bracket 50^c, while designed to loosely reciprocate upon the track 50^a is the barrel or body portion 51^a. Upon one end of the barrel 51^a I secure the actuating-arm 51^b, to which I secure the threaded block 51^c, designed to engage the threaded shaft 51 and be driven thereby. The arm 46 is also attached to the barrel 51^a, and therefore moves with the arm 51^b. Upon the opposite end of the barrel 51^a I attach in any preferred way the diaphragm 52^a, and it is obvious that as said barrel is moved through the engagement of the threaded block 51^c with the threaded shaft 51 the diaphragm will be moved over the line of record, and, furthermore, that when the diaphragm has thus been moved entirely over the line of record the finger 45 will release the cam-shaft 49 and permit said shaft through the action of its controlling-spring to elevate the arms 46 and 51 and permit the carriage to be drawn backward to the initial point, and as said carriage is thus moved backward to the starting-point the arm 52^b, carrying the antifriction-roller 52^c, will cause said roller to engage the curved lower face of the weight 53^a and elevate said weight sufficiently to set the coin-trigger 53^b in position ready for the next coin.

It will be observed that the crank-shaft and detent are so constructed that when the carriage moves back to the initial point and the arm on said carriage raises the coin-controlled lever 62 it will incidentally draw upon the link 61 and raise the crank 59, and thereby throw the detent 57 into engagement with the gears or teeth 9.

In order to hold the crank-section 59 normally upward, and thereby insure that the detent 57 will be held to its work, I provide the spring 64, as clearly shown. While I have illustrated that the magazine may be thus held by the detent 57 against further rotation at the instant the selected tablet has been brought into coöperation with the diaphragm, it will be understood that the preferred means to be adopted in thus checking further rotation of the magazine and holding it until the selection has been given off consists of the pivoted lever 32 and the fixed detent 56.

The gear 33 may be keyed fixedly and directly to the shaft 29, and no resultant jar will follow when the said gear has been raised into mesh with the gear 54; but if it is thought desirable to provide against an undue impact or jar as a result of bringing the said gears suddenly into mesh with each other, as by elevating the free end 35 of the lever 32, the means which I have illustrated in Fig. 10 may be adopted, wherein it will be seen that the gear 33 is provided with an integral sleeve 65, having the radial slot 66, said sleeve being loosely secured upon the shaft 29 and caused to rotate therewith by the wrist-pin 67, which is adapted to work freely in the slot 66. In order that the blow or sudden jar incident to throwing the gears 33 and 54 into mesh with each other may be absorbed, I so mount the gear 33 upon the shaft 29 that the strain will be thrown upon the coil-spring 68, one end of which is secured to the shaft 29, while the other end is attached to the sleeve 65, it being understood that the tension of the spring shall be so adjusted as to receive the initial blow incident to the gears coming into mesh with each other, thus causing the pin 67 to move toward the other end of the slot in which it works.

By reference to Fig. 11 it will be observed that the shaft 69 (which is employed to rotate the individual tablets and is therefore designed to mesh with the individual-tablet gears 15) is supported at its inner end 71 by means of the bracket 72, which is secured in any preferred way to the standard 4, while the inner end, upon which is fixedly secured the gear 73, designed to mesh with the individual-tablet gears 15, is held in position by the pivotally-mounted adjustable bracket 74, which, as will be seen by reference to Fig. 10, is secured to the upper face of the standard 3 by means of the bolt or screw 75, the free end 76 of the bracket being designed to receive the reduced end 77 of the shaft 69. In order, therefore, to permit the gear 73 to

move out of the path of the individual gear 15 as the magazine is rotated for the purpose of bringing the selected tablet under the diaphragm, I provide in the standard 3 an enlarged aperture 78, through which the shaft 69 loosely extends, and in order to prevent the end of the shaft from dropping into contact with the standard 3 I adjust the bracket 74 in a true position by means of the set-screw 79, which is held in position by the bracket 80, attached to the inner face of the standard 3 at a contiguous point, it being readily understood that the free end of the set-screw 79 may be brought into contact with the free end 81 of the bracket 74, and thereby depress said end and correspondingly elevate the opposite end. The aperture 82, provided in the standard 4 for the reception of the outer end of the shaft 69, is also of larger size than said shaft, thus insuring that said shaft will not contact with said standard, but that the entire weight of the outer end of the shaft shall rest in its bearings carried by the bracket 72, and inasmuch as the driving-band leading from the motor is passed over the pulley 83 it is obvious that said band and the strain brought to bear thereon incident to the operation of the motor will have a tendency to pull downward upon the shaft 69 and, being entirely out of contact with the standards 3 and 4, will be forced downward at its inner end, thereby tending to hold the gear 73 tightly in mesh with the individual-tablet gear 15, and thus prevent casual play of said shaft and the consequent slipping of the gears 15 and 73, of mesh. By suspending the free end 77 of the shaft 69 by means of the pivoted bracket 74 said gear 73, however, is permitted to rise upward out of contact with the individual-tablet gear 15 during the rotation of the magazine.

It will be seen that the bracket 74 may be very nicely adjusted in position by means of the set-screw 76 and that no spring is necessary to hold the gear 73 downward, inasmuch as the force brought to bear upon the pulley 83, owing to the peculiar mounting of the shaft 69, is amply sufficient to hold said gear to its work and yet permit said gear to rise out of the way of the gears 15 as they successively pass it.

I desire to call special attention to the means which I employ to connect the carriage to the threaded shaft, which means is fully illustrated in Fig. 7, wherein it will be observed that in lieu of the usual threaded half or mutilated nut I have provided the U-shaped body-section 84, which is of sufficient extent that the inner edges only of the depending ends 85 may be threaded, in order to coöperate with the threaded face of the shaft 86, the depending ends 85 being sufficiently separated to receive only the upper portion of said shaft, the threaded faces of the depending ends contacting with the peripheral face of the shaft above the median line thereof. By thus disposing the depend-

ing ends 85 with respect to the shaft compensation is made for wear, inasmuch as the said faces will readily adjust themselves to fit the shaft, it being understood that there is an opening or clearance above the shaft, as indicated by the numeral 87. I so mount the body-section 84 upon the arm 88 of the diaphragm-carriage that it will have an endwise play thereon sufficient to enable said body-section to readily accommodate itself as a connecting-link between the arm of the carriage and the threaded shaft, even though said shaft and said arm be not adjusted with absolute accuracy. It will be readily appreciated that if the ordinary threaded block were rigidly secured to the arm and if the threaded shaft were not truly alined so that it would lie parallel with the plane of the path traveled by said block there would be a tendency to bind or twist, with the result that the carriage would be subject to more or less jar and that the threads of either the block or the shaft, or both, would be liable to injury. By means of the internally-threaded U-shaped body-section 87 I am enabled to reduce the contacting surface of the block and shaft to a minimum, and by movably securing the block to the arm of the carriage said block is free to adjust itself to any inequalities or imperfections of construction and mounting of said parts, and it is thought that the result will be very advantageous, inasmuch as much less power will be required to drive the carriage, owing to the elimination of all pinching and binding of the parts.

By reference to Fig. 7 it will be observed that two rivets or screws are employed to hold the U-shaped section 84 in place, it being understood that loosely-fitting apertures are to be provided in said section for the reception of said screws or rivets in order to give the requisite lateral movement or play.

In order that the tablet may be held upon the mandrel without the necessity of forcing the tablet tightly home upon the tapered surface of the mandrel, and, further, to prevent the tablet from becoming broken by reason of the expansion of the mandrel or the contraction of the tablet, I provide the retaining-spring 89, having the outwardly-curved section 90, which portion is adapted to extend through the slot 91, provided in the mandrel, near the middle portion thereof.

By reference to Fig. 3 it will be observed that the curved portion 90 extends beyond the peripheral face of the mandrel and is designed to come directly in contact with the inner face of the tablet, and thereby bind against the same and secure it in an adjusted position.

In order to adjust the retaining-spring in place, and thereby avoid the necessity of riveting the same to contiguous parts of the frame near the inner end of said spring, a notch or recess 92, of sufficient width to exactly receive the edge of the disk 93, is provided, it being understood that a notch or

recess is cut in the peripheral face of said disk of a width or extent coinciding with the width of the retaining-spring after the recess 92 has been formed, the recess 92 being adapted to receive a portion of the disk, and thereby prevent the spring from having a longitudinal movement. The free end 94 of the spring may be grasped, as by the nail of the operator, and moved inward sufficiently to release the binding action caused by the curved section 90, and thereby permit the tablet to be freely withdrawn from its adjusted position and readily replaced by simply slipping the succeeding tablet over it.

To afford a desirable and attractive means by which the tubes leading to the diaphragm may be disposed when not in use, I deem it desirable to provide a supporting-rack which will be neat and attractive in appearance and thoroughly efficient in the performance of its office and which may be produced at a minimum cost, and with this end in view I secure to the upper portion of the machine, at any desired point thereon, my improved supporting-rack, which in this instance is formed of a single piece of wire, so bent near its middle as to provide the anchoring or loop section 95, designed to receive the anchoring bolt or screw 96, by means of which and the staples 47 my rack is held in an adjusted position. After the loop-section 95 has been provided I provide the lateral branches designed to pass through the staples 47, and then form the outwardly-extending sections 98, having the lateral branches 99, upon the extreme ends of which are formed the hook sections or supports 100, by means of which the tubes 101 are held in an adjusted position when not in use. It is thought that the provision of this form of supporting-rack for the tubes will render the machine much more attractive in appearance and that the tubes will be more conveniently accessible than if left to hang downward in the usual manner, and while I have shown the preferred form of rack which may be employed it will be understood that the substantial equivalent thereof is comprehended by me, inasmuch as various modifications may be made thereof.

What I claim is—

1. In a talking-machine, the combination with a frame, tablet-magazine adapted to carry tablets, a diaphragm-carriage and carriage-driving mechanism, of a shaft connected with the magazine and with the carriage-driving mechanism, respectively, and means for making and breaking the connection with the carriage-driving mechanism at predetermined intervals, substantially as set forth.

2. In a talking-machine, the combination with a frame, tablet-magazine adapted to carry tablets, a shaft operatively connected at one end with the tablet-magazine, and a lever movably supporting it at the other end, tablet-magazine-driving mechanism, a diaphragm-carriage and diaphragm-carriage-driving mechanism, of means upon the shaft adapted

to connect and disconnect the two driving mechanisms, and means for operating the lever, substantially as set forth.

3. In a talking-machine, the combination
5 with a frame, tablet-magazine adapted to carry tablets, a shaft operatively connected at one end with the tablet-magazine, and a lever movably supporting it at the other end, tablet-magazine-driving mechanism, a diaphragm-carriage, and diaphragm-carriage-driving
10 mechanism, of means upon the shaft adapted to connect and disconnect the two driving mechanisms, and means for automatically operating the lever to render the magazine intermittently operative, substantially as set
15 forth.

4. In a talking-machine, the combination with a frame, tablet-magazine adapted to carry tablets, driving mechanism for the magazine
20 including a shaft loosely journaled at one end and yieldingly supported at the other end, actuating mechanism for the diaphragm-carriage, of means on said shaft adapted to connect and disconnect the actuating and the
25 driving mechanism, as set forth.

5. In a talking-machine, tablet-magazine and driving mechanism therefor including a shaft having a pinion, a pivoted lever in which the shaft is journaled at one end and means
30 to elevate the free end of the lever, all arranged as set forth.

6. In a talking-machine, a tablet-magazine, a shaft having a pinion and supporting said magazine, driving mechanism therefor including a swinging shaft having a pinion and
35 means to elevate said swinging shaft, all arranged as set forth.

7. In a talking-machine, a shaft, a tablet having a slot supported on said shaft, said
40 tablet having a recessed disk, a retaining-spring having one end fitted into said recess and a curved section extending through said slot, as set forth.

8. In a talking-machine, means to operate
45 the machine including a driving-shaft pro-

vided with a pinion, a lever in which one end of said shaft is journaled and a device to operate the free end of said lever whereby the pinion may be elevated or depressed, all combined substantially as set forth.

9. In a talking-machine, means to operate the machine including a driving-shaft provided with a pinion, a lever in which one end of said shaft is journaled, a threaded shaft provided with a pinion and operating the diaphragm-carriage and means to operate the
55 free end of the lever whereby the pinion on the driving-shaft is thrown into and out of gear with the pinion on the threaded shaft, all combined as set forth.

10. In a talking-machine, tablet-magazines, a shaft rotating the same and pivoted at one end in an adjustable lever having a free outer end, a movable standard supporting
60 said free end and a spring pressing the standard in an outward direction, all combined as set forth.

11. In a talking-machine, a driving-screw carrying a carriage having an arm cooperating with a crank-shaft, a spring 42 and a lug
70 47 locking said shaft in position, a device carried by the carriage to release the lug and means to elevate the cam-shaft and thereby disengage the carriage from the driving-screw, all combined as set forth.

12. In a talking-machine, a driving-disk carrying tablet-magazines and further provided with teeth, a driving-shaft having a gear adapted to engage said teeth, and also
80 having a radially-slotted sleeve loosely secured on said shaft and rotating therewith, and a spring secured to the shaft and sleeve whereby the jar will be absorbed on the starting of the machine, all combined as set forth.

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

GEORGE W. GOMBER.

Witnesses:

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W. T. FITZGERALD.