

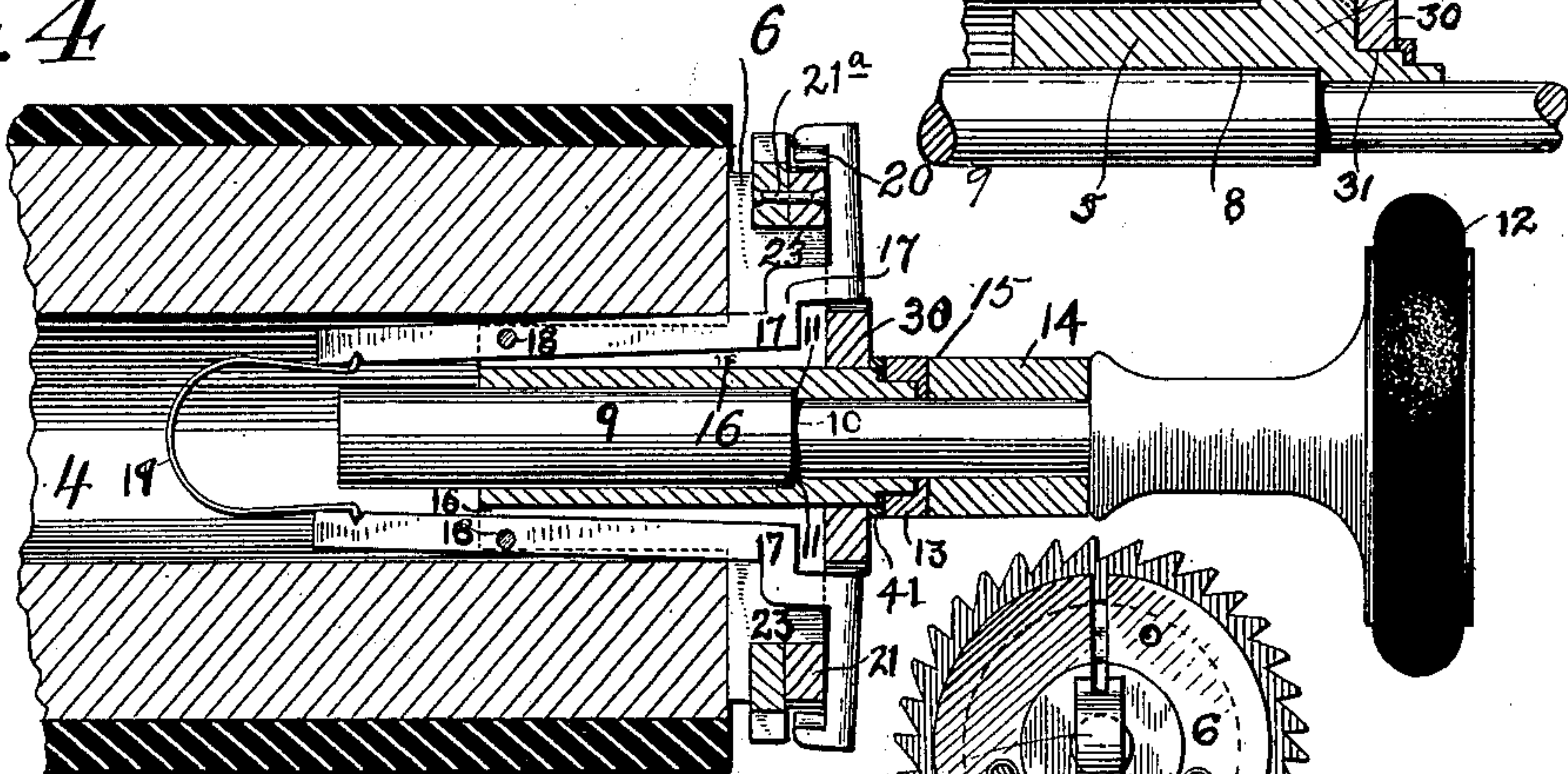
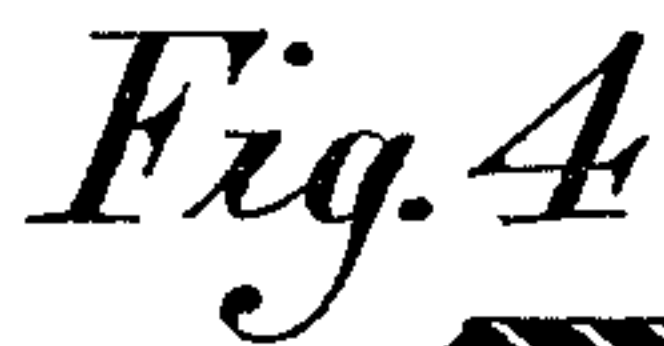
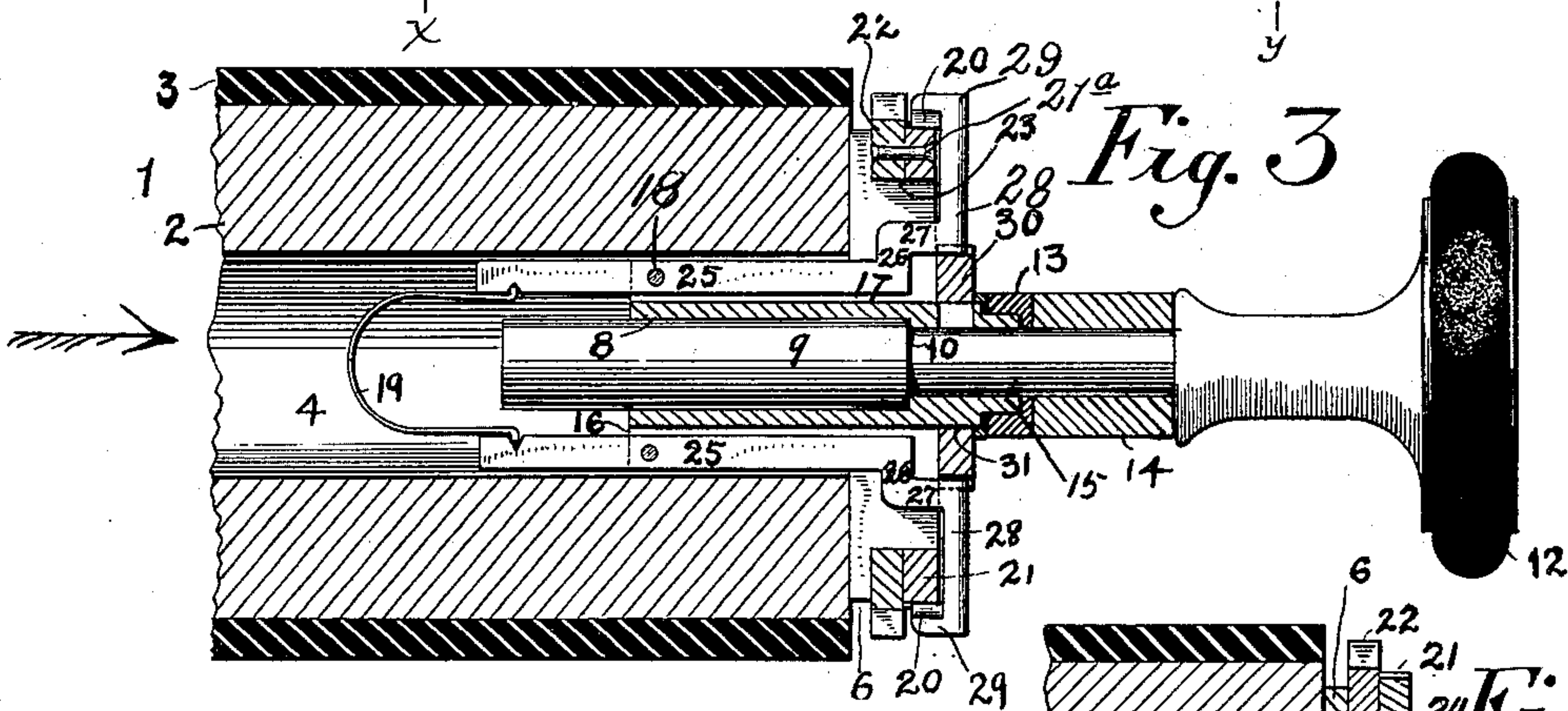
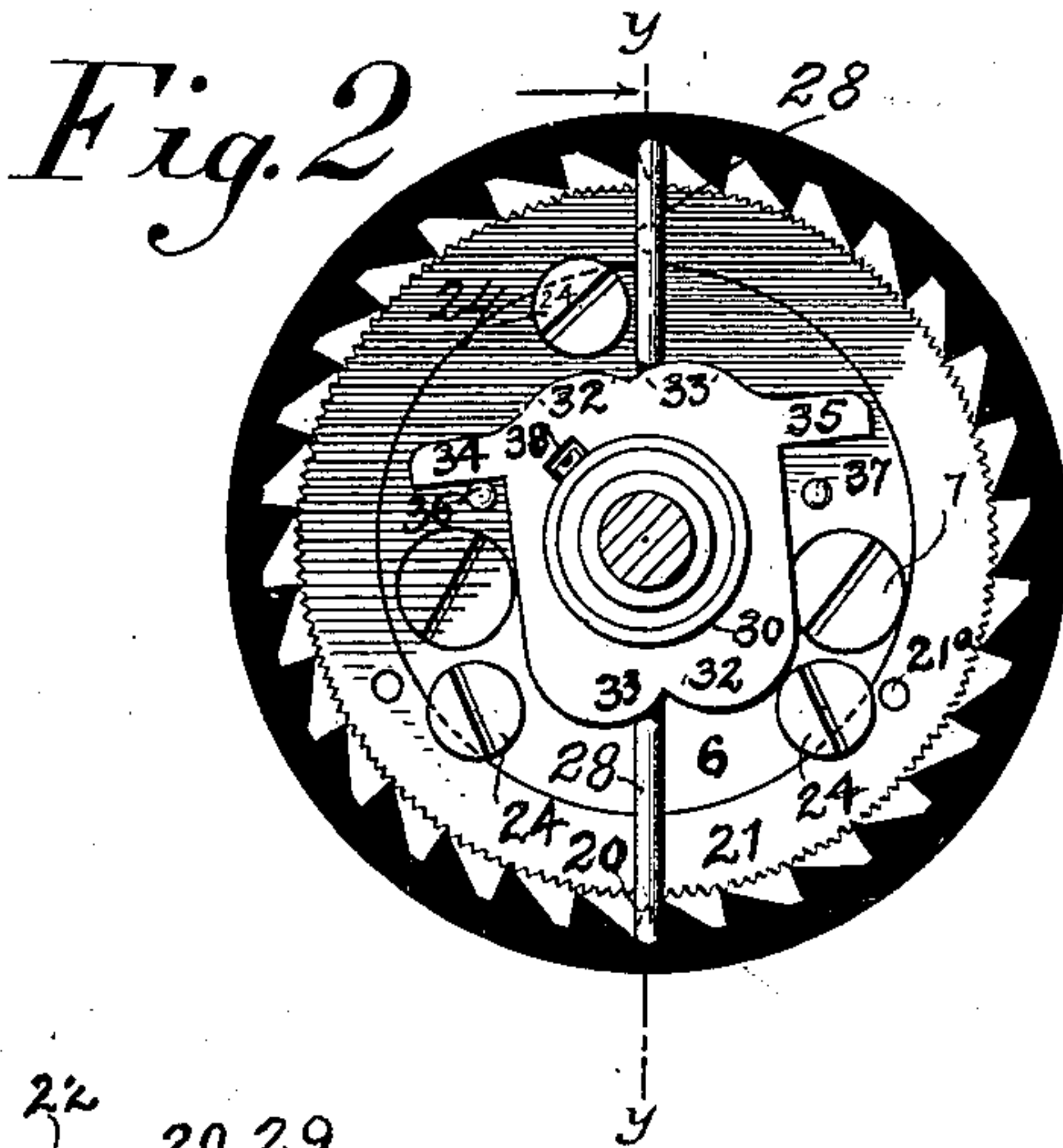
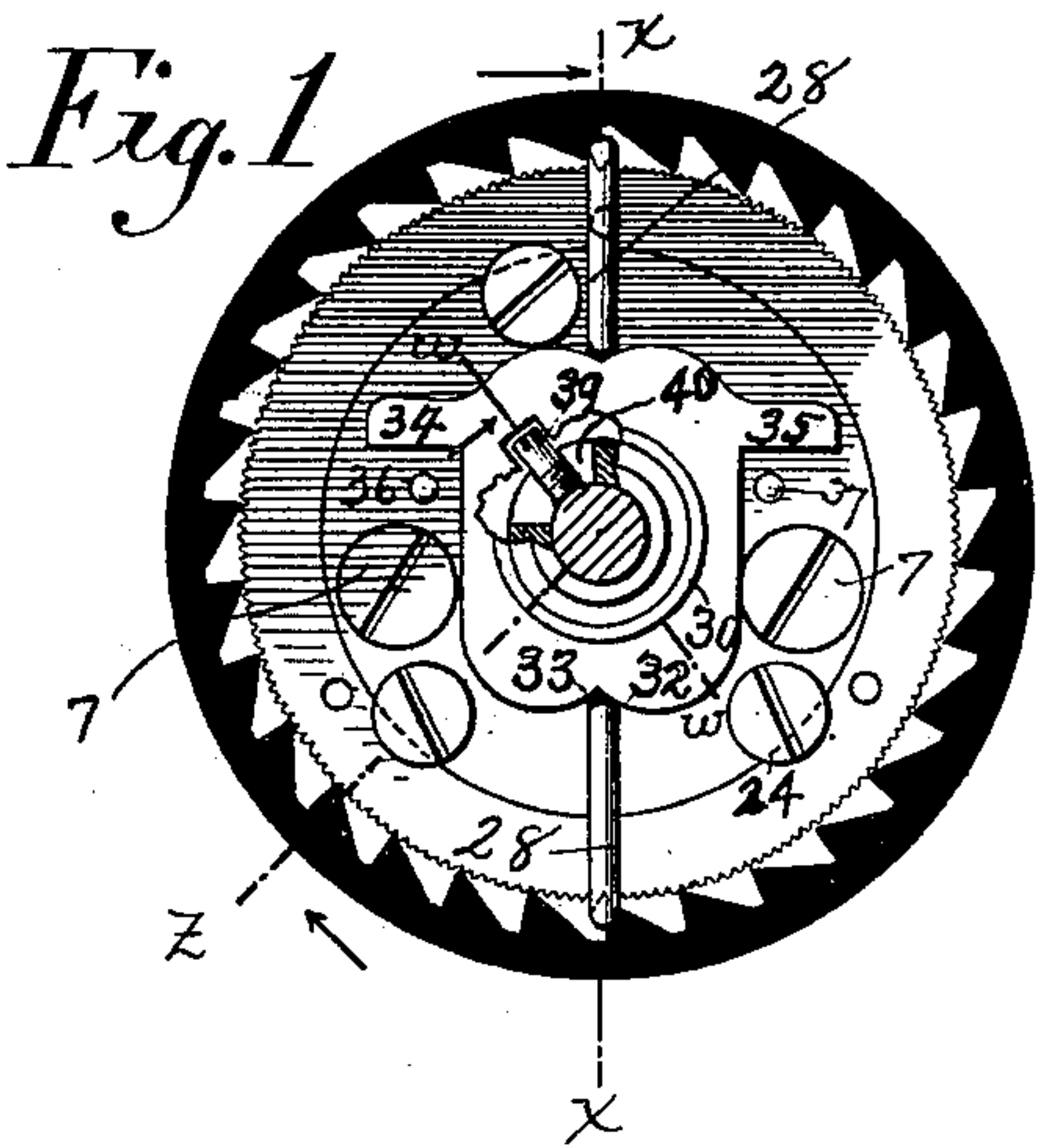
No. 658,157.

Patented Sept. 18, 1900.

H. W. MERRITT.
TYPE WRITING MACHINE.

(Application filed Oct. 29, 1897.)

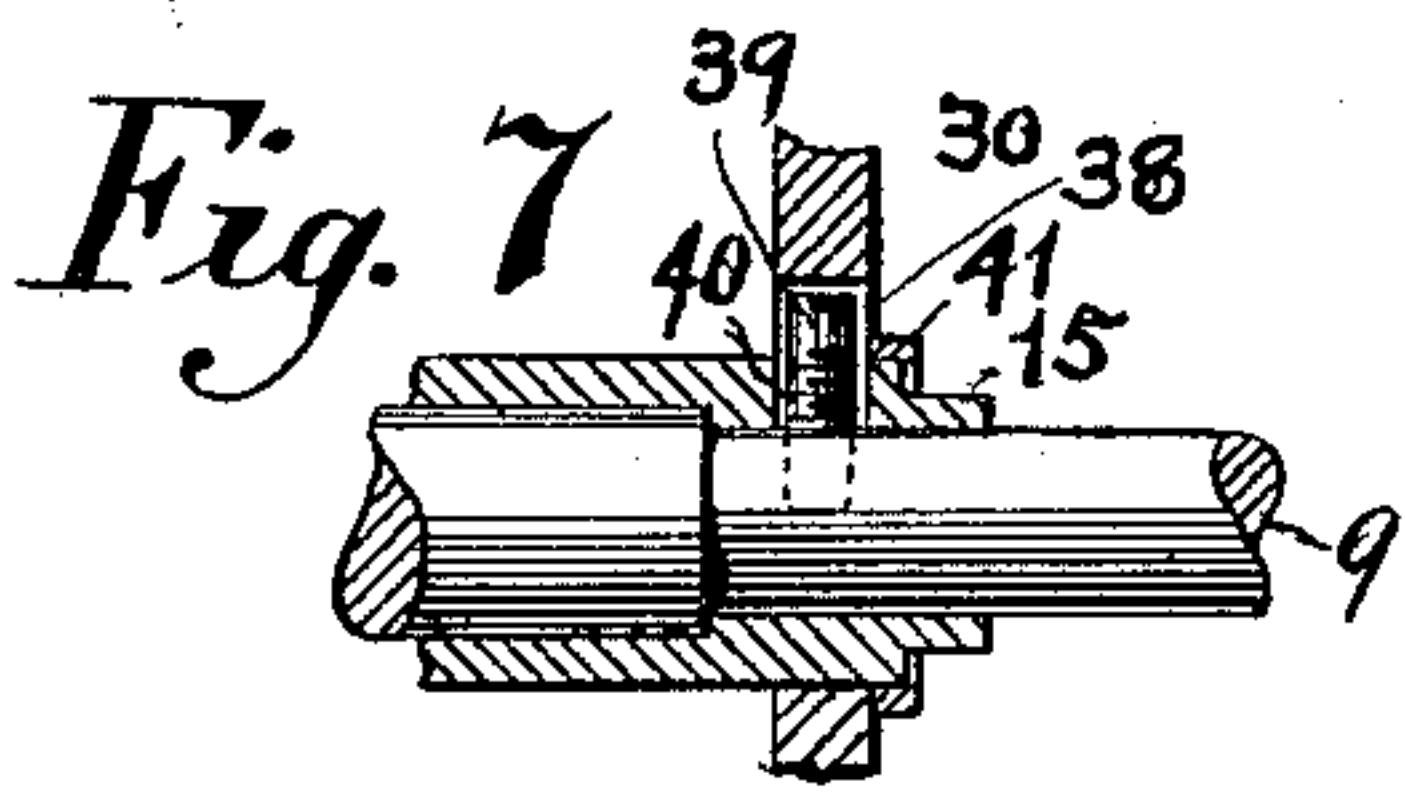
(No Model.)



WITNESSES:

Fr. N. Rockrich.

mv.Pool



INVENTOR

J. W. Marriott

Fig. 6 By Jacob Felted

ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY W. MERRITT, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO THE
DENSMORE TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 658,157, dated September 18, 1900

Application filed October 22, 1897. Serial No. 656,045. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. MERRITT, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention has for its main object to provide simple and effective means for releasing the platen from its connection with the line-spacing mechanism, so as to enable the platen to be rotated freely in either direction either for minute distances or through large arcs, as may be desired, and for the purpose more particularly of facilitating the writing on paper having ruled lines or blank spaces in printed lines, which are arranged or provided either at variable linear distances apart, or, if equidistantly, yet at distances either greater or less than the distance apart of the teeth of the ratchet-wheel forming a part of the usual line-spacing mechanism.

My invention consists in the features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is an end elevation of a platen or printing-roller involving my improvements and showing the parts in their normal conditions, the usual line-spacing lever employed in connection with the ratchet-wheel therein shown being omitted for the sake of simplifying the drawings in this view as well as in the remaining views. Fig. 2 is an end elevation similar to Fig. 1, but showing the releasing mechanism in a different position—that is to say, one in which the dogs or pawls are thrown out of engagement with the fine-toothed ratchet-wheel. Fig. 3 is a partial longitudinal section taken at the line *xx* of Fig. 1. Fig. 4 is a similar section taken at the line *yy* of Fig. 2. Fig. 5 is a detail sectional view taken at the line *zz* of Fig. 1. Fig. 6 is an end view, on reduced scale, of part of the releasing mechanism looking in the direction of the arrow at Fig. 3 with the platen proper removed, and Fig. 7 is a detail sectional view taken at the line *ww* of Fig. 1.

In the several views the same part will be

found designated by the same numeral of reference.

1 designates the usual cylindrical platen or printing-roller employed in a type-writing machine and composed of the usual wooden core 2 and rubber cover or sheath 3. The core is made hollow or perforated axially, as at 4, to receive the tubular shank 5 of a device consisting, mainly, of said shank and a circular plate or flange 6, which latter is secured to the right-hand end of the platen-core by means of two screws 7 7, which pass through perforations formed in the metallic flange 6 and screw into the wooden body of the core, thus connecting rigidly together said flanged device and the platen proper.

Within the bore 8 of the shank is seated or arranged the inner end of the platen rod or shaft 9, which is preferably made of two diameters, so as to form a shoulder 10, which engages with an opposing shoulder 11, the bore being also made of two diameters, as shown. At the outer end of the shaft is pinned or screwed a knob or handle 12, between which and the side bar 13 of the platen frame or carriage may be arranged a sleeve or washer 14. The outer end or neck 15 of the tubular shank takes a bearing in a hole in the said side bar 13.

The tubular shank 5 is slotted or cut away on two diametrically-opposite lines, as at 16 16, and the head or flange 6 is likewise cut away in continuation of the slots 16 for the introduction and operation of two levers or dog-carrying arms 17, which are pivoted at 18 in the slots 16 and provided at their innermost ends with preferably a single spring 19, which operates normally to spread the inner ends of said levers or arms and cause the dogs 20 at their outer ends to engage with the teeth of the ratchet-wheel 21, which wheel is preferably riveted at 21^a to the outer side of another ratchet-wheel 22, and both said wheels are loosely mounted upon a circular hub 23, formed at the outer end of the flange or head 6. The said wheels are secured upon said hub against accidental lateral detachment by means of three screws 24, whose shanks enter the flange or head 6 and whose heads overlap the outer side of the ratchet-wheel 21. The ratchet-wheel 21 is formed with a multi-

tude of very fine teeth, and the spaces between these teeth are engaged by the diametrically-opposite dogs 20, which are formed, preferably, with sharp or knife-like edges facing each other. Each dog-carrying lever is formed with a straight bar-like portion 25 parallel with the axis of the platen, a short radially-disposed portion 26, a short longitudinally-disposed portion 27, parallel with the portion 25, a radially-arranged portion 28 at right angles to the latter, and a short inwardly-projecting portion 29, which carries the dog 20.

The dog-carrying levers are adapted to be acted upon by a vibratory device or plate 30, which is perforated at about its middle to take a bearing on a circular seat 31 at near the outer extremity of the head. This plate or device 30 is provided with two pairs of cams 32 33 32 33, each pair being on diametrically-opposite sides of the said plate, and which latter is also formed or provided with laterally-projecting arms 34 and 35, adapted for contact with two pins 36 and 37, projecting outwardly from the head 6. The plate or actuator 30 is formed with a slot or opening 38, which receives a portion of a screw or pin 39, which screws into or is secured to the shaft or rod 9. The projecting portion of said screw or pin passes through a hole 40, formed in the seat or bearing 31 of the plate. The walls of this hole or opening are preferably made to taper or flare outwardly to permit of an initial independent movement of the pin and plate when the shaft is turned and for the purpose of positively disengaging the dogs 20 from the fine-toothed ratchet-wheel 21 before any rotatory movement of the platen can take place, as will be presently more fully described.

In assembling the screw 39 is first passed through the flaring hole 40 in the seat and screwed into the shaft, and the vibratory plate 30 is then slipped onto its seat with the slot or opening in register with the screw and so as to embrace or house the same when properly seated, after which the small ring or washer 41 may be put onto the bearing, so as to keep the vibratory plate out of contact with the side bar 13 of the platen-frame. Thus the vibratory plate and the head 6 are put into operative connection with the shaft or spindle.

Referring now to Fig. 1, the dogs 20 are shown as in engagement with the opposite sides of the fine-toothed ratchet-wheel. When the parts are in the positions represented, the platen ratchet-wheel 22 must turn with the platen or roller, and it may be turned either by applying the hand to the roller proper itself or to the usual hand-wheel (not shown) at the left-hand end of the roller, and which is rigidly secured thereto in the Densmore and other machines, and when the parts are in the position shown at Fig. 1 when the line-space lever (not shown) is actuated its driving-pawl, engaging with the ratchet-

wheel 22, will turn the same and all of the other rotatory parts of the platen as a whole, the usual spring-pressed holdfast dog or roller (not shown) playing in and out of the spaces between the teeth of the ratchet-wheel as the teeth pass by said holdfast device; but it will be observed that in such rotatory movements of the platen the platen must turn step by step a distance equal to the distance between the space of one notch and that of an adjacent notch of the ratchet-wheel 22 and that hence such step-by-step feeding is unsuited for writing upon paper previously ruled or upon printed blanks having spaces to be filled in on different lines. Of course for ordinary work with plain and unruled paper the line-spacing mechanisms may act in the usual manner. Now when it may be desired to turn the platen variably independently of the line-spacing mechanism and for the purpose of bringing any ruled lines or blank spaces to the printing point or line it is only necessary to turn the handle or knob 12, and when this is done the platen is released or separated from the line-spacing mechanism and may then be turned in either direction—either a very slight distance or through a greater distance or arc, as may be desired or necessary. At the beginning of the turning movement of the knob or handle the pin 39, carried by the shaft and in engagement with the plate 30, first turns or oscillates said plate slightly before any movement of the roller, and this initial movement of the plate operates, by means of the cams thereon, to first act upon the dog-carrying levers and move them outwardly or radially against the tension of their spring, so as to simultaneously move both the dogs 20 from engagement with the fine-toothed ratchet-wheel 21. As the rotation of the knob and shaft is then continued in the same direction, the head 6 is caused to turn therewith, and since said head is attached to the core of the platen the latter is in consequence caused to turn at the same time; but during this rotative movement both of the ratchet-wheels 20 and 21 remain stationary, their bearing or hub 23 rotating within the wheels, and which are prevented from turning by the holdfast dog or roller of the line-spacing mechanism. The platen being thus freed from the line-spacing mechanism, it may of course be turned in either direction and to any desired extent. It will be understood, of course, that when the dogs are in engagement with the ratchet-wheel 21 and the line-spacing pawl is actuated to drive the ratchet-wheel 22 all of the parts turn together.

Referring to Fig. 2, I have shown the dogs 20 as out of engagement and the parts in the condition requisite to enable the platen to be rotated without the ratchet-wheels, the actuating-plate 30 having been oscillated slightly and the opposing cams 33 having vibrated the levers 17 and caused a disengagement of said dogs. When the knob or han-

dle is released, the spring 19 immediately restores the dogs into engagement with the fine-toothed wheel 21. If the shaft be turned in a direction opposite to that indicated at Fig. 2 by the position of the actuator 30, the cams 32 32 will act on the dog-carrying levers to simultaneously disengage the dogs. It will thus be seen that the construction is such that the platen may be released from the line-spacing mechanism and turned in either direction by the mere turning of the shaft 9. As before explained, the plate 30 is vibrated during the initial turning of the shaft and before any movement of the roller occurs. The turning of the roller takes place after the said vibration of the plate and when the threaded pin 39 has come against the wall at either side of the hole 40. At about this time either the arm 34 has come into contact with its pin 36 or the arm 35 has come in contact with its pin 37, according to the direction of turning of the shaft, and by such contact the head 6 is also caused to turn positively with the shaft and in turn to carry the platen with it.

It will be understood, of course, that the heads of the screws 24 do not bear tightly against the side of the toothed wheel 21, and hence they do not interfere with the rotation of the head 6 independently of said wheel and the line-spacing ratchet-wheel when released from connection with the shaft and the platen, and it will also be understood that when this release is effected the dogs travel around the toothed wheel 21, but out of engagement therewith as the shaft is rotated. The teeth of the ratchet-wheel being very fine or close together and the dogs having knife-like edges when the handle is released the dogs will instantly engage opposing spaces in said wheel and without effecting the slightest rotation thereof due to such engagement. Hence whenever the desired ruled line or blank space or other portion of the work is brought to the printing point or line and the shaft is released there will be no shifting or movement of the paper which would take the same out of true printing position, as might be the case if the teeth were coarse or comparatively far apart and the dogs should not move directly to their seats.

Of course the mechanism is capable of advantageous use for making corrections in ordinary type-written matter where the line to be corrected must be brought around to the printing-point. For making such corrections it is only necessary to set the paper straight and then by means of the knob feed the paper along until the place of correction is brought to the printing-point, thus avoiding pulling the paper by hand over the surface of the platen, as heretofore generally practiced.

The radially-cut teeth on the ratchet-wheel 21 are formed on the outside or periphery of the wheel instead of on the inside, as in a companion case, which is of advantage, since I

can thereby obtain a greater number of teeth and make a finer-toothed wheel, and I can also cut them instead of rolling them, which is the preferred method of making teeth.

It will be seen that the two ratchet-wheels 21 and 22, although made of separate rings, are by reason of their union together practically one device—to wit, a wheel or ring having a circular series of line-spacing ratchet-teeth and a separate circular series of fine ratchet-teeth through the dogs to connect the device or compound-toothed wheel to the platen.

It will also be seen that I have contrived a mechanism for adjusting the paper in opposite directions through either regular or irregular intervals at will and that said mechanism comprises a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a wheel, as 22, having a series of positioning teeth or notches arranged at line-space intervals and a series of minute teeth, as 21, provided upon or connected to said wheel. Of course during the operation of the line-feeding mechanism the wheel 22 performs the function of a line-feed wheel; but it will be understood that during the rotation of the platen in either direction by the left-hand finger-wheel for the purpose of adjusting the paper thereon through one or more line-spaces said wheel 22 operates only as a positioning-wheel—that is to say, if the platen when turned should be stopped at a point between two lines of writing the spring-check which is provided upon the Densmore machine would by a camming action upon a tooth of said wheel move the platen automatically a slight distance to bring the paper thereon into exact line-space position. Thus the operator may turn the platen back a few lines either to correct an error or for any other purpose by means of the left-hand finger-wheel, which is rigidly connected to the platen, the wheel 22 coöperating with the said spring-check to position the platen so that the correction may be made exactly upon the line of writing. Then the operator may rotate the platen forwardly to continue his work, the wheel 22 again coöperating with said spring-check to position the platen. Hence by manipulation of the left-hand finger-wheel the paper may be adjusted in opposite directions through regular line-space intervals, and by manipulation of the right-hand finger-wheel the paper may be adjusted in opposite directions through irregular or minute intervals.

The broad features of invention disclosed herein are made the subject-matter of said companion application, filed simultaneously herewith and serially numbered 656,044. The claims herein relate only to features of construction which are not disclosed in said companion application.

While I prefer to employ the two diametrically-opposite dogs 28, as thereby the best

results are obtained, it will be understood that the platen may be released and turned if only one said dog is used. Hence I do not want to be limited to the employment of both
5 dogs unless specifically stated in the claims.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, a mechanism for adjusting paper in opposite directions
10 through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means
15 including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a series of minute teeth connected to or provided upon said wheel, a dog connected to the platen and normally in engage-
20 ment with said minute teeth, an oscillator mounted on the hub or bearing, and a hand shaft or spindle passing therethrough and connected with said oscillator.

2. In a type-writing machine, a mechanism for adjusting the paper in opposite directions
25 through either regular or irregular intervals at will, comprising in combination, a cylindrical platen, means operating automatically to position the platen after rotation in either
30 direction, said positioning means including a wheel having a set of positioning teeth or notches arranged at line-space intervals, a set of minute teeth connected to or provided upon said wheel, a dog connected to the platen
35 and normally in engagement with said set of minute teeth, a hub or bearing, an oscillator mounted thereon and having a slot or opening, a shaft or spindle passing through said hub or bearing and having a radial pin
40 projecting into said slot or opening.

3. In a type-writing machine, a mechanism for adjusting paper in opposite directions
45 through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means in-
50 cluding a wheel having a series of positioning teeth or notches arranged at line-space intervals, a set of minute teeth connected to or provided upon said wheel, a spring-pressed dog connecting said set of minute teeth to the platen, a hub or bearing, an oscillator
55 mounted thereon and having a cam or projection for disengaging said dog, and a hand shaft or spindle passing through said hub and operatively connected to said oscillator.

4. In a type-writing machine, a mechanism for adjusting paper in opposite directions
60 through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means
65 including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a series of minute teeth connected

to or provided upon said wheel, a plate or head upon which said wheel is mounted, said plate or head being secured to one end of
70 said platen and having a tubular shank inserted within the platen, a spring-pressed dog normally engaging said series of minute teeth, an oscillator for disengaging said dog, and a shaft or spindle operatively connected
75 to said oscillator.

5. In a type-writing machine, a mechanism for adjusting paper in opposite directions
80 through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means
85 including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a series of minute teeth connected to or provided upon said wheel, a platen shaft or spindle, a plate or head secured to one
90 end of the platen and having a tubular shank inserted within said platen, an arm or lever pivoted in a slot in said shank and carrying at its outer end a dog normally engaging said series of minute teeth, and means for disen-
95 gaging said dog operatively connected to the platen shaft or spindle.

6. In a type-writing machine, a mechanism for adjusting paper in opposite directions
100 through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means in-
105 cluding a wheel having a series of positioning teeth or notches arranged at line-space intervals, a set of minute teeth connected to or provided upon said wheel, a plate or head upon which said wheel is mounted, said plate or
110 head being secured to one end of the platen and having a tubular shank inserted within said platen, a spring-pressed arm or lever carrying a dog which is normally in engagement with said set of minute teeth, a hub or bearing
115 on said plate or head, an oscillator mounted thereon, and a shaft or spindle passing through said hub or bearing and said shank and operatively connected to said oscillator.

7. In a type-writing machine, a mechanism for adjusting paper in opposite directions
120 through either regular or irregular intervals, at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means in-
125 cluding a wheel having a series of positioning teeth or notches arranged at line-space intervals, a set of minute teeth connected to or provided upon said wheel, a plate or head secured to one end of the platen and carrying a spring-
130 pressed dog normally engaging said set of minute teeth, and an oscillator supported by said plate or head and adapted to be turned to disengage said dog.

8. In a type-writing machine, a mechanism for adjusting paper in opposite directions

through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a set of minute teeth connected to or provided upon said wheel, a head upon which said wheel is mounted, said head being secured to one end of the platen and having a tubular shank, a spring-pressed arm or lever pivoted to said shank and carrying a dog which is normally in engagement with said set of minute teeth, a plate having a cam or projection, means for turning said plate to disengage the dog, and means for stopping such turning movement of the plate.

9. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a set of minute teeth connected to or provided upon said wheel, a plate or head upon which said wheel is mounted, said plate or head being secured to one end of said platen, a pair of diametrically-arranged spring-pressed dogs normally engaging said set of minute teeth, a plate having a plurality of cams or projections adapted to disengage both said dogs and a platen shaft or spindle for actuating said plate.

10. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a set of minute teeth connected to or provided upon said wheel, a head upon which said wheel is mounted, said head being secured to one end of the platen, a pair of opposite spring-pressed dogs normally engaging said set of minute teeth, a plate mounted on a hub on said head and having four cams or projections, and a platen shaft or spindle operatively connected to said plate.

11. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a set of minute teeth connected to or provided upon said wheel, a head upon which said wheel is mounted, said head being se-

cured to one end of the platen, a pair of opposite spring-pressed dogs normally in engagement with said set of minute teeth, a plate provided with four cams or projections, an arm or arms adapted to a stop or stops on said head, and a platen shaft or spindle operatively connected to said plate.

12. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a set of minute teeth provided upon said wheel, a head upon which said wheel is mounted, said head being secured to one end of the platen and having a tubular shank, a pair of arms or levers pivoted in slots in said shank and provided at their outer ends with dogs which normally engage said set of minute teeth on opposite sides, a plate mounted on a hub or bearing on said head and provided with four cams or projections and two arms adapted to two stops on said head, and a platen shaft or spindle mounted in said tubular shank and provided with a pin adapted to a slot or opening in said plate.

13. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a ring having a series of positioning teeth or notches arranged at line-space intervals thereon, a set of minute teeth formed upon a second ring which is secured to said first-mentioned ring, a head upon which said rings are mounted, said head being secured to one end of said platen, a dog normally engaging said set of minute teeth, a platen shaft or spindle, and means connected therewith for disengaging said dog.

14. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a ring having a series of positioning teeth or notches arranged at line-space intervals, a second ring united to the first and having a series of minute teeth formed thereon, a head upon which said rings are mounted, said head being secured to one end of said platen, a pair of spring-pressed dogs normally engaging said set of minute teeth, an oscillator mounted on said head and adapted to both said dogs, and a handpiece operatively connected to said oscillator.

15. In a type-writing machine, a mechanism for adjusting paper in opposite directions

through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a ring having a series of positioning teeth or notches arranged at line-space intervals, a second ring having a series of minute teeth, said rings being connected together and loosely mounted at one end of said platen, two spring-pressed dogs normally engaging said series of minute teeth, and means connected to the platen shaft or spindle for simultaneously engaging both of said dogs.

16. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a ring having a series of positioning teeth or notches arranged at line-space intervals, a second ring having a series of minute teeth, said rings being connected together and loosely mounted at one end of said platen, a spring-pressed dog normally engaging said set of minute teeth and connected to the platen, a platen shaft or spindle, and an intermediate device connected thereto for disengaging said dog.

17. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically

to position the platen after rotation thereof in either direction, said positioning means including a ring having a series of positioning teeth or notches arranged at line-space intervals, a parallel ring having a set of minute teeth, said parallel rings being connected together and loosely mounted at one end of said platen, two diametrically-arranged spring-pressed dogs normally engaging said set of minute teeth, and an oscillator adapted to simultaneously disengage both said dogs, and a platen shaft or spindle adapted to actuate said oscillator.

18. In a type-writing machine, a mechanism for adjusting paper in opposite directions through either regular or irregular intervals at will, comprising, in combination, a cylindrical platen, means operating automatically to position the platen after rotation thereof in either direction, said positioning means including a wheel having a series of positioning teeth or notches arranged at line-space intervals, a series of minute teeth connected to or provided upon said wheel, a second wheel rigidly connected thereto and having upon its outer peripheral edge a set of minute teeth, and a releasable dog connected to the platen and normally in engagement with said set of minute teeth.

Signed at Springfield, in the county of Hampden and State of Massachusetts, this 18th day of October, A. D. 1897.

HENRY W. MERRITT.

Witnesses:

J. G. DUNNING,
CHAS. J. BOND.