

No. 621,389.

Patented Mar. 21, 1899.

H. TÜRK.
TYPE WRITING MACHINE.

(Application filed Nov. 16, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

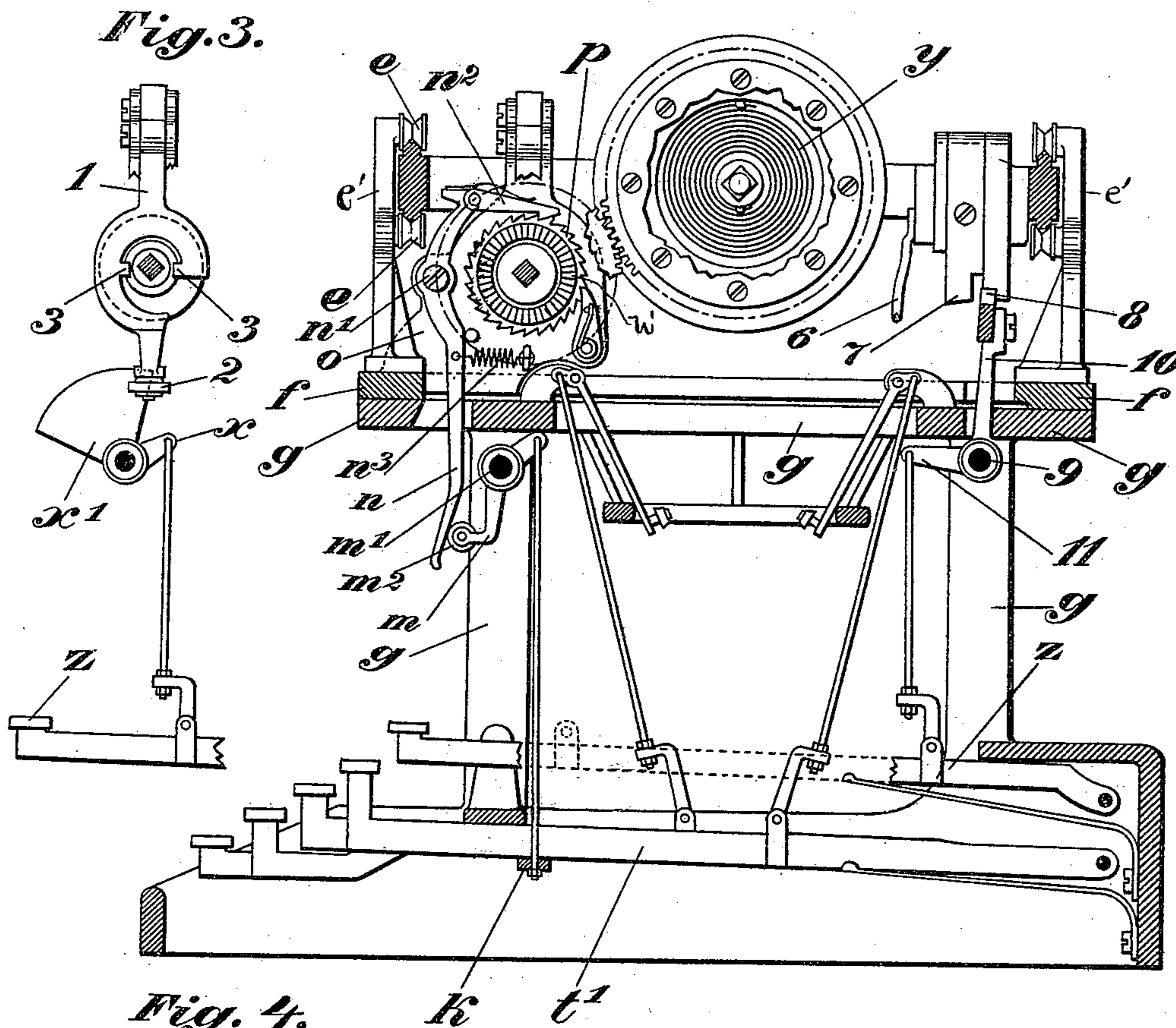


Fig. 4.

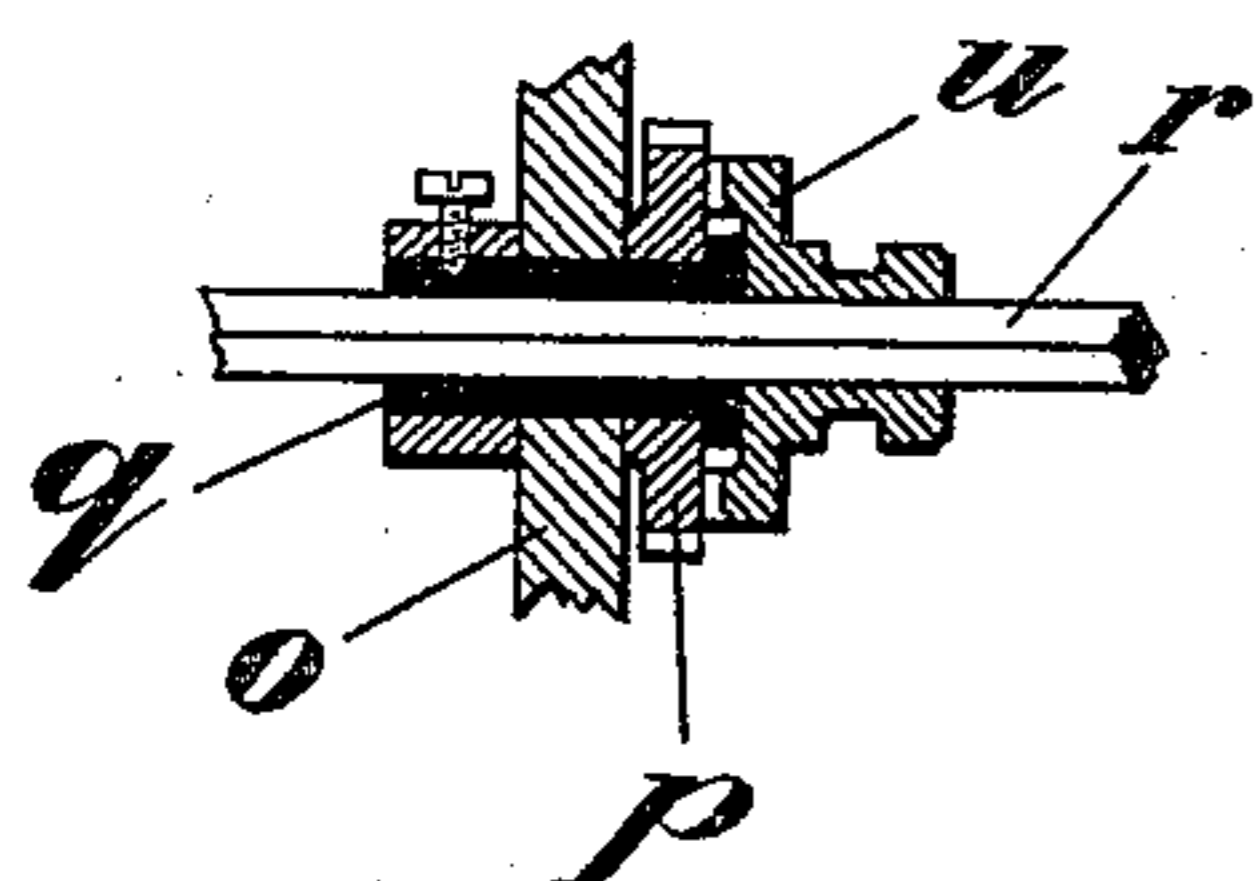
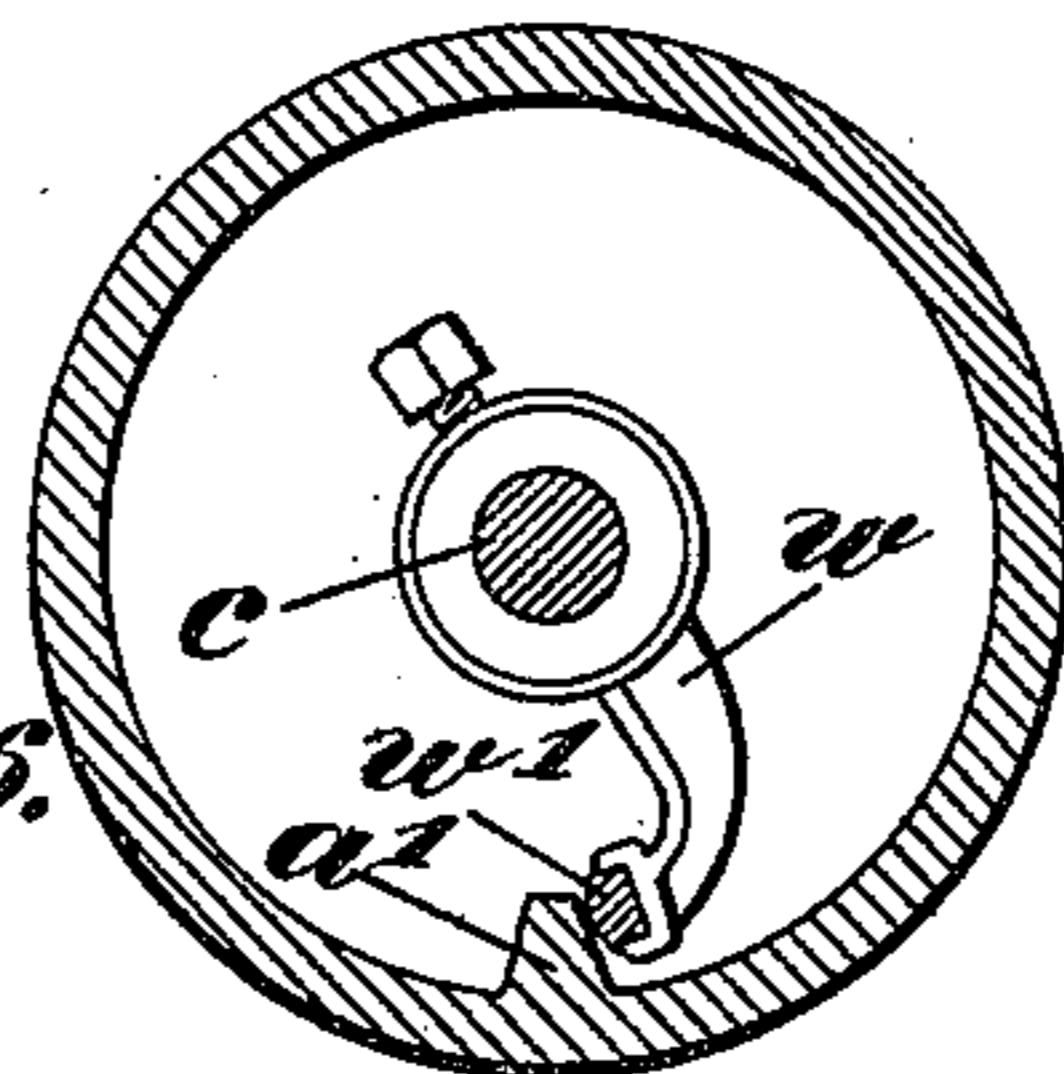


Fig. 6.



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2 Sheets—Sheet 2.

Fig. 2.

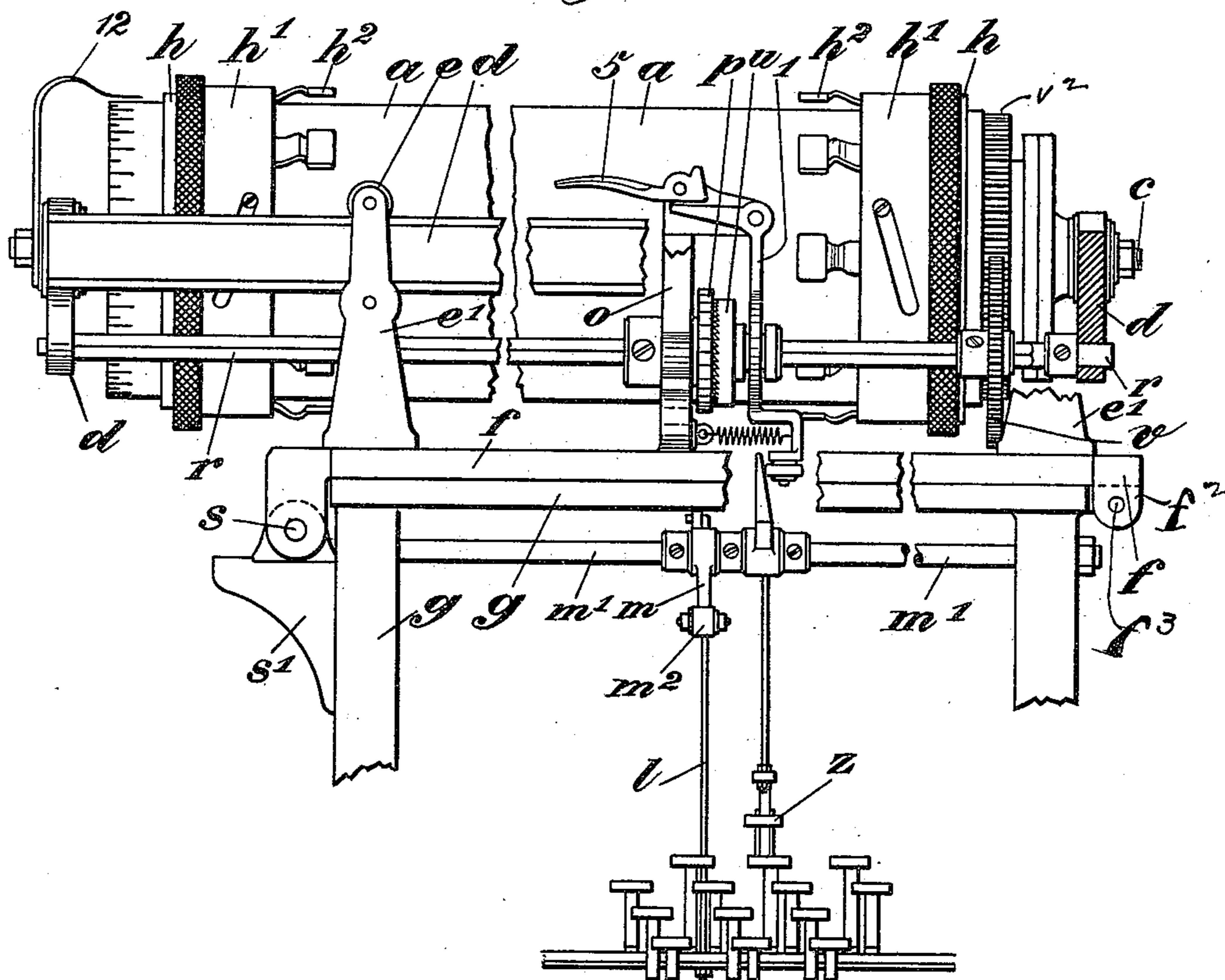
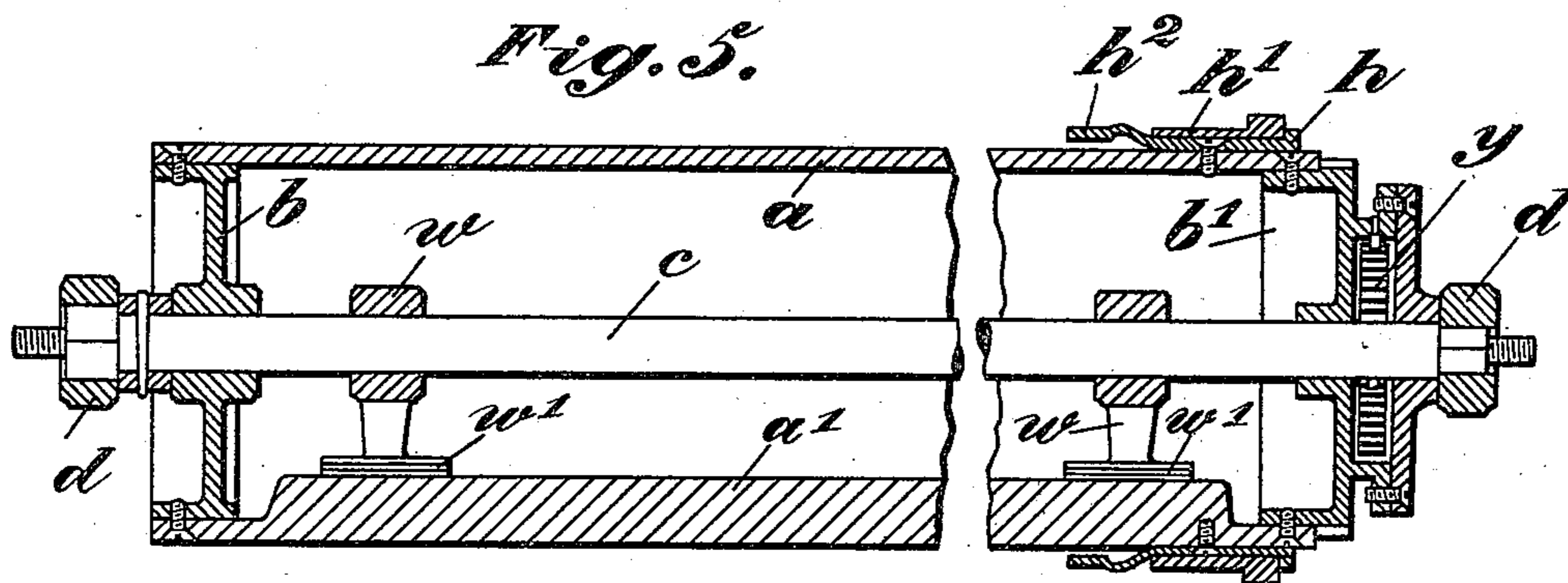


Fig. 5.



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UNITED STATES PATENT OFFICE.

HANS TÜRK, OF BERLIN, GERMANY.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 621,389, dated March 21, 1899.

Application filed November 16, 1897. Serial No. 658,730. (No model.)

To all whom it may concern:

Be it known that I, HANS TÜRK, a subject of the King of Prussia, Emperor of Germany, residing at Berlin, in the Kingdom of Prussia, German Empire, have invented certain Improvements in Type-Writing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in type-writing machines and comprises devices by means of which the operator is enabled to write a whole page without moving his hands from the keyboard—that is to say, the return of the paper to the line-starting point and the spacing between the lines are simultaneously effected by acting upon a special key.

The new action is produced according to these improvements in the following manner: By the motion of the key-levers during writing the paper is moved as usual, and a spring connected with it is strained until the end of the line is reached, when the depression of a special key releases the spring, which then restores the paper to the line-starting point, the spacing between the lines being simultaneously effected.

The practical use of the new devices is illustrated by the accompanying drawings, which represent parts of a machine, and in which—

Figure 1 represents a cross-section through the type-writing machine; Fig. 2, a front view of the principal parts; Fig. 3, the key and its accessories for spacing between the lines and effecting the return of the paper; Figs. 4, 5, and 6, details.

As represented by the drawings, the paper-cylinder a , which is shown in longitudinal and cross sections, respectively, by Figs. 5 and 6, consists of a shell made of vulcanite or other suitable material, closed at the ends by the disks b , which can rotate on the shaft c , formed with square ends mounted in the frame d , surrounding the cylinder in a horizontal direction. This frame is carried between rollers e , mounted on the brackets e' , fixed upon the middle frame f , which when the machine is being worked rests upon the bottom frame g . The middle frame is pivoted at s to the lower frame g to enable the carriage to be turned up vertically to enable

the operator to examine his work and for other purposes. A projection s' prevents the carriage being overturned. The arrangement of the keys and key-levers may be on any approved system. That which is indicated by the drawings is the Remington arrangement. The middle frame f is provided with an apertured lug f^2 , having a securing means f^3 , whereby the said frame is held in the position shown in Fig. 2.

After any of the keys has been depressed for the production of a letter or space and while the key is on its return stroke the cylinder a moves through a unit of its circumference around the shaft c , this unit being exactly equal to the distance between two contiguous letters in the writing. At the end of the line the key z is depressed, and this action returns the cylinder to its original starting position and at the same time displaces the cylinder longitudinally to a distance equal to the distance between the centers of two lines of writing. The devices for obtaining these results form the more important features of this invention.

A cross-bar k is arranged below the key-levers t , so as to be moved downward when any of the keys t is depressed. A light rod l , connected with the bar k , thereupon moves the double-armed lever m upon its fulcrum m' , fixed upon the lower frame g . The lower member of this lever is fitted with a friction-roller m^2 , which is in contact with the lower arm of the lever n upon a bracket o on the frame f . The motion of the bar k is thus translated to a pawl n^2 , fitted upon the upper arm of the lever n and engaging with the teeth of a ratchet-wheel p , so that when a key is depressed the pawl slides over one tooth, a click or detent preventing the movement of the wheel in the same direction. On the return stroke of the key the wheel p is rotated through the space of one tooth by the spring n^3 pulling on the lower member of the lever n . The ratchet-wheel p is mounted so as to rotate freely upon the sleeve q , (see section Fig. 4,) so that its lateral displacement is prevented. This sleeve is mounted upon the square shaft r , which is journaled at its ends in the frame d , Fig. 2. The shaft r is thus enabled to rotate with the sleeve q and to move freely in a longitudinal direction through it

independently of the movement of the ratchet-wheel p . There is mounted upon the shaft r a dog-tooth or other clutch u , capable of engaging with and of being disengaged from the ratchet-wheel p , whereby the motion of the ratchet-wheel can be transmitted to the square shaft r when the clutch is in engagement. The center teeth u' are arranged on the face of the ratchet-wheel p so that the center may be moved into engagement therewith, as it will be understood. This shaft has fixed upon it a pinion v , gearing with teeth v^2 , formed upon the part b' of the cylinder. The motion of the bar k is thus ultimately communicated to the paper-cylinder a .

The return of the paper-cylinder to its precise starting position is secured at the commencement of each line of writing by means of arms $w w$, which are fixed at suitable intervals upon the shaft c within the cylinder, as shown by Figs. 5 and 6, in combination with the longitudinal rib a' . The ends of the arms where they touch the rib may be faced with felt or rubber. When the type-writer or operator is working, the rotation of the cylinder moves the rib step by step away from the arms $w w$. By this rotation of the cylinder a helical spring y , inclosed within a casing, part of which is shown as being broken away in Fig. 1, becomes gradually wound up, thus accumulating power, which is utilized for producing the line-spacing movement, as hereinafter described, on the motion of the key z .

As shown by Fig. 3, the key-lever z is connected by a light rod with the bell-crank lever $x x'$, which oscillates upon the shaft m in a vertical plane at right angles with the axis of the cylinder a . The arm x of this lever has the form of a sector of a disk, one side of which is inclined relatively to the plane of its motion. In contact with the inclined part of x' there is a friction-wheel 2 on the lower end of the lever, which engages at 3 3 with the before-mentioned clutch u . Hence the motion of the key z can actuate that clutch in such a manner that when the key is depressed the clutch is disengaged, whereupon the spring y , being released, rotates the cylinder back to its starting position, the clutch and sleeve rotating also, but the ratchet-wheel remaining stationary. It will be seen that it is the release of the ratchet-wheel which effects the release of the spring y , and that the cylinder rotates backward until stopped by the contact of its rib a' with the arms $w w$ at the starting position. Immediately upon the release of the key z the rod l' , kept in a strained position by the spring 4, restores the clutch to engagement with the ratchet-wheel p , so that the paper-cylinder is once more obliged to participate in the rotary motion of the wheel.

The longitudinal motion of the cylinder a , which takes place simultaneously with its backward rotation, may be effected in any known manner—as, for example, by means

of the devices employed for the same purpose in the Remington machine, as hereinafter described.

The carriage and shaft r , during its motion at any time toward the left, strains a spring with which the carriage is connected by the wire or cord 6. The carriage is held in position by means of the double dogs 7, carried on the frame d and engaging with the teeth of a rack 8, which is carried by arms 10, fixed upon a shaft 9, mounted in the lower frame g . A lever 11, fixed upon the same shaft 9 between the arms 10, is attached by a light connecting-rod with the key-lever z . Thus when the key z is actuated or the rack 8 is otherwise moved laterally the carriage will be moved to the right through a distance equal to the pitch of the rack, which should correspond with the space between the centers of the nearest lines of the writing.

If wider spaces between the lines are desired, it is necessary only to depress the key z two or more times. If it be desired to move the carriage backward and forward to read the writing or to replace the paper on the cylinder, the thumb-lever 5, Fig. 2, may be moved into a vertical position. The end of this lever then comes into contact with and depresses an arm of the lever l , thereby disengaging the clutch u , whereupon the cylinder may be turned in any direction freely. An index-finger and scale 12 may be arranged in connection with the end b of the cylinder to facilitate the return of the cylinder to the writing position after it may have been moved for correction of the writing. A signal-gong may be arranged upon the frame and a projection upon the carriage to actuate it.

The paper may be secured upon the cylinder by means of the rings $h h'$, which can be rotated the one within the other. The inner ring, as shown, however, is fixed and furnished with the grips h^2 and pin i , passing through an inclined slot i' in the outer ring. The paper having been arranged on the cylinder below the grips, the rings h' are turned, when the pin and slot in each inner ring compel the outer rings to advance toward the center of the cylinder and close the grips upon the paper.

Having thus described my invention, what I claim is—

1. In a type-writing machine, a cylinder, a longitudinal rib therein, arms on the shaft in contact with the rib, means for giving the cylinder a step-by-step rotation, means for returning the cylinder to the starting-point, a dog and rack for effecting a longitudinal movement of the cylinder in spacing lines of writing, substantially as described.

2. In a type-writing machine, the combination and arrangement with the paper-cylinder rotating on a fixed spindle of arms within the cylinder fixed upon its spindle, a longitudinal rib in contact with the arms at the commencement of a line, means for giving the cylinder a step-by-step rotation a

spring which is wound up by the step-by-step rotation of the cylinder in writing, and a key for releasing the spring at the end of the line, whereupon the cylinder is returned
5 by the spring to the starting-point; substantially as hereinbefore described and as illustrated by the accompanying drawings.

3. In a type-writing machine, a helical spring y , an externally-toothed casing b' , a
10 pinion engaging with the teeth of the casing and mounted upon a square shaft r , a sleeve q mounted on the square shaft, a ratchet-wheel p mounted upon the sleeve, a clutch u

mounted on the square shaft and engaging with the sleeve, a lever l operating the clutch, 15 and an inclined sector x' , operating the clutch-lever, the key z , constructed and arranged substantially as and for the purpose hereinbefore described and as illustrated by the accompanying drawings. 20

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

HANS TURK.

Witnesses:

HENRY HASPER,
W. HAUPT.