

No. 770,990.

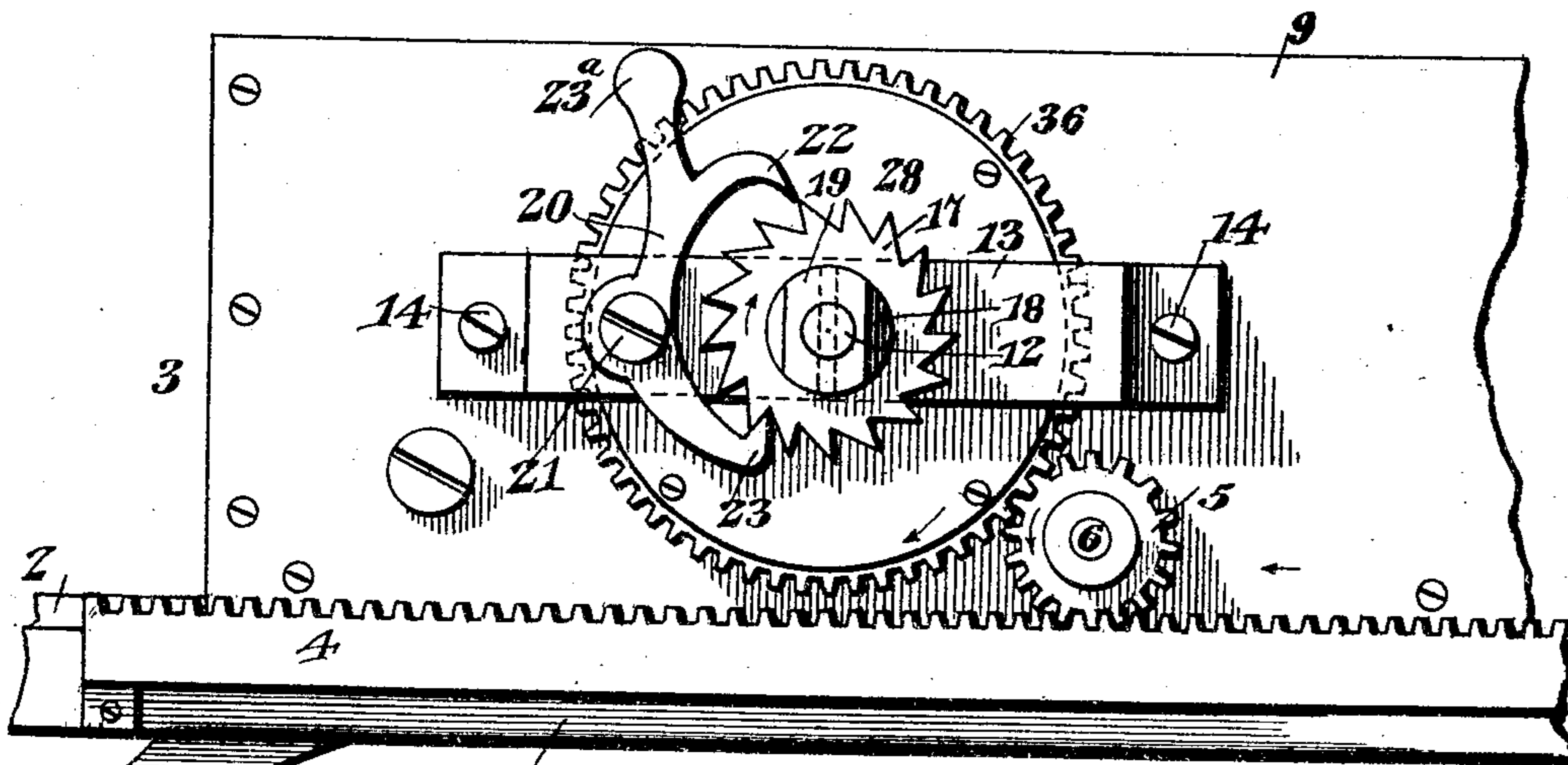
PATENTED SEPT. 27, 1904.

W. A. TWINING.  
TYPE WRITING MACHINE.  
APPLICATION FILED DEC. 12, 1903.

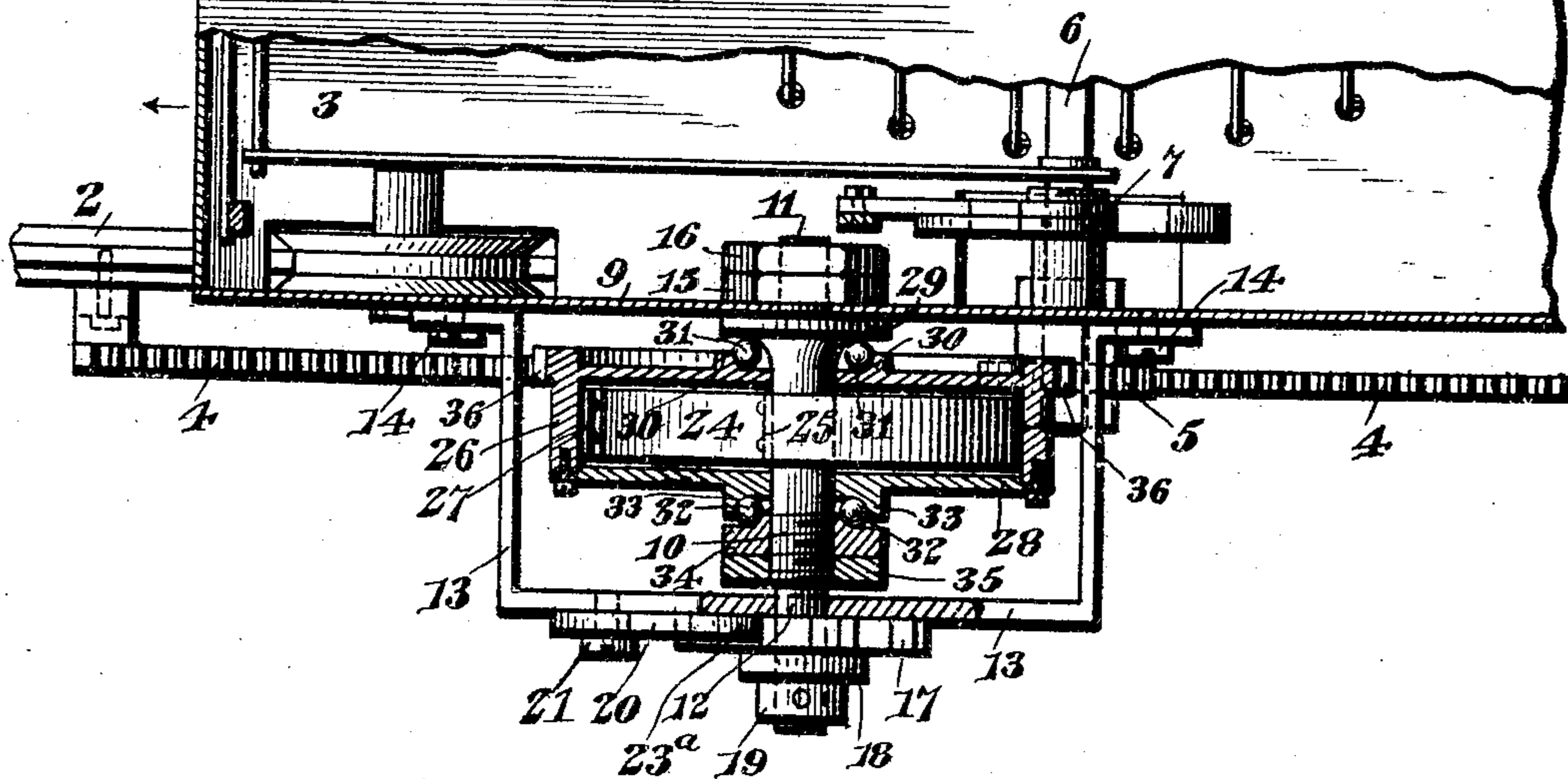
NO MODEL.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



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By

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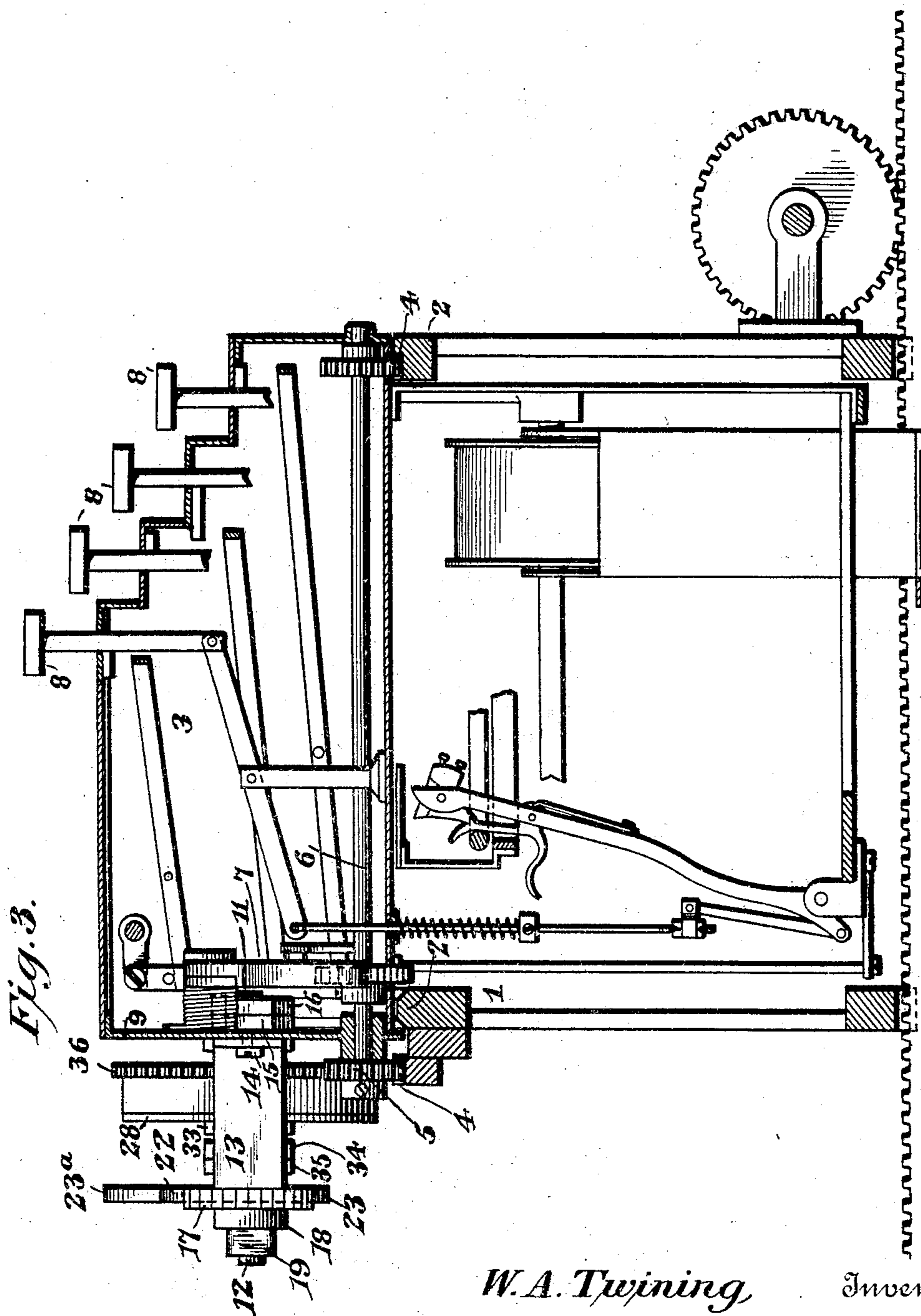
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# UNITED STATES PATENT OFFICE.

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ELLIOTT-FISHER COMPANY, OF NEW YORK, N. Y., A CORPORATION  
OF DELAWARE.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 770,990, dated September 27, 1904.

Application filed December 12, 1903. Serial No. 184,950. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM ALEXANDER TWINING, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Type-Writing Machine, of which the following is a specification.

My present invention relates to type-writing machines, and more particularly to that group of parts known in the art as "carriage-propelling mechanism."

While the invention in its broader aspects is not limited to use in connection with any particular kind of type-writing machines, the present embodiment thereof is designed with special reference to the equipment of machines of the flat-platen type, more particularly the machine known commercially as the "Fisher" book type-writer, exemplified in Patents Nos. 562,625 and 573,868 to R. J. Fisher. Machines of this type are available for writing in books or on loose sheets or for making up records or reports and copies thereof and comprise a flat platen, a machine-frame movable longitudinally of the platen in the direction of line-spacing, and a carriage movable on the frame transversely of the platen and equipped with writing mechanism. In the early embodiments of the Fisher machine a number of complementary mechanisms were mounted on the machine-frame and arranged for coöperation with certain mechanisms on the carriage. The development of the machine has been directed to a considerable extent, as shown by numerous patents which need not be specifically mentioned, to the grouping of these various complementary mechanisms upon the carriage exclusively, and at the present time the carriage constitutes the sole support for all of the complementary groups with the exception of the line-spacing mechanism and the carriage-propelling mechanism. The line-spacing mechanism must of necessity remain on the machine-frame, and its location at this point is not objectionable, because it has no intimate relation with any mechanism mounted on the carriage. The carriage-propelling mechanism,

on the contrary, does bear an intimate coöperative relation with that group of elements which is mounted on the carriage and serves to control its movement in the direction of line-spacing.

The object of the present invention, therefore, is to produce novel carriage-propelling mechanism mounted on the carriage as distinguished from the carriage-support or machine-frame and obviating the necessity for the employment of carriage-propelling tapes or other flexible connecting elements which up to this time have been utilized to connect the carriage with a power device, usually in the form of one or more spring-drums mounted upon the machine-frame.

To the accomplishment of this general object and others subordinate thereto, the invention in its preferred embodiment resides in that construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and succinctly defined in the appended claims.

In the said drawings, Figure 1 is a rear elevation of so much of the Fisher type-writing machine as is necessary to illustrate my invention; and Fig. 2 is a horizontal section of the subject-matter shown in Fig. 1, certain of the parts appearing in elevation. Fig. 3 is a transverse section through a Fisher type-writer equipped with my carriage-propelling mechanism.

Like numerals of reference designate corresponding parts in all the views.

1 indicates a portion of the machine-frame movable longitudinally of the platen in a manner well understood in the art and equipped with carriage-guides 2 for the support of a carriage 3, designed to travel on the frame 1 transversely of the platen or in the direction of letter-spacing. The machine-frame is also equipped with fixed feed-racks 4, engaged by feed-pinions 5, mounted at the opposite ends of the feed shaft or spindle 6, rotatable in suitable bearings within the carriage-casing and disposed transversely thereof. Since the relation of these various parts is a matter of common knowledge, I have shown only a portion

of the spindle 6 and only the rear pinion and rack. The carriage-propelling mechanism exerts a constant tendency to move the carriage in the direction of letter-spacing, (indicated by the arrow in Fig. 2,) and since the movement of the carriage is necessarily accompanied by the rotary movement of the spindle 6 the carriage escapement 7, designed to control the step-by-step advance of the carriage in the direction of letter-spacing, is associated with said spindle and is arranged to be operated by the keys 8 of the printing mechanism. The character of the connection between the keys and the escapement is fully disclosed in the Fisher patents hereinbefore mentioned and does not appear to require particular description. It need only be said that upon the depression of a key to print a character the escapement will be operated to release the carriage for a single letter-space movement before the key rises to its normal position.

The foregoing constitutes a sufficient description of the machine structure to render intelligible the succeeding description of the carriage-propelling mechanism.

Projecting rearwardly from the rear wall 9 of the carriage-casing is a horizontal post 10, having reduced ends 11 and 12, the former being passed through the wall 9 and the latter through a frame or bracket 13, preferably in the form of a metal strip, having its ends secured to the wall 9, as by screws 14. Upon the inner end 11 of the post are screwed a pair of nuts 15 and 16, the former being opposed to the wall 9 and the latter serving to lock the nut 15 in place. Upon the outer end 12 of the post, preferably beyond the frame 13, is mounted a ratchet-wheel 17, the extended hub 18 of which is rigidly secured to the post and is provided with an angular extremity 19 to facilitate the application of a wrench or other tool which may be employed for winding the carriage-propelling spring, to be described. The ratchet-wheel 17 is disposed in coöperative relation with a detent 20, pivoted upon a bearing-screw 21, screwed into the frame 13. This detent 20 is preferably in the form of a segment having terminal dogs or pallets 22 and 23 arranged for alternate engagement with the teeth of the ratchet-wheel and is provided with a handle 23", by means of which the detent may be oscillated for the purpose of effecting the step-by-step release or escape of the wheel when it is desired to decrease the tension of the carriage-propelling spring.

The carriage-propelling spring 24, which constitutes the primary power element or motor of the carriage-propelling mechanism, is wound upon the post 10, having one end fixed thereto, as indicated at 25, and its opposite end fixed to the wall of a drum 26, as indicated at 27. The drum 26, which incases the spring 24, is rotatably mounted on the post, and its outer side wall 28 is detachable in order to

facilitate access to the spring when necessary—as, for instance, for purposes of repair. To insure the antifrictional rotation of the drum, it is preferably provided, as indicated in Fig. 2, with ball-bearings at its opposite sides. The bearing at the inner side of the drum is secured by providing the post 10 with an enlargement 29, between which and an annular bearing-flange 30, projecting from the adjacent wall of the drum, are interposed a series of bearing-balls 31, while the bearing at the outer side is defined by a series of balls 32, interposed between a bearing-flange 33 and the bearing-disk 34, retained in place by a locking-nut 35, screwed upon the post 10.

Fixed to or formed integral with the drum 26 is a gear-rim 36, constituting a power-operated driving-gear, meshing, as indicated in Fig. 1, with the rear feed-pinion 5, and designed, when the drum is rotated under the impulse of the spring, to communicate rotary movement to the pinion, and thus effect the advance of the carriage in the direction of letter-spacing.

It will now be evident that when the spring 24 is wound by the rotation of the post in the direction of the arrow in Fig. 1 and is retained against reverse rotation by the detent 20 it will exert a constant tendency to rotate the drum and the feed-pinion in the direction which is indicated by the arrows on these elements in Fig. 1, but that such tendency will be resisted by the carriage-controlling mechanism including the escapement 7. When, however, the spindle 6 is released by the escapement upon the operation of a key, the spring will rotate the drum and feed-pinion, and thus effect the advance of the carriage in the direction of letter-spacing until such advance is again arrested by the dogs of the escapement. The spring will unwind as the carriage advances to the right; but the reverse rotation of the feed-pinion and the drum during the retraction of the carriage to the left will rewind the spring in an obvious manner. If it is desired to increase or diminish the tension of the carriage-propelling mechanism, it is simply necessary to rotate the post or oscillate the detent 20, as the case may be, in the manner heretofore explained.

It is thought that from the foregoing the construction and operation of my novel carriage-propelling mechanism will be apparent; but while the illustrated embodiment of the invention appears at this time to be preferable I desire to reserve the right to effect such changes, modifications, and variations of the illustrated structure as may fall fairly within the scope of the protection prayed.

What I claim as new is—

1. In a type-writing machine, the combination with a machine-frame equipped with carriage-guides and racks, of a carriage mounted to travel on the guides and equipped with a feed-spindle having feed-pinions engaging the

racks, a spring-drum mounted on the carriage independently of the spindle and geared to one of the feed-pinions, a ratchet-wheel carried by the feed-spindle, escapement-dogs engaging the ratchet-wheel, and printing mechanism including operating-keys movable with the carriage and arranged to actuate the escapement-dogs.

2. In a type-writing machine, the combination with a machine-frame equipped with carriage-guides and feed-racks, of a carriage mounted to travel on said guides and including a casing, a feed-spindle having feed-pinions engaging the racks, an escapement housed within the carriage-casing and coacting with the feed-spindle, printing mechanism including keys movable with the carriage and arranged to actuate the escapement, and a power-operated driving-gear mounted on the exterior of the carriage and geared to one of the feed-pinions.

3. In a type-writing machine, the combination with a machine-frame equipped with a feed-rack, of a traveling carriage including a casing, a feed-spindle having a ratchet-wheel within the casing and a feed-pinion outside of the casing and engaging the rack, a spring-drum mounted upon the exterior of the casing and geared to the feed-pinion, escapement-dogs engaging the ratchet-wheel within the casing, and keys for operating the escapement-dogs.

4. In a type-writing machine, the combination with a machine-frame having a rack; of a traveling carriage, a feed-pinion movable with the carriage and engaging the rack, a rotatable post extended horizontally from the carriage, a detent normally detaining the post, a drum rotatably mounted on the post and geared to the pinion, antifrictional bearings between the drum and post, and a carriage-propelling spring connected to the drum and post respectively and incased within the drum.

5. In a type-writing machine, the combination with a machine-frame having a rack, of a traveling carriage, a feed-pinion movable with the carriage and engaging the rack, a feed-spindle mounted to rotate with the pinion, a key-operated escapement having an element thereof fixed to the spindle, a fixed post extending horizontally from the carriage, a drum rotatable on the post, a carriage-propelling spring mounted in the drum and connected to the drum and post respectively, and a driving-gear fixed to the drum and engaging the feed-pinion.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM ALEXANDER TWINING.

Witnesses:

CHAS. F. LAGANKE,  
J. A. SMITH.