F. ALEXANDER.

TABULATING DEVICE FOR TYPE WRITING MACHINES.

APPLICATION FILED JUNE 8, 1909.

959,832.

Patented May 31, 1910.

2 SHEETS—SHEET 1.

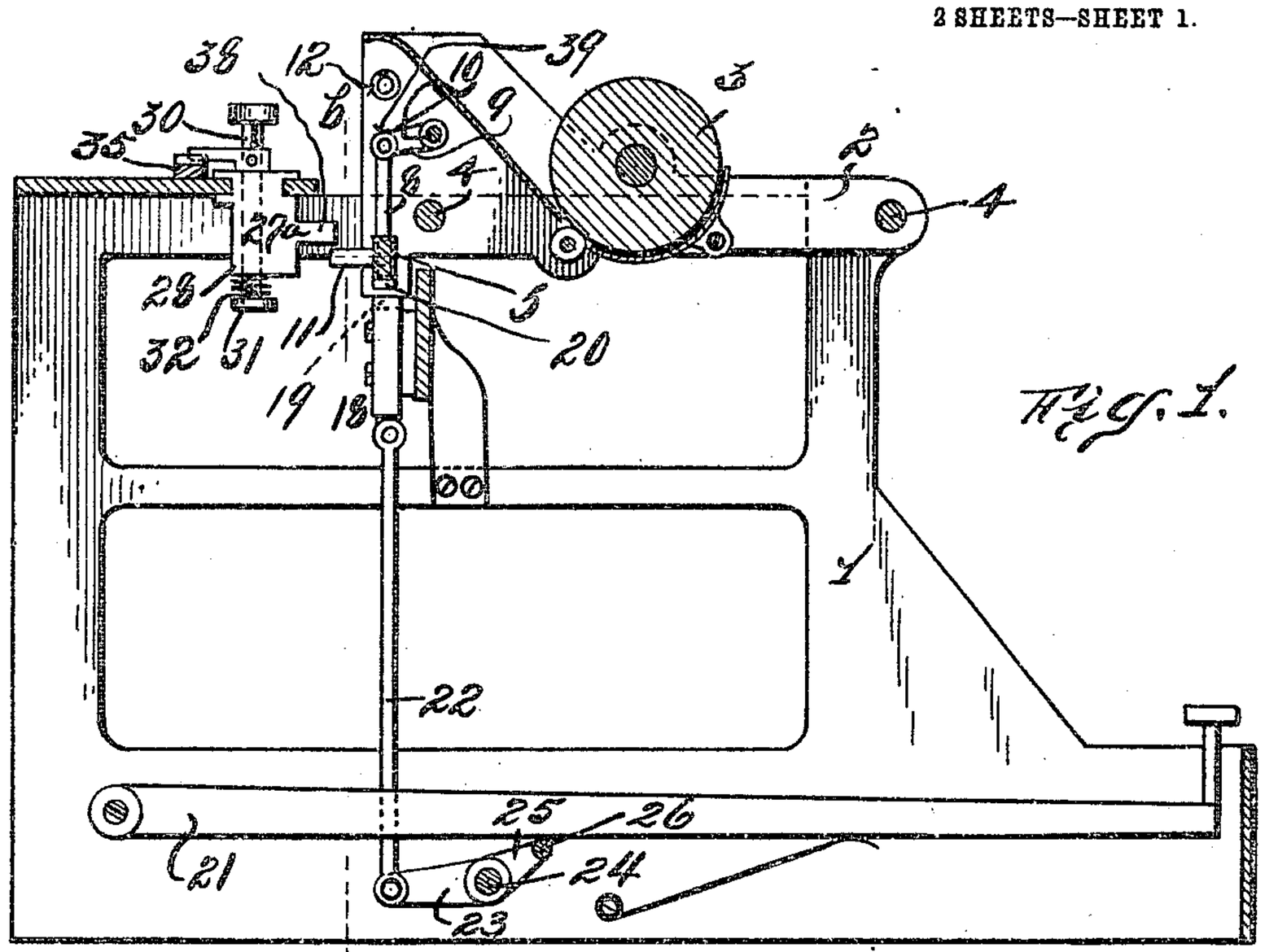
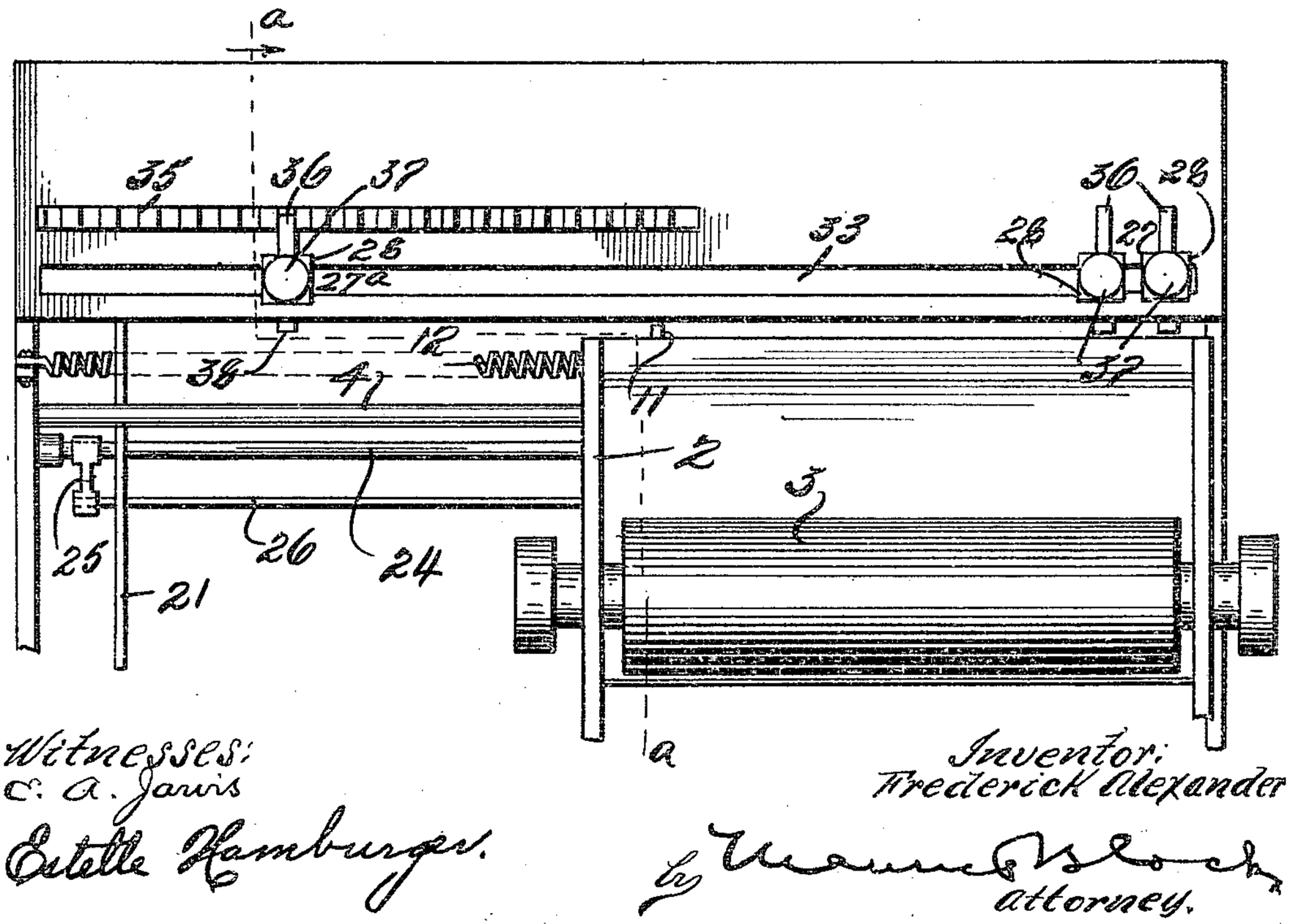


Fig. 1.

Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

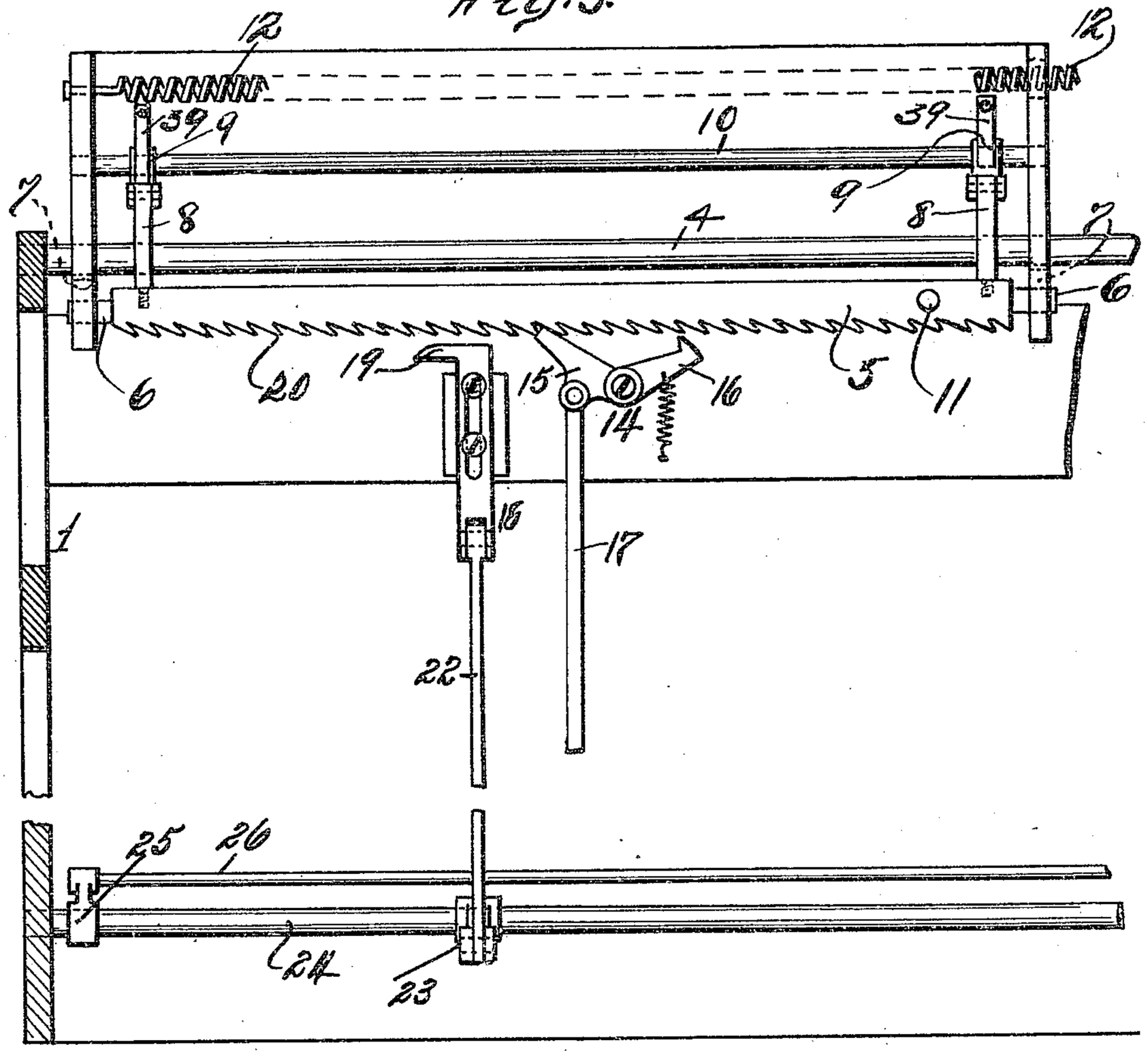


Fig. 5.

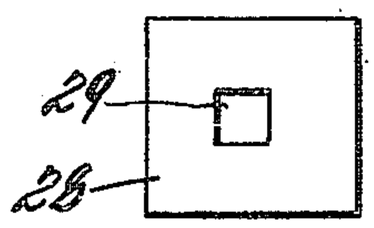


Fig. 6.

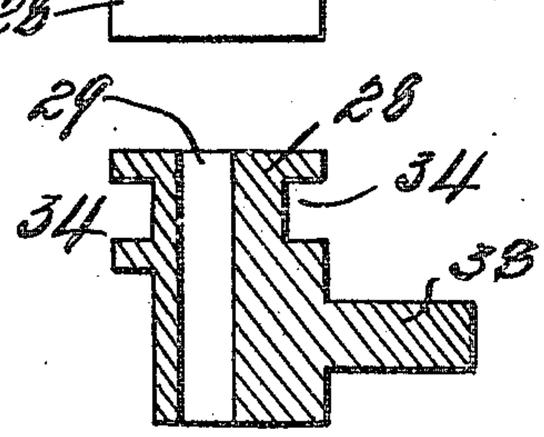
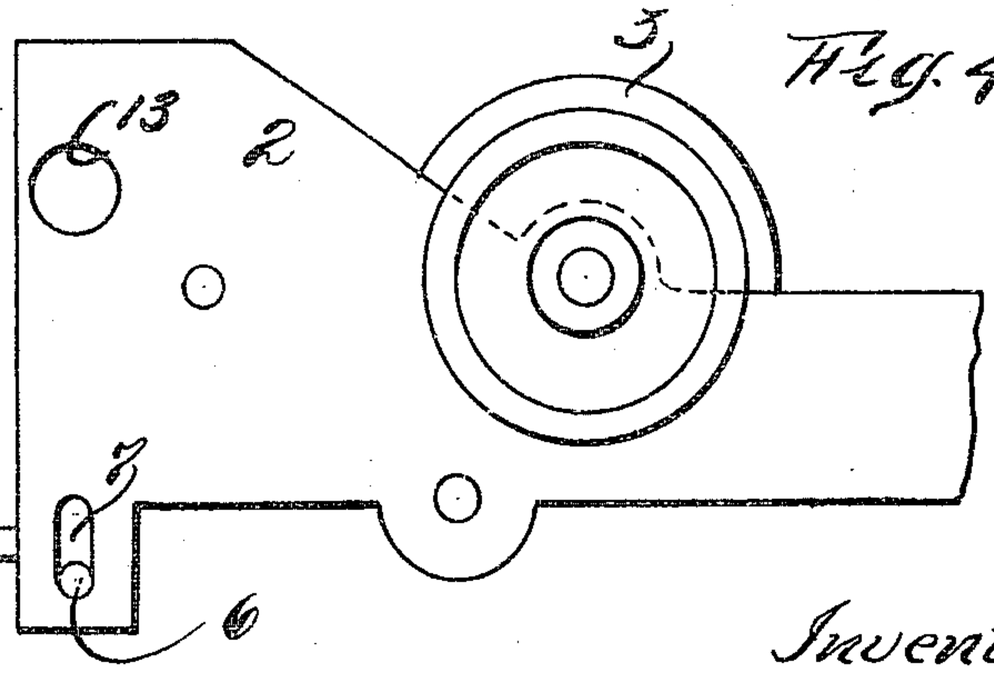


Fig. 4



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UNITED STATES PATENT OFFICE.

FREDERICK ALEXANDER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO WILLIAM F. LASKOWSKI, JR., OF WEST HOBOKEN, NEW JERSEY.

TABULATING DEVICE FOR TYPE-WRITING MACHINES.

959,832. Specification of Letters Patent. **Patented May 31, 1910.**

Original application filed March 29, 1909, Serial No. 486,421. Divided and this application filed June 8, 1909. Serial No. 500,889.

To all whom it may concern:

Be it known that I, FREDERICK ALEXANDER, a citizen of the United States, residing at New York city, borough of Brooklyn, Kings county, and State of New York, have invented certain new and useful Improvements in Tabulating Devices for Type-Writing Machines, of which the following is a clear, full, and exact description.

This invention relates to an improved device adapted for tabulating purposes on typewriting machines, the object being to provide a tabulating device which is composed of a comparatively few parts, said parts being assembled and designed in a manner to completely fulfil their object by very simple mechanical combinations that can be cheaply assembled and manufactured.

I will now proceed to describe my invention and finally claim the novel features thereof, reference being had to the accompanying drawings forming part hereof, wherein:—

Figure 1 is a transverse sectional view of a typewriting machine taken on a line *a*—*a* in Fig. 2, showing my improved tabulating device; certain parts being omitted; Fig. 2 is a fragmentary top plan view thereof; Fig. 3 is an enlarged sectional rear view, taken on a line *b*—*b* in Fig. 1, a portion of the frame only being shown; Fig. 4 is an enlarged side elevation of the carriage, the front thereof being broken away; and Figs. 5 and 6 are, respectively, a top plan view and a vertical sectional view of the block which comprises a part of my tabulating device.

Referring to Fig. 1, which illustrates one form of typewriting machine (the key levers, type-bars and other adjuncts which have no part in my invention being omitted), the numeral 1 indicates the frame, upon which is movably mounted a carriage 2, provided with a platen 3, the carriage being mounted on the bars or rails 4. To control the movement of the said carriage, I have provided a vertically movable escapement rack 5, which is provided at each end thereof with pins 6, the said pins passing through slots 7 in the ends of the carriage 2. The rack 5 carries pins 8 which are pivotally secured to arms 9, carried by a rotatable rod 10, (see also Fig. 3). The rack 5 also carries a stop pin 11, the purpose of which will hereinafter appear. To move the carriage, at the proper time, I have provided a power exerting element 12 in the form of a spring, which at one end thereof is secured to the carriage 2 (see Fig. 1), the other end thereof being secured to the frame 1 (see Fig. 2). The end of the carriage 2 opposite to the end to which the spring 12 is fastened is provided with an opening 13 (see Fig. 4) through which the spring 12 can freely pass.

To coöperate with the rack 5 to control the movement of the carriage, I provide a coöperating device 14 comprising a pawl-arm 15 normally in engagement with the rack, and a stop-arm 16 which acts to allow the carriage to advance one step every time the pawl-arm 15 is drawn away from the rack 5 by the link 17, said link being operated by the key levers of the machine in a manner well known in this art, but not herein shown.

Referring now to the tabulating device, with which the movable rack 5 coöperates, I mount adjacent the device 14 a vertically movable slide 18, having an extension or shoe 19 thereupon, which is somewhat wider than the teeth 20 of the escapement rack 5. The slide 18 is designed to contact with the rack and push it upwardly every time the tabulating key 21 is depressed (see Fig. 1). Movement is communicated to the slide 18 through a link 22, which at its lower end is pivotally connected to an arm 23, upon a shaft 24 which extends the length of the frame. The shaft 24 also carries, adjacent each end thereof, arms 25 which are connected by a rod 26 (see Figs. 2 and 3). The tabulating key 21, which rests upon the rod 26, when depressed, depresses the rod 26 whereby the link 22 is forced upwardly, thereby forcing the shoe 19, of the link 18, upwardly against the rack 5, finally raising the rack clear of the pawl-arm 15 of the device 14.

To control the tabulating movement of

the carriage, I provide that part of the frame 1 adjacent the rack 5 with adjustable stops 27 and 27[a] (see Figs. 1 and 2) each consisting of a block 28 (see Figs. 5 and 6) having a square opening 29 adapted to retain a square movable latch-carrying-pin 30 (see Fig. 1), which at its lower end carries a head 31, a spring 32 being interposed between the block 28 and head 31 of the pin 30. The blocks 28 are adapted to be moved transversely of the frame in the slot or guideway 33 (see Figs. 1 and 2), the blocks 28 being recessed as at 34, in which recess a portion of the frame enters, as shown in Fig. 1.

To lock the blocks 28 in any desired position for tabulating, I provide a rack 35 with which a latch 36 on each pin 30 is adapted to engage, each of said pins being provided with a head 37 in order that there will be something to take hold of in order to draw the pins 30 upwardly for the purpose of adjusting the block 28. To cause the block 28 to perform its function as a stop, I provide the said block 28 with an outwardly extending horn 38, which is normally adapted to strike the pin 11 on the rack 5 when said rack is raised.

I will now proceed to describe the manner by which my improved device accomplishes its tabulating functions: Referring to Fig. 1, it will be seen that one of the stops (27[a]) is positioned to the right, this position being desired in order to stop the carriage 2 at this particular point. Should I desire to cause the carriage to move from the position shown to the position governed by the said stop (27[a]), I depress the key lever 21, which, as has been hereinbefore described, raises the slide 18 and finally raises the rack 5 clear of the pawl-arm 15 of the device 14. When the rack 5 is raised by the slide 18 the pin 11 will be caused to come into the path of the horn 38 on the block 28 of the stop 27[a]. When the rack 5 is raised from the device 14, the spring 12 will pull the carriage to the left until the stop 11 strikes the horn 38. During the movement of the carriage the key lever 21 will be held down. After the carriage has come to a stop, after contacting with the horn 38, the key lever 21 can be released, whereby the rack 5 will be forced downwardly by the springs 39 (see Figs. 1 and 3) and engage the arm 15 of the escapement 14.

As can be seen in Fig. 2, the frame 1 is provided with a plurality of stops by which I am able to stop the carriage at various points along the rack 35 by placing the said stops in the desired positions. When the stops are not in use they can be moved to the right end of the slot or guideway 33, as shown in Fig. 2. To position the stops along the rack I move one or more to the left, referring to Fig. 2, to bring it or them up to the rack 35. I then pull up the pin 30 to cause the latch 36 to clear the rack and then move the stop to the position required. After having selected the position, I release the pin 30, whereby the spring 32 will pull the pin 30 and latch 36 downwardly, thereby causing the latch to engage the rack 35.

The relative positions of the pin 11 and horn 38 are such as to cause the rack 5 to engage the arm 15 of the device 14 before the said pin 11 leaves the horn 38 after the key lever 21 has been released, when tabulating, in order that the carriage will not overrun.

The above described device is a division of an application for patent for typewriting machines filed by me March 29, 1909, Serial No. 486,421.

Having now described my invention what I claim and desire to secure by Letters Patent is:—

1. In a typewriting machine, the combination of a frame provided with a guideway, a plurality of blocks slidably supported in said guideway, a rack adjacent said guideway, a vertically movable spring opposed pin carried by each of said blocks, a latch carried by each of said pins adapted to engage the teeth of said rack, a carriage, an escapement comprising movable pawls carried by said frame and a vertically movable rack carried by said carriage and normally in engagement with said pawls, a pin carried by said escapement rack, and means to move said escapement rack out of engagement with said pawls and to bring the pin on the rack into the path of said blocks.

2. In a typewriting machine, the combination of a frame provided with a guideway, a plurality of blocks slidably supported in said guideway, a rack adjacent said guideway, a vertically movable spring opposed pin carried by each of said blocks, a latch carried by each of said pins adapted to engage the teeth of said rack, a carriage, an escapement comprising movable pawls carried by said frame and a vertically movable rack carried by said carriage and normally in engagement with said pawls, a pin carried by said escapement rack, and a vertically movable slide adapted to move said escapement rack out of engagement with said pawls and to bring the pin on the rack into the path of said blocks.

3. In a typewriting machine, the combination of a frame provided with a guideway, a plurality of blocks slidably supported in said guideway, a rack adjacent said guideway, a vertically movable spring opposed pin carried by each of said blocks, a latch carried by each of said pins adapted to engage the teeth of said rack, a horn project-

ing from each of said blocks, a carriage, an escapement comprising movable pawls carried by said frame and a vertically movable rack carried by said carriage and normally in engagement with said pawls, a pin carried by said escapement rack, and a vertically movable slide adapted to move said escapement rack out of engagement with said pawls and to bring the pin on the rack into the path of said horns.

Signed at New York city, N. Y., on this 7th day of June 1909.

FREDERICK ALEXANDER.

Witnesses:

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EDWARD A. JARVIS.