No. 891,095. PATENTED JUNE 16, 1908.

E. L. PFUNDER.

TYPE WRITING MACHINE.

APPLICATION FILED MAR. 12, 1908.

2 SHEETS—SHEET 1.

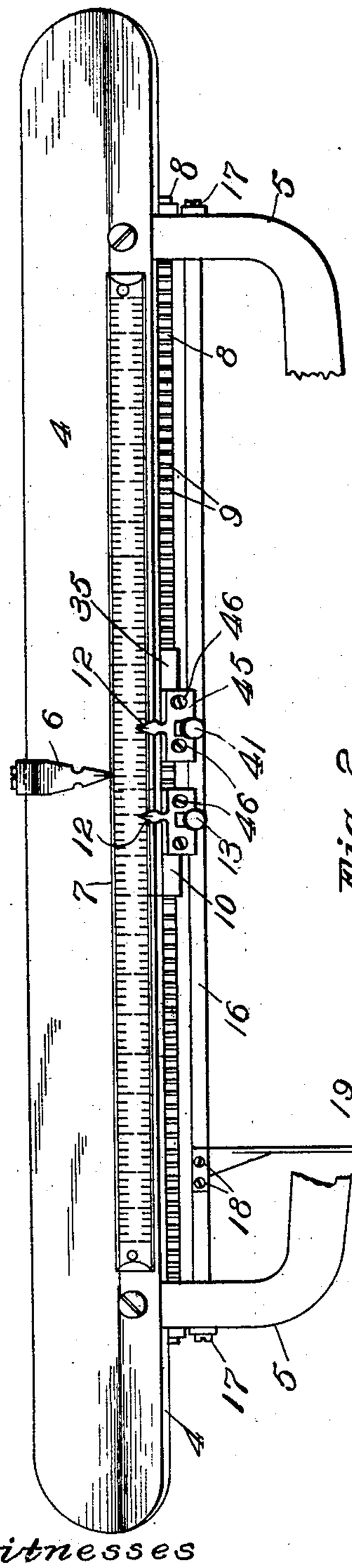

Fig. 1.

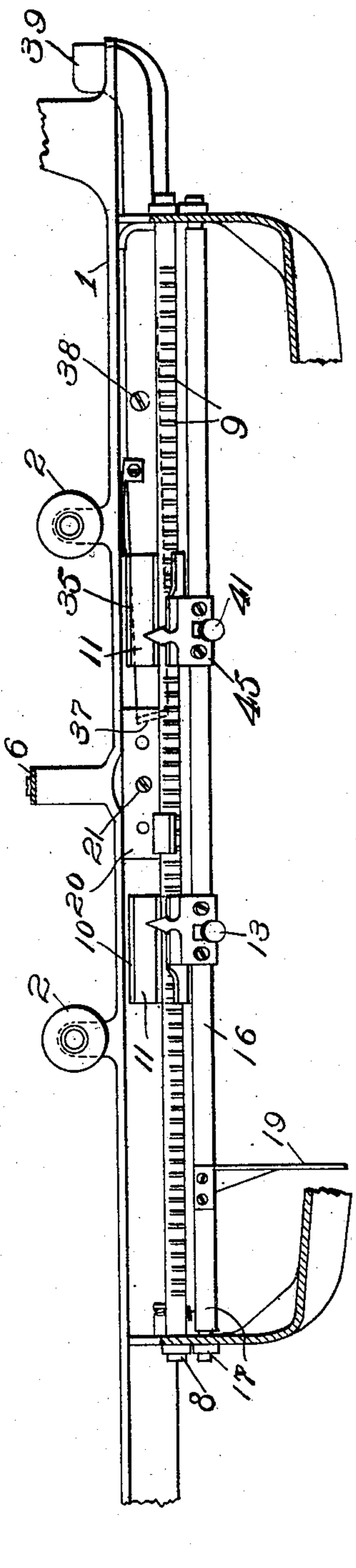

Fig. 2.

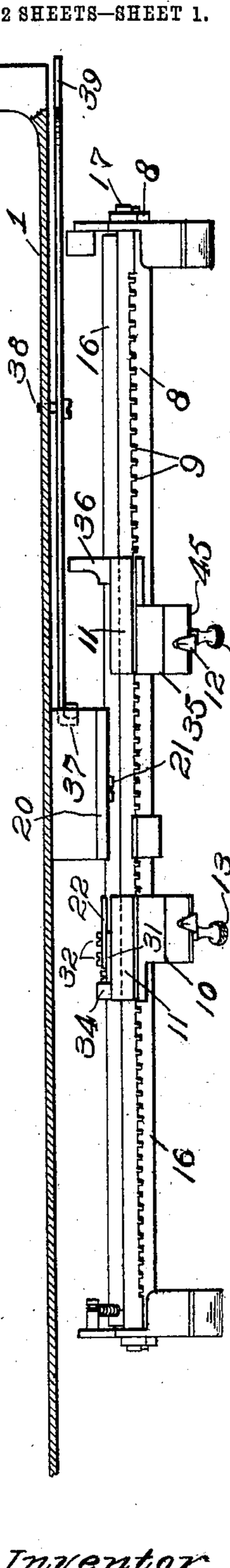

Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 4.

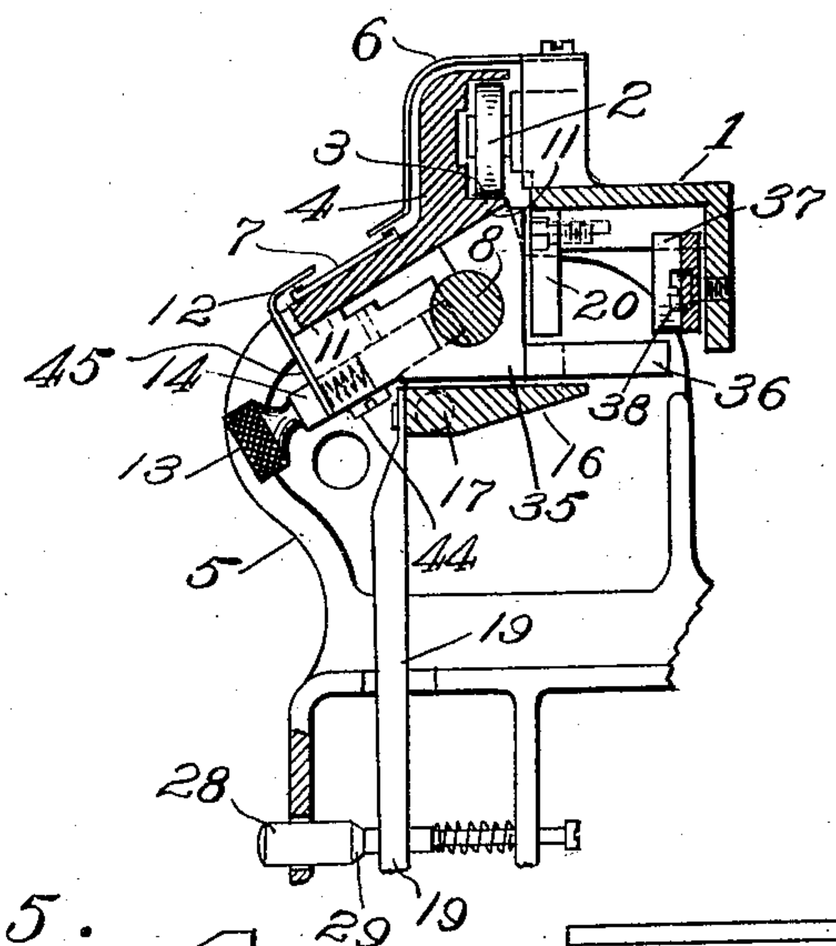


Fig. 5.

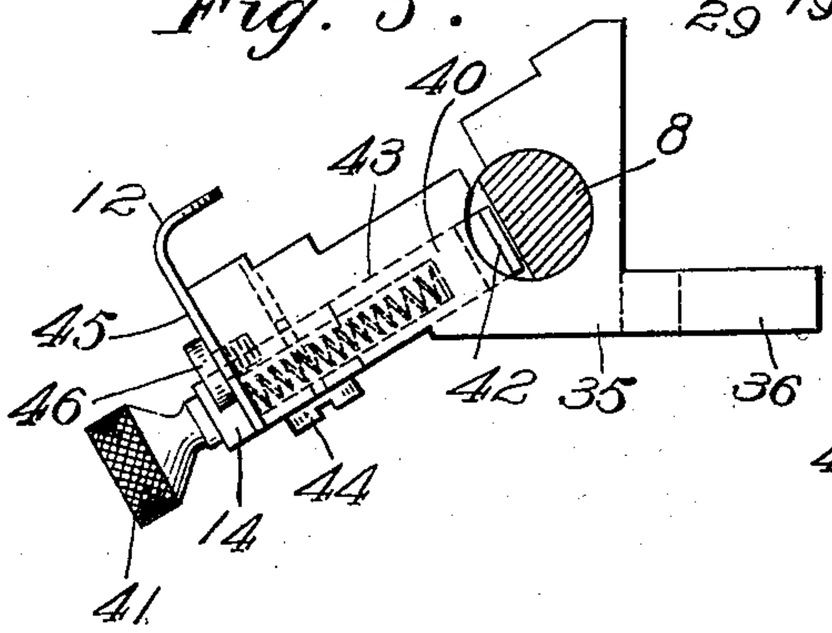


Fig. 6.

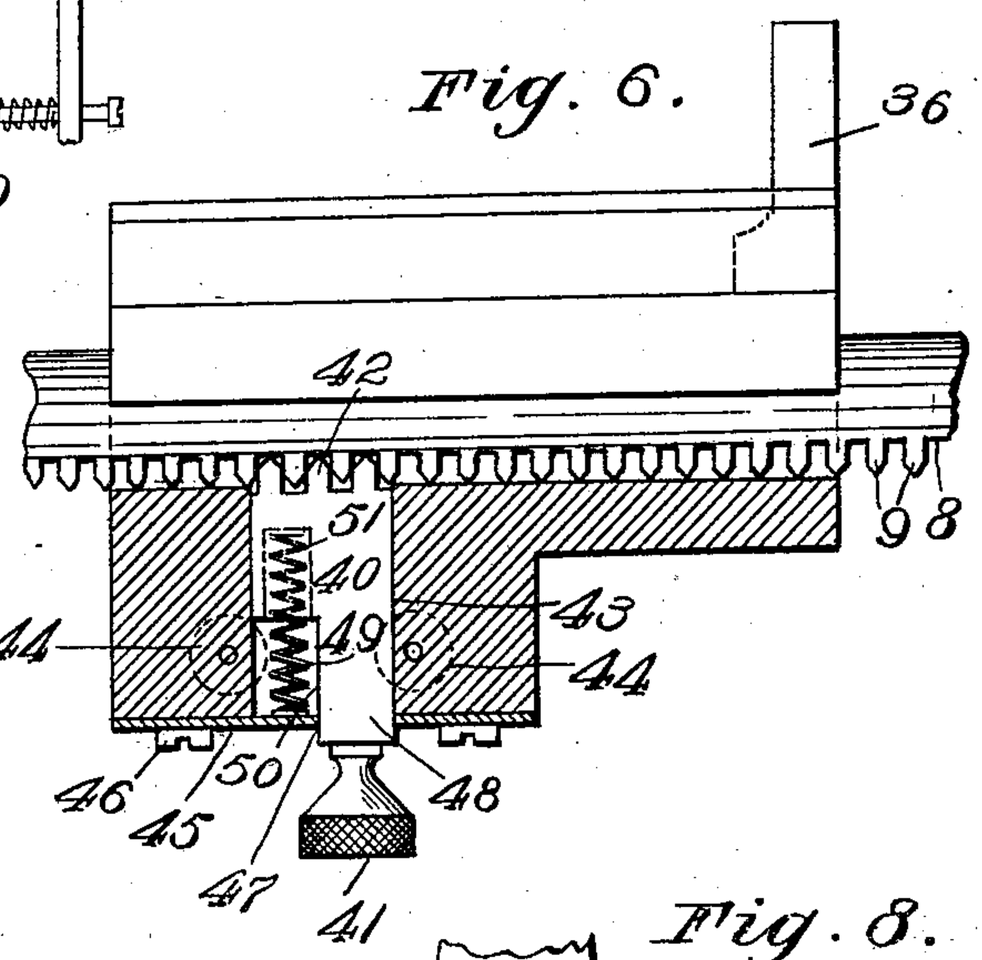


Fig. 7.

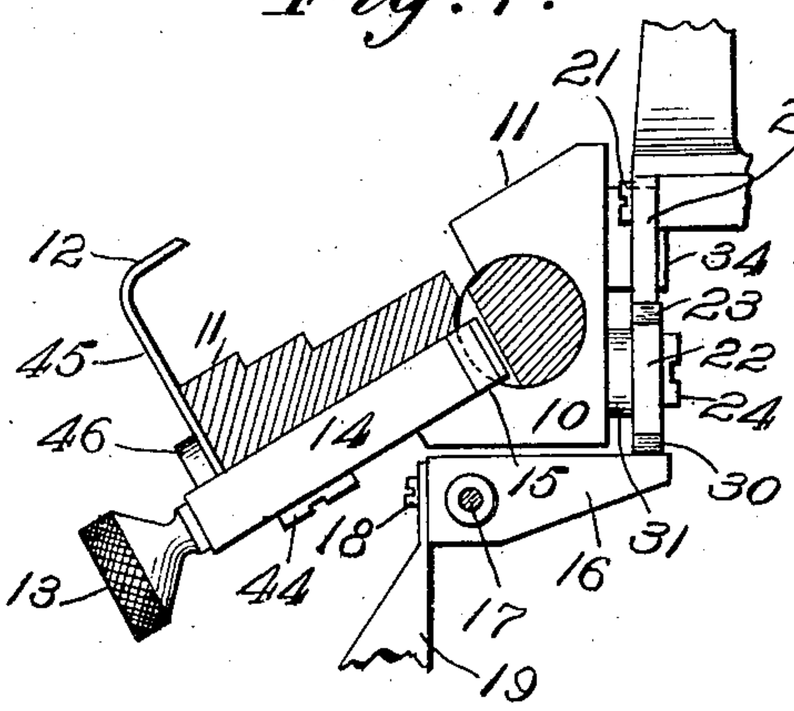
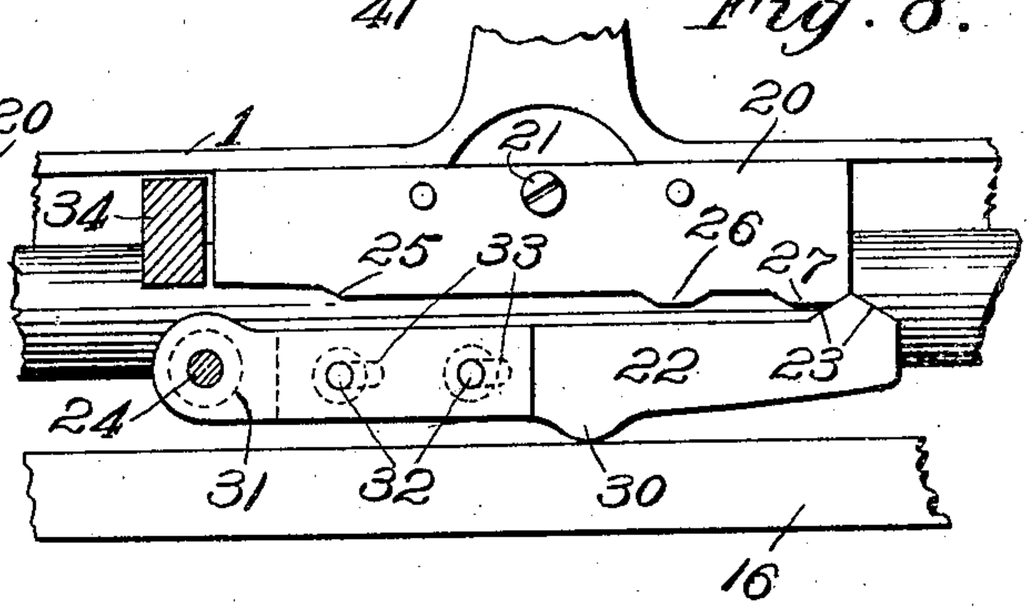


Fig. 8.



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UNITED STATES PATENT OFFICE.

EMIL L. PFUNDER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 891,095. Specification of Letters Patent. Patented June 16, 1908.

Application filed March 12, 1906. Serial No. 420,669.

To all whom it may concern:

Be it known that I, EMIL L. PFUNDER, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the adjustable devices upon typewriting machines, which regulate the widths of the right and left hand side margins on the written sheet, and determine the point at which the bell is rung and the keys locked, etc. Two of such devices or margin gages, adjustable independently of each other, are usually provided upon every writing machine; but heretofore in certain types of machines, as for instance the well-known Underwood, the range of adjustment of each of the margin gages has been limited to a space equal to about one half the space of the line of writing.

One of the principal objects of my invention is to provide in this class of machines for adjusting either gage independently of the other for substantially the entire length of the line of writing, so that either or both gages may be used at either extreme of the travel of the carriage.

In carrying out my improvements I extend a rocking frame along the carriage, but mounted upon the framework at the front of the machine. This frame extends for substantially the entire width of the machine. It is constructed to operate the bell-ringing and key-locking devices. I provide a tappet upon the carriage, and arrange an interponent between the tappet and the rocking-frame, the interponent carried upon a slide or "margin gage" block. The interponent has a nose that is engaged by the carriage tappet, and in turn it operates the rocking-frame. The latter is not adjustable across the machine, but owing to the adjustability of the interponent, the rocking frame may be made to act at substantially all points of the carriage travel. Said slide or block is preferably mounted upon a rack bar, which may be cylindrical; and upon the same rack bar, I mount a slide or gage to control the width of the margin at the left hand side of the written sheet.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a front elevation of the margin-controlling mechanism of an "Underwood" front strike writing machine. Fig. 2 is a front elevation partly in section, showing the same devices. Fig. 3 is a sectional plan thereof. Fig. 4 is a sectional side elevation of the front part of the paper carriage and the margin-gage mechanism. Fig. 5 is a side elevation, and Fig. 6 a plan of the slide, block or margin gage which controls the return of the carriage. Fig. 7 is a sectional side elevation, and Fig. 8 a front sectional elevation to show the margin-gage which controls the bell-ringing and key-locking devices.

The front bar 1 of the carriage has rolls 2 to run upon a track 3 formed upon a bar 4 supported upon standards 5 at the front of the machine. Upon the carriage is fixed an index 6 to coöperate with a scale 7 upon said bar. The margin gages are mounted upon a fixed cylindrical rod 8 mounted by its ends in the opposite standards 5, and formed on its lower front face with notches or teeth 9 at letter-space intervals, to be engaged by the dogs of the margin gages. The bell-ringing and key-locking devices are controlled by a slide 10 having a longitudinal bore to fit upon said rod or rack bar 8, and having its upper face 11 adapted to fit or bear lightly against the inclined under side of the bar or rail 4, Fig. 4, to prevent turning of the slide about the cylinder rack bar. An index 12 upon the slide coöperates with the scale 7 to determine the position of ringing the bell or locking the keys. The slide is adjusted along the bar by means of a handle 13, which is secured upon a dog 14 having at its inner end one or more teeth 15 to engage the rack teeth.

Just beneath the slide 10 is a rocking frame or bar 16 journaled at its ends upon screws 17 threaded into the standards 5. Secured to the left hand end of the rocking frame 16 by means of screws 18, and pendent therefrom, is the usual bell-ringing and key-locking arm 19, which is caused by the rocking of the frame 16 to perform its usual functions in the usual manner.

The rocking frame 16 is caused to operate by means of a tappet 20 secured upon the front of the carriage by means of a screw 21. Said operation is performed by means of an interponent 22 having a nose 23 engageable by the tappet and pivoted upon a shoulder screw 24, tapped into the adjustable slide 10.

The tappet 20 has one projection 25 for ringing the bell, a deeper projection 26 for locking the keys, and a second key-locking projection 27 for locking the keys a second time after they have been released by the usual button 28, Fig. 4, which has a cam 29 to flex to one side the key-locking arm 19 in the usual manner.

The interponent 22, which has a bearing 30 to press down the rocking bar 16, is made in two parts,-one part carrying said nose 23, and the other part 31 pivoted upon the screw 24, said parts secured together by screws 32, which pass through longitudinal slots 33 in the member 22, whereby fine adjustment of the nose 23 of the interponent is provided towards or away from the pivot 24, and hence relatively to the dog teeth 15, which engage the rack 8, so as to cause the operation of the member 19 to occur at the desired point in the letter-spacing movement of the carriage.

It will be understood that as the carriage is letter-feeding towards the left, Fig. 8, the tappet projection 25 first engages the nose 23 to depress the interponent 22 and the frame 16, thereby effecting enough forward swing of the arm 19 to ring the bell in the usual manner. After the carriage has progressed an interval, the second projection 26 engages the nose 23 and forces the interponent 22 down still farther, thereby rocking the bar 16 and the member 19 sufficiently to lock the keys in the well known manner. The operator may then press the button 28 as usual, to release the keys, and after printing a few more letters, the third projection 27 engages the nose 23 to lock the keys for the second time. The carriage is finally arrested by the engagement of the left hand end of the tappet 20 with a stop 34 projecting rearwardly from the left hand end of the slide 10. The latter may be adjusted for substantially the entire length of the run of the carriage, or to any portion of the rack bar 8 not blocked by the other margin gage.

The width of the right hand margin on the page is controlled by a second slide 35, which is substantially similar to the slide 10, except that the interponent and the stop 34 are omitted. This slide or gage 35 has a rearwardly projecting stop 36 to engage a stop 37 pivoted at 38 upon the carriage and having a key 39. At Fig. 6, it will be seen that the dog 40 may be pulled forward by its knob or handle 41 to release its teeth 42 on the rack 8, said dog being mounted in a guideway 43 formed in the slide 35, and retained by wide headed screws 44 tapped into the under side of the slide with threads overhanging the opening 43. A keeper-plate 45 is secured by screws 46 upon the front of the slide and perforated at 47 to form a guide for a stem 48 upon the dog. A compression spring 49 works in a recess 50 formed in the dog by the side of the stem 48, and bears at its outer end against the plate 45, its inner end extending into a hole 51 in the dog. The construction of the dog, spring and appurtenances is the same for both slides 10 and 35.

It will be seen that either of the margingages may be moved for the entire length of the rack 8, except for the space occupied by the other thereof, and hence that both or either may be brought into operation at any portion of the travel of the carriage.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rocking frame upon the framework of the machine and extending along the machine, bell-ringing devices operated by said rocking frame, a tappet upon the carriage, an interponent mounted upon the framework independently of said rocking frame and adjustable along a rack which is fixed upon the framework, said interponent movable by said tappet to operate said rocking frame, a stop adjustable along the same rack and a coöperating stop upon the carriage to regulate the return movement of the carriage.

2. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rack, a slide adjustable along said rack, a cam movably mounted upon said slide, a rocking frame extending along said rack and operable by said cam at all adjustments of the slide, a bell-ringing device operated by said rocking frame, and means upon the carriage to operate the cam to ring the bell.

3. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rack, a slide adjustable along said rack, a cam movably mounted upon said slide, a rocking frame extending along said rack and operable by said cam at all adjustments of the slide, a bell-ringing device operated by said rocking frame, means upon the carriage to operate the cam to ring the bell, and a second slide upon the rack and movable for substantially the entire length of the rack, and having means to engage the carriage to arrest it upon its return to begin a new line.

4. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rack, a slide adjustable along said rack, a cam movably mounted upon said slide, a rocking frame extending along said rack and operable by said cam at all adjustments of the slide, and bell-ringing and key-locking devices operated by said rocking frame, a plate fixed upon the carriage and having tappets to engage successively said cam during the move-

ment of the carriage in letter-feeding direction to give first a short and then a long stroke to the cam to successively ring the bell and lock the keys.

5. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rack, a slide adjustable along said rack, a cam movably mounted upon said slide, a rocking frame extending along said rack and operable by said cam at all adjustments of the slide, and bell-ringing and key-locking devices operated by said rocking frame, a plate fixed upon the carriage and having tappets to engage successively said cam during the movement of the carriage in letter-feeding direction to give first a short and then a long stroke to the cam to successively ring the bell and lock the keys; means being provided upon said slide both to enable the carriage to relock the keys and also to arrest the carriage.

6. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rack, a slide adjustable along said rack, a cam movably mounted upon said slide, a rocking frame extending along said rack and operable by said cam in all adjustments of the slide, bell-ringing and key-locking devices operated by said rocking frame, means upon the carriage to operate the cam repeatedly, to successively ring the bell and lock the keys, and means to release the keys; means being provided upon said slide both to enable the carriage to re-lock the keys and also to arrest the carriage.

7. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rack about equal in length to the run of the carriage, slides adjustable along said rack for substantially the entire length thereof, a cam movably mounted upon one of said slides, a rocking frame extending along said rack and operable by said cam at all adjustments of the slide, bell-ringing and key-locking devices operated by said rocking frame, and tappets upon the carriage to engage successively said cam during the movement of the carriage in letter-feeding direction to give first a short and then a long stroke to the cam to ring the bell and lock the keys, the other slide having means to engage the carriage to arrest it upon its return to begin a new line.

8. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rack about equal in length to the run of the carriage, slides movable upon said rack for substantially the entire length thereof, each of said slides having a releasable dog to engage the teeth of the rack, a cam pivoted upon one of said slides, a bell-ringing mechanism including a rocking frame extending along said rack for about the entire length of the rack and engageable by said pivoted cam, and a tappet upon the carriage to engage said cam to ring the bell; the other of said slides provided with a stop engageable by the carriage to arrest the same at its return movement to begin a new line.

9. In a typewriting machine having a carriage, the combination with a front rail upon which the carriage runs, of a cylindrical rod fixed by its ends in the framework beneath said rail and having teeth cut on its front side at letter-space intervals to form a rack, a slide fitted upon said rack and engaging the under side of said rail to prevent rotation of the slide, a releasable tooth mounted in said slide to engage said rack, a cam pivoted upon the rear face of said slide, a rocking frame beneath said rack and parallel therewith, and extending substantially the entire length of said rack, an arm fixed upon said rock shaft and forming part of a bell-ringing and key-locking mechanism, said rocking frame engageable by said pivoted cam, a plate fixed upon the front of the carriage and having tappets to engage successively said cam during the movement of the carriage in letter-feeding direction, the first tappet formed to depress said cam sufficiently to cause said arm to ring the bell and the second tappet having greater projection than the first and formed to give said cam a greater depression, to operate said arm sufficiently to lock the keys, a stop provided upon the remote end of said slide to engage the end of said carriage plate to arrest the carriage, said plate having means to re-lock the keys at such arrest of the carriage, a spring for returning said rock shaft and cam, said rack and rocking frame extending substantially the entire length of the run of the carriage, a second slide mounted on said rack bar and having a releasable tooth to engage said rack, and provided with a stop engageable by said carriage plate, said second slide being adjustable to substantially the entire length of said rack bar, and having means to engage said rail to prevent its rotation on said rack, and a stop upon the carriage to engage the last-mentioned stop to arrest the carriage upon its return to begin a new line.

10. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rocking-frame extending along the carriage, bell-ringing devices operated by said rocking frame, a tappet upon the carriage, and an interponent adjustable along a fixed rack and movable by said tappet to operate said rocking frame; said interponent having a dog to engage the rack and provided with means for enabling fine adjustments to be effected relatively to the tappet on the carriage.

11. In a typewriting machine having a

carriage, the combination with a rail upon which the carriage runs, of a rocking frame extending along the carriage, bell-ringing devices operated by said rocking frame, a tappet upon the carriage, and an interponent adjustable along a fixed rack and movable by said tappet to operate said rocking frame; said interponent having a dog to engage the rack, and a nose to be engaged by the tappet, said nose adjustable relatively to the dog.

12. In a typewriting machine having a carriage, the combination with a rail upon which the carriage runs, of a rocking frame extending along the carriage, bell-ringing devices operated by said rocking frame, a tappet upon the carriage, and an interponent adjustable along a fixed rack and movable by said tappet to operate said rocking frame; said interponent being pivoted upon a slide which carries a dog to engage the rack and having a nose to be engaged by the tappet, the interponent formed in two parts relatively adjustable, one part carrying said nose, and the other part pivoted to said slide.

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