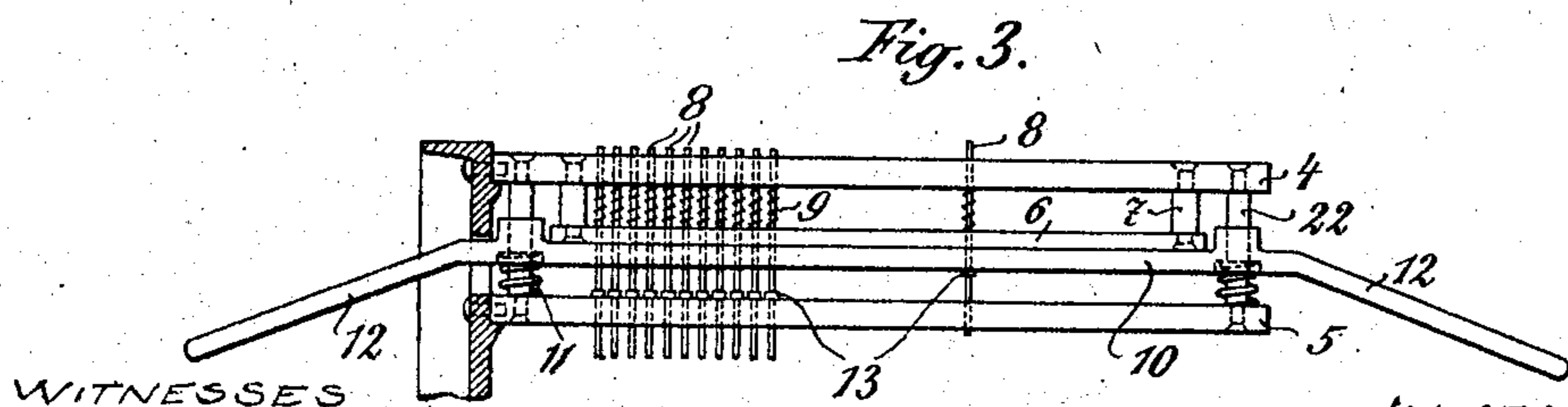
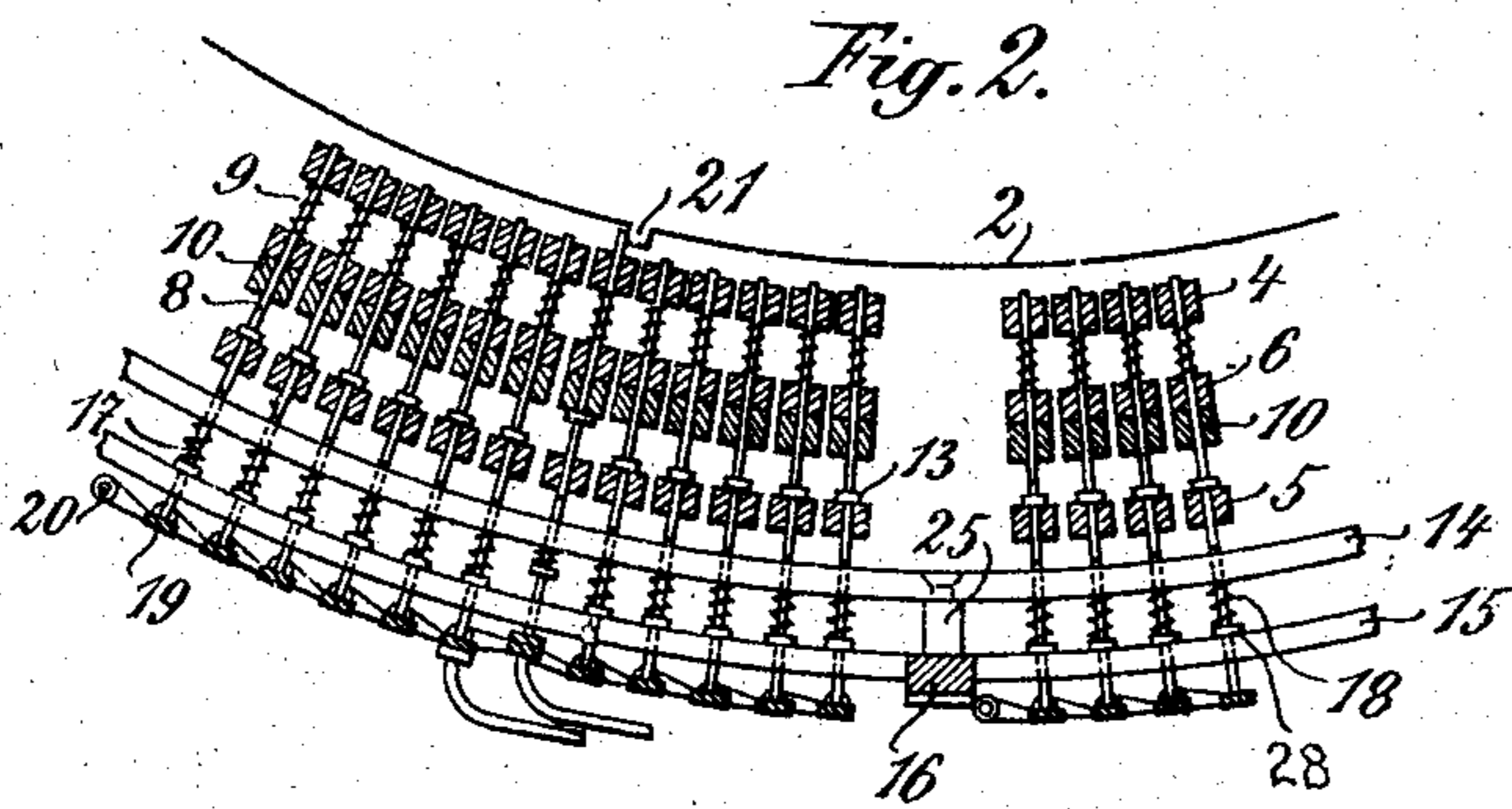
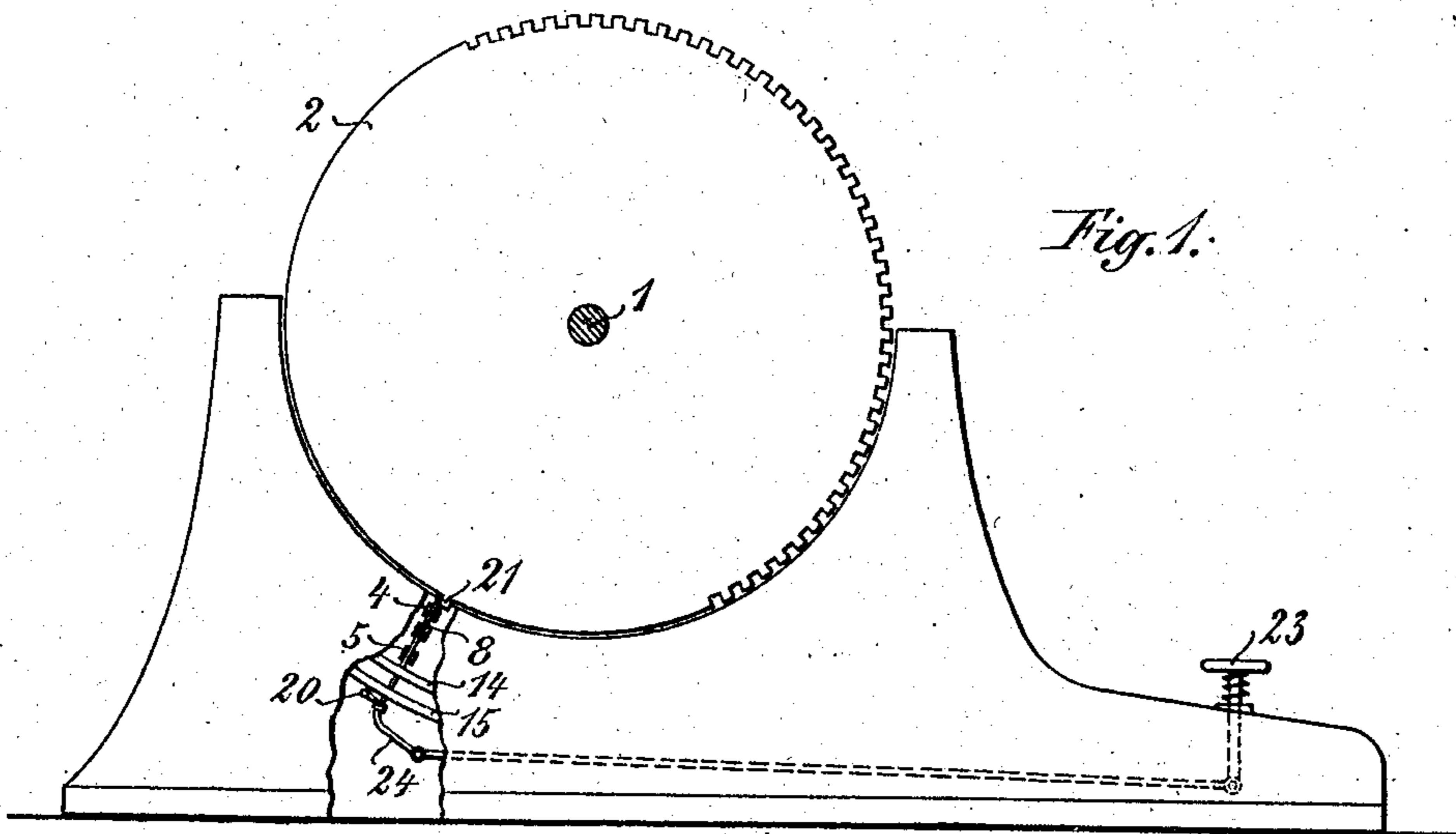


No. 796,163.

PATENTED AUG. 1, 1905.

P. THOMMEN.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 16, 1903.

2 SHEETS—SHEET 1.



WITNESSES

Wm. Kuehn
John A. Perival

INVENTOR

Paul Thommen
By *Richard L. ...*

ATTORNEYS

No. 796,163.

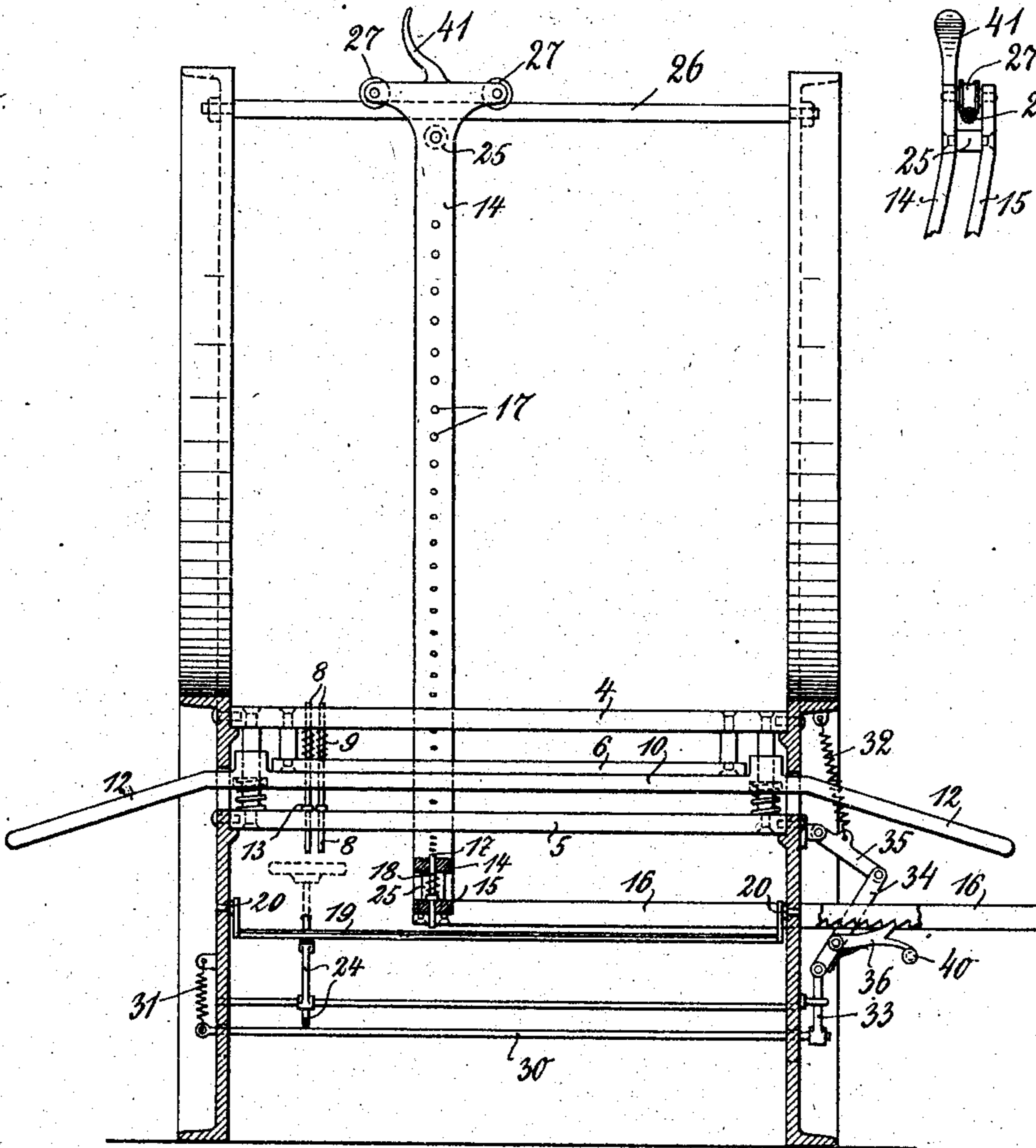
PATENTED AUG. 1, 1905.

P. THOMMEN.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 16, 1903.

2 SHEETS—SHEET 2.

Fig. 4.

Fig. 4a.



Witnesses

H. M. Kuehne
John P. Newman

Inventor
Paul Thommen

BY Richard R.

ATTORNEYS

UNITED STATES PATENT OFFICE.

PAUL THOMMEN, OF BASEL, SWITZERLAND.

TYPE-WRITING MACHINE.

No. 793,163.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed December 16, 1903. Serial No. 185,413.

To all whom it may concern:

Be it known that I, PAUL THOMMEN, official, a citizen of the Republic of Switzerland, and a resident of 17 Heuberg, Basel, Switzerland, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to type-writing machines of that class in which after the whole line has been put together it is printed or cast at one operation. The invention, however, relates specially to machines of this kind in which a shaft of the length of the line is employed, and on this shaft are fitted a number of disks capable of being revolved, each disk carrying on half its circumference the whole of the letters or characters used—that is to say, the capitals, small letters, figures, punctuation-marks, &c. By properly positioning the disks by working the keys the letters of the line to be printed can be arranged in a row beside each other on the disks at the part where in a type-writing machine the printing of the line so composed is done by means of a striking or printing roller. Such machines are known, and this invention aims at improving the same as regards the mechanism for correctly placing these type-disks whenever a key is struck on the keyboard of the machine.

In order that my said invention may be properly understood, I have hereunto appended explanatory sheets of drawings, which show, by way of example, an arrangement suitable for a writing-machine.

Figure 1 is a view of the machine, showing the arrangement of a type-disk with its relative stop-pin and key-lever. Fig. 2 is a vertical section through one part of the frame for the stop-pins, the straight-edges or rulers for raising the lifting-pins and the retracting-rods for drawing back the stop-pins, the lifting-pin frame being in elevation. Fig. 3 is a front view of a stop-pin frame with the relative retracting-rod. Fig. 4 is a sectional view of the machine, seen from the left-hand end of Fig. 1, the shaft with the type-disks being omitted. Fig. 4^a is a detail view.

Upon an axle or shaft 1 numerous type-disks 2 are revolvably fitted. These disks are arranged close together, and on half the circumference of each disk there are projecting teeth with gaps between the teeth. The types to be used in printing are arranged on these disks. The type-disks can be revolved by means of any suitable driving-gear.

Beneath the revoluble type-disks 2 (which correspond in number to the length of the line of type) stop-pin frames are fastened to the sides of the machine-framing in semicircular groups. These frames consist of two rods 4 5, (see Figs. 2 and 3,) joined by stay-bolts 22, between which a third rod 6 is fitted, which is connected by stay-bolts 7 with the rod 4. Guided in apertures in the three rods are stop-pins 8. Arranged between the rods 4 and 6 are spiral springs 9, which are fitted round the stop-pins 8 with sufficient tightness to prevent (by friction) the pins when pushed upward from falling back again of their own accord. The return of the pins is effected by special retracting-bars 10, guided on the stay-bolts 22, which bars, under the pressure of springs 11, usually rest against the center rod 6. When their slanting or bent ends 12 are pressed back, the bars 10 press against the collars 13 of the stop-pins 8 and draw them back.

Underneath the stop-pin frames 4 5 moves a lifting-pin frame consisting of two semicircular rods 14 15, connected by one or more stay-bolts 25 and provided with a rack 16, guided in the machine-framing.

The lifting-pins 17 are guided in the rods 14 15, and they are pressed downward by means of spiral springs 18, bearing upon collars 28 of the lifting-pins 17. Below each lifting-pin lies a flat bar or straight-edge 19. Each straight-edge has its ends bent at right angles and is carried between centers or pivots 20 in a manner admitting of its being turned or swung upward by pressing the corresponding key, so as to actuate the key-lever. Thus if the key 23 is depressed it presses the straight-edge 19 upward by means of the lever 24, and the straight-edge then presses upward its corresponding lifting-pin 17, and the latter in its turn raises the stop-pin 8, resting on it, and which belongs to that stop-pin frame below which the lifting-pin frame happens to be, so that the type-disk 2 above the latter and which has at the same time been set free to turn by the stroke upon the key strikes with its striker 21 on the raised stop-pin, and the type corresponding to the key in question is thereby held in the proper position for printing. When the lifting-pins and the keys spring back, the stop-pins 8 retain their positions until the types of the whole line are brought into position, which is effected by the lifting-pin frame being moved forward by a suitable

ratchet mechanism the breadth of one type-wheel each time a key is struck.

When the line has been printed, all the retracting-bars 10 are simultaneously pressed radially outward by means of their slanting ends, which form a conic cover, thereby retracting also all the raised stop-pins of the stop-pin frames 4 5. After all the type-disks have at the same time been returned into their original positions the writing-sheet is moved forward and the types for the next line are brought into position for printing in the same manner as hereinbefore described.

The stop-pins 8 in each of the stop-pin frames 4 5 correspond in number with the type-disks used, while the lifting-pins 17 in the movable frame 14 15 correspond in number with the negative printing-types on each type-disk.

Figs. 4 and 4^a show the support for the semicircular frame 14 15, together with means for moving said frame. On each side of the machine-frame there is arranged a rod 26, and both parts 14 15 of the semicircular frame are connected near the rod 26 by means of a stay-bolt 25, and supported in the broadened ends of the parts 14 15 are rolls 22, so that the semicircular frame 14 15 slides, by means of such rolls, on the rods 26, arranged on both ends of the machine. The movement of the frame 14 15 for one space by means of the rack 16, Figs. 2 and 4, each time a key-rod 24 is pulled down may be effected in any suitable manner—for instance, in the following one:

Movably arranged in a vertical direction is a rod 30, being held in its upper position by means of springs 31 32. The latter is connected with the rod 30 by means of links 35 34 and rod 33, guided vertically. The link 34 has a pawl 36 engaging with the teeth of the rack 16. When a key, and in consequence its rod 24, is pulled down, it puts down the rod 30, and the pawl 36 falls in a tooth-space next before such in which it rested hitherto. When releasing the key, the springs 31 32 lift the rod 30 33 and link 36, and the pawl 36 shifts the rack 16 and the frame 14 15 from left to right, so that the pin 12 stands under the next pin 8 of the frames 4 5. When the frame 14 and 15 has reached its end position on the right-hand end in Fig. 4, the operator puts down the button 40 of pawl 36 and with the other hand shifts the frame, by means of the button or handle 41, into the left-hand end position, in which the roll 22 rests against the frame of the machine and the pins 17 of the semicircular frame 14 15 stands under the first pins 8 of the frame 4 5.

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

1. In writing-machines of the class described the combination of type-disks arranged to revolve on a shaft and being provided with teeth round half their circumference, the teeth carrying the types for printing, each type-disk having a striker intended to hit against a movable stop-pin, with stop-pin frames arranged in a semicircular group, a movable semicircular frame under said stop-pin frames having movable lifting-pins capable of being raised by means of swinging straight-edges; the stop-pins in each of the stop-pin frames corresponding in number with the type-disks used and the lifting-pins in the movable frame corresponding in number with the printing-types on each single type-disk, substantially as described and shown in the drawings.

2. In writing-machines of the class described the combination of type-disks arranged to revolve on a shaft and being provided with teeth around half their circumference, the teeth carrying the types for printing, each type-disk having a striker intended to hit against a movable stop-pin, with stop-pin frames arranged in a semicircular group, a movable semicircular frame under said stop-pin frames having movable lifting-pins, and frictional springs 9 arranged on the stop-pins and springs 18 bearing upon collars 28 of the lifting-pins, substantially as described and shown in the drawings.

3. In writing-machines of the class described the combination of type-disks, arranged to revolve on a shaft and being provided with teeth round half their circumference, the teeth carrying the types for printing, each type-disk having a striker intended to hit against a movable stop-pin, with stop-pin frames arranged in a semicircular group, a movable semicircular frame under said stop-pin frames having movable lifting-pins, springs arranged on the stop-pins and on the lifting-pins and rods 10 having bent ends 12 and being arranged movably on the stop-pin frames and springs 11, bearing against the rods 10 substantially as described and shown in the drawings.

Signed at Basel, Switzerland, this 1st day of December, 1903.

PAUL THOMMEN.

Witnesses:

GEO. GIFFORD,

ALBERT VICTOR GRAEBER.