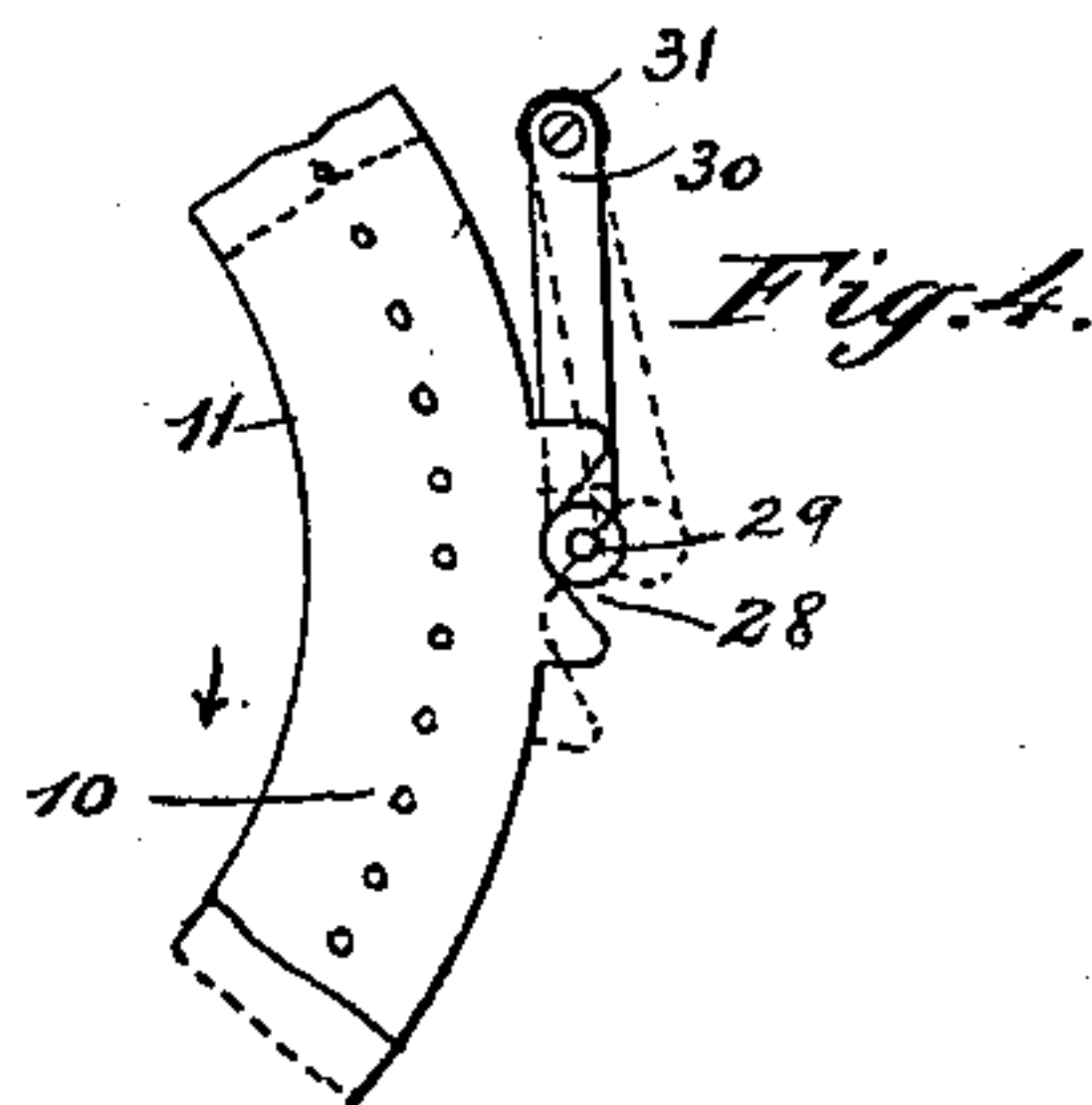
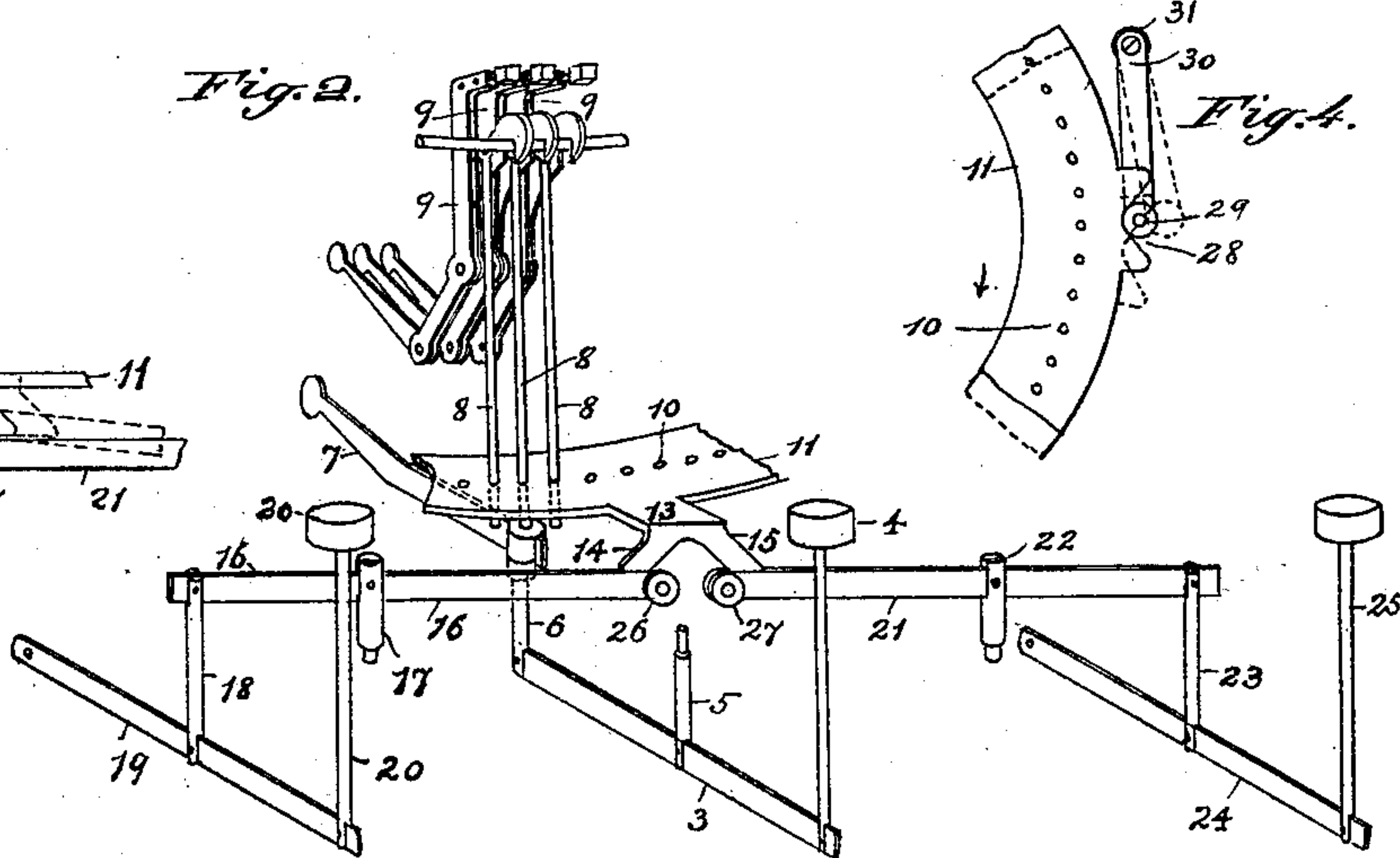
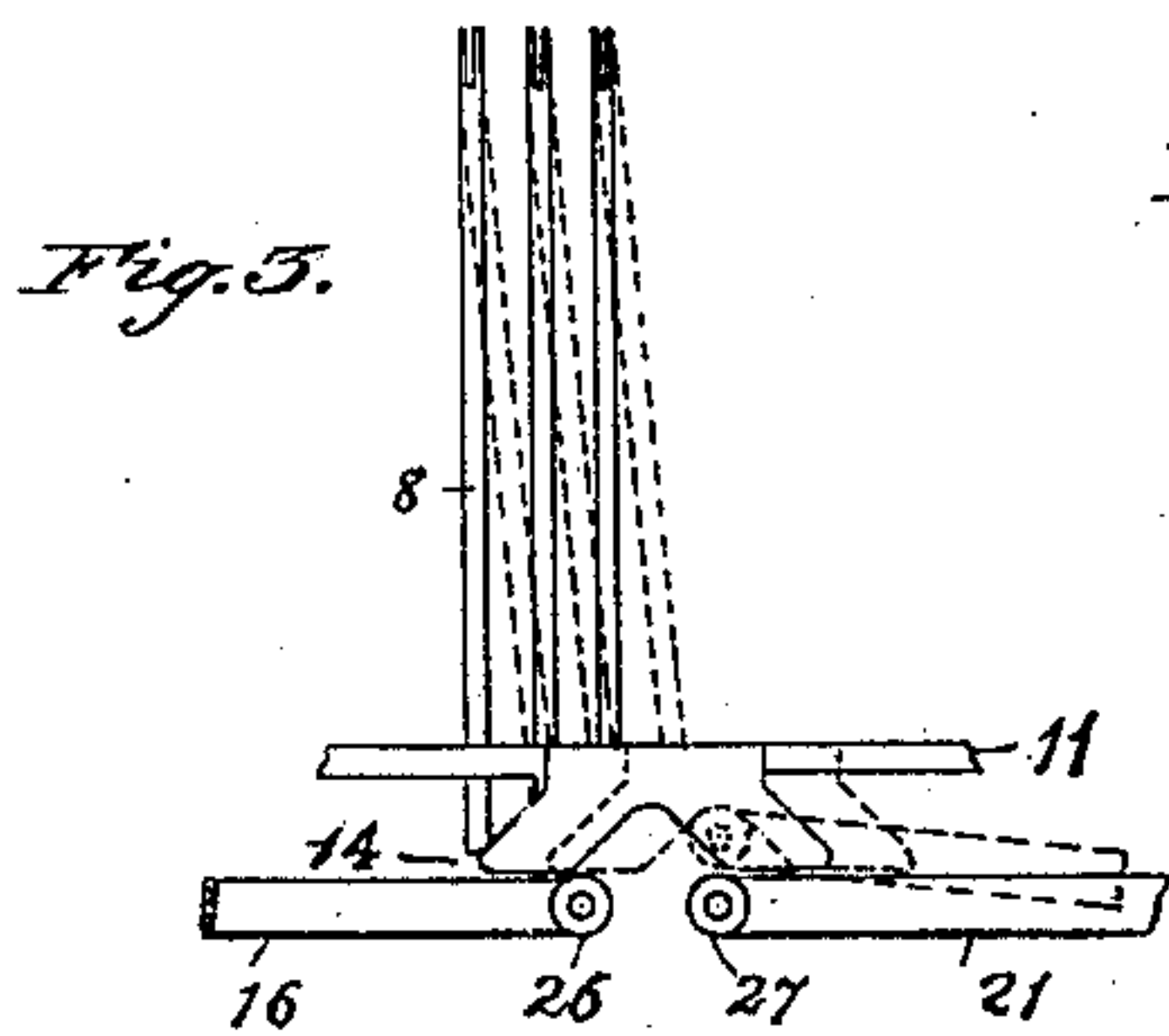
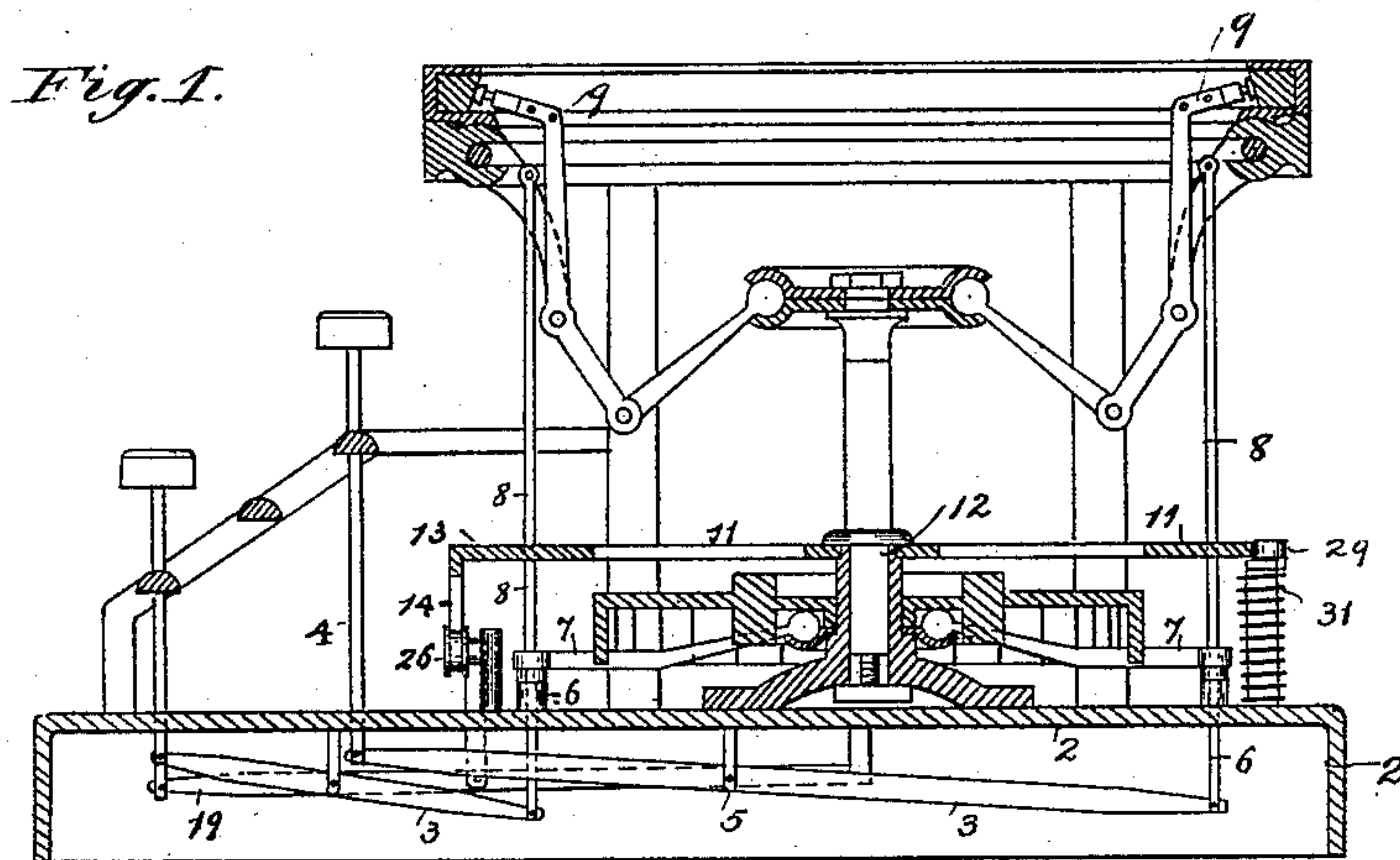


(No Model.)

A. W. STEIGER.
TYPE WRITING MACHINE.

No. 452,417.

Patented May 19, 1891.



Attest:
M. E. Lees.
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Inventor:
Andrew W. Steiger
By Jacob Felbel
Atty:

UNITED STATES PATENT OFFICE.

ANDREW W. STEIGER, OF NEW YORK, N. Y., ASSIGNOR TO THE YOST
WRITING MACHINE COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 452,417, dated May 19, 1891.

Application filed October 18, 1889. Serial No. 327,412. (No model.)

To all whom it may concern:

Be it known that I, ANDREW W. STEIGER, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to "shift-machines" of the kind made the subject-matter of an application for United States Letters Patent filed by Mr. George W. N. Yost, October 18, 1889, Serial No. 327,423, and has for its main object to provide a better means for actuating the shift ring or plate which swings or vibrates the lower pendent ends of the connecting-rods of the type movement. In said Yost machine there are two shift-keys, which through intermediate devices are adapted to oscillate the shift-ring to the right and the left of its normal position, and the construction is such that if either key be depressed the other one will rise. This rising or lifting of one shift-key while the other is being actuated or depressed having been found in practice to be objectionable, I devoted myself to the devising of a means whereby the depression of either shift-key could be effected without influencing or actuating the other. Having succeeded in providing such a means, I shall now proceed to describe the same in connection with the accompanying drawings, in which—

Figure 1 is a central vertical section of a type-writing machine embodying my invention. Fig. 2 is a detail perspective view to more clearly illustrate my improvements. Fig. 3 is a detail front elevation showing by dotted lines the action of the moving parts, and Fig. 4 is a plan view of the rear portion of the shift ring or plate with its retaining and returning devices.

In the several views the same part will be found designated by the same numeral of reference.

2 represents the bed-plate, which is perforated for the passage of the stems of the finger-keys, both the shift-keys and the keys bearing the characters representing the type employed.

3 represents the key-levers, 4 the character

finger-keys, and 5 the key-lever fulcrums or posts. At the rear end of each key-lever is a stem 6, passing above the bed-plate and terminating in a head or enlargement beneath the free end of a lifting or sub lever 7. Each lifting-lever is adapted to control three connecting-rods 8 8 8, which depend from three type-carriers 9 9 9. The lower ends of the connecting-rods all pass through perforations 10 in a shift ring or plate 11, which is mounted to oscillate on a post or bracket 12, all in the manner shown and described in the said application of Yost. The front portion of the shift-ring is provided with an arm 13, from which extend downwardly and obliquely in opposite directions two legs or forks 14 and 15, providing inclined or beveled surfaces.

Beneath the fork or leg 14 is located the inner end of a transverse horizontally-arranged lever 16, fulcrumed in a post 17, fixed upon the bed-plate. To the outer end of said lever is pivoted one end of a link or stirrup 18, whose lower end is connected to a longitudinal horizontally-arranged lever 19, which at its free end is provided with a shift-key 20. Under the fork or leg 15 is disposed the inner end of another horizontally-arranged lever 21, fulcrumed in a post 22, and connected at its outer end by a link 23 to another longitudinally-arranged lever 24, provided with a shift-key 25. The inner ends of the levers 16 and 21 are provided with anti-friction rollers 26 and 27.

At the rear portion of the shift-ring is provided a V-shaped notch or recess 28, which receives an anti-friction roller 29, mounted at the end of a pivoted arm 30, to which is applied a spring 31.

Each lifting-lever stands normally beneath the middle connecting-rod of the group which it controls. In order to bring the lower end of the first or last connecting-rod of each group over or in line with its associated lifting-lever, the shift-ring is vibrated either to the right or the left. Preferably the middle connecting-rod of each group connects with a type-carrier bearing a lower-case or small letter, the first connecting-rod with a type-carrier bearing a numeral or punctuation-mark, and the last or right-hand connecting-rod with a type-carrier bearing an upper-case

or capital letter. Hence in the normal position of the shift-ring only lower-case or small letters will be printed.

If now it be desired to print a capital letter, the finger-key 20 is depressed and the levers 19 and 16 vibrated. As the inner end of the latter rises, its anti-friction roller 26 rides or bears against the inclined surface of the arm 14 and causes the shift-ring and the pendent ends of the connecting-rods to be swung or turned to the left a distance sufficient to bring the lower end of the third or right-hand connecting rod of each group over or in line with its controlling lifting-lever. If any character finger-key be struck while the parts are thus shifted, an upper-case or capital letter will be printed. During the shifting of the ring and connecting-rods to the left the levers 21 and 24 and the shift-key 25 remains stationary. As soon as the pressure on the shift-key 20 is released the parts all return to their normal positions by the action of the spring-pressed pivoted arm or lever 30.

If it be desired to print a numeral or punctuation-mark, the shift-key 25 is depressed and the levers 24 and 21 are actuated. As the inner end of the lever 21 rises, the anti-friction roller 27 rides upon the inclined or beveled wall of the arm 15 and forces the shift-ring and the lower ends of the connecting-rods to the right, as shown by the dotted lines at Fig. 3, the extent of movement being just sufficient to bring the lower end of the first or left-hand connecting-rod of each group over or in register with its associated lifting-lever. If any character finger-key be actuated now, a numeral or punctuation mark or sign will be printed. Upon releasing the pressure on the shift-key 25 all of the parts or devices actuated return to their initial positions under the influence of the pivoted arm 30 and its spring 31. During the movement of the shift-ring and connecting-rods to the right the levers 16 and 19 and the shift-key 20 all remain at rest.

It will be seen that by my invention I have provided simple and effective means for moving the shift-ring in either direction, and that when either shift-key is operated the other will stand unaffected.

If desired, my invention may be applied to single-shift machines, or those in which the shift-ring moves only in one direction and in which there is only one shift-key employed.

So far as the main features of my improvements are concerned, the lifting-levers may be omitted, the type-carriers made in different form, and other changes effected in detail construction without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a series of type-carriers, a series of pendent connecting-rods, a shift ring or plate connected to the lower ends of said connecting-rods and having an inclined or beveled surface, and a lever adapted to engage with said surface and partially rotate said ring or plate and swing or vibrate the lower ends of all of said connecting-rods, substantially as and for the purpose set forth.

2. In a type-writing machine, the combination of a shift ring or plate provided with two oppositely inclined or beveled surfaces, a pair of levers adapted to engage each with one of said surfaces, and means, substantially as described, for actuating said levers and causing them to turn or move the shift-ring either to the right or the left, substantially as set forth.

3. In a type-writing machine, the combination of a shift ring or plate provided with an inclined or beveled surface, a lever adapted to engage with said surface, a key-lever, a connecting-link, and a shift-key, substantially as set forth.

4. In a type-writing machine, the combination of a shift ring or plate provided with an inclined or beveled surface, a horizontally-arranged lever provided at its inner end with an anti-friction roller, a horizontally-arranged key-lever, a vertical connecting-link between said levers, and a vertical shift-key, substantially as set forth.

5. In a type-writing machine, the combination of a shift ring or plate provided with two oppositely inclined or beveled surfaces, two horizontally-arranged levers provided with anti-friction rollers at their inner ends, two horizontally-arranged key-levers, two vertical connecting-links, and two vertical shift-keys, whereby the shift-ring may be turned or moved either to the right or the left, substantially as set forth.

6. In a type-writing machine, the combination, with a series of type-carriers, a series of connecting-rods, and a shift ring or plate engaging the lower ends of said connecting-rods and provided with an inclined or beveled surface, of a lever adapted to co-operate with said inclined surface, and means, substantially as described, for actuating said lever, substantially as set forth.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 6th day of May, A. D. 1889.

ANDREW W. STEIGER.

Witnesses:

STEPHEN OSBORNE,
EDWARD W. ENSIGN.