

No. 693,278.

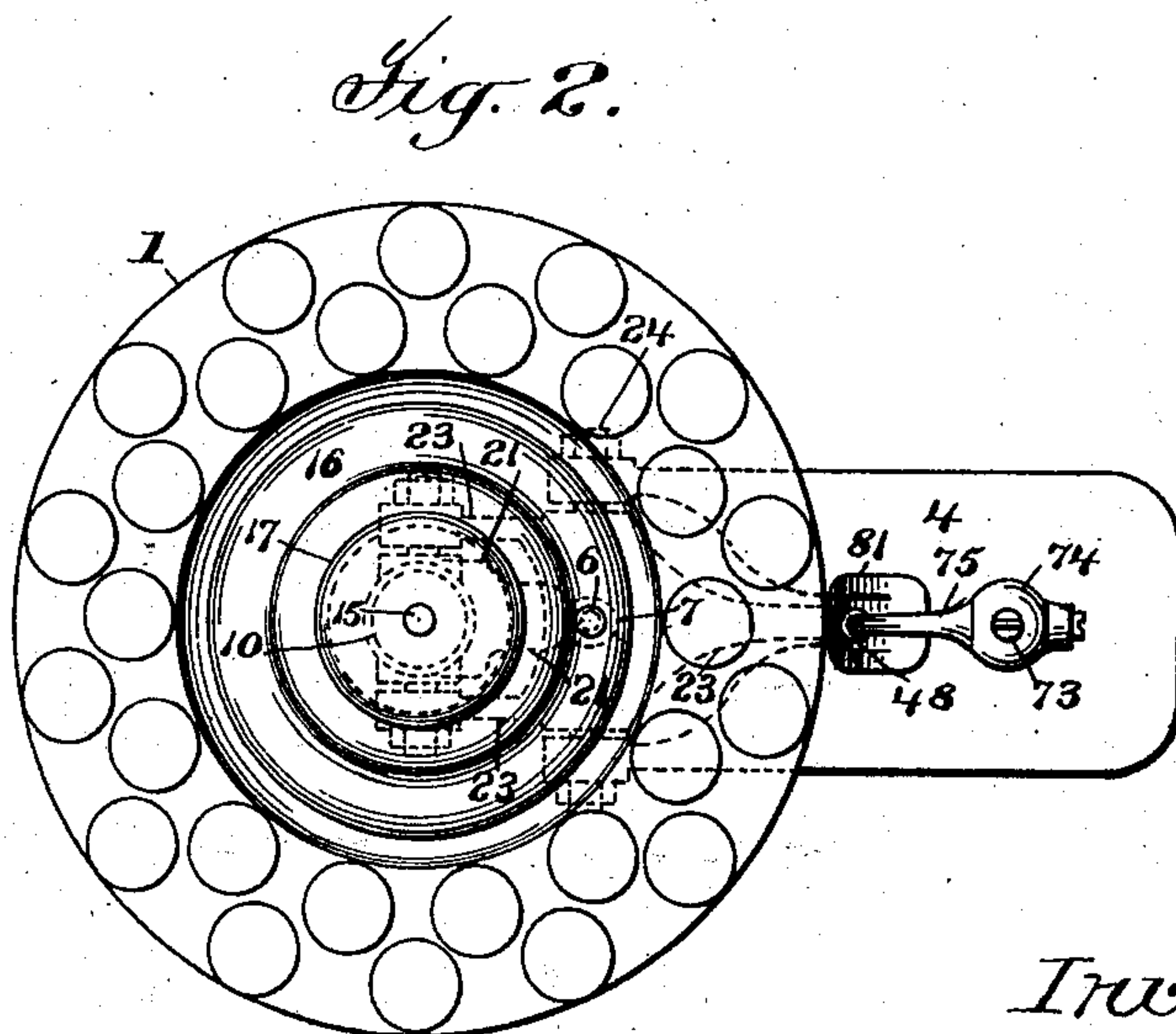
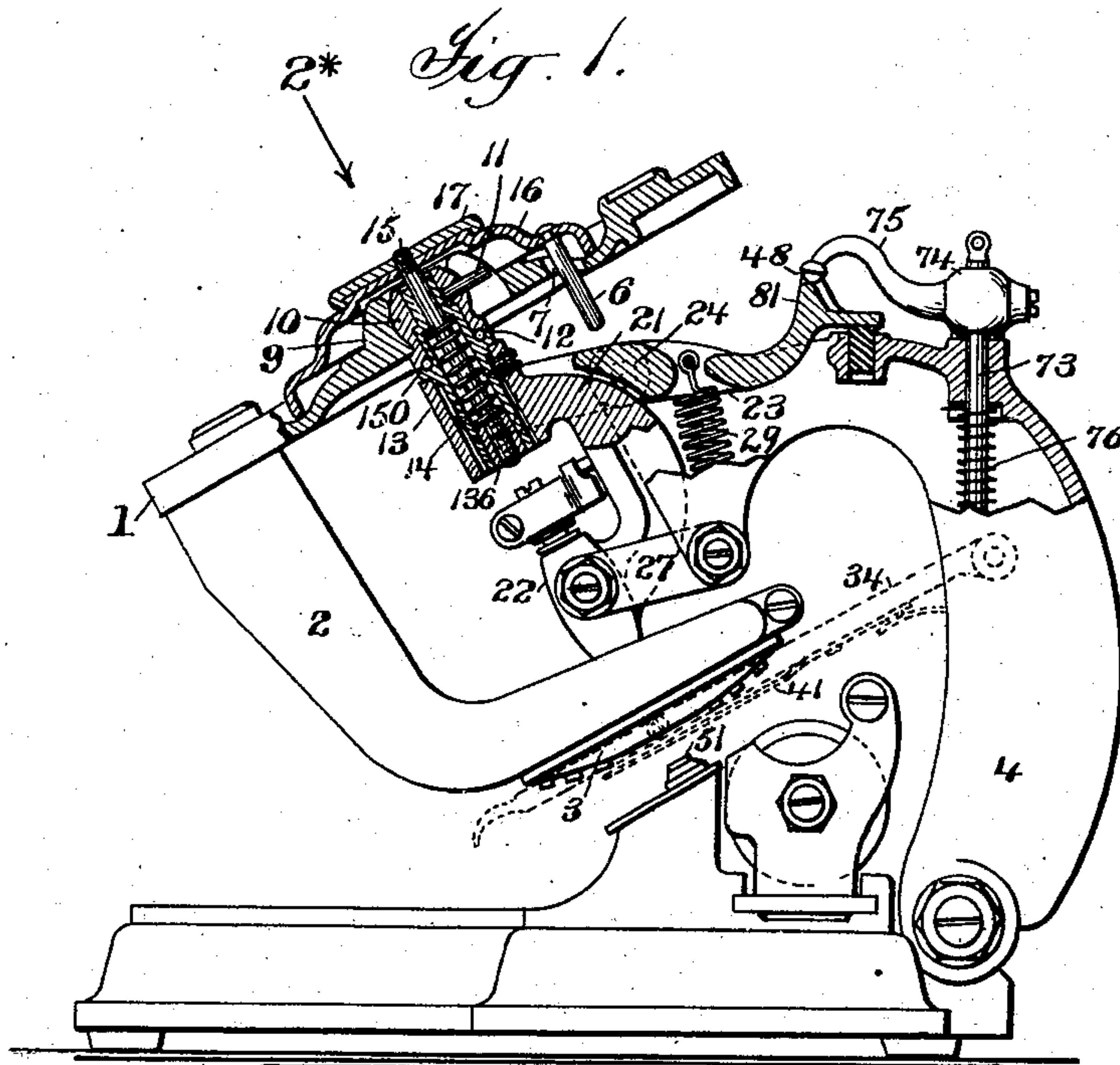
Patented Feb. 11, 1902.

F. LAMBERT.
TYPE WRITER.

(Application filed Dec. 12, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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George H. Botts
Edith Saurer

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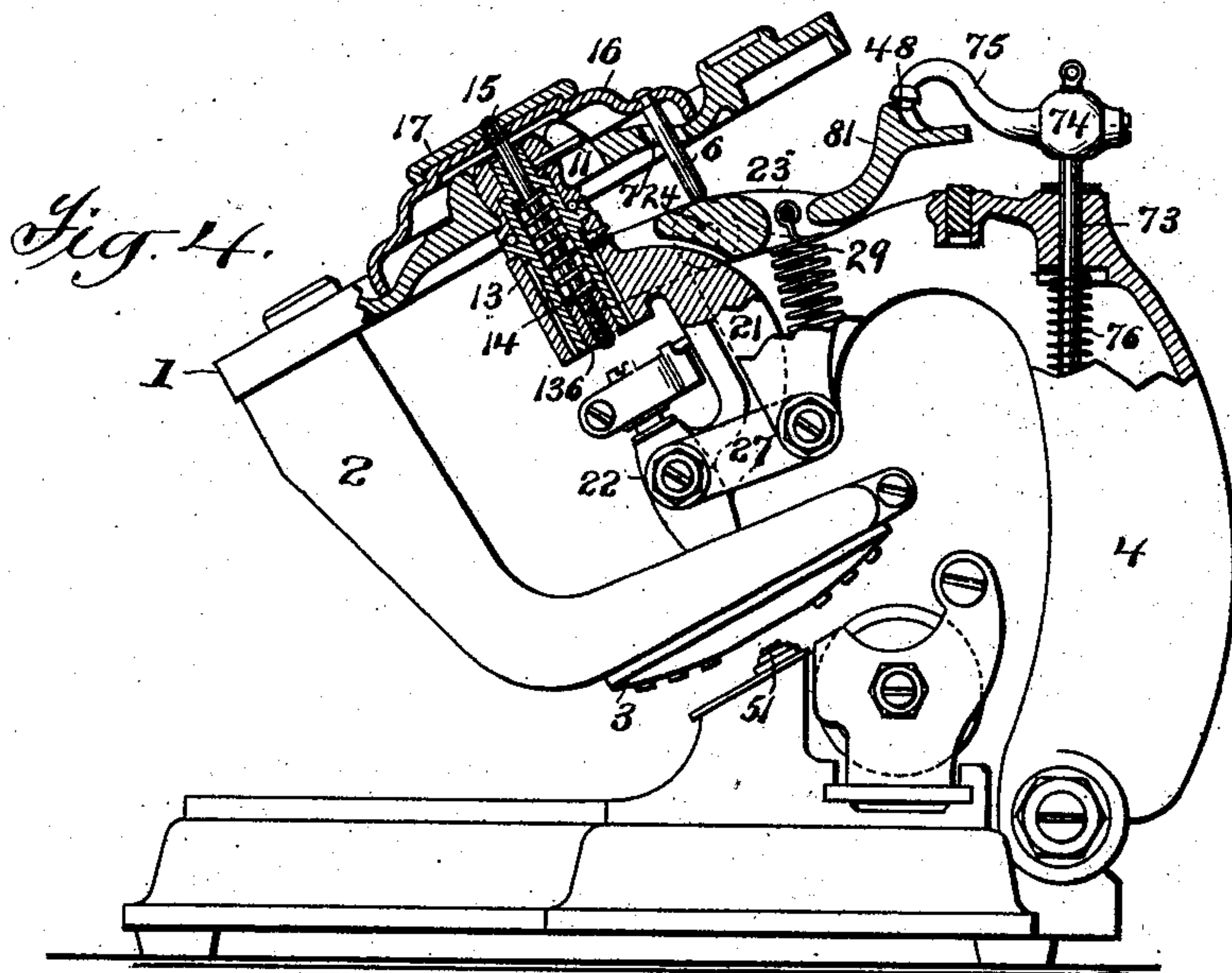
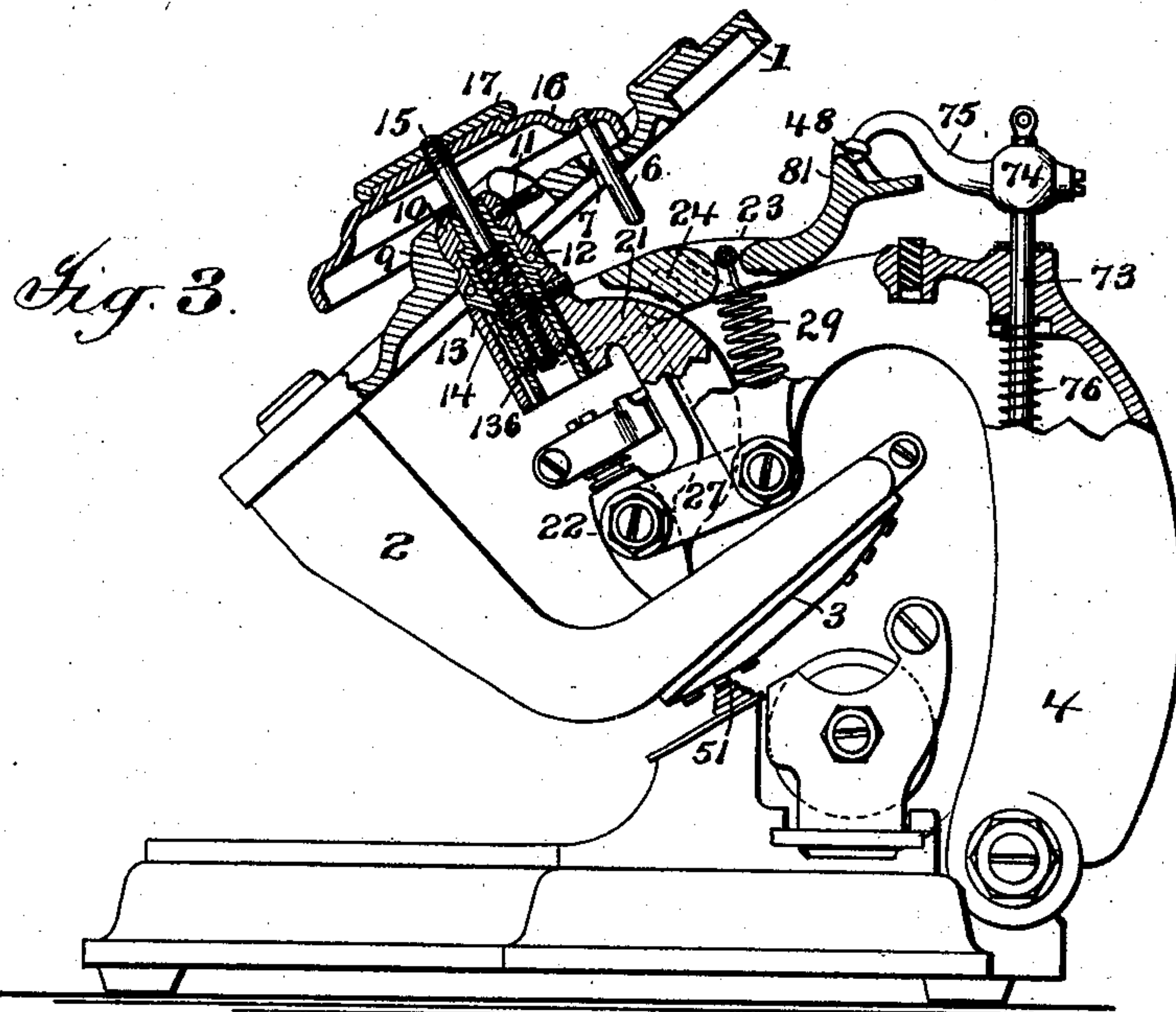
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TYPE WRITER.

(Application filed Dec. 12, 1901.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

FRANK LAMBERT, OF BROOKLYN, NEW YORK.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 693,278, dated February 11, 1902.

Application filed December 12, 1901. Serial No. 85,571. (No model.)

To all whom it may concern:

Be it known that I, FRANK LAMBERT, a citizen of the United States, and a resident of New York city, borough of Brooklyn, Kings
5 county, State of New York, have invented Improvements in Type-Writers, of which the following is a specification.

This invention relates to improvements in the Lambert type-writer, shown and described
10 in United States Letters Patent, No. 640,208, dated January 2, 1900. As described in the said patent, a multiple key is tilted and depressed to bring the type to the printing-platen, the depression of said key also actuating the mechanism for spacing, either when
15 printing or for blanks between words or characters. As shown in the said patent, the key has a free downward motion until the printing mechanism comes into contact with the
20 printing-platen or the paper thereon. It will therefore be evident that with this free motion when the key is depressed simply for blank spacing the printing mechanism (or anything between it and the platen or paper)
25 will be carried down hard against the paper. The parts of this particular printing mechanism are so arranged that the type cannot come into contact with the paper when the key is depressed for spacing; but even then it is undesirable for various reasons to have any parts
30 touch the paper when the spacer is being operated.

The object of the present invention is to provide means for limiting the downward motion of the key and printing mechanism when
35 the key is depressed for blank spacing, while leaving it free when depressed for printing.

In the accompanying drawings, Figure 1 is an outline of the main parts of the Lambert
40 type-writer and showing in section the part of the machine containing the improvements. The parts are here represented in the normal position when the machine is at rest. Fig. 2 is a view showing the upper parts of the machine as looking at Fig. 1 in the direction of
45 arrow 2*. Figs. 3 and 4 are views similar to Fig. 1, Fig. 3 showing the parts in their positions when the type is brought to print, and Fig. 4 showing the parts in their positions
50 when the key has been depressed for blank spacing.

The parts in the drawings corresponding to the parts in the above-mentioned Letters Patent are numbered the same, and for a more specific description of the operation of the
55 machine than herein given the said patent is referred to.

The key 1, with its depending arm 2 and the type-block 3, carried in a socket at the lower part of the arm 2, form a device capable of being tilted or inclined in any direction
60 upon the ball 10. One tilted position is shown in Fig. 3. The ball 10 is carried by what may be termed in this application the "central support," formed by the two sleeves 13 and 22 and
65 connecting-arm 21. This central support, the ball 10 carried thereby, and the tilting parts supported by the ball 10 are together capable of being depressed toward the printing-platen 51 in a right line passing through the
70 center of the ball and the platen by means of the jointed rectangle or Roberval balance formed by the forked arm 23 (see Fig. 2) and the arms 27, parallel thereto, the said arms being pivoted to the standard 4 and central
75 support, as shown. Fig. 1 shows in dotted lines the inking-pad 34 and shield 41; but for clearness these parts have been omitted from the other figures. When all pressure is released, the tilted parts are returned to their
80 normal relative positions by spring 14, while the depressed parts (including the tilted parts) are returned to normal positions by spring 29.

For a clear understanding of the present invention the means for returning the tilted
85 parts will be more fully described herein.

The key 1 is provided with a central socket 9, resting and adapted to be tilted on the ball 10. Projecting from the ball 10 is a rigid pin 11, entering a slot in the socket 9, thereby preventing the rotation of the key upon ball 10.
90 The ball 10 is bored and passing over the upper end of rod 12 engages with the said rod by an indexing clutch device 150, formed with interlocking joints or projections on the lower
95 part of the ball 10, and a shoulder on rod 12. The rod 12 is received in the sleeve 13 and retained there by means of adjusting-screws. Extending through the rod 12 is a smaller rod 15, which is threaded at its upper end to receive the inverted cup 16, which is surmounted
100 with an ornamental plate 17, which may

be termed a "spacer." The lower peripheral edge of the cup 16 bears upon the upper surface of the key 1. Surrounding the rod 15 and within the hollow rod 12 is a spiral spring 14, which bears at one end against a shoulder in the rod 12 and at the other upon a nut 136 on the lower threaded extremity of the rod 15, so that the effect of the said spring is by its expansion to force the cup 16 down upon the upper surface of the key. When the key is tilted by pressure of the finger upon any one of the pressure-points, the side of the key which rises lifts the cup 16 against the action of the spring 14, and when pressure is released the spring 14, acting upon the cup, causes the key to return to its normal position.

To understand the present invention, it must be clearly understood that the cup 16 cannot tilt with the key 1 and that whenever the key is tilted in no matter what direction the side opposite that depressed will raise the cup 16. Fig. 3 represents the key tilted downward at the front of the machine; but even if tilted in exactly the opposite direction the cup 16 will be raised to the same position as shown in this figure.

As also shown and described in said patent, the spring-actuated rod 73 actuates the spacing mechanism for moving the carriage a unit space at each up-and-down motion of said rod. As the spacing mechanism itself does not form part of the present invention, it is not here shown; but for clear understanding this rod 73 for actuating the mechanism will be termed the "spacing-rod."

Upon the upper end of rod 73 is a hub 74, having a bent arm 75, the turned-down end of which has a ball 48 loosely mounted therein. This ball 48 rests upon the upper end of a projection 81 at the rear end of lever 23. The depression of the key 1 raises the rear end of that lever and so raises the arm 75, and hence the rod 73. This upward movement of the rod 73 is resisted by the spiral spring 76, which surrounds the rod 73 within the standard 4. The construction is such that the first part only of the motion of lever 23 moves the rod 73 upward, and as soon as the rod 73 has been lifted sufficiently to operate the spacing mechanism the antifriction-ball 48 rides along the incline on the projection 81 without lifting the rod 73 farther.

From the foregoing it will be evident that at each down-and-up motion of the key 1, regardless of its tilting motion, the spacing-rod will move up and down to actuate the spacing mechanism. To accomplish this without printing, pressure is exerted upon the spacing-plate 17 or upon any part of the cup 16.

The parts so far described are all shown in the above-named patent.

To accomplish my present object of limiting the extent of motion of the key 1 when actuated or depressed for spacing, but allowing an unlimited extent of motion or depression when actuated for printing, I take ad-

vantage of the fact that when the key is tilted by pressure upon any one of the pressure-points the cup 16 stands in a different position relative to the levers of the jointed rectangle, permitting of the free downward motion of the key, than when the key is not tilted. A very simple construction is shown in the drawings. A pin 6, secured to the cup 16, passes freely through a hole 7 in the key 1, just above the lever 23 and to the rear of the pivoting-point 24 of said lever.

The operation will be very clear from a study of Figs. 1, 3, and 4. Fig. 1 represents the parts in their normal stationary position. Fig. 3 represents the parts when the key has been tilted and pressed downward to bring the type on the ring 3 to the printing-platen 51. It will be seen that the tilting of the key 1 has raised the cup 16, so that the stop-pin 6 is quite clear from the arm 23, and the key 1 and other parts of the printing mechanism have had free downward motion until stopped by the type coming against the printing-platen or paper thereon. Referring now to Fig. 4, which represents the key 1 pressed downward for spacing, it will be seen that when the key and cup 16 have moved downward a slight distance from the normal position (shown in Fig. 1) the stop-pin 6 comes against the lever 23 at the rear of its pivoting-point 24, thus preventing further downward motion of the forward part of said levers 23 and the parts carried thereby. The downward motion of the key may be stopped at any time after the lever 23 has been moved far enough to actuate the spacing-rod 73, and, as hereinbefore explained, it is only the first part of the motion of this lever 23 that is utilized for acting upon the rod 73. As explained in the said patent, the purpose of the clutch 150 is to enable the key 1, the type-block carried thereby, and the pivot-ball 10 to be turned bodily around the axis of the central support, and thus allow the type to be brought to print on a slant for italics, &c. Referring to Fig. 2, it will be seen by the dotted lines that the shape of the lever 23, just under the stop-pin 6, is such that this stop-pin may be revolved some little way in either direction (by the turning of the key for italicizing) before the pin would be beyond interfering with the motion of said lever. This amount of motion is quite sufficient for the ordinary working of the machine. However, I do not limit myself to this particular construction, which has been shown because of its simplicity, merely by way of example, to represent a means of limiting the downward motion of the key when used for spacing.

It will be evident that the principle of the operation being clearly given various modifications of the mechanism can be made to accomplish the same purpose, either by taking advantage of the rising cup 16 or parts attached thereto in reference to the levers of the jointed rectangle or by taking advantage of

any other differential relative motions of the various parts.

I claim as my invention—

1. In a type-writer, a key adapted to be tilted and depressed, and means for limiting the depression thereof when not tilted, but allowing a free depression when tilted.

2. In a type-writer, the combination of a tilting key and movable support therefor, and means for limiting the motion of said support when the key is not tilted, but allowing a free motion when the key is tilted.

3. In a type-writer, a key adapted to be tilted and depressed, and a device acting, when in its normal position, as a stop to limit the depression of the key, but adapted to be moved from its normal position by the tilt-

ing of said key, thus allowing further depression of the latter.

4. In a type-writer, a tilting key, a movable support therefor, and a device, acting, when in its normal position, as a stop to limit the motion of said support, but adapted to be moved from its normal position by the tilting of said key, thus allowing further motion of said support.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK LAMBERT.

Witnesses:

HERBERT G. WHIPPLE,
EDITH J. GRISWOLD.