

No. 842,586.

PATENTED JAN. 29, 1907.

J. T. SCHAAFF.

KEY ACTION FOR TYPE WRITING AND OTHER KEY OPERATED MACHINES.

APPLICATION FILED DEC. 13, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

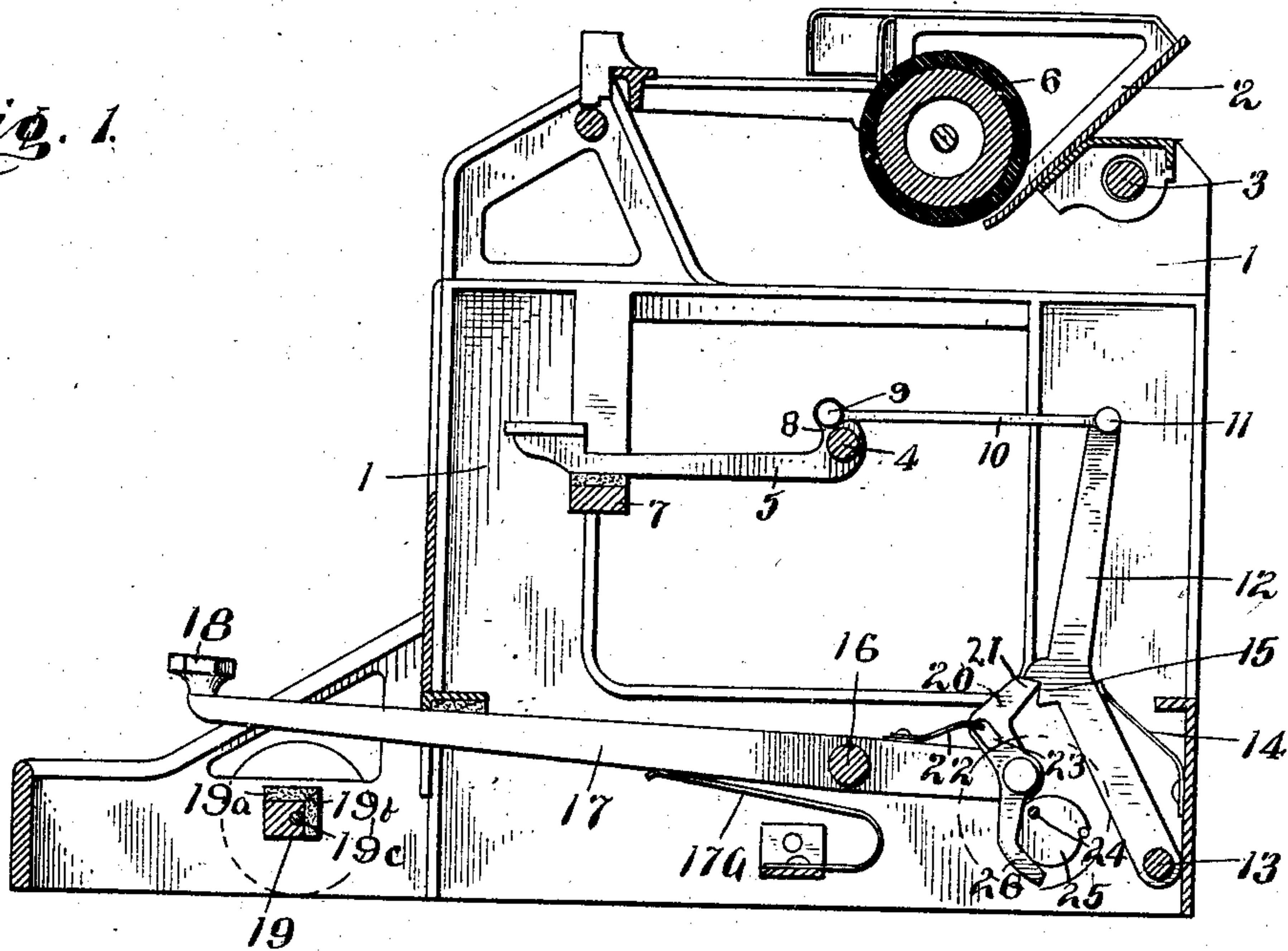
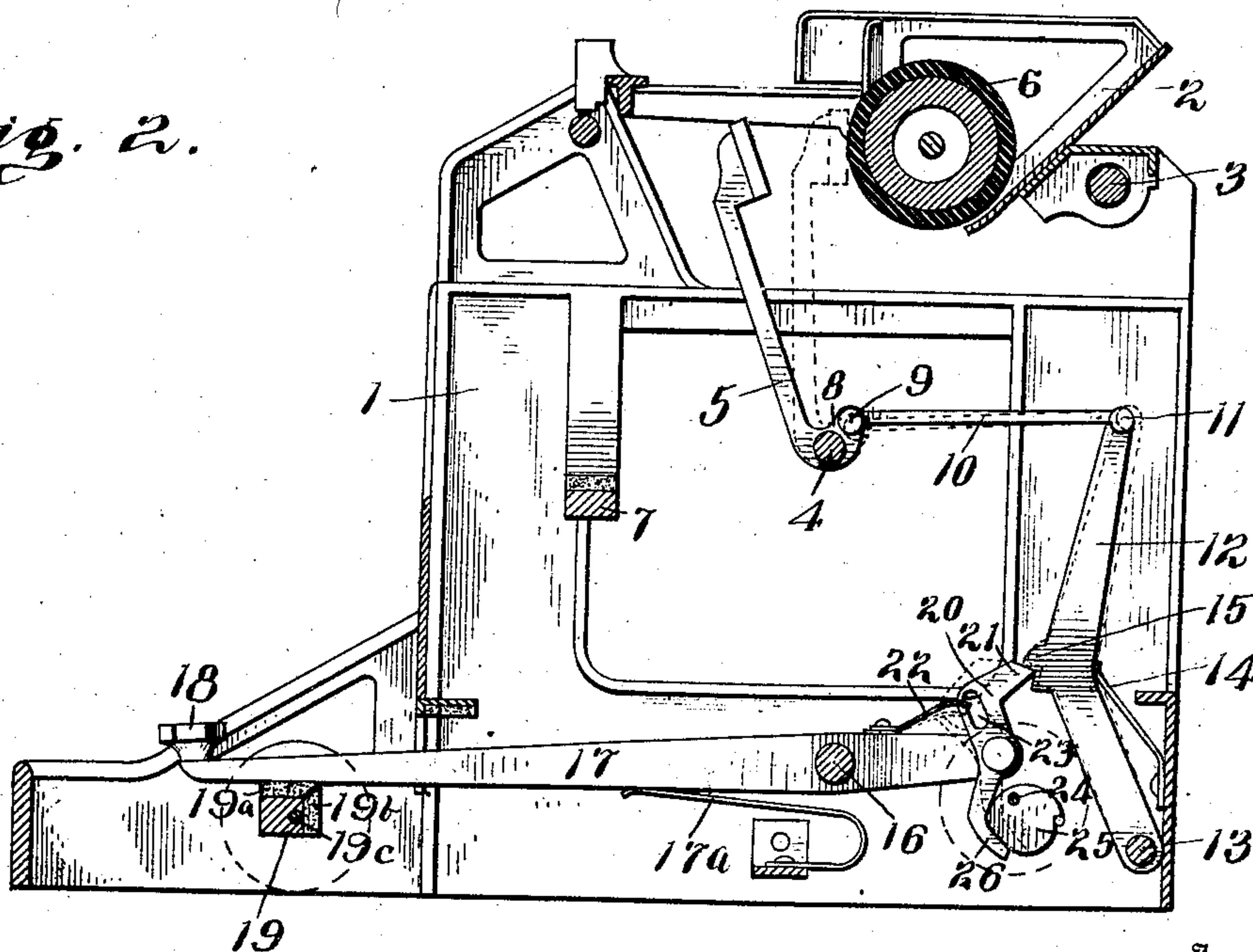


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

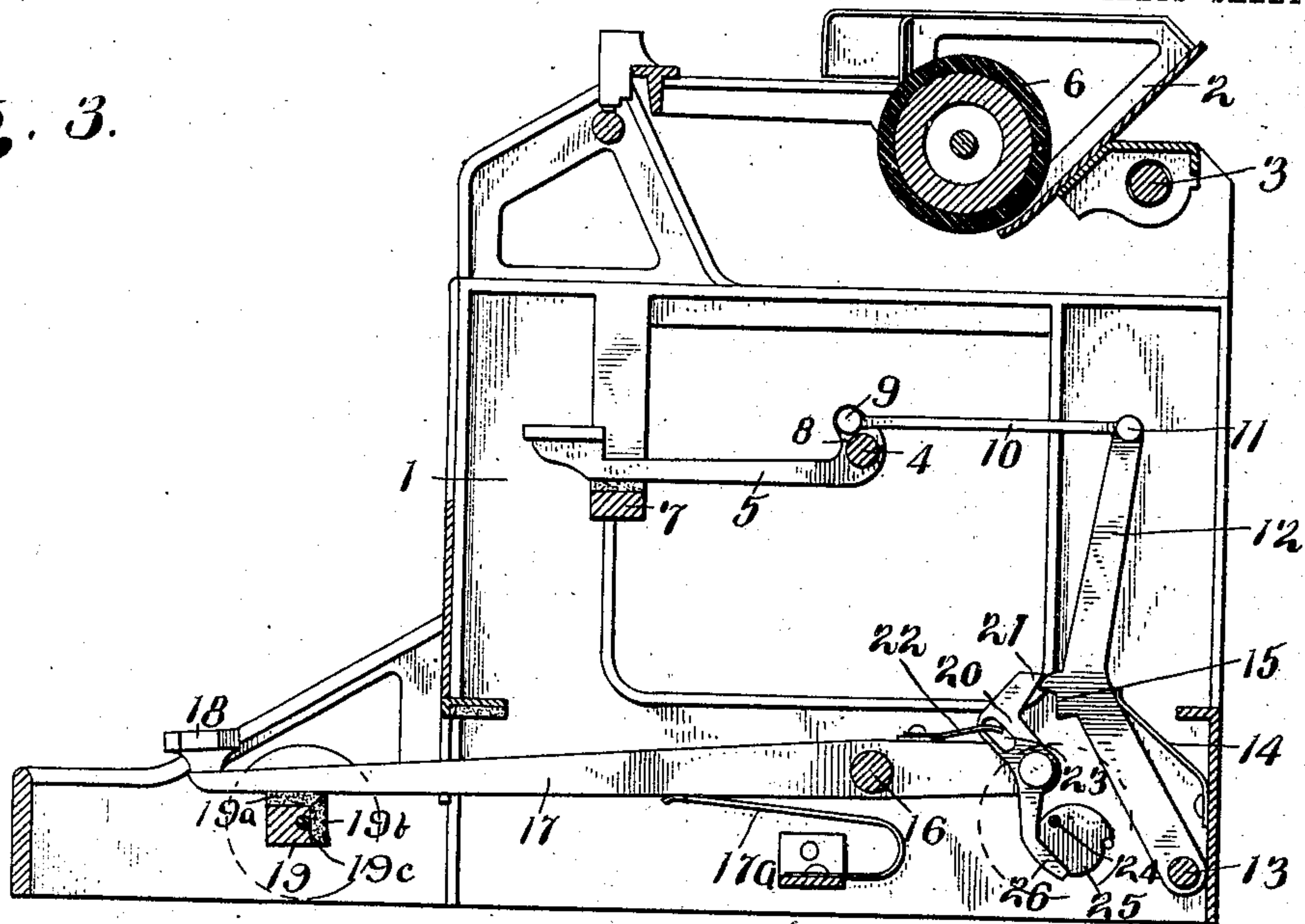
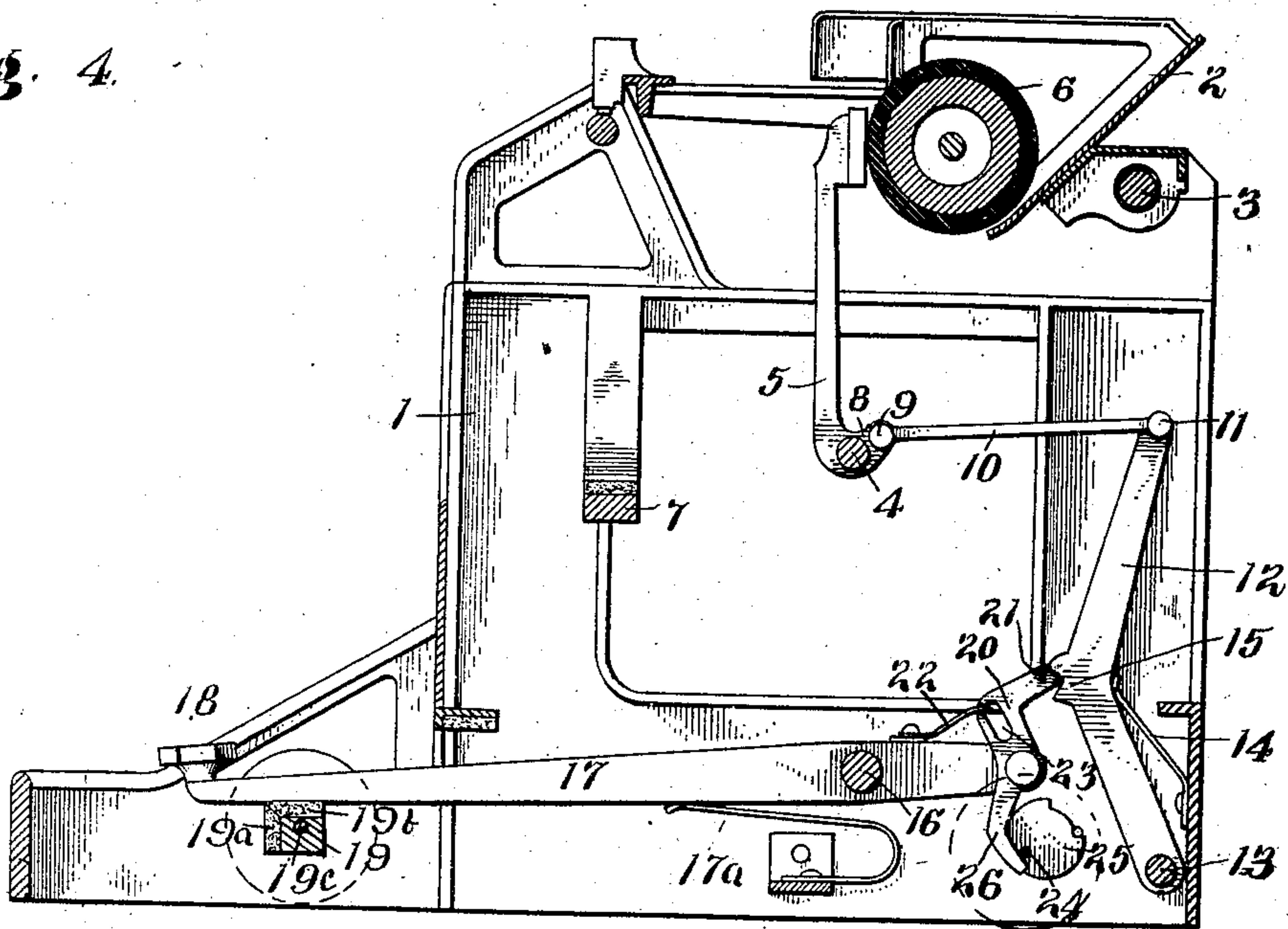


Fig. 4.



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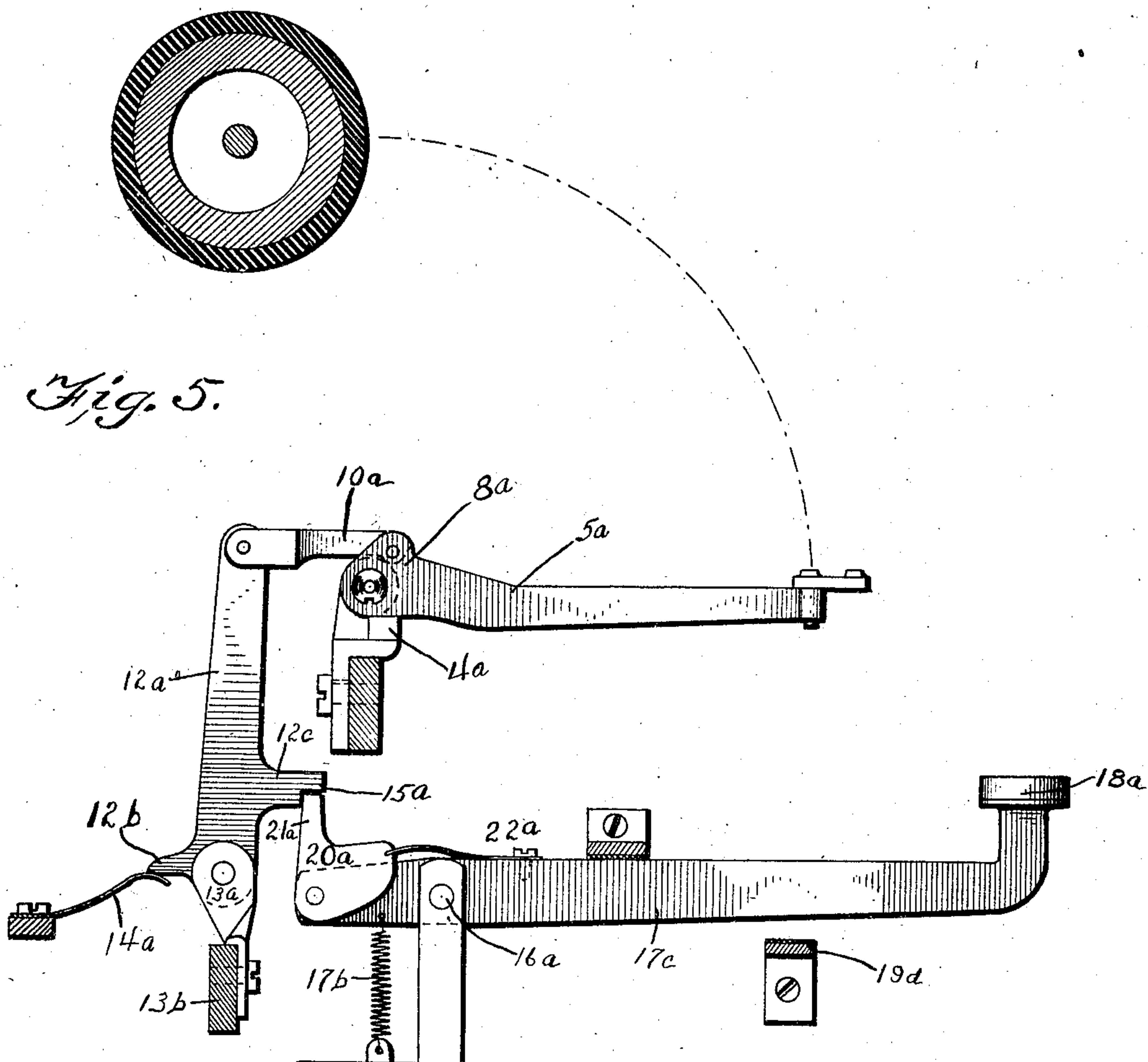
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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KEY-ACTION FOR TYPE-WRITING AND OTHER KEY-OPERATED MACHINES.

No. 842,586.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed December 13, 1904. Serial No. 236,721.

*To all whom it may concern:*

Be it known that I, JOHN THOMAS SCHAAFF, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Key-Actions for Type-Writing and other Key-Operated Machines, of which the following is a specification.

My invention relates to key-actions for type-writing and other key-operated machines, and more particularly to type-writing machines of the front-stroke type in which the key-lever is disconnected from the type-bar after the type-bar has been given the momentum to effect the printing.

It has for an object to provide another construction in which the disconnection between the type-bar and the key-lever takes place after the key-lever has completed its movement, this broad idea being the subject-matter of an application filed by me on April 25, 1904, Serial No. 204,881.

A further object is to provide in a machine in which the key-lever and type-bar are disconnected means by which this disconnection may be prevented, so that the machine will be adapted for heavy work, such as duplicating.

Other objects and advantages will appear in the following specification and will be more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a vertical section of a type-writing machine, one key-action only being shown in normal position. Fig. 2 is a view similar to Fig. 1, the key-lever being shown at the limit of its movement and still in connection with the type-bar. Fig. 3 is a view also similar to Fig. 1, the key-lever being shown in a depressed position and the type-bar returned to its initial position disconnected from the key-lever. Fig. 4 is another view similar to Fig. 1, but with the key-lever and the type-bar locked against disconnection. Fig. 5 is another embodiment of my key-action in normal position.

In the embodiment shown in Figs. 1 to 4, 1 indicates the frame, having a power-driven paper-carriage 2, guided thereon by means of a rod 3. 4 indicates the pivot of the type-bar 5, the pivot being as usual in the form of a segment disposed vertically below the front face of the platen 6, and the type-bars

normally lying approximately in a horizontal position and resting on a segment 7. These are common features in a type-writing machine, and therefore no claim is made thereon. In this type of machine the type-bar 5 is provided near its pivot with an upward extension 8, to which is pivoted at one end of a rearwardly-extending horizontal draw-link 10, which is pivoted at the upper end of a vibratory angle-lever 12. The angle-lever 12 is pivoted at its lower end to the base of the frame 1 at 13, and is pressed forward by a leaf-spring 14, which bears against its rear face and tends to return the type-bar to its initial position. The front face of the angle-lever 12 is provided with notch 15 for a purpose hereinafter to be referred to.

In the lower part of the frame 1 is pivoted at 16 intermediate its ends a key-lever 17, one end of which is held in an elevated position by a spring 17<sup>a</sup>, is provided with a key 18, and has its downward movement limited by a stop-bar 19, while the other end carries a pivoted latch 20, extending above and below the key-lever. The upper portion of the latch 20 is provided with a rearwardly-extending nose 21, adapted to enter the notch 15 on the vibratory lever 12 and establish a connection between the key-lever 17 and the type-bar 5. A leaf-spring 22, secured at one end to the key-lever and at its free end extending into a recess 23 in the latch 20, causes the nose 21 to enter the notch 15 when the key-lever is released and to move out of the return-path of the vibratory lever 12 when the key-lever 17 has reached the limit of its movement.

The operation of this portion of my invention is as follows: The parts being in the position shown in Fig. 1—that is, the key-lever being elevated—the nose 21 of the latch 20 being positioned in the notch 15 of the angle-lever and the type-bar being in its retracted position, a depression of the key 18 causes the parts to travel together until the position shown in Fig. 2 is reached, the key-lever 17 having been stopped by the bar 19. The type-bar 5, link 10, and vibratory lever 12 are by the momentum given them by the key-lever 17 carried rearwardly until the type-head strikes the platen 6. In moving rearwardly the vibratory lever 12 moves



away from latch 20, which under the action of spring 22 is moved to the position shown in dotted lines, Fig. 2, thereby permitting the lever 12 to return to its initial position, while the key-lever 17 is depressed, as shown in Fig. 3. Upon the release of the key-lever it returns to its elevated position under the action of spring 17<sup>a</sup>, and the nose 21 of latch 20 enters notch 15 in the vibratory lever under the action of spring 22.

In type-writing machines in which the connection between the type-bar and the type-lever is broken to permit the independent return of the type-bar it is sometimes, for example, in duplicating work employing a number of carbons and a number of sheets of paper desirable to maintain this connection between these parts, so that a heavy blow of the type-head against the platen may be secured. This I accomplish by providing a rod 24, eccentrically mounted on a rotatable disk 25, which when rotated by any suitable means causes the rod 24 to be thrown into the path of the depending portion 26 on the latch 20, as shown in Fig. 4, and thereby prevent the movement of the latch 20 when the key-lever has reached the limit of its downward movement.

To maintain the nose 21 of latch 20 in the notch 15, the stop-face of the stop-bar 19 is lowered in the frame of the machine. This is accomplished by mounting the stop-bar eccentrically on pivots 19<sup>c</sup> on opposite sides of the machine and providing it with two stop-faces, one, 19<sup>a</sup>, causing the stopping of the key-lever before the type-head has struck the platen 6 and the other, 19<sup>b</sup>, permitting the key-lever to remain in connection with the type-bar during the whole movement of the type-bar.

In the embodiment shown in Fig. 5 the type-bar 5<sup>a</sup> is pivoted on a hanger 4<sup>a</sup>, and to an upward extension 8<sup>a</sup> is connected one end of a short link 10<sup>a</sup>, the rear end being connected to the upper end of a vibratory lever 12<sup>a</sup>, which is pivoted at its lower end to a bracket 13<sup>a</sup>, secured to a universal bar 13<sup>b</sup>. The rear face of the lever 12<sup>a</sup> is provided with a projection 12<sup>b</sup>, under which engages a leaf-spring 14<sup>a</sup>, while the front face is provided with a projection 12<sup>c</sup>, provided with a notch 15<sup>a</sup>. In this notch engages the nose 21<sup>a</sup> of a latch 20<sup>a</sup>, pivoted on the rear end of a key-lever 17<sup>c</sup>, which is pivoted intermediate its ends at 16<sup>a</sup> and carries at its front end a key 18<sup>a</sup>. The latch 20<sup>a</sup> is normally held rearward by a leaf-spring 22<sup>a</sup>, while the key-lever is normally held elevated at its front end by means of a coil-spring 17<sup>b</sup>. The operation of this embodiment is the same as that set forth relative to Figs. 1 to 4, except that no means is provided for preventing the disconnection of the type-bar and key-lever, and therefore the stop-bar 19<sup>a</sup> is fixed.

The construction herein shown and de-

scribed is for the purpose of illustration only, and therefore I desire it to be understood that I may within the scope of the appended claims make various changes without departing from the spirit of my invention.

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

1. In a key-action, the combination of a vibratory lever movable automatically in one direction, a key-lever pivoted intermediate its ends, a pivoted latch carried by one of said parts and forming a connection between the vibratory lever and the key-lever in the rear of the latter's pivot, means stopping the key-lever before the vibratory lever reaches the end of its movement, and means causing the pivoted latch to move and break the connection between the key-lever and the vibratory lever after the key-lever has been stopped.

2. In a key-action, the combination of a part to be actuated, a key-lever pivoted intermediate its ends, a latch pivoted to the lever in the rear of the pivot of the key-lever, a vibratory lever connected to the part to be actuated and adapted to be engaged by the latch, a spring acting on the vibratory lever to press the same forwardly, and yielding means for breaking the engagement between the latch and the vibratory lever when the key-lever is stopped before the part actuated reaches the end of its forward movement.

3. In a key-action, the combination of a type-bar having an upward extension near its pivot, a vibratory lever connected at its upper end with the upper extension on the type-lever and pivoted at its lower end, a spring pressing said lever forwardly, a key-lever pivoted intermediate its ends, a pivoted latch adapted for connection with the forwardly-pressed vibratory lever, and yielding means for breaking the connection between the latch and the vibratory lever when the key-lever is stopped before the type-bar strikes.

4. In a key-action, the combination of a type-bar, a forwardly-pressed vibratory lever connected at its upper end with the type-bar and pivoted at its lower end, a key-lever pivoted intermediate its ends, a latch pivoted on the key-lever in the rear of the pivot of the key-lever, and a spring carried by the key-lever and acting on the latch to break the connection between the key-lever and the vibratory lever when the key-lever is stopped before the type-bar strikes, and to make said connection when the key-lever has been released.

5. In a key-action, the combination with a type-bar and a key-lever, of a means for causing a disconnection between the key-lever and the type-bar, after the stopping of the key-lever before the type-bar strikes, and means for preventing the disconnection.



6. In a key-action, the combination with the type-bar and the key-lever, of a trip interposed in the connection between the key-lever and the type-bar to permit the type-bar to return independently of the key-lever, a spring for causing the tripping action, and means engaging the trip to prevent operation.

7. In a key-action, the combination with a type-bar and a key-lever, of a trip interposed between the key-lever and the type-bar, and means engaging the trip to prevent its operation, comprising a rotatable disk and a rod eccentrically carried by the disk.

8. In a key-action, the combination with the key-lever and the type-bar, of a latch forming a connection between the key-lever and the type-bar, a spring acting on the latch to cause a disconnection between the key-lever and the type-bar after the key-lever is stopped before the end of the striking or impression movement of the type-bar, means

engaging the trip to prevent the disconnection and means for stopping the key-lever before the type-bar has reached the end of its impression movement, said means being movable to permit the key-lever to move with the type-lever to the end of its movement.

9. In a key-action, the combination with the type-bar, and the key-lever, of means for stopping the key-lever before the type-bar reaches the limit of its movement, said means being movable to permit the key-lever to move with the type-bar to the end of its movement, means causing a disconnection of the key-lever and the type-bar when the key-lever is stopped before the type-bar reaches the end of its movement, and means for preventing the disconnection.

JOHN THOMAS SCHAAFF.

In presence of—

EDWIN S. CLARKSON,  
H. WHITE.