

Feb. 6, 1940.

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2,188,935

TYPEWRITER

Filed Feb. 18, 1937

2 Sheets-Sheet 1

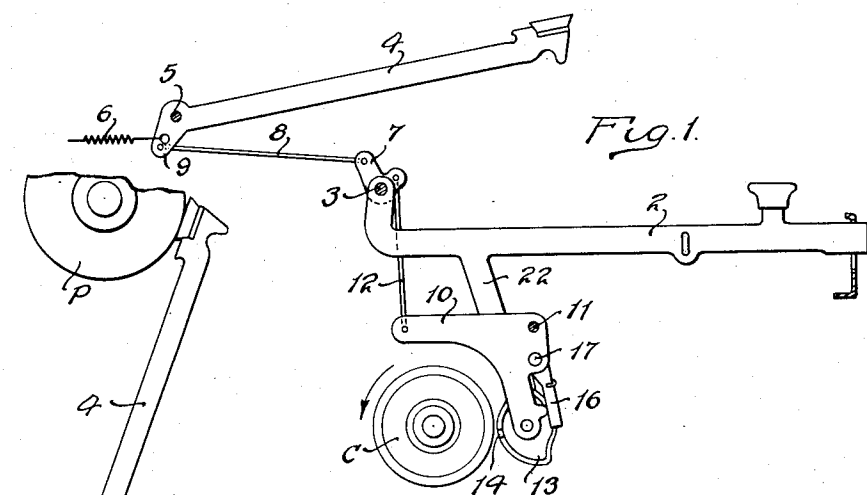


Fig. 1.

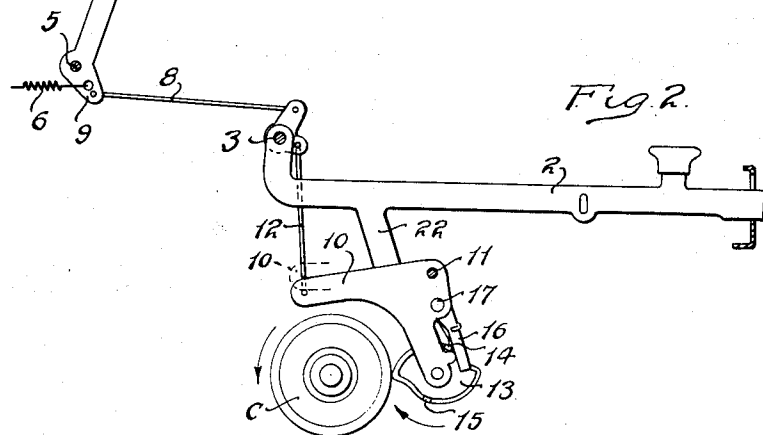


Fig. 2.

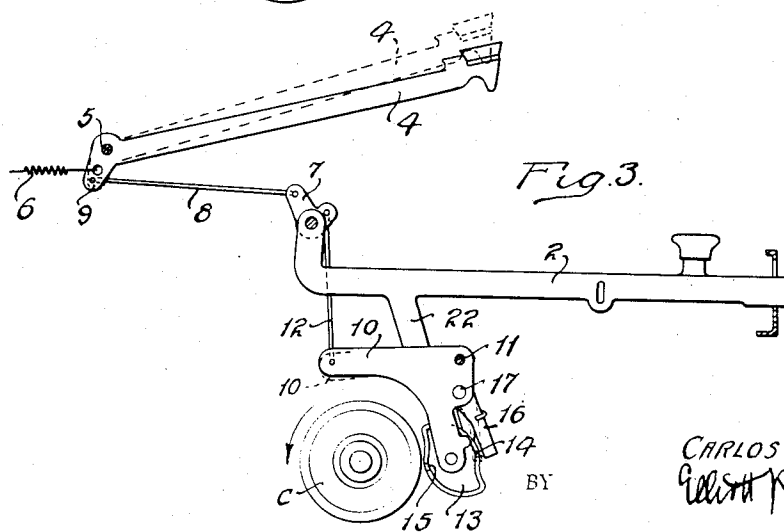


Fig. 3.

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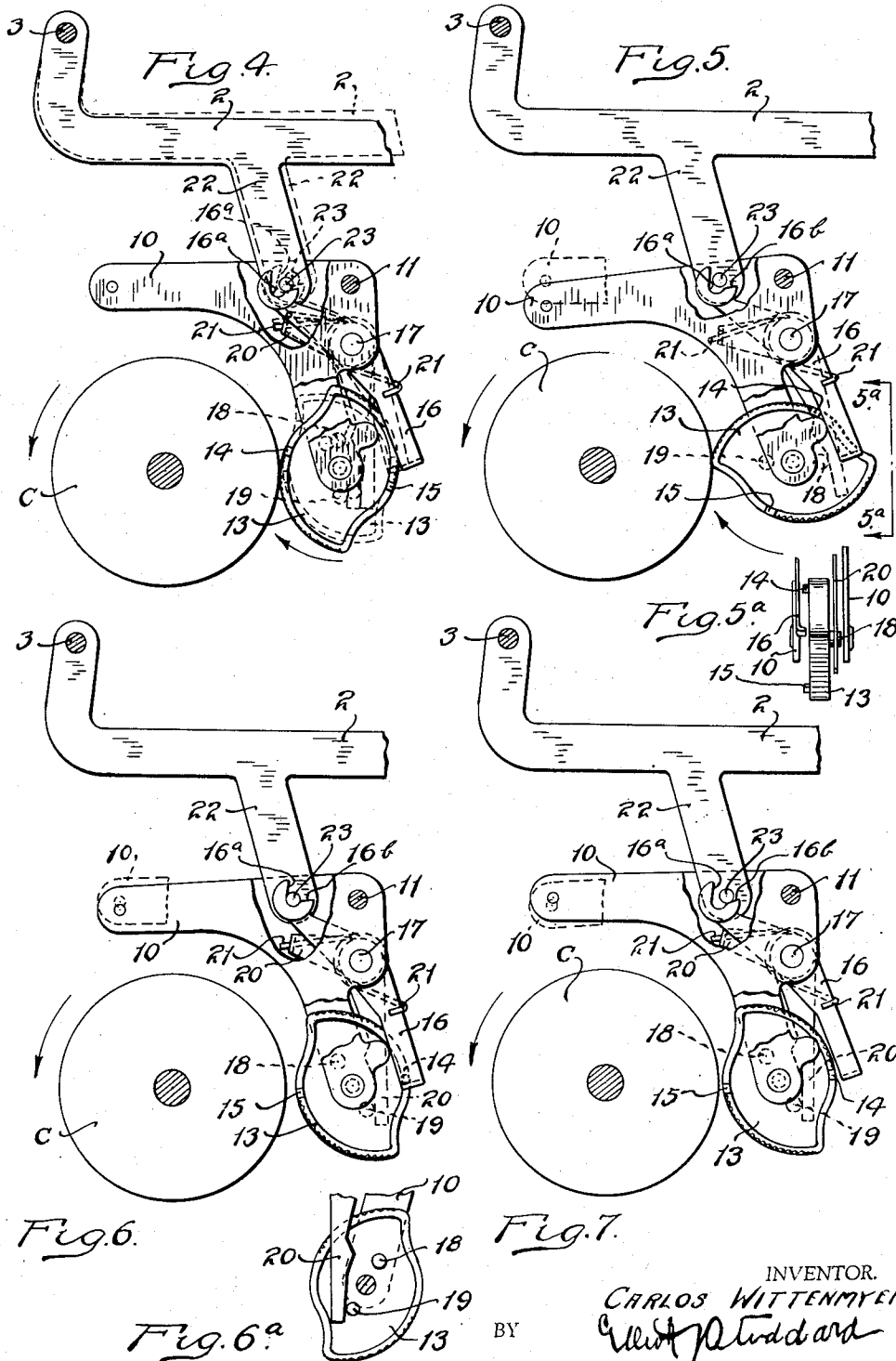
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TYPEWRITER

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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TYPEWRITER

Carlos Wittenmyer, Mount Clemens, Mich.

Application February 18, 1937, Serial No. 126,442

9 Claims. (Cl. 197—17)

My invention relates to typewriters. By my improvements I secure a complete stroke of the type bar at each action thereof and therefore a uniform impression of the type, and, where a rotating actuating cylinder is employed, it becomes practicable to hold a key depressed while the machine itself continuously actuates the corresponding type bar.

In the apparatus shown in the accompanying drawings:

Figure 1 is a side elevation of a type bar and its actuating mechanism embodying my invention, showing the parts in their position before the key is depressed.

Figure 2 is a view similar to Figure 1, showing also a part of the platen and the parts in their position after the key has been depressed and the type bar has come into contact with the platen.

Figure 3 is a similar view, the parts being shown in full lines in their position when an automatic repeat stroke is about to begin, and the position said parts are in just before an automatic repeat stroke is about to begin in broken lines, the key being held down.

Figure 4 is an elevation to an enlarged scale, and partly broken away, of the interengaging parts at the commencement of the stroke of the type bar, their position before the key is depressed being indicated in broken lines.

Figure 5 is a view similar to Figure 4 showing the parts in their position of Figure 2.

Figure 5a is a detail edge view of the actuating cam and the end of its engaging lever looking from the right of Figure 5.

Figure 6 is a view similar to Figures 4 and 5, the parts being in the position indicated by broken lines in Figure 3.

Figure 6a is a detail view of the actuating cam and a part of the actuating spring-lever thereof, turned over clockwise about a vertical axis from the position shown in Figure 6.

Figure 7 is a view similar to Figures 4, 5, and 6, the actuating cam being about to engage the actuating cylinder under the impulse of the spring-lever 20.

P is the platen and C the actuating cylinder constantly rotating in the direction of the arrows. 2 is the key bar pivoted at 3 to a stationary support. 4 is a type bar pivoted at 5 to a stationary support. 6 is the retracting spring for the type bar 4. 7 is a bellcrank lever pivoted at 3 to a stationary support and having an upwardly and a horizontally extending arm. 8 is a connecting rod pivoted at one end to a lever 9, extending from the type bar 4 beyond its pivot 5, and connected at the other end with the upwardly extending arm of the lever 7. 10 is a bellcrank lever pivoted at 11 to a stationary support and having a horizontal and a downwardly extending arm.

12 is a connecting rod joining the horizontal arms of the levers 7 and 10.

13 is an actuating cam pivoted to the lower end of the downwardly extending arm of the lever 10 so as to rotate with its axis parallel to that of the cylinder C. The oscillation of the lever 10 carries the cam 13 toward or away from the cylinder C. 14 and 15 are oppositely located lugs extending outward from the face of the cam 13 near the periphery thereof, and 16 is a lever pivoted at 17 to the bellcrank lever 10 and having its lower end turning inward to engage a lug 14 or 15 as shown in Figure 5a.

The upwardly extending arm of the lever 16 has a notch 16a formed in its upper end. 18 and 19 are pins extending from the face of the cam 13, opposite to that from which the lugs 14 and 15 extend and on opposite sides of the center of said cam at equal distances therefrom. 20 is a lever pivoted at 17 to the bellcrank lever 10 having an arm extending downwardly to engage a pin 18 or 19 to turn the cam 13 clockwise. 21 is a spring engaging the upper arm of the lever 20 and the lower arm of the lever 16 tending to turn said levers in a clockwise direction.

22 is an arm extending downwardly from the key bar 2 and having a pin 23 at its lower end adapted to engage in the notch 16a.

The operation of the above described device is as follows:

A key 2 is pressed downward oscillating the lever 16 by means of the arm 22 and pin 23 to disengage the lug 15. The lever 20 then presses against the pin 19 turning the cam 13 so that its periphery engages the periphery of the cylinder C as shown in Figure 4, by which it is rotated to the position shown in Figures 2 and 5, oscillating the lever 10, because of the elongated or elliptic shape of the cam, and actuating the type bar 4 by means of the connecting rod 12, bellcrank lever 7, connecting rod 8 and arm 9, to engage the platen as illustrated in Figure 2.

The cam 13 continues to rotate in a clockwise direction because of its engagement with the cylinder C, its shape permitting the lever 10 to turn about its pivot 11, because of the action of the spring 6 returning the type bar and the connection of the latter with the lever 10.

When the key bar is in its upper position, and also when the type bar is thrown toward its striking position as above described, the pin 23 is out of contact with the lever 16 and the spring 21 forces said lever inwardly so that its intumed end is interposed in the line of travel of the lugs 14 and 15 as illustrated in Figure 5, so that the cam 13 is thereby held out of contact with the cylinder C as illustrated in Figure 6. However, if the key is held depressed the cammed edge 16b of the notch 16a engages the pin 23 toward the end of the return motion of the type bar and

disengages the lever 16 from the lug 14 or 15 and releases the cam 13 which again engages the cylinder C and the type bar is again actuated as above described. The latter action takes place at the very end of the back stroke of the type bar between the position indicated by the broken lines and that in full lines.

Heretofore when a key bar has been held down the repeated strokes of the type bar have been irregular because the motions of the cam 13 and the type bar 4 are not coordinated.

By the present invention the type bar must practically complete its back stroke before the cam 13 can act to again actuate the type bar.

In claims 6, 7, and 8 I have used reference figures of the drawings to designate the conventional parts forming elements of the combination for brevity and clearness, but it is not intended thereby to limit the range of equivalents of said parts.

What I claim is:

1. In an apparatus of the kind described, the combination of a power-supplying member, an operating key, a type bar, an actuating part for said type bar, a part adapted to automatically engage said actuating part and said power-supplying member so that said power supplying member shall actuate said type bar actuating part to cause the printing stroke of the type bar, means mounted to move with said actuating part for automatically restraining said engaging part, said operating key when depressed being adapted to contact said movable restraining means at the beginning and end of the stroke of the type bar only to disengage said restraining means.

2. In an apparatus of the kind described, the combination of a power-supplying member, an operating key, a type bar, a movable member, a linkage between said movable member and said type bar, means tending to engage said movable member with said power-supplying member to be actuated thereby to cause the printing stroke of the type bar, and means mounted to move with said movable member for preventing the engagement of said movable member and said power-supplying member, said key when depressed being adapted to disengage said engagement preventing means at substantially the point of rest only of said movable member.

3. In an apparatus of the kind described having a platen, the combination of a type bar, means for actuating said bar to strike the platen and permit the return of said bar, means mounted to move with said actuating means for restraining the action of said actuating means, a key adapted to be depressed to release said restraining means, the motion of said actuating means carrying said restraining means out of the influence of said key, and returning the same to be again automatically released by said key at the return of said bar said key being held depressed.

4. In an apparatus of the kind described, a type bar, a rotating cylinder, a part adapted to actuate said bar, a cam upon said part adapted to automatically rotate to engage said cylinder, and to be turned thereby to actuate said part and release the same, a catch upon said part adapted to automatically engage and hold said cam from rotating to engage said cylinder, a key adapted to be displaced to contact and release said catch, said part being adapted to carry said catch away from contact with said displaced key permitting said catch to again engage said

cam, said part being adapted to bring said catch into contact with said displaced key at the end of its return motion and release said catch.

5. In an apparatus of the kind described, the combination of a part to be actuated, an actuating part, a rotating cylinder, a cam on said actuating part adapted to automatically rotate to engage said cylinder and to be turned thereby to actuate said actuating part and release the same, a catch upon said actuating part adapted to automatically engage said cam to prevent the rotation of the same, a key adapted to be displaced to contact and release said catch, said actuating part being adapted to carry said catch away from contact with said displaced key permitting said catch to again engage said cam, said actuating part being adapted to bring said catch into contact with said displaced key at the end of its return motion, said catch being adapted to be actuated by the last named contact to again release said cam.

6. In an apparatus of the kind described, the combination of a cylinder, C, a lever, 10, a type bar, 4, connected to be actuated by said lever, a cam, 13, on said lever, a catch, 16, on said lever adapted to automatically engage said cam, and to be disengaged therefrom, means tending to rotate said cam to engage said cylinder, a key, 2, adapted to be displaced to contact and disengage said catch, said lever being adapted to carry said catch out of contact with said key to permit said catch to again engage said cam and, at the end of its return motion to again bring said catch into contact with said displaced key, said catch being so formed that the last named contact shall actuate the same so that it shall again release said cam.

7. In an apparatus of the kind described, a combination of a cylinder, C, a lever, 10, a cam, 13, on said lever, a catch, 16, on said lever adapted to automatically engage said cam and to be disengaged therefrom, means tending to rotate said cam to engage said cylinder, a key, 2, adapted to be displaced to contact and disengage said catch, said lever being adapted to carry said catch out of contact with said key and permit said catch to again engage said cam and at the end of its return motion to again bring said catch into contact with said displaced key, said catch being so formed that the last named contact shall actuate the same so that it shall again release said cam.

8. In an apparatus of the kind described, a rotating cylinder, C, a part 10, a cam, 13, on the part 10 tending to automatically rotate to engage the cylinder C, a catch, 16, on the part 10, adapted to engage the cam, 13, and be disengaged therefrom, a key, 2, adapted to contact the catch 16 to disengage it from the cam, 13, in the displaced position of said key, the part 10 being adapted to carry said catch out of engagement with said key to permit said catch to again engage said cam.

9. In an apparatus of the kind described, the combination of a power-supplying member, an operating key lever, a type bar, actuating means for the type-bar including a swinging frame, a cam and cam restraining and engaging means mounted thereon, said engaging means coacting with said cam to engage it with said power-supplying member upon release of said restraining means, said key lever when depressed coacting with said restraining means to release the latter only while said swinging frame is in rest position.

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