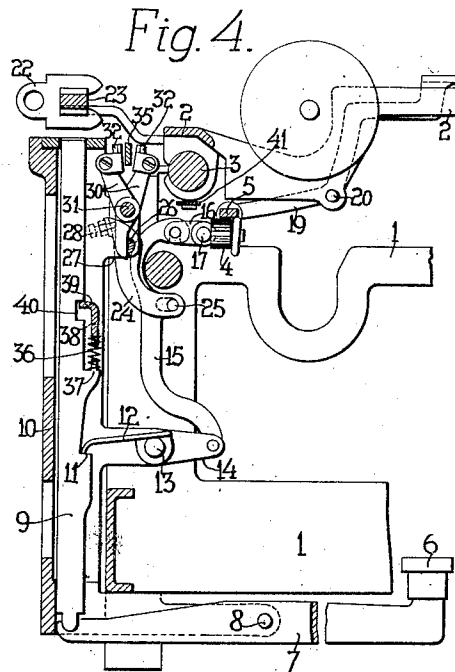
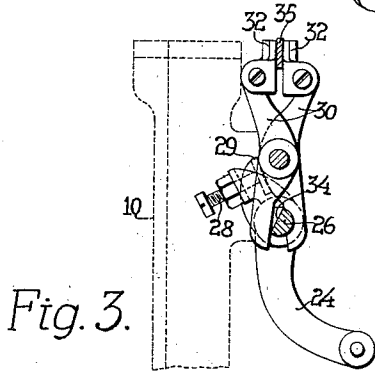
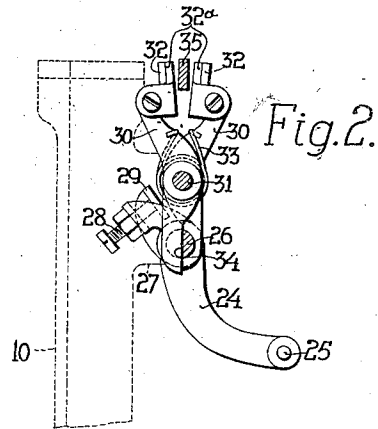
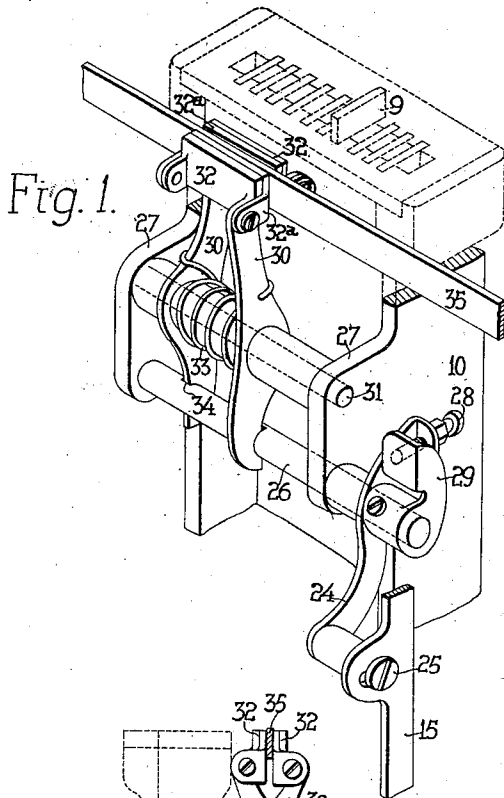


W. E. BARNARD.
TYPE WRITING MACHINE.
APPLICATION FILED SEPT. 22, 1910.

1,007,839.

Patented Nov. 7, 1911.



Witnesses.

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TYPE-WRITING MACHINE.

1,007,839.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed September 22, 1910. Serial No. 583,266.

To all whom it may concern:

Be it known that I, WALTER E. BARNARD, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to braking devices for the carriages of typewriting machines.

I provide a carriage strip traveling between a pair of movable jaws, which, upon the depression of a key, grip or bite the strip. The jaws are pivoted, and connected to the key to be moved thereby simultaneously toward each other. The connections between the keys and the jaws are such that the latter exert much greater pressure upon the strip than the pressure applied by the operator to the key. The movement of the jaws is necessarily less in extent than the movement of the key, and in fact is very slight. It will be understood that where a brake shoe presses against a bar provided upon the carriage, it is impracticable to provide such accuracy of construction of the bar and of movement of the carriage, as to render it feasible to employ a slowly moving powerful brake (that is, a brake which moves very slightly from normal to effective position during the full stroke of the key), because the slight and unavoidable irregularities of manufacture would cause variations in the braking effect at different portions of the travel of the carriage. To overcome this difficulty, I have provided a flexible strip which is placed between two brake jaws; and even though the movement of the latter is very slight, still they are bound to come to a bite upon the strip under all conditions of use, and the braking effect is rendered uniform throughout the run of the carriage. In this way a moderate pressure upon the key, which is usually a tabulator key, is enabled to produce the required retarding effect. A pressure regulator is preferably employed between the key and the jaws, whereby to adjust or limit the pressure of the latter against the strip.

Other objects and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a perspective, showing the braking mechanism. Fig. 2 is a side view, partly in sec-

tion, showing the braking mechanism idle. Fig. 3 is a similar view, showing the braking mechanism in use. Fig. 4 is a side view, partly in section, showing the operating key and associated brake mechanism applied to an Underwood writing machine.

The frame 1 of a writing machine has a back rail 3 supporting a carriage 2. The usual spring (not shown, but connected to the carriage by a strap 41) drives said carriage in letter-spacing direction under the control of an escapement including a pinion 4, meshing with a rack 5 on the carriage.

The device is shown applied to the tabulating mechanism of the writing machine, the carriage being freed from its escapement to enable the spring to drive it freely, by depressing any of a series of tabulating keys 6. This rocks a corresponding lever 7 pivoted at 8, to lift a stop rod 9, sliding in a bracket 10. A shoulder 11 on the stop rod releases the carriage by vibrating an arm 12 on a shaft 13, the latter carrying a second arm 14, connected by a link 15 with the carriage-releasing lever 16 which is pivoted at 17, and the free end of which lever lifts the letter-spacing rack 5 from the pinion 4; the rack for this purpose being supported by arms 19 pivoted at 20 to the carriage. The upper end of the rod 9 is projected into the path of a column stop 22, seated in a rack 23 mounted on the carriage. The lifting of the rod 9 also retards the movement of the carriage, by swinging an arm or lever 24, having a slot and pin connection at 25 with the link 15, and loosely mounted on a rock shaft 26, which is journaled in extensions 27 on the tabulator bracket 10. Said rocking lever 24 carries a tappet 28 which strikes an arm 29 fixed to the cam shaft 26, to turn the latter. Two levers 30, journaled loosely on a rod 31, mounted in said extensions 27, carry brake jaws 32 at their free ends, said jaws being normally held apart by a spring 33. The lower ends of the brake levers may be engaged by flats or cams 34 on opposite sides of the shaft 26. Turning the shaft 26, by the means already described, causes the cams 34 to spread the lower ends of the levers, and close the jaws 32 upon a strip 35 that is mounted on the carriage (Fig. 3). The braking strip 35 is preferably flexible in order to accommodate itself to the jaws at all portions of the travel of the carriage. Said strip 35 may be made of thin steel or

other metal, and the braking jaws 32 may be faced with copper shoes 32^a to avoid injury to the strip and to take the wear; these shoes being replaceable. The tappet 28 is preferably adjustable in the lever 24 toward and from the arm 29 to regulate the amount of rotation imparted by the rocking lever 24 to the cam shaft 26, and thus control the movement of the jaws toward each other, to adjust the braking effect. - A spring 36 (Fig. 4), seated on a lug 37 on the stop rod 9, and bearing against a cross bar 38 on the bracket 10 (said spring being compressed by lifting the rod) returns the rod to idle position. Said cross bar 38 also arrests the stop rod 9 in either direction by means of a flange 39 projecting into notches 40 in the stop rods. The return of the stop rod enables the rack 5 to mesh with its escapement pinion 4; the rocking lever 24 returns the cam shaft 26 to idle position and the spring 33 casts off the braking jaws 30.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. The combination with the carriage of a typewriting machine, of a pair of braking jaws movable toward each other, a flexible carriage brake strip between the jaws, and means to move the jaws together.

2. The combination with the carriage of a typewriting machine, of a yieldable braking strip, levers having jaws between which the strip travels, and key-operated mechanism effective to swing both levers and close the jaws.

3. The combination with the carriage of a typewriting machine, of a yieldable braking strip, levers having jaws between which the strip travels, and a cam device controlled by a key to swing the jaws toward each other.

4. The combination with the carriage of a typewriting machine, of a braking strip, braking levers having jaws between which the strip travels, a stop rod to arrest the carriage, means to operate the rod, a rocking lever operated by the rod, and a cam shaft turned by the rocking lever to cause the jaws to close.

5. The combination with the carriage of a typewriting machine, of a braking strip, opposed movable braking jaws between

which the strip travels, levers on which the jaws are mounted, a cam shaft to operate the levers, a key to operate the shaft, and a pressure regulator between the key and the shaft.

6. The combination with the carriage of a typewriting machine, of a braking strip, opposed movable braking jaws between which the strip travels, levers on which the jaws are mounted, a cam shaft to operate the levers, and having an arm, a rocking lever swinging on the shaft, means to rock the lever, and an adjustable interponent between the lever and the arm to regulate the braking effect.

7. In a typewriting and tabulating mechanism, the combination with a carriage, a letter-spacing escapement, and means to release the carriage from its escapement, of a braking strip, a pair of jaws between which the strip is gripped, and means connecting the jaws and the releasing mechanism.

8. The combination in a typewriting machine, having a carriage and a stop thereon, with a tabulating bracket secured to the machine, a set of stop rods to coöperate with the carriage stop, and keys and key levers to lift any of the stop rods, of a cross-bar on the bracket having a laterally projecting flange to arrest the stop rods, shoulders on the respective stop rods, and returning springs between the shoulders and bar, said springs being compressed when the stops are elevated.

9. The combination in a typewriting machine, having a carriage and a stop thereon, with a tabulating bracket secured to the machine, a set of stop rods to coöperate with the carriage stop, and keys and key levers to lift any of the stop rods, of a stop to arrest the rods, and returning springs between and bearing against the stop and the respective stop rods respectively, and compressed by the elevation of the rods.

10. In a braking device for power-driven carriages of typewriting machines, the combination with a braking strip on the carriage, of a pair of braking jaws, and means to cause the strip to be clutched between the jaws.

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Witnesses:

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