

W. P. KIDDER & C. W. SPONSEL.
STOP FOR UNIVERSAL BARS OF TYPE WRITING MACHINES.
APPLICATION FILED SEPT. 11, 1905. RENEWED JUNE 3, 1910.

981,657.

Patented Jan. 17, 1911.

2 SHEETS—SHEET 1.

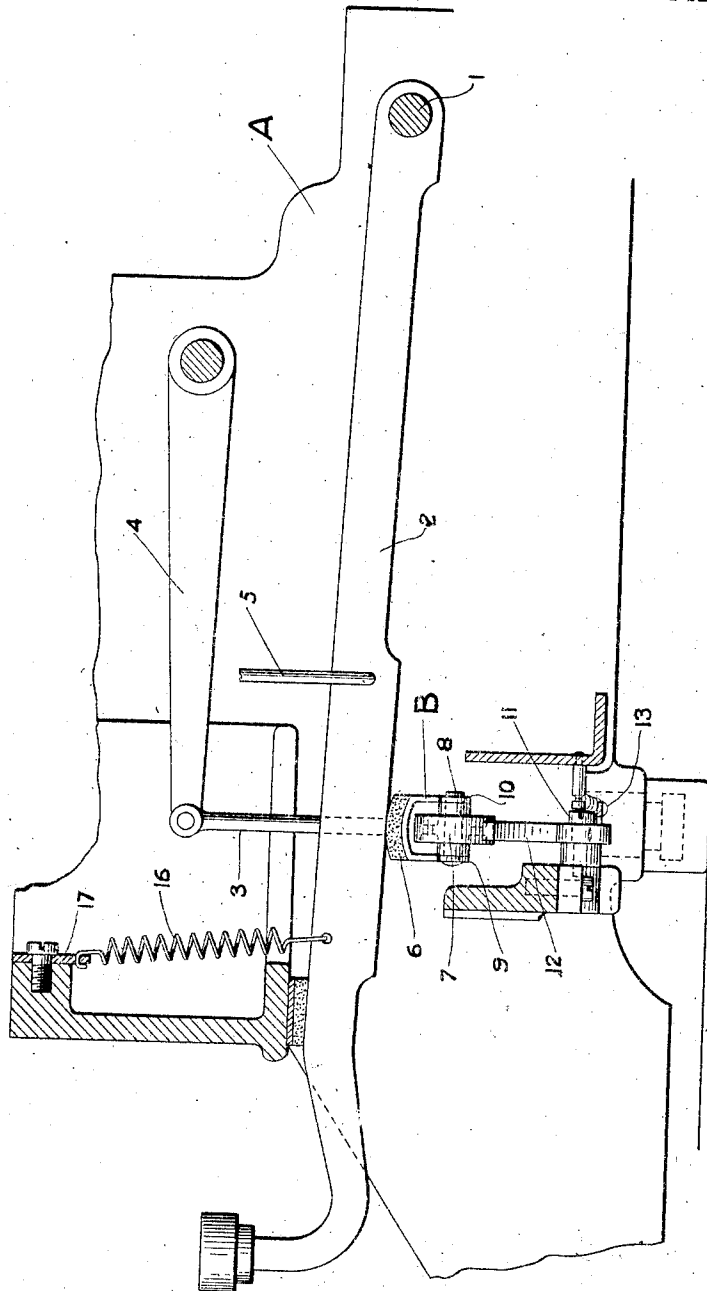


Fig. 1.

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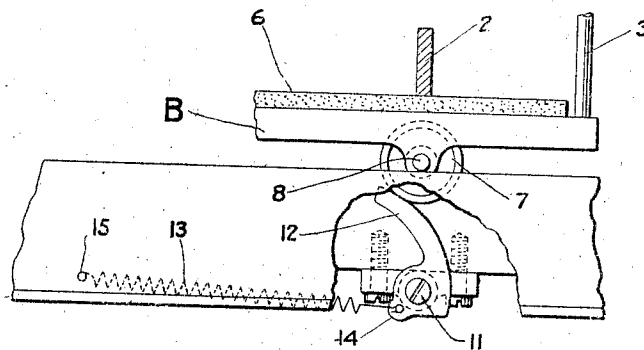


Fig. 2.

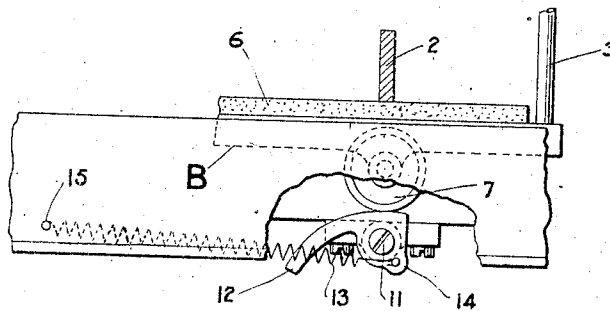


Fig. 3.

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UNITED STATES PATENT OFFICE.

WELLINGTON P. KIDDER, OF BOSTON, MASSACHUSETTS, AND CHARLES W. SPONSEL, OF HARTFORD, CONNECTICUT, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE NOISELESS TYPEWRITER COMPANY, OF MIDDLETOWN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

STOP FOR UNIVERSAL BARS OF TYPE-WRITING MACHINES.

981,657.

Specification of Letters Patent. Patented Jan. 17, 1911.

Application filed September 11, 1905, Serial No. 277,914. Renewed June 3, 1910. Serial No. 564,855.

To all whom it may concern:

Be it known that we, WELLINGTON P. KIDDER and CHARLES W. SPONSEL, residing, respectively, at Boston, in the county of Suffolk and State of Massachusetts, and Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Stops for Universal Bars of Type-Writing Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to typewriting machines and particularly to those known as "silent typewriters."

It has for one of its objects to provide mechanism in a machine of the above type of such construction as to substantially eliminate noise during the operation of the machine.

Another object is to provide mechanism designed to reduce to a minimum impact or concussion of moving parts during the operation of the machine.

Another object is to provide mechanism adapted silently to arrest the stroke of the universal bar upon which the key levers are supported.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the mechanism hereinafter to be described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is illustrated one of the various possible embodiments of our invention, Figure 1 is a side elevation of the same showing a key lever supported upon the universal bar. Fig. 2 is a front elevation of a portion of the mechanism shown in Fig. 1. Fig. 3 is a front elevation similar to Fig. 2 but showing a key lever and the universal bar in a depressed position.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Preliminary to a description of the specific features of our invention and in order

to render certain objects thereof clearer of understanding, it may be here noted that, in machines of this type wherein a silent operation in all respects is desired, it is of prime importance that the stroke of the key levers be arrested without impact or concussion. In the accomplishment of this and other advantageous results, we have found it desirable to arrange a stop in the path of movement of the universal bar such that a downward stroke thereof, when one of the key levers supported thereon is depressed, will be yieldingly resisted and ultimately arrested without impact or concussion, insuring a practically silent operation.

The above and other advantages are secured in constructions of the nature of that hereinafter described.

Referring now to the drawings, a portion of the frame of the machine is represented at A, and extending between the side walls thereof is a rod 1 to which the ends of key levers 2 are pivoted, as clearly shown in Fig. 1. The key levers rest upon a universal bar B, which is suspended by links 3 from rocker levers 4, which are in turn suitably connected to the spacing mechanism, ribbon feeding mechanism, or other operative parts of the machine usually directly or indirectly operated by the universal bar. In this illustrative embodiment, we have shown but one of the key levers, this illustration being deemed sufficient for the complete disclosure of our invention, as it will be readily understood that the others in the set or series are of similar construction and similarly mounted.

Each of key levers 2 is connected by means of a rod 5 to its respective type bar actuating mechanism. A cushion 6 of suitable relatively resilient material extends along universal bar B and is interposed between said universal bar and the entire set of key levers. Universal bar B is provided with rollers 7, in the present instance, two in number, one being arranged near either end thereof and rotatably mounted underneath said bar upon pins 8 extending transversely of depending lugs 9 and 10. Pivotally mounted upon spur screws 11 extending from frame are wiper cams 12, one cam being arranged directly under each of rollers 7 with its pivotal point in exact vertical

alinement with the bearing point of one of rollers 7. Springs 13 connect lugs 14 upon wiper cams 12 with fixed points upon the frame of the machine, as at 15. Each of
 5 springs 13 holds its respective wiper cam in constant engagement with one of rollers 7, as clearly shown in Fig. 2. In this figure, the parts are shown in their normal positions, and it will be apparent that the force
 10 exerted by springs 13 will, through wiper cams 12, tend to maintain universal bar B and the entire set of key levers supported thereon in their upward or normal position. Springs 16 connect each of key levers 2 with
 15 a fixed part of the machine as at 17 and maintain said key levers in their upward position when the universal bar is depressed. The surfaces of rollers 7 and cams 12 are preferably hardened to provide against wear and minimize friction.

Having thus described our invention, the operation thereof, which should be obvious, is substantially as follows: When one of key levers 2 is depressed from the position shown
 25 in Figs. 1 and 2, the universal bar is forced thereby downwardly and rollers 7 rolling along the surfaces of wiper cams 12 will force said cams downwardly against the tension of springs 13 until the position shown in
 30 Fig. 3 is attained. In this position, the points of contact upon cams 12 with their respective rollers are upon arcs concentric to the pivotal points of said cams, and further downward movement of the universal bar is
 35 thereby prevented as will be apparent. At this point it may be noted that, during the downward stroke of universal bar B, the leverage applied upon cams 12 is constantly diminished and the tension of springs 13
 40 constantly increased. There is accordingly furnished to the downward stroke of the universal bar a constantly increasing resistance, the stroke being ultimately arrested without impact or concussion when the position
 45 shown in Fig. 3 is reached. Springs 13 through wiper cams 12 return the universal bar to its normal position upon the release of pressure upon the key levers or spacing mechanism. As hereinbefore explained, there is at all times a constant rolling
 50 contact between the wiper cams and the rollers carried by the universal bar.

It will of course be understood that, while we have shown and described but one roller, and its coacting wiper cam and spring,
 55 which parts are located near one end of the universal bar, the corresponding parts near the other end thereof being identical in all respects, and, therefore, a description of one
 60 group will suffice. It is also apparent that, if desired, but one roller and its co-acting cam and spring may be employed, the mechanism being arranged in any desired location intermediate the ends of the universal bar.

65 It will, accordingly, be seen that we have

provided mechanism well adapted to achieve the objects of our invention characterized by great simplicity and efficiency. The elimination of concussion or impact between the moving parts insures a silent operation, and
 70 the rolling contact between the rollers and the wiper cams reduces friction to a minimum and insures a ready and quick response of the universal bar to the touch of the operator or to movement by the spring controlled
 75 cams when the pressure is removed from the key levers.

While we have shown and described our invention as applied to a typewriting machine of the above type, we wish it to be
 80 understood that we do not intend to limit its employment to this precise relation, as the same is capable of use in a variety of relations in machines of different types.

As many changes could be made in the above construction and many apparently
 85 widely different embodiments of our invention could be made without departing from the scope thereof, we intend that all matter contained in the above description or shown
 90 in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. We desire it also to be understood that the language used in the following
 95 claims is intended to cover all of the generic and specific features of the invention which, as a matter of language, might be said to fall therebetween.

Having thus described our invention, what we claim as new and desire to secure
 100 by Letters Patent, is:—

1. In a typewriting machine, in combination, a universal bar, a member rotatably mounted upon said universal bar, a fixed
 105 part, and a member rotatably mounted upon said fixed part, the rotatably mounted members upon said universal bar and said fixed part co-acting to arrest the downward stroke of said universal bar.

2. In a typewriting machine, in combination, a universal bar, a member rotatably
 110 mounted upon said universal bar, a fixed part, a member rotatably mounted upon said fixed part, the rotatably mounted members upon said universal bar and said fixed
 115 part co-acting to arrest the downward stroke of said universal bar, and means adapted to hold said rotatably mounted members in constant engagement with each other.

3. In a typewriting machine, in combination, a universal bar, a rotatably mounted
 120 member carried thereby, a fixed part, a rotatably mounted member carried by said fixed part, and means for holding said members in constant engagement thereon, one of
 125 said members being adapted to roll over the surface of the other thereof during the stroke of the universal bar, said members co-acting to arrest the downward movement of said universal bar.

4. In a typewriting machine, the combination with a universal bar, of rotatably mounted means carried thereby, and movable means co-acting with said rotatably mounted means to arrest the downward stroke of said universal bar.

5. In a typewriting machine, in combination, a movable member, a fixed part, rotatably mounted means upon said fixed part, said rotatably mounted means co-acting to arrest the downward movement of said movable member, and means adapted yieldingly to hold said rotatably mounted means in contact.

6. In a typewriting machine, in combination, a movable member, a fixed pin, a roller carried by said movable member, and a cam rotatably mounted upon said fixed pin and held in engagement with said roller, said cam being adapted by a movement relative to said movable member to arrest the downward movement thereof.

7. In a typewriting machine, in combination, a movable member, a fixed pin, a roller carried by said movable member, a cam rotatably mounted upon said fixed pin and held in constant engagement with said roller, said cam being adapted by a movement relative to said movable member to arrest the downward movement thereof, and a resilient body adapted to maintain said cam and said roller in constant engagement with each other.

8. In a typewriting machine, in combination, a movable member, a roller carried thereby, a fixed pivot, and a cam pivotally mounted upon said pivot and held in engagement with said roller, said roller upon a movement of said movable member relative to said pivot being adapted to roll along said cam, said cam being adapted to arrest the downward movement of said movable member through the medium of said roller.

9. In a typewriting machine, in combination, a movable member, a roller carried thereby, a fixed pivot, a cam pivotally mounted upon said pivot and held in impositive engagement with said roller, said roller upon a movement of said movable member relative to said pivot being adapted to roll along said cam, said cam being adapted to arrest the downward movement of said movable member through the medium of said roller, and means adapted yieldingly to oppose a pivotal movement of said cam.

10. In a typewriting machine, the combination with the universal bar, of a rotatably mounted member depending therefrom, and a wiper cam pivoted beneath said member and held in resilient engagement therewith.

11. In a typewriting machine, the combination with the universal bar, of a rotatably mounted member depending therefrom, a wiper cam pivoted to a fixed portion of the

frame of the machine beneath said member, and spring means for holding said member and said cam in engagement.

12. In a typewriting machine, the combination, a universal bar having a pivot, a pivot fixed to the frame of the machine, a roller upon one of said pivots, a wiper cam upon the other of said pivots, and spring means for holding said wiper cam and said roller in engagement.

13. The combination with a movable part of a typewriting machine, of means for arresting the movements thereof without impact or concussion, comprising a fixed part, a member rotatively mounted upon each of said parts, and means for holding said rotatively mounted members in constant engagement.

14. The combination with a movable part of a typewriting machine, of means for arresting the movements thereof without impact or concussion, comprising a fixed part, a roller mounted upon one of said parts, an oscillatory cam member mounted upon the other of said parts, and spring means for maintaining a constant engagement between said roller and said cam.

15. The combination with a movable part of a typewriting machine, of means for arresting the movements thereof, comprising a roller carried by the movable part, a cam member mounted to swing upon a fixed portion of the machine, and spring means connected with the cam member and adapted to hold the same in engagement with said roller.

16. The combination with a movable part of a typewriting machine, of means for arresting movements thereof, comprising a roller carried by the movable part, a cam member mounted to oscillate upon a fixed portion of the machine and having a portion of its periphery struck upon an arc which is concentric with its axis of oscillation, said roller being adapted to run along the periphery of said cam during a movement of the movable part and swing the same until the portion thereof which is concentric with its axis of oscillation is engaged by said roller, and spring means connected with said cam member and adapted to hold the same in constant engagement with said roller.

17. The combination with a movable part of a typewriting machine, of means for arresting movements thereof without impact or concussion, comprising a fixed part, a roller carried by one of said parts, a cam member mounted to oscillate upon said fixed part and having a portion of its periphery struck upon an arc which is concentric with its axis of oscillation, said roller during a movement of said movable part being adapted to run along the periphery of said cam member until it is brought into engagement with the portion of said cam member which

is concentric with its axis of oscillation, whereupon the movement of said movable part will be arrested, and a spring connected with said cam member and operating
5 to hold the periphery thereof in constant engagement with said roller.

18. In a typewriting machine, the combination with the universal bar and the key levers which rest upon said universal bar, of
10 means for arresting the downward movements of the key levers without impact or concussion, comprising a roller journaled upon the universal bar, a cam member mounted to oscillate upon a fixed portion of
15 the framing of the machine, said cam member having a portion of its periphery struck upon an arc which is concentric with its axis of oscillation, said roller during a de-

pression of said universal bar being adapted to traverse the periphery of said cam member until brought into engagement with that
20 portion of the latter which is disposed concentrically to its axis of oscillation, and a spring connected with said cam member and adapted to oppose an oscillation thereof during a depression of the universal bar through
25 said cam member and to assist in the returning of the universal bar to normal position when the same has been depressed.

In testimony whereof we affix our signatures, in the presence of two witnesses.

WELLINGTON P. KIDDER.

CHARLES W. SPONSEL.

Witnesses:

JULIUS L. BALDWIN,
HELEN M. SEAMANS.