Jan. 19, 1926. 1,570,263

A. G. F. KUROWSKI

CASING FOR TYPEWRITING MACHINES

Filed June 19, 1922

Fig. 2.

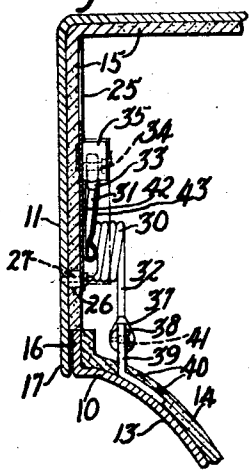


Fig. 1.

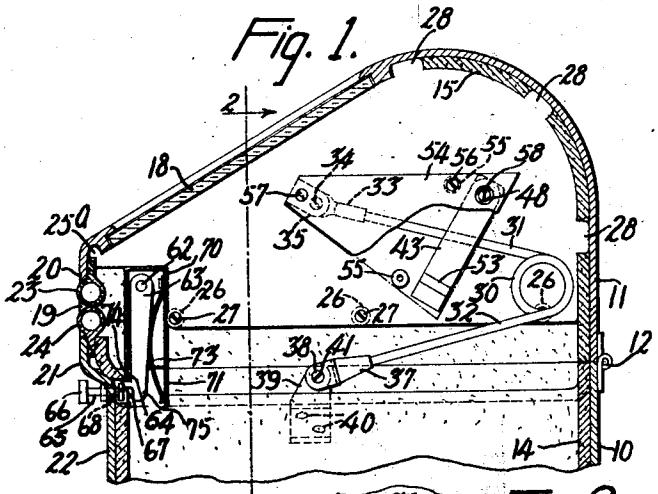


Fig. 6.

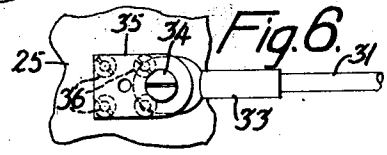


Fig. 4.

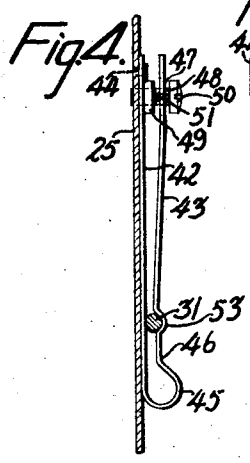


Fig. 5.

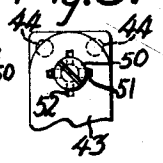


Fig. 3.

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Patented Jan. 19, 1926. 1,570,263

UNITED STATES PATENT OFFICE.

ALFRED G. F. KUROWSKI, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

CASING FOR TYPEWRITING MACHINES.

Application filed June 19, 1922. Serial No. 569,423.

To all whom it may concern:

Be it known that I, ALFRED G. F. KUROWSKI, a citizen of the United States, residing in Brooklyn Borough, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Casings for Typewriting Machines, of which the following is a specification.

The present invention relates to a sound-deadening casing for a typewriting machine; and more particularly to a casing of this character having a cover which may be opened to permit of access to the machine for erasures and other purposes, or to permit of placement and removal of the machine.

An object of the invention is the provision of a simple, reliable and inexpensive automatic device for opening the casing-cover, when the latter is unlocked or released, and for so controlling the opening operation as to control the rebound of the cover when the latter is fully open and to protect the parts against shock; a feature of the invention being its ready applicability, as a separately manufactured device, to any casing on which it may be desired, without involving special features of original construction in the casing itself, or material alterations in, or additions to, a casing-structure already completed.

Other objects are to reduce the excessive friction of moving parts against the casing and against each other, reduce the number of parts and secure the parts against loss, and also to reduce the size of the spring wire and to allow lighter connections of the moving parts of the casing.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a view, in side elevation, of the apparatus, with the casing closed.

Figure 2 is a view of the casing, taken in front elevation, in cross-section, on the line 2—2 of Figure 1.

Figure 3 is a view, in side elevation, indicating the positions of the parts when the casing is open.

Figure 4 is a detail view, in front elevation, of the buffer-spring.

Figure 5 is a view of the face of the upper end of the buffer-spring.

Figure 6 is a face-view of the connection of the opening spring to the cover.

The casing is shown as consisting of two die-castings 10 and 11, hinged together at 12. The casting 10 forms the body part of the casing, and, as viewed from the front, is flared upwardly and laterally, as shown at 13, in Figure 2, to provide room at the top thereof for the carriage of the typewriting machine in the letter-feed and return movements thereof. The casing-body 10 is provided with a sound-deadening lining 14, and the casing cover or casting 11 with a sound-deadening lining 15. When the casing-cover is closed, as shown in Figure 2, the lower edge of the lining 15 of the cover 11 rests on a flange 16, forming the upper edge of the body-casting 10; and the lower edge 17 of the cover-casting 11 overlaps the flange 16. The cover of the casing is provided with a window-pane 18, of glass or other transparent material, to permit the operator to observe the printing effected within the casing. The pane 18 is held in an opening in the cover-casting in any suitable manner.

The keyboard-extension of the machine (not shown) projects through a suitable opening in the front wall of the casing-body 10, so as to be operable from the outside of the casing. The usual levers, such as the carriage-release-lever, line-space-lever and carriage-return-arm, not shown, must also project from the inside to the outside of the cover 11, so as to be accessible to the operator. Since these levers must move with the carriage, the front wall of the casing is slotted horizontally and longitudinally thereof. In Figure 1, this slot is shown at 19, as formed by the lower forward edge 20 of the cover and by the upper edge 21 of the front wall 22 of the casing-body. The slot 19 is, however, practically closed by two resilient flexible cushions 23 and 24; the cushion 23 being attached to the edge 20 of the cover, and the cushion 24 being attached to the edge 21 of the front wall of the casing-body. These cushions, in effect, close the slot 19, being in contact with each other ex-

cept where the levers and arms on the typewriting machine carriage protrude between the same. The yieldable, flexible character of the cushions permits movement of the levers therealong as the carriage is moved in one or the other direction. The parts thus far described are not new with the present invention, which relates to the cover-opening mechanism, and is, as follows:

Set against the lining 15 on the left-hand wall of the cover is a plate 25. This plate is supported on the left-hand wall of the cover-casting 11, by means of spacing blocks 26, which lie in holes in the lining-member. Screws 27, passing through the plate 25 and through the spacing blocks 26, thread into the cover-casting, to hold the plate 25 in place. The plate 25 is also provided with tongues 28 (see Figure 1), which pass through the lining-member 15, to rest against the cover-casting at the top and rear thereof, and with a tongue 25^a, which passes through the lining, to rest against the front edge of the cover-casting. The plate 25 serves as a support for the attachments of the cover-opening spring and buffer-spring.

The cover-opening spring 31—32 is employed automatically to open the cover 11 and is shown as consisting of four coils 30 acting by torsion and legs 31 and 32 which are shown as of considerable length to reduce the force at the connections and to allow lighter connections at their ends. The legs 31 of the spring has its end set into a coupling 33, pivotally anchored at 34, in a fork in a block 35; the block 35 being set against the plate 25, and being secured to the latter by four screws 36 (see Figure 6). The lower leg 32 of the spring has its distal end set into a coupling 37, pivoted at 41 to a bracket 39; the bracket 39 passing through an opening in the lining 14 of the casing-body, and being secured to the casting 10 of the casing-body by rivets 40. The coupling 37 terminates in a yoke 38 which embraces the upper end of the bracket 39 (see Figure 2), to which the yoke 38 is connected by a pivot-pin 41, which passes through one arm of the yoke, and through the bracket, and threads into the other arm of the yoke. This pin 41 is shouldered to prevent binding of the coupling 37—38 on the bracket 39. The coil-portion 30 of the spring 31—32 is free to float, and the center of the coil serves as a pivot for the legs 31 and 32 to turn thereon. When the cover is unlocked, the spring therefore acts to throw open the cover 11 to bring the latter to the position shown in Figure 3.

When the cover is opened, as above described, the momentum thereof will tend to carry it beyond the position to which the spring 31—32 will bring it, in opposition to the force of the spring, and the cover will tend to revolve around the hinges 12 as a pivot and it may strain the connections thereof with the spring 31—32, and it may also strain the hinges. It may even collide with the rear of the body-part 10 of the casing, especially if the spring 31—32 be initially strained before being connected to the casing to insure prompt action thereof.

In order to prevent shocks in the cover-opening operation, and to control the rebound of the cover when the latter is fully open, a buffer-spring is provided. This buffer-spring (see Figure 4) is a leaf-spring, having two legs or leaves 42 and 43, folded one over the other. The leg 42 lies flat against the plate 25, and is secured to the latter by rivets 44 (see Figure 5). From the fold 45 in the buffer-spring, the other leg 43 thereof is bent first inwardly, as at 46, toward the leg 42, and thence inclined outwardly from the leg 42 to the end thereof. Near the end of the leg 43 of the buffer-spring is an opening 47 therethrough, and through the opening 47 loosely passes a screw 48, which passes through a nut 49, and through the leg 42 of the spring, and threads into the plate 25. The nut 49 may be soldered or riveted to the leg 42 of the buffer-spring 42—43, and it serves as a more extended threaded bearing for the screw 48. The head 50 of the screw 48 serves as a stop to determine the outward throw of the leg 43 of the buffer-spring. This throw and the tension of the leg 43 of the spring may, however, be adjusted by means of said screw 48, which may be locked in position by means of a pin 51, which passes crosswise through thes crew 48, and is adapted to be set into cross-slots 52 in the spring. When the pin 51 is released from the cross-slots 52, by inward pressure on the spring, the screw 48 may be turned to adjust the position of the head 50 thereof, thus bringing the pin 51 into other registration with the cross-slots 52. The spring being released, the pin 51 is again set in the cross-slots, and the screw 48 held against unintentional rotation.

As shown in the drawings, the leg 31 of the opening spring has a path of movement between the two leaves 42 and 43 of the buffer-spring. When the cover 11 of the casing is opened, the buffer-spring 42—43, which is secured to the cover 11 of the casing, rotates with said cover 11 around the hinge 12 of the casing as a pivot, but the leg 31 of the opening spring 31—32 swings around the center of the spring-coil 30.

The buffer-spring 42—43 has a greater velocity than the part of the opening spring 31—32 which is in contact therewith, or has a relative motion in the opposite direction thereto, although both springs are moving in the same direction with relation to stationary objects. As a result, the part of the leg 31 of the spring 31—32 which is in contact with the buffer-spring or leaf-

spring 42—43 is moved in the direction of an indentation or pocket 53 of the buffer-spring 42—43 when the cover 11 is opened. The leg 31 of the opening spring is thereby jammed between the leaves 42 and 43 of the buffer-spring.

In other words, the buffer-spring 42—43 overtakes the leg 31 of the opening spring and jams its two leaves 42 and 43 astride of the leg 31 of the opening spring until the indentation or pocket 53 interlocks or engages with the leg 31 of the opening spring 31—32. In the cover-opening operation, the leg 31 of the opening spring is more and more jammed between the leaves of the buffer-spring until the cover is finally brought to rest by the frictional engagement of one spring with the other. The open position of the cover is determined by the indentation or bend 53, see particularly Figure 4, in the leaf 43 of the buffer-spring. When the spring 31 is in this indentation or pocket 53, the two springs, by reason of such engagement, will cause the cover to be held open against accidental closing. Reasonably light pressure on the cover to close the same will, however, free the leg 31 of the opening spring from the pocket in the buffer-spring, to permit the cover to be closed.

It will be understood that the prime purpose of the adjusting screw 48, in determining the throw of the free leaf 43 of the buffer-spring, is to adjust the pressure of the buffer-spring on the leg 31 of the opening spring. The leaf 43 of the buffer-spring will yield to the leg 31 of the opening spring in the cover-opening action only to an extent determined by the position of the head 50 of the screw 48. By adjusting the position of the latter, therefore, the friction of the buffer-spring on the opening spring is regulated to the amount necessary to permit opening of the cover without undue shock on the casing.

The buffer-spring 42—43 and connections of the opening spring 31—32 to the cover are protected by means of a triangular casing 54, mounted on the plate 25. This spring casing comprises a side wall, of the triangular shape of the spring casing itself, and upper and lower walls, which are flanges formed on the side wall. The upper and lower walls of the spring casing rest against the plate 25. The spring casing is further supported on the plate 25 by means of spacing blocks or pieces 55, soldered or riveted to the plate 25, and into which are threaded screws 56, which hold the spring casing at its side wall to the plate 25. A screw 57 holds the spring casing to the block 35 at the front thereof. The spring casing is open at its rear, to allow movement of the leg 31 of the opening spring. It is also provided with a hole 58, through which a screw-driver may be inserted for adjustment of the screw 48 of the buffer-spring, which lies opposite thereto.

For locking the cover 11 against the action of the spring-device 31—32 just referred to, there is pivoted at 62, to one of the side walls of the cover, a hook 63 which extends into the body-part of the casing. When the cover 11 is shut and the hook 63 is swung forward, by the spring 73 hereinafter described it engages a detent 64, carried by the casing-body 10. Mounted to be slid rearward and forward in the front wall of the casing-body is a pin 65, carrying on its outer end a finger-piece 66, and having on its inner end a head 67, adapted to act on the end of the hook 63. When the key or finger-piece 66 is pressed rearward, the pin 65 disengages the hook 63 from the detent 64 and releases the cover 11 to the action of the opening device 31—32, heretofore described. A sleeve 68, mounted in the casing front wall, serves as a hardened bearing for the pin 65. This is employed because the material of the casing itself may not be hard enough to prevent undue wear by the pin 65; and such wear might cause the pin to become loose and inaccurate in its action.

In order that the hook 63 may not be injured by the typewriting machine, in the operation of removing the latter from the casing, and may not be struck by the operator, or otherwise be bent or injured, it is set in a housing. This housing is in two sections, one section 70 being on the cover 11, and the other section 71, which forms a continuation of the section 70, being on the casing-body 10. As shown in Figure 1, the housing section 70 is of U-shaped sheet-metal, closed at the top, and the housing section 71 is likewise in the form of a U-shaped piece of sheet-metal, open at the top and closed at the bottom by the offset side wall 13 of the body-portion of the casing. Within the housing section 70 on the cover is also a leaf-spring 73, which bears against the rear of the hook 63 and against the rear wall of the housing, and thus tends to throw the hook 63 forward into cover-locking position. The normal position of the hook 63 is therefore a forward position; and, in order that the hook 63 may not interfere with the closing of the cover 11, the upper forward edge of the housing section 71 on the casing-body 10 is slightly bent out, as at 74, to form a cam, which, by engagement with the nose of the hook 63 as the cover 11 is closed, will force the hook 63 rearward to allow the same to enter the housing section 71. The nose of the hook 63 may also be tapered, as at 75, to assist in this camming operation. The head 67 on the hook-engaging end of the pin 65 not only serves as a wide flat surface for operating the hook,

but also serves as a shoulder to prevent the pin 65 from being ejected forward out of the casing-wall by the spring 73 acting on the hook 63, and from falling out when the casing is tilted. The front and rear walls of the housing 70—71 may serve as stops to limit the throw of the hook.

It will be noted that the cover opening and controlling device involves no special castings or structural features in the casing itself. It may be separately manufactured and applied to the casing whenever desired. In the application of the device to a casing, practically the only work to be done on the latter is the riveting thereto of the bracket 59, and the provision of screw-holes for the attachment of the plate 25. Even the bracket 39 may be screwed, instead of rivcted, to the casing. It follows that, when any of the parts are worn or injured, they may be readily replaced, with little or no interruption in the use of the casing.

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. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, and cover opening and controlling means, comprising a coil-spring, one leg of which, at a fixed point thereof, is pivotally connected to the cover, and the other leg of which, at a fixed point thereof, is pivotally connected to the casing-body, the coil being free to float as the legs spread in the cover-opening operation, and a leaf-spring laid crosswise of the leg of the coil-spring on the cover, to bear upon the coil-spring with progressively increasing pressure, as the cover opens, whereby to serve as a buffer.

2. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, and cover opening and controlling means, comprising a coil-spring, one leg of which, at a fixed point thereof, is pivotally connected to the cover, and the other leg of which, at a fixed point thereof, is pivotally connected to the casing-body, the coil being free to float as the legs spread in the cover-opening operation, and another spring, attached to the cover crosswise of one leg of the coil-spring, and inclined to the plane of movement of such leg of the coil-spring, to exert an increasing pressure on the coil-spring, as the cover opens, and thereby to serve as a buffer.

3. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, and cover opening and controlling means, comprising a coil-spring, one leg of which, at a fixed point thereof, is pivotally connected to the cover, and the other leg of which, at a fixed point thereof, is pivotally connected to the casing-body, the coil being free to float as the legs spread in the cover-opening operation, another spring, attached to the cover crosswise of one leg of the coil-spring, and inclined to the plane of movement of such leg of the coil-spring, to exert an increasing pressure on the coil-spring, as the cover opens, and thereby to serve as a buffer, and means for varying the angular set of the buffer-spring, to regulate the action thereof.

4. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, and cover opening and controlling means, comprising a coil-spring, one leg of which, at a fixed point thereof, is pivotally connected to the cover, and the other leg of which, at a fixed point thereof, is pivotally connected to the casing-body, and a friction device attached to the cover crosswise of one leg of the coil-spring, and inclined to the plane of movement of such leg of the coil-spring, to exert an increasing pressure on the coil-spring, as the cover opens, and thereby to serve as a buffer.

5. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, a coil-spring secured at one end to the body-part, and at its other end to the cover, means on the cover laid crosswise of the leg of the coil-spring which connects to the cover, and means for causing such crosswise-extending means to bear with increasing pressure on the coil-spring, as the cover is opened, whereby to act as a buffer.

6. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, a coil-spring secured at one end to the body-part, and at its other end to the cover, means on the cover laid crosswise of the leg of the coil-spring which connects to the cover, means for causing such crosswise-extending means to bear with increasing pressure on the coil-spring, as the cover is opened, whereby to act as a buffer, and means for regulating the pressure on the coil-spring of said crosswise-extending means.

7. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, a coil-spring attached at one end to the body-portion, and at its other end to the cover, and a V-shaped device laid crosswise of, and embracing, the leg of the coil-spring which connects to the cover, to exert an increasing pressure on such leg of the coil-spring, and thereby to act as a buffer in the cover-opening operation.

8. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, a coil-spring having a floating coil, legs extended from the coil in V-shaped formation, the legs be-

ing pivotally connected, one at a fixed point thereof to the body-portion of the casing, and the other at a fixed point thereof, to the cover of the casing, and means bearing laterally against the leg of the coil-spring which connects to the cover, to act as a buffer.

9. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, a coil-spring having a floating coil, legs extended from the coil in V-shaped formation, the legs being pivotally connected, one at a fixed point thereof to the body-portion of the casing, and the other at a fixed point thereof to the cover of the casing, means bearing laterally against the leg of the coil-spring which connects to the cover, to act as a buffer, and a stop on such buffer-device to determine the open position of the cover.

10. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, a coil-spring having a floating coil, legs extended from the coil in V-shaped formation, the legs being pivotally connected, one at a fixed point thereof to the body-portion of the casing, and the other at a fixed point thereof to the cover of the casing, and a leaf-spring laid crosswise of, and bearing laterally upon, the leg of the coil-spring which connects to the cover, to act as a buffer.

11. A sound-deadening casing for a typewriting machine, comprising a body-part and a cover hinged thereto, a coil-spring having a floating coil, legs extended from the coil in V-shaped formation, the legs being pivotally connected, one at a fixed point thereof to the body-portion of the casing, and the other at a fixed point thereof to the cover of the casing, and a leaf-spring laid crosswise of, and bearing laterally upon, the leg of the coil-spring which connects to the cover, to act as a buffer, said leaf-spring having a stop thereon to determine the open position of the cover.

12. A sound-deadening casing for a typewriting machine, comprising a body-portion and a cover hinged thereto, a spring connected at one end to the cover, and projecting outward from the cover at a slight angle, to form with the side wall of the cover a narrow wedge-shaped passage, and a coil-spring secured at one end to the body-portion of the casing, and at its other end extending transversely through said wedge-shaped passage, and connected to the cover beyond the same; whereby said coil-spring may act as an opening device for the cover, and the first-mentioned spring as a brake or buffer.

13. A sound-deadening casing for a typewriting machine, comprising a body-portion and a cover hinged thereto, a spring connected at one end to the cover, and projecting outward from the cover at a slight angle, to form with the side wall of the cover a narrow wedge-shaped passage, a coil-spring secured at one end to the body-portion of the casing, and at its other end extending transversely through said wedge-shaped passage, and connected to the cover beyond the same; whereby said coil-spring may act as an opening device for the cover, and the first-mentioned spring as a brake or buffer; and means for holding the free end of the first-mentioned spring, to cause the latter to resist the movement of the coil-spring.

14. A sound-deadening casing for a typewriting machine, comprising a body-portion and a cover hinged thereto, a spring connected at one end to the cover, and projecting outward from the cover at a slight angle, to form with the side wall of the cover a narrow wedge-shaped passage, a coil-spring secured at one end to the body-portion of the casing, and at its other end extending transversely through said wedge-shaped passage, and connected to the cover beyond the same; whereby said coil-spring may act as an opening device for the cover, and the first-mentioned spring as a brake or buffer; means for holding the free end of the first-mentioned spring, to cause the latter to resist the movement of the coil-spring; and means for adjusting the position at which the free end of the first-mentioned spring is held, to regulate the braking effect thereof.

15. A cover opening and controlling device for a sound-deadening casing for typewriting machines, comprising a plate attachable to the side wall of the casing-cover, a coil-spring connected at one end to the plate and having means whereby its other end may be connected to the casing-body, and means on the plate bearing against the leg of the spring attached to the plate, and adapted to offer an increasing resistance to the movement of said leg in cover-opening direction.

16. A cover opening and controlling device for a sound-deadening casing for typewriting machines, comprising a plate attachable to the side wall of the casing-cover, a coil-spring connected at one end to the plate and having means whereby its other end may be connected to the casing-body, a leaf-spring attached at one end to the plate, thence extended along the plate crosswise under the leg of the coil-spring and beyond the latter, thence folded back over and against said leg of the coil-spring, and means for connecting the distal end of the leaf-spring to the plate, to cause the leaf-spring to offer an increasing resistance to the movement of said leg of the coil-spring in cover-opening direction.

17. A sound-deadening casing for a typewriting machine, comprising a body-part

and a cover hinged thereto, and cover opening and controlling means, comprising a coil-spring, one leg of which, at a fixed point thereof, is pivotally connected to the cover, and the other leg of which, at a fixed point thereof, is pivotally connected to the casing-body, the coil being free to float as the legs spread in the cover-opening operation, and a leaf-spring laid crosswise of the leg of the coil-spring on the cover, to bear upon the coil-spring with progressively increasing pressure, as the cover opens, whereby to serve as a buffer, combined with means for locking the cover of said casing to the body-part thereof.

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