March 6, 1956 G. H. LEONARD 2,737,281

AUTOMATIC LOWER CASE RESET ATTACHMENT FOR RECORDER-REPRODUCER

Filed Oct. 3, 1952 2 Sheets-Sheet 1

Fig. 1.

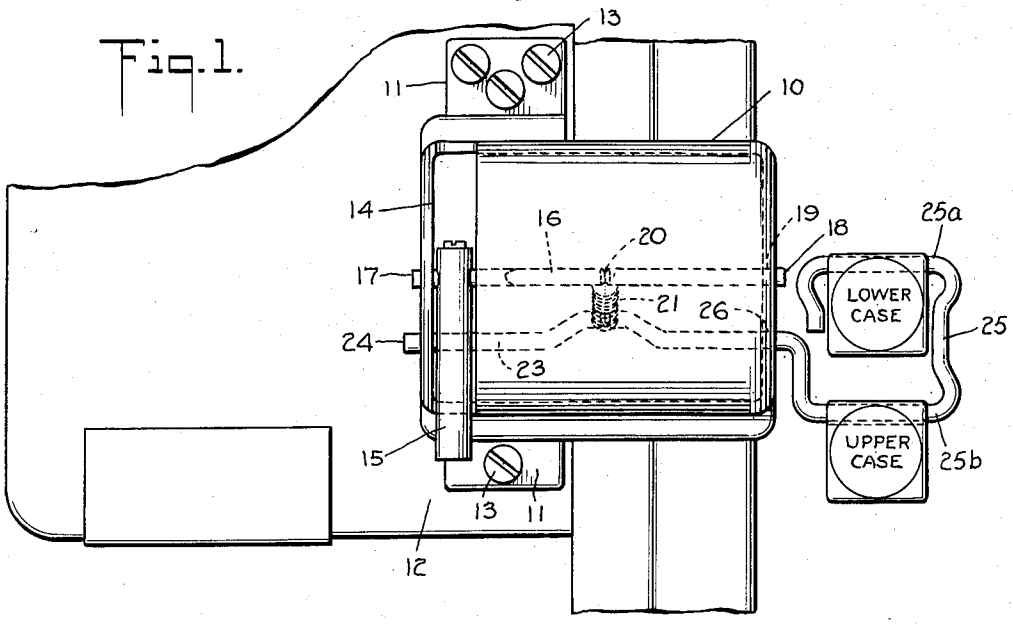
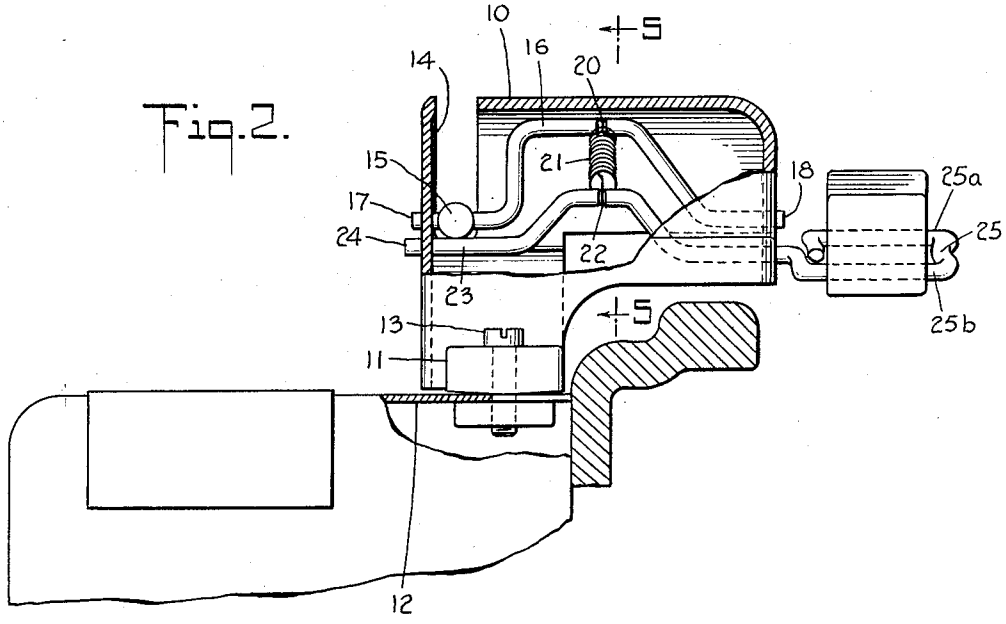


Fig. 2.



INVENTOR
G. H. Leonard
BY
A. H. Golden
ATTORNEY

March 6, 1956 G. H. LEONARD 2,737,281

AUTOMATIC LOWER CASE RESET ATTACHMENT FOR RECORDER-REPRODUCER

Filed Oct. 3, 1952 2 Sheets-Sheet 2

Fig. 3.

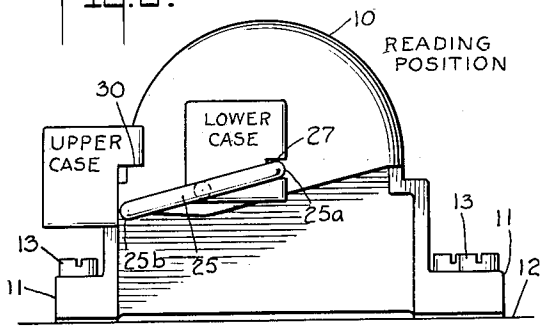


Fig. 4.

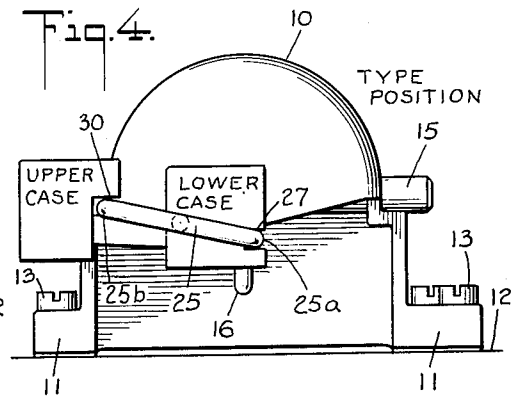


Fig. 5.

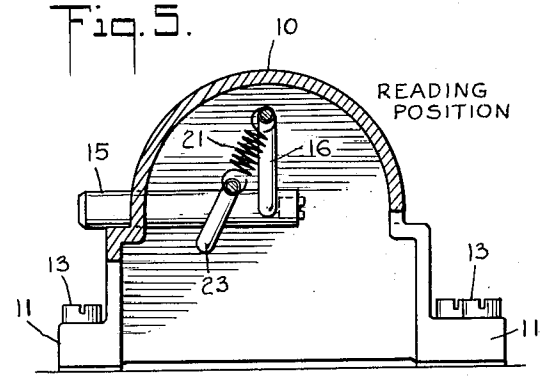


Fig. 6.

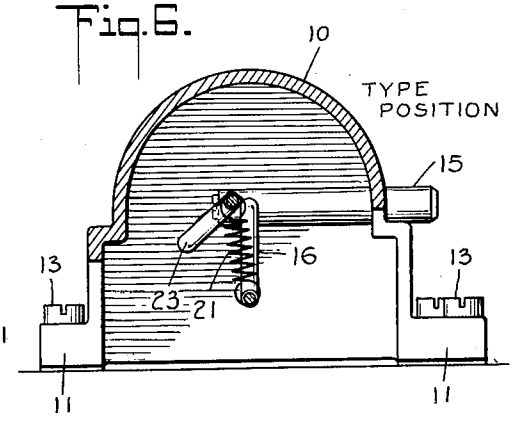
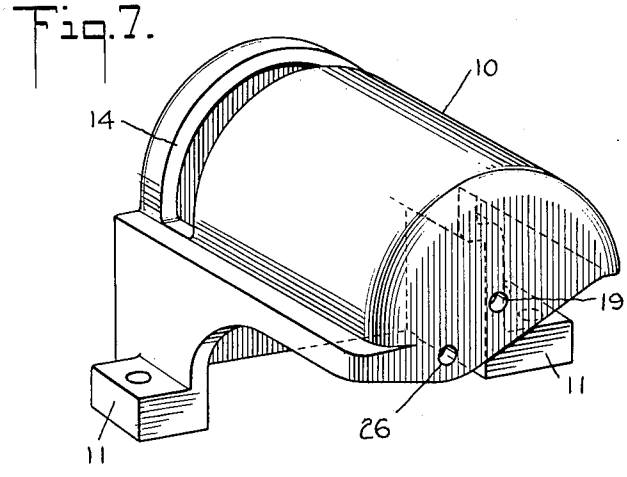


Fig. 7.



INVENTOR
G. H. Leonard
BY
A. J. Golden
ATTORNEY

United States Patent Office

2,737,281

Patented Mar. 6, 1956

2,737,281

AUTOMATIC LOWER CASE RESET ATTACHMENT FOR RECORDER-REPRODUCER

George H. Leonard, Darien, Conn., assignor to Stamford Tool & Die Corporation, Stamford, Conn., a corporation of Connecticut

Application October 3, 1952, Serial No. 313,028

15 Claims. (Cl. 197—74)

This invention relates to a recorder-reproducer typing machine. A machine of the particular class is equipped with a series of keys similar to those provided in a typewriter, and with a type basket such as found in a typewriter. In addition, the machine is equipped with punch apparatus so that as a letter is being typed through the operation of the keys and the individual letters of the type basket, a continuous tape is punched. Thereafter, the tape may be fed back into the machine and read by what I term a "reader," whereupon the type of the type basket will be actuated to type a letter that will be a duplicate of the original typed letter. In other words, the machine is so constructed that once a tape is formed through an actual manual typing operation, a feeding back of the tape through the machine will yield duplicates of the original typing operation.

In a preferred machine of the particular class, the type basket is controlled by an upper case button and a lower case button and is maintained continuously in that position to which it has last been placed. Thus, if positioned in upper case position by a depression of the upper case button, it will stay in that position until the lower case button is depressed, whereupon it will be moved to lower case position. Naturally, the type basket will actually be moved by power means from one position to the other by the depression of the buttons, and, as a matter of fact, the movement of the individual type of the type basket by the several letter keys is also through power means, but such power means will not be herein described in any detail as they are not per se the invention of this case.

Those skilled in the art will appreciate that the control of the type basket by the lower case and upper case buttons is therefore considerably different from the control exercised in the usual typewriter, where the type basket is normally positioned always in lower case typing position, being moved to upper case position and there held by the upper case button during the movement of the appropriate key. Therefore, while in the standard typewriter, to type an upper case letter it is merely necessary to press the upper case button and then the key of the particular letter, and then to release the upper case button, in a recorder-reproducer machine it is necessary to depress the upper case button, type the particular letter, and then depress the lower case button. Not only does this operation require an additional movement of a button by the operator, but it is so different from the standard typewriter operation that the usual stenographer operating the machine will become confused and, naturally, any mistake that is made is immediately permanently recorded on the tape, and the tape cannot be corrected.

The standard operation of a typewriter cannot be employed in a recorder-reproducer machine of the class being described here, since during the reading operation it is necessary that the type basket be positioned directly through the tape at all times, and it is not feasible to provide an automatic return from upper case to lower case as in all standard typewriters.

Through the novel concept of my invention, I make it possible to provide, in a standard recorder-reproducer machine, an automatic lower case reset during the typing and tape punching operation, while at the same time allowing the machine to operate in its present manner during the typing operation in response to the movement of the recorder tape.

I have thus outlined rather broadly the nature of my invention in order that the detailed description thereof that follows may be better understood, and in order that my contribution to the art may be better appreciated. There are, of course, additional features of my invention that will be described hereinafter and which will form the subject of the claims appended hereto. Those skilled in the art will appreciate that the conception on which my disclosure is based may readily be utilized as a basis for the designing of other structures for carrying out the several purposes of my invention. It is important, therefore, that the claims be regarded as including such equivalent constructions as do not depart from the spirit and scope of my invention, in order to prevent the appropriation of my invention by those skilled in the art.

Referring now to the drawings:

Fig. 1 is a plan view of an attachment adapted to be applied to a standard recorder-reproducer machine in accordance with my invention.

Fig. 2 is an elevation and partial vertical section of the structure of Fig. 1.

Fig. 3 is an end view of the parts of Fig. 1 showing the parts in reading position. Fig. 4 is a similar view showing the parts in type position.

Fig. 5 is a section along the lines 5—5 of Fig. 2 showing the parts in reading position. Fig. 6 is a section along the same lines showing the parts in type position.

Fig. 7 is a perspective view of the housing of my attachment.

The standard machine of the class described is equipped as shown in Fig. 1 with a lower case button and an upper case button. It is of course equipped with the usual type actuating keys. As each type actuating key is depressed, a power mechanism effects the typing movement of the particular type letter corresponding to the key. When the upper case button is depressed, the type basket is power moved to upper case position and remains in that position until the lower case button is depressed, whereupon the type basket moves back to lower case position. At the same time, a recording tape is punched in accordance with the letter being typed.

During the reading operation whereby the tape causes the typing of a duplicate letter, the actuating tape power positions the type basket into upper case and lower case positions through separate punchings, there being in the machine no equivalent of a hold down finger such as found in the standard typewriter. Therefore, it is necessary that during the reading operation the lower case and the upper case positioning mechanisms be completely independent of one another so as to be free for movement under the control of the punched tape or ribbon. It is thus seen that the reading operation prevents the use of the standard typewriter action, or any interconnection between the upper case and lower case buttons.

My invention does provide means of connection between the upper case button and the lower case button, whereby during the original typing and the tape punching operation, the type basket will be maintained normally in a lower case position and will move to upper case position only upon the sustained depression of the upper case button, as in a standard typewriter. However, thereafter, through the operation of an extremely simple mechanism, the upper case and lower case buttons are released for free and independent positioning of the type

basket by the tape during the automatic typing operation of the machine. In other words, my invention makes possible the present reader operation while also allowing the much desired typewriter control to which I have referred.

Referring now more particularly to the drawings, there is shown in Fig. 7 a casing **10** equipped with flanges **11** to be applied against a part **12** of the housing of the machine as best shown in Figs. 1 and 2, and thereby secured to the housing by screws **13**. The casing **10** is slotted as at **14** for the movement of a finger piece **15** secured to a toggle determining rod **16**. The toggle determinating rod **16** has ends **17** and **18** extending through small bores in the casing, one of which is shown at **19** in Fig. 7, whereby the toggle determining rod **16** may be readily rotated through the finger piece **15**, the finger piece being adapted to move from the reading position of Figs. 3 and 5 to the type position of Figs. 4 and 6.

The toggle determining rod **16** has secured thereto at **20** one end of a spring **21**, as is well shown in Figs. 1, 2, 5 and 6, the other end of the spring **21** being secured at **22** to a toggle lever **23**. One end of toggle lever **23** is designated by reference numeral **24** and is mounted for rotation in a small opening in the side of the casing **10**. The other end of toggle lever **23** extends outwardly of the casing in the form of a square-like portion **25**, having a bearing in bore **26** in the casing, best illustrated in Fig. 7.

Part **25***a* of the square-shaped extension **25** of the toggle lever **23** lies in a slot **27** of the lower case button, as best shown in Figs. 3 and 4, thereby in effect forming a pivotal connection between the toggle lever **23** and the lower case button. The part **25***b* of the square-shaped portion **25** of the toggle lever **23** is adapted to lie in either one of two positions under a shoulder **30** of the upper case button, as well shown in Figs. 3 and 4. When the toggle determining rod **16** is positioned in its position of Figs. 4 and 6 by the finger piece **15**, the spring **21** rotates the toggle lever **23** so as to hold it at the angle well shown in Figs. 4 and 6, with the part **25***a* thereof tending to maintain the lower case button in a depressed lower case position. At the same time, the part **25***b* of the toggle lever lies directly against the shoulder **30** of the upper case button and tends to press the upper case button into its raised neutral position.

The machine is now in what I call its type position, or in the condition it will be maintained during the typing of the first letter and the punching of the reproducing tape or ribbon. In this condition of the machine, the depression of any type key will effect a punching of the ribbon or tape in lower case since the type basket will be power positioned in lower case at all times. Now, if an upper case letter or letters is to be typed and the tape to record upper case letters, the upper case button is depressed and maintained depressed against the bias of the spring **21** during the typing of the particular letters. The effect will be to power position the type basket in upper case position, the toggle lever **23** acting of course to move the lower case button into its raised neutral position at the same time that the upper case button is being depressed. Therefore, with the toggle determining rod **16** in its position of Figs. 4 and 6, the lower case button will always be biased into lower case position, but the upper case button can always be moved to a depressed upper case position, this effecting the positioning of the type basket in upper case position as long as the upper case button is held depressed. Immediately upon the release of the upper case button, it will be biased to its raised neutral position and the lower case button will immediately be biased to lower case position and the type basket moved to lower case position. We therefore have available, as will be clearly apparent, the same operation as is found in the standard typewriter.

If we now wish to go to reading position, the finger piece **15** is moved from the position of Figs. 4 and 6 to the position of Figs. 3 and 5. The spring **21** will now bias the lower case button to its raised neutral position while leaving the upper case button in its normal position in the machine, which is the neutral raised position of Fig. 4. In this condition of the parts, the lower case button merely occupies its normal raised position, but in addition to being biased by the usual spring mechanism of the machine, it is additionally biased by the lever **23**, but this additional bias does not in any way affect the normal operation of the machine for reading the tape and typing a letter in correspondence therewith. The upper case button is of course relieved of any bias whatsoever and is in the same relation to the machine as though my invention were not present.

It is therefore rather clear that the application of the very simple attachment I have conceived, to a standard recorder-reproducer machine, will not in any way vary the operation of the machine during the reading or reproducing cycle thereof, but will be capable of changing the machine so that it operates in the manner of a conventional typewriter during the typing or recording cycle thereof. I believe that the rather considerable advantages of my invention will now be apparent to those skilled in the art.

I now claim:

1. In a machine of the class described having a type basket that is positioned in upper case position in response to the depression of an upper case button and positioned in lower case position in response to the depression of a lower case button, the improvement comprising actuating means interconnected between said buttons for biasing the lower case button to a depressed lower case position whereby to position said type basket in lower case position while simultaneously biasing said upper case button to a raised neutral position, said actuating means by said interconnection between said buttons effecting the movement of said lower case button to its raised neutral position when said upper case button is depressed to its upper case position, and determining means for controlling said actuating means whereby said actuating means is rendered effective merely to bias said lower case button to its raised neutral position while said upper case button is released from bias for normal movement between its raised and depressed positions.

2. In a machine of the class described having a type basket that is positioned in upper case position in response to the depression of an upper case button and positioned in lower case position in response to the depression of a lower case button, the improvement comprising means interconnected between said buttons for biasing the lower case button to a depressed lower case position whereby to position said type basket in lower case position while simultaneously biasing said upper case button to a raised neutral position, said means through said interconnection effecting the movement of said lower case button to its raised neutral position when said upper case button is depressed to its upper case position.

3. In a machine of the class described having a type basket that is power positioned in upper case position in response to the depression of an upper case button and power positioned in lower case position in response to the depression of a lower case button, the improvement comprising means interconnected between said buttons for biasing the lower case button to its depressed lower case position whereby to power position said type basket in lower case position while simultaneously biasing said upper case button to a raised neutral position, said means through said interconnection raising said lower case button to its raised neutral position when said upper case button is depressed to upper case position, and determining means controlling said means and rendering said means effective to bias said lower case button to its raised neutral position while said upper case button is released from bias for normal movement.

4. In a machine of the class described having a type basket that is power positioned in upper case position in

response to the depression of an upper case button and power positioned in lower case position in response to the depression of a lower case button, the improvement comprising actuating means positioned for yieldingly biasing the lower case button to its depressed lower case position whereby to power position said type basket in lower case position while simultaneously yieldingly biasing said upper case button to a raised neutral position, said actuating means being operable by said upper case button for raising said lower case button to its raised neutral position when said upper case button is depressed to upper case position.

5. In a machine of the class described having a type basket that is power positioned in upper case position in response to the depression of an upper case button and power positioned in lower case position in response to the depression of a lower case button, the improvement comprising a movably mounted member connected to the lower case button, means biasing said member toward one position wherein said member holds said lower case button depressed in lower case position whereby to power position said type basket in lower case position, means whereby said member when biased toward said one position simultaneously biases said upper case button to its raised neutral position, said member raising said lower case button to its raised neutral position when said upper case button is depressed to upper case position, and means for changing the bias of said member toward another position on its mounting in which position said member then biases said lower case button to a raised neutral position, the means whereby said member biases said upper case button to raised neutral position allowing free motion of said upper case button between a raised and a depressed position when said bias of said member is changed.

6. In a machine of the class described having a type basket that is power positioned in upper case position in response to the depression of an upper case button and power positioned in lower case position in response to the depression of a lower case button, the improvement comprising a fulcrumed lever pivoted to the lower case button, means biasing said lever to a position to hold said lower case button depressed in lower case position whereby to power position said type basket in lower case position, and means whereby said lever simultaneously biases said upper case button to a raised neutral position, said lever raising said lower case button to its raised neutral position when said upper case button is depressed to upper case position.

7. In a machine of the class described having a type basket that is power positioned in upper case position in response to the depression of an upper case button and power positioned in lower case position in response to the depression of a lower case button, the improvement comprising a pivoted lever extending between the lower case button and the upper case button and resting under a shoulder of the upper case button at one end while pivoted to the lower case button at its other end, means biasing said lever to hold said lower case button depressed whereby to power position said type basket in lower case position while simultaneously through said shoulder biasing said upper case button to its raised neutral position, said lever raising said lower case button to its raised neutral position when said upper case button is depressed, and means for changing the bias of said lever whereby said lever biases said lower case button to its neutral position through its pivoted connection therewith while said upper case button moves freely of said lever between a raised neutral position and its depressed position.

8. In a machine of the class described having a type basket that in typing condition is power positioned in upper case position in response to the depression of an upper case button from a neutral to an upper case position, and power positioned in lower case position in response to the depression of a lower case button from a neutral position to a lower case position, the improvement that comprises biasing means movable to opposite biasing positions, and means of connection between said biasing means and said buttons whereby said biasing means in one biasing position biases said lower case button to its depressed lower case position and said upper case button to its upper neutral position, and in an opposite biasing position biases said lower case button to its upper neutral position while relieving said upper case button from bias.

9. In a machine of the class described having a type basket that in typing condition is power positioned in upper case position in response to the depression of an upper case button from a neutral to an upper case position, and power positioned in lower case position in response to the depression of a lower case button from a neutral position to a lower case position, the improvement that comprises a lever, means pivoting said lever on an axis intermediate its length, means for biasing said lever to opposite biasing positions, and means pivoting said lever at one end to said lower case button, said lever in one biasing position biasing said lower case button to a depressed lower case position and fitting at its other end under a part of said upper case button to bias said upper case button to its raised neutral position, said lever when in an opposite biasing position biasing said lower case button to a raised neutral position while relieving said upper case button from bias.

10. In a machine of the class described having a type basket that in typing condition is power positioned in upper case position in response to the depression of an upper case button from a neutral to an upper case position, and power positioned in lower case position in response to the depression of a lower case button from a neutral position to a lower case position, the improvement that comprises biasing means movable to opposite biasing positions, said biasing means being connected for movement at all times with said lower case button whereby to bias said lower case button to a depressed lower case position when said biasing means is in one position, and lost motion means whereby said biasing means in said one position biases said upper case button to its neutral raised position, said biasing means when in an opposite biasing position biasing said lower case button to neutral position while through said lost motion means relieving said upper case button from bias.

11. In a machine of the class described having a type basket that is positioned in upper case position in response to the depression of an upper case button and positioned in lower case position in response to the depression of a lower case button, the improvement comprising a pivoted lever pivoted in turn at one end to the lower case button and at its other end having a lost motion connection with said upper case button, and biasing means biasing said lever yieldingly into each of two opposed positions.

12. In a machine of the class described having a type basket that is positioned in upper case position in response to the depression of an upper case button and positioned in lower case position in response to the depression of a lower case button, the improvement comprising a lever fulcrumed intermediate its ends and pivoted at one end to the lower case button and at its other end fitting under a shoulder of the upper case button, and a two position biasing means in one position biasing said lever for simultaneously biasing said upper case button to a raised neutral position and said lower case button to a depressed lower case position, said biasing means in another position biasing said lower case button to its raised neutral position while leaving said upper case button unbiased.

13. In a machine of the class described having a type basket that is power positioned in upper case position in response to the depression of an upper case button and power positioned in lower case position in response

to the depression of a lower case button, the improvement comprising a pivoted lever extending between the lower case button and the upper case button and resting under a shoulder of the upper case button at one end while pivoted to the lower case button at its other end, a biasing spring secured at one end to said lever, and a positioning member for positioning the other end of the spring into two biasing positions relatively to said lever and thereby biasing said lever into two positions, said lever in one biased position holding said lower case button depressed whereby to power position said type basket in lower case position while simultaneously biasing said upper case button to its upward neutral position, said lever in its other biasing position biasing said lower case button to its neutral position through its pivoted connection therewith while said upper case button moves freely of said lever between a raised neutral position and its depressed position.

14. In a machine of the class described having a type basket that in typing condition is positioned in upper case position in response to the depression of an upper case button from a neutral to an upper case position, and positioned in lower case position in response to the depression of a lower case button from a neutral position to a lower case position, the improvement that comprises a lever, means pivoting said lever on an axis intermediate its length, a spring for biasing said lever to opposite biasing positions, and means pivoting said lever at one end to said lower case button whereby said lever in one biasing position biases said lower case button

to a depressed lower case position while the other end of said lever fitting under a part of said upper case button biases said upper case button to its raised neutral position, said lever when oppositely biased by said spring then biasing said lower case button to a raised neutral position while relieving said upper case button from bias because spaced from under said part of said upper case button.

15. In a machine of the class described having a type basket that in typing condition is power positioned in upper case position in response to the depression of an upper case button from a neutral to an upper case position, and power positioned in lower case position in response to the depression of a lower case button from a neutral position to a lower case position, the improvement that comprises biasing means having means of connection with both said buttons for simultaneously biasing said lower case button to its depressed lower case position and said upper case button to its upper neutral position, and with said means of connection effecting the movement of said lower case button to an upper neutral position when said upper case button is depressed to upper case position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,168,441	Doty	Aug. 8, 1939
2,247,275	Buckley	June 24, 1941
2,555,734	Dodge	June 5, 1951