Aug. 2, 1960 E. SIEBELS ET AL 2,947,404

KEY BUTTON FOR KEYBOARD OFFICE MACHINES

Filed July 8, 1958

FIG. 1

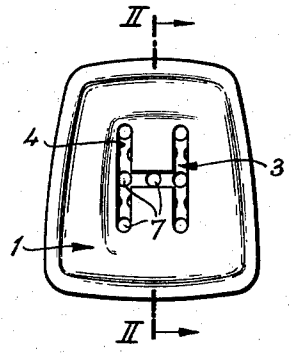


FIG. 2

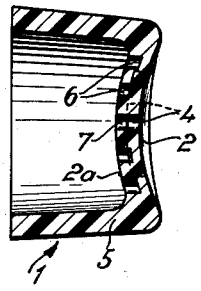


FIG. 3

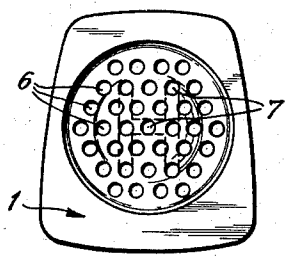
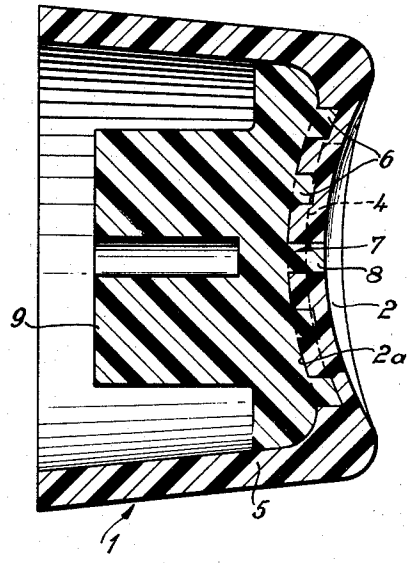


FIG. 4



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KEY BUTTON FOR KEYBOARD OFFICE MACHINES

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5 Claims. (Cl. 197—102)

The present invention relates to key buttons for keyboard office machines and more particularly to key buttons of the type wherein the configuration of the character such as a letter, numeral or the like designated by a particular key button is formed as a depression in the surface of the button and such depression is filled with a material having a color different from that of the button so as to present a color contrast.

It is known in the production of key buttons of the above described type to arrange supply channels for the different colored material which extend from the rear face of the button and communicate with the character depressions worked into the front face of the button. However, since the supply channels were required to have practically the same configuration as that of the character itself, this manner of production was quite expensive since a separate die for making the supply channels was required for each character.

The principal object of the present invention is to provide an improved construction for the key button wherein the necessity for using a special supply channel forming die for each character is eliminated. This objective is attained by forming an array of supply channels in the form of initially blind holes extending inwardly from the rear face of the key button, these holes covering practically the entire area of the button surface and having a depth at least equal to and preferably greater than the thickness of the button wall as measured from the rear face of the button to the bottom of the character depression that is worked into the front face of the button. Consequently, when each character depression is formed in the front face of the button, the initially blind holes which have positions corresponding to the character depression will be uncovered in whole or in part thus establishing a plurality of communicating channels for the supply of the differently colored material from the rear face of the button into the character depression. The holes which at any part are not aligned with the configuration of the character depression will remain blind. Consequently, the key buttons for all characters can be made uniform as regards the channels from the rear face for introduction of the different colored material into the character depression on the front face of the button, thus effecting a savings in tool costs and also in the cost of machining the buttons.

The foregoing and other objects and advantages inherent in the inventive concept will become more apparent from the following detailed description of one embodiment thereof and from the accompanying drawings wherein:

Fig. 1 is a view of the improved key button shown in top plan;

Fig. 2 is a longitudinal central section taken along line II—II of Fig. 1;

Fig. 3 is a view of the improved key button in bottom plan; and

Fig. 4 is a sectional view similar to Fig. 2 drawn on a much larger scale and with the key lever mounting inserted in the button.

With reference now to the drawings, the cup-shaped key button indicated at 1 can be pressed or extruded from any suitable material such as a plastic and the front face 2 of the button is seen to have a concave surface into which is worked the configuration of the desired character 3 in the form of a depression 4. The particular character illustrated is the letter "H" but it will be understood that the same button as illustrated will be used for all characters. The depression 4 extends to a depth approximately one half the thickness of the button wall 5 between the front face 2 and the rear face 2*a*. As previously indicated, in accordance with the inventive concept substantially the entire button surface area into which the characters are to be formed is provided with an array of spaced and initially blind holes 6 which extend inwardly from the rear face 2*a* of the button wall 5 to a depth at least reaching the bottom of the character depression 4 worked into the button from the front face 2 so that such initially blind holes 6 as are wholly or partly in line with any part of the depression 4 will be exposed to an extent corresponding to the degree of the alignment and thus establish a plurality of feed or supply channels 7 through which the material of different color can be supplied in sufficient quantity from the rear face of the wall 5 into the character depression 4 so as to fill the same. Those holes 6 which do not happen to be in positions corresponding to the location of any part of the character depression 4 will, of course, remain blind. With reference to Fig. 1, it will be seen that with the letter "H" depressed into the front face of the button, several of the initially blind holes 6 which have a diameter equal to the width of the depression are completely exposed, and several of them are partially exposed. All of such completely or partly exposed holes 6 now serve as channels for the supply of the differently colored material to the depression 4.

The array of initially blind holes 6 can be of various patterns or the array can be entirely non-uniform. In the illustrated embodiment, as shown most clearly in Fig. 3, the initially blind holes 6 in the circular area of the concave button surface 2 are arranged in horizontal rows, the rows being uniformly spaced, and the holes in one row being staggered with respect to the holes in an adjacent row so that practically the entire surface of the button is provided with such holes. Consequently, regardless of what character depression may be formed in the button, a sufficient number of the holes 6 will be all or partly uncovered to serve as supply channels for introduction of the differently colored material into the character depression.

In accordance with the invention, the array of holes 6 and the character depression 4 may be produced in a single operation, the bottoms of the holes and character depression being in contact with each other. With reference to Fig. 4, the differently colored material 8 which fills the character depression 4 can be injected, such as by moulding, simultaneously with the formation by injection of the inset 9 by which the button 1 is attached to the key lever, or the inset 9 can be formed separately from the differently colored character material 8, and in a given case these two can consist of one piece.

In conclusion, it will be understood that while one practical embodiment of the invention has been described and illustrated, modifications may be made in the construction and arrangement of the various elements thereof without, however, departing from the spirit and scope of the invention as defined in the appended claims.

We claim:

1. A key button for keyboard office machines comprising a button body member having a wall with front

and rear faces, said front face being adapted to have formed therein any one of a plurality of differently configured depressions, the particular configuration of each such depression corresponding to that of a desired character and adapted to be filled with a colored material different from that of said body member, and said rear face having an array of holes extending into said wall and which are distributed over an area in alignment with at least a part of the area of each possibly differently configured depression that may be formed in the front face of said button, the depth of said holes being at least equal to the wall thickness as measured from the bottom of said character depression so as to establish as to those holes which are at any part thereof in line with any part of said character depression corresponding communication channels for the introduction of said colored material into said character depression.

2. A key button as defined in claim 1 for keyboard office machines wherein the depth of said holes exceeds the button wall thickness as measured from the bottom of said character depression.

3. A key button as defined in claim 1 for keyboard office machines wherein said holes are arranged in rows, the holes in one row being staggered with respect to the holes in an adjacent row.

4. A key button as defined in claim 1 wherein the button body member is cup-shaped and said wall forms the bottom thereof and which further includes a filling

of said colored material forming an element by which the button is attached to a key lever of the machine.

5. The method of forming a plurality of like constructed but differently charactered key buttons for an office machine having a keyboard, and wherein each said button includes a wall portion defining front and rear faces thereof, comprising the steps of forming in the rear face of each said button a like array of depressions, and forming in the front face of each button opposite said array of depressions in said rear face a differently configured depression corresponding to a different character, the depth of the depressions in the rear face of each button being at least equal to the thickness of the wall portion as measured from the bottom of the character depression in the front face so as to establish as to those depressions in the rear face which are at any part thereof in line with any part of the character depression corresponding communication channels for the introduction into the character depression of a material which is of a color different from that of the button.

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