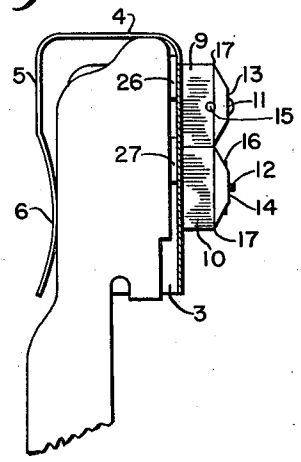
Aug. 3, 1948. B. L. CLARK 2,446,360

LINE DRAWING ATTACHMENT FOR TYPEWRITERS

Filed July 2, 1946

Fig. 2



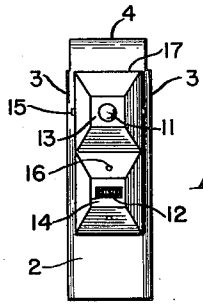


Fig. 3

Fig. 1

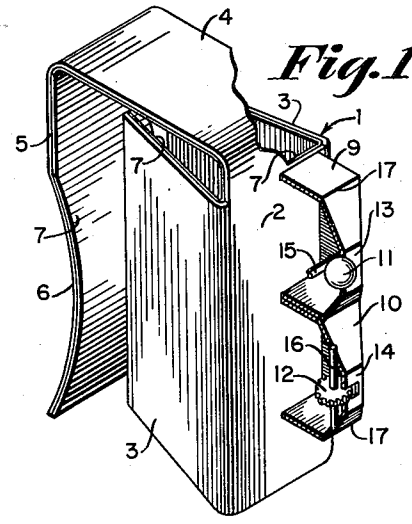


Fig. 4

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LINE DRAWING ATTACHMENT FOR TYPEWRITERS

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2 Claims. (Cl. 197—113)

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This invention relates to a typewriter attachment for producing a line on the paper, either solid or dotted, and either vertical or transverse, through continuous pressure of one of the character keys, correlated with the operation of means, such as the tabulator key, for making the platen slide, or the spacing lever or knob for causing the platen to rotate.

One of the objects of the invention is to provide as an attachment, a line drawer readily slipped over the type end of any convenient type bar and instantly removed when desired.

Another object of the invention is to provide a line drawing device adapted to be detachably carried solely by the type block at the end of any selected type bar, overlying the type character on the face of said type block, and substituting therefor ribbon engaging stylus means forming part of said device.

Still another object of the invention is the provision of a device of the class described, having stylus means in upper and lower case positions, so located as to underline the text in either upper or lower case.

Another object of the invention is the provision of a line drawing attachment having resilient clamping means for supporting it on the type block.

Another object of the invention is to provide a line drawing attachment for typewriters, which is simple in construction, inexpensive to manufacture, which can be purchased as a "gadget" to be applied to any character key of any typewriter when needed, without the use of tools, and removed with equal facility when not needed.

Other objects of the invention will appear as the following description of a preferred and practical embodiment thereof proceeds.

In the drawings which accompany and form a part of the following specification, and throughout the figures of which the same reference characters have been used to denote identical parts:

Figure 1 is a perspective view, partly in section, of a line drawing device embodying the principles of the invention;

Figure 2 is a side sectional view showing the line drawing device applied to the type block at the end of a type bar;

Figure 3 is a front view of the device;

Figure 4 is a side view of a conventional train of linkage between a character key and type bar, showing the line drawing device of the subject invention intercalated between the type block and platen.

Referring now in detail to the several figures,

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the numeral 1 represents the line drawing attachment as a whole. This comprises a base plate 2, having opposite resilient side wings 3, a top strap 4 bent perpendicularly to the base plate, above the side wings, and a resilient tongue 5 bent down from the rear of the top strap and preferably having a re-entrant bend 6 near its free end.

The base plate, side wings, top strap and tongue, together form a socket which is sized to fit over the type block at the end of the type bar of a conventional typewriter, clampably engaging the same, the base plate overlying the type block, the side wings pressing the sides of said block, and the tongue pressing the back of the block and drawing the base plate into firm contact with the type. The top strap rests upon the top of the type block and thus definitely positions the line drawing device.

Since all of the type blocks of a single typewriter are identical as to size and shape, the line drawing device may be selectively slipped upon any desired type block. Usually the type block of a little used character will be selected. Due to the fact that the device is held in place solely through the resilience of the socket construction, it is obvious that it can be slipped on or off in a moment, requiring no tools.

Since it is important that the type block shall not be scratched, particularly the type face, it is preferred to line the socket with a material softer than that of the type block. Figure 1 shows the inner walls of the socket coated with a film 7, of soft plastic, to prevent scratching. A pair of similar boxes 9 and 10 are fixed in superposed relation to the outer or front face of the base plate 2. As shown, these are hollow and of sheet metal construction. They serve as supports for the stylus elements 11 and 12, which press the ribbon, the element 11 being a ball for making a solid line, the element 12 being a toothed wheel for making a dotted line. Each box has a flat front face, respectively 13 and 14. The front face 13 has a hole slightly less in diameter than the ball 11. The ball is inserted from within the box, projecting through the hole, and is retained by a pin 15, at its rear, fixed at its opposite ends in the walls of the box. The front face 14 of the box 10 has a slot through which projects a portion of the wheel 12. The latter is journaled on a pin 16, fixed at the opposite walls of the box 10. The box is converged toward said front faces, thus avoiding contact with the ribbon by the edges 17, which might cause a spurious imprint.

Referring to Figure 4, this shows any character key 18 of a typewriter, in depressed position, the

lever 19 having been pulled to the left against the bias of the spring 20. This causes the link 21 and short arm 22 of the type bar 23 to snap past their straight toggle position due to inertia of the moving type bar and some lost motion in the joints 24 and 25, so that the type bar delivers an impact blow against the paper on the platen, but is free to fall back somewhat from the platen after the impact blow, due to said lost motion, notwithstanding that the key 18 continues to be depressed.

Since in the present invention the production of the line is dependent upon sustained pressure upon the character key while the platen moves, it is obvious that the invention must provide for taking up this lost motion. This is done by making the depth dimension of the boxes 9 and 10 such that the distance from the inner face of the base plate to the foremost point of either the ball or toothed wheel is at least as great as the range of free movement between the type block and platen.

It is preferred to place the boxes 9 and 10 in such position on the base plate that the bearing points of the stylus elements shall underline words or passages of the typed text. Figure 2 shows the upper and lower case characters 26 and 27, the bearing point of the ball 11 being below the level of the bottom of the character 26 and the bearing point of the wheel 12 being below the bottom of character 27.

To make a horizontal line, the attachment having first been mounted upon any desired type block, it is necessary merely to depress the corresponding character key, thereby pressing the stylus element against the ribbon, then to release the carriage by pressing the tabulator key or to slide the carriage by hand. Sliding of the paper against the pressure point of the ribbon produces the mark which is continuous so long as the character key is held depressed.

To make a vertical line, the character key is depressed as before, the platen with the paper being rotated by manipulating the spacing lever or the spacing knob (not shown), at the end of the platen, while the character key is being held depressed. The stylus elements 11 and 12 roll upon the ribbon as the latter is fed, avoiding undue wear or tearing of the ribbon.

The number of stylus elements is not vital to the invention, nor the specific position relative to the base plate. The invention fundamentally contemplates a resiliently clamped quickly attachable or detachable line drawer adapted to be placed upon any desired type bar in overlying position with respect to the characters on said type bar and of such depth dimension as to take up the lost motion between the type bar and the

platen when the corresponding character key is in depressed position.

While I have in the above description disclosed a preferred and practical embodiment of the invention, it will be understood by those skilled in the art that the details of construction and arrangement of parts are capable of variation without departing from the invention.

What I claim as my invention is:

1. Line drawing attachment for typewriters adapted to be spring retained on the type end of any type bar of a typewriter comprising means forming a resilient socket including a base plate having integral opposite convergent resilient side wings extending substantially to the lower end thereof, a top strap extending above said side wings from the upper end of said base plate integral therewith and perpendicular thereto, a resilient tongue integral with said top strap extending downwardly from the rear end thereof parallel to said base plate, and rolling styluses mounted in upper and lower case positions on the front of said base plate.

2. Line drawing attachment for typewriters adapted to be spring retained on the type end of any type bar of a typewriter comprising means forming a socket member adapted to be slipped endwise on the type bar in the direction of its axis to a definite position, said means including a base plate engageable with the type face of the type bar, a top strap extending rearwardly from the top of said base plate perpendicular thereto for enagagement with the end of the type bar, resilient side wings extending rearwardly from the sides of said base plate, a resilient tongue extending downwardly from the rear end of said top strap and integral therewith, and rolling styluses in upper and lower case positions mounted on the front of said base plate at such distance therefrom to take up the lost motion between the type bar and platen, normally present when the operating key of the type bar is in depressed position.

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