O. WOODWARD.

TYPE BLOCK FOR TYPE WRITING AND LIKE MACHINES.

APPLICATION FILED NOV. 20, 1911.

1,124,571. Patented Jan. 12, 1915.

FIG. 5.

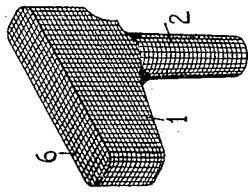


FIG. 4.

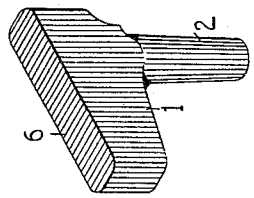


FIG. 3.

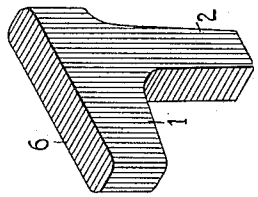


FIG. 2.

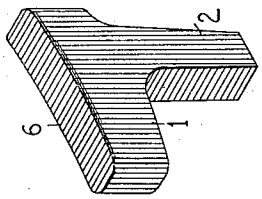


FIG. 1.

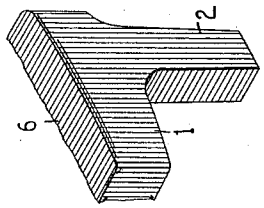


FIG. 11.

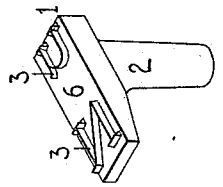


FIG. 10

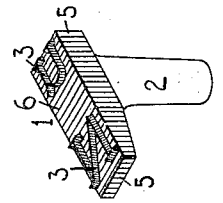


FIG. 9.

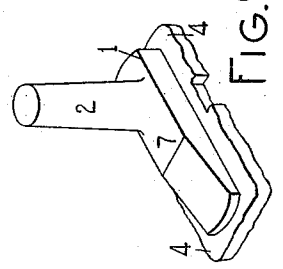


FIG. 6.

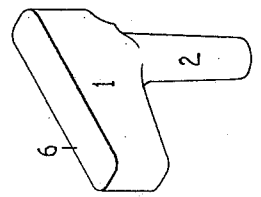


FIG. 8.

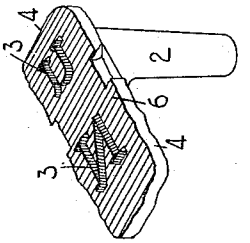
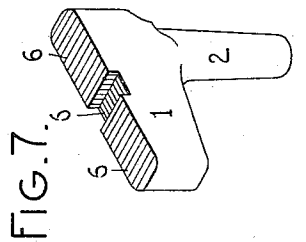


FIG. 7.



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UNITED STATES PATENT OFFICE.

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TYPE-BLOCK FOR TYPE-WRITING AND LIKE MACHINES.

1,124,571. Specification of Letters Patent. Patented Jan. 12, 1915.

Original application filed May 6, 1911, Serial No. 625,496. Divided and this application filed November 20, 1911. Serial No. 661,324.

To all whom it may concern:

Be it known that I, OSCAR WOODWARD, citizen of the United States, and resident of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Type-Blocks for Type-Writing and like Machines, of which the following is a specification.

My invention relates to type blocks for typewriting and like machines.

Heretofore it has been customary to provide type blocks with integral shanks by which the blocks could be attached to the type bars. In some instances these blocks and shanks were hardened to a like degree throughout in order to provide hard type faces that could not be easily destroyed or injured. In such constructions, however, it was found that the shanks could not be easily bent in order to afford an adjustment of the block on the bar, as is often required to place the type on "its feet" or for properly alining the type. In some cases the type blocks and their shanks were made of comparatively soft metal in order to facilitate this adjustment of the type blocks but this proved to be disadvantageous since it resulted in the faces being easily defaced or injured.

The main object of my invention is to overcome the above and other disadvantages, and to provide a type block having a chemically hardened face and a relatively soft shank so that the shank may be easily bent to afford an adjustment of the type block on the bar, and yet a type face of the desired hardness and one which is not easily injured or defaced may be provided.

To the above and other ends which will hereinafter appear, my invention consists of the type block to be hereinafter described and particularly pointed out in the appended claims.

In the drawings wherein like reference characters indicate corresponding parts in the different views, Figure 1 is a perspective view of a blank stamped out of sheet metal and from which the type block and its integral shank is made. Fig. 2 is a like view of the same, after it has been tumbled and the sharp corners and edges have been removed. Fig. 3 is a perspective view of a blank after it has been pressed to flatten it. Fig. 4 is a like view of the blank after the shank has been turned. Fig. 5 is a perspective view of the blank after it has been submitted to pack-annealing. Fig. 6 is a like view of the blank after it has been nickel plated. Fig. 7 is a perspective view of the blank after the face of the nickel plated blank has been milled off. Fig. 8 is a perspective view looking toward the face of the type block after the types have been formed thereon. Fig. 9 is a bottom perspective view of the same. Fig. 10 is a perspective view of the type block after the sides thereof have been ground off. Fig. 11 is a like view of the finished type block.

The present case is a division of my application Serial No. 625,496, filed May 6, 1911, in which the process to be hereinafter described is claimed, the present case being restricted to the article.

The type blocks are formed from blanks such as that represented in Fig. 1, the blanks being stamped out of sheet metal, such, for example, as mild or soft steel. Each blank, as will be seen, comprises a body portion 1 which constitutes a type block proper and an integral shank 2 by which the type block is to be connected to its type bar or carrier. In the accompanying drawings I have shown the blanks at different stages in the process of manufacture, beginning with the blank shown in Fig. 1 as it is first formed and ending with the completed type block shown in Fig. 11 ready for connection with its type bar. The blanks formed as represented in Fig. 1 are tumbled to remove the sharp corners and edges thereof, thus leaving them as represented in Fig. 2. The act of punching out the blanks leaves them slightly bowed as indicated in Figs. 1 and 2, and after the blanks have been tumbled they are pressed on the sides thereof between flat faces to flatten the blanks, as represented in Fig. 3. The blanks next have their shanks 2 turned, as represented in Fig. 4, on an automatic machine employed for this purpose, so that a shank of frusto-conical form is provided for its connection in a corresponding opening in the type bar. After the shanks have been turned as represented in Fig. 4 they

are inspected and any imperfect ones are thrown out. The various steps to which the blanks are subjected thus far, such, for instance, as the punching and flattening steps, have a tendency to slightly harden the blanks, and it is desirable that they be rendered softer preliminary to the formation of the type faces thereon. The next step therefore preferably consists in subjecting the blanks to pack-annealing. The pack-annealing is effective to soften the metal and an additional amount of carbon is at the same time incorporated in the blank in order that parts thereof may be subsequently effectively hardened, as will hereinafter more clearly appear. If the character of the stock from which the blanks are made is such that it contains the requisite amount of carbon, and also is sufficiently soft, after having been treated in the manner described preliminary to the formation of the type face, so that the type face may be properly formed thereon, then the step of pack-annealing may be omitted. In practice, however, I prefer to employ the pack-annealing since it is difficult to obtain metal having the requisites referred to above. After the pack-annealing, the blanks are plated, coated or covered with a suitable material, as, for example, with nickel plating as is intended to be represented in Fig. 6; the nickel plating covering every surface of the type block and its integral shank. After nickel plating the blanks each blank has its face 6 milled off, as represented in Fig. 7. In this view and others the parallel hatch lines are intended to represent the exposed metal from which the type block and its shank are formed, whereas the unshaded portions are intended to represent the nickel plating. The blanks with their faces milled as represented in Fig. 7 are then submitted to a cold pressing process by which the raised type faces 3 are formed. These type faces are formed in the ordinary or any desired manner, such for example as in the manner disclosed in the patent to L. A. Diss, No. 923,252, dated June 1, 1909. In the act of forming the type faces the metal is spread to form a bur 4 on all sides of the type block. This bur is afterward removed by grinding the sides of the type block, as represented in Fig. 10. After the bur is removed the sides of the type block, as well as the faces 6 thereof and the raised type faces 3, will have the body of the metal from which the type block is formed exposed, whereas the underside 7 and the shank 2 of the type block will be covered with nickel plating. After each of the blocks has its sides ground in the manner shown in Fig. 10 the blocks are subjected to cementation by first coating the blocks with what I term a cementing material, such for example as cyanid of potassium. While I have referred to the use of cyanid of potassium it should be understood that any suitable so-called cementing material may be used that will affect the exposed parts of the metal and will not affect the parts of the block that are covered, coated or plated with nickel or other suitable material. The blocks after being coated with a cementing material are heated and then quenched to harden only so much of each type block as has the nickel plating removed therefrom, and where the body of the metal from which the type block is formed has been exposed to the action of the cementing material, as is intended to be represented in Fig. 10. It follows, therefore, that the hardening by cementation in the manner described is effective only on the sides 5, the face 6 and the type faces 3 of the type block, whereas the shank which is covered with a protecting coat of nickel plating remains comparatively soft and may be easily bent in order to afford an adjustment of the type block relatively to the type bar which carries it. The type faces and the body portions of the block being thus hardened, there is little liability of the type faces being injured. While a mere case hardening is preferred the depth of the action of the cementing material on the exposed portion of each type block will of course depend on circumstances. From certain aspects of the present invention it is immaterial to what depth the hardening extends in the block so long as the type face is hard and the stem or shank relatively soft. After the type blocks have been hardened on their faces in the manner described, they are or may be again nickel plated over their entire surfaces, as represented in Fig. 11, which shows the type block in completed condition.

It will be understood that type blocks made in accordance with my present invention are provided with chemically hardened type faces and comparatively soft shanks by which they may be connected to the type bars or carriers, and which soft shanks afford an easy adjustment of the blocks by bending the shanks.

It is desirable to remove the face of the type block by milling it in the manner indicated in Fig. 7 in order that the raised type faces may be more clearly defined on the block. It is likewise desirable to remove the burs 4 from the type block in order to present it in a finished manner. These two desirable steps in the manufacture are taken advantage of to remove parts of the nickel plating or other coating previously applied to the blank in order to expose to the action of the cyanid of potassium or other cementing material only those portions of the type block which it is desired to harden.

While I have described with considerable detail a type block constructed in accordance with my present invention, it should be un-

derstood that various changes may be made, the invention consisting primarily in the provision of a type block having an integral attaching shank which is comparatively soft and a type face which is more highly carbonized than is the shank and which is comparatively hard.

What I claim as new and desire to secure by Letters Patent, is:—

1. A steel type block having a tempered relatively hard unplated type face and a relatively soft plated shank.

2. A steel type block having a chemically hardened unplated body portion and type face and a relatively soft plated shank.

3. A steel type block comprising a tempered type face, a tempered body portion, and a shank, the shank only being plated and being relatively softer than the remaining portions of the block.

4. A type-block for a type bar of a typewriting machine, this type block being composed of a body and a soft shank which are integral, the type-face of the block being carbonized and chemically hardened.

5. A steel type-block for a type bar of a typewriting machine, this type-block being composed of a body and shank which are integral, the type-face of the block being more highly carbonized and harder than the shank.

6. A type block having a chemically hardened type face, and a relatively soft bendable integral shank.

7. A steel type block for typewriting and like machines, said type block having an unbendable type body, and an integral bendable shank.

Signed in the borough of Manhattan, city of New York, in the county of New York and State of New York this 18th day of November, A. D. 1911.

OSCAR WOODWARD.

Witnesses:
E. M. WELLS,
CHARLES E. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."