O. C. KAVLE.

TYPE FOR TYPE WRITING AND OTHER MACHINES.

APPLICATION FILED OCT. 1, 1908.

935,519. Patented Sept. 28, 1909.

Fig. 1.

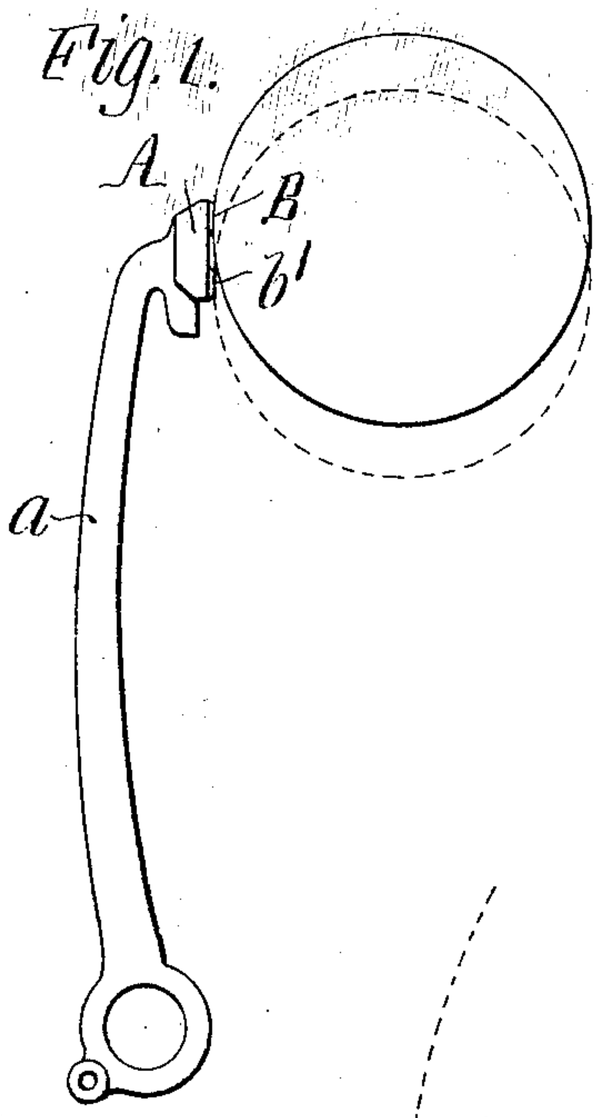


Fig. 2.

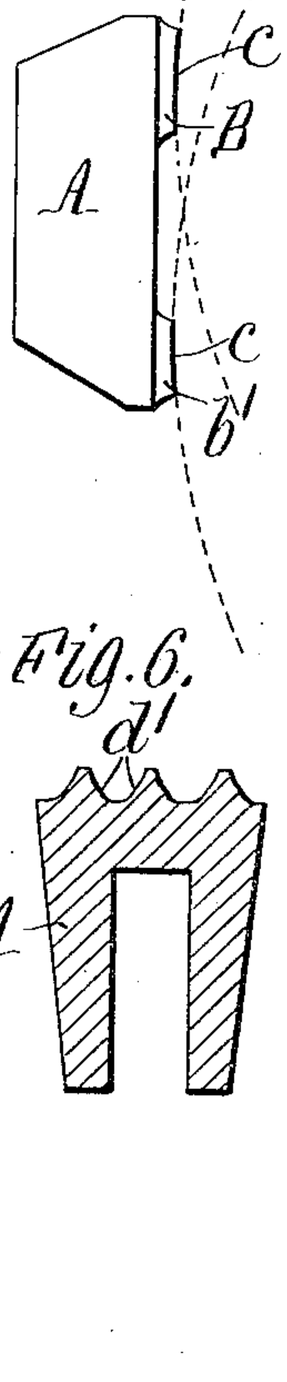


Fig. 3

Fig. 4.

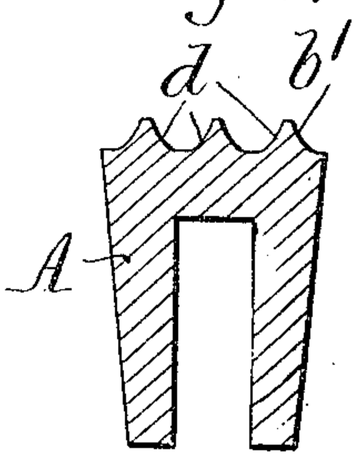


Fig. 5.

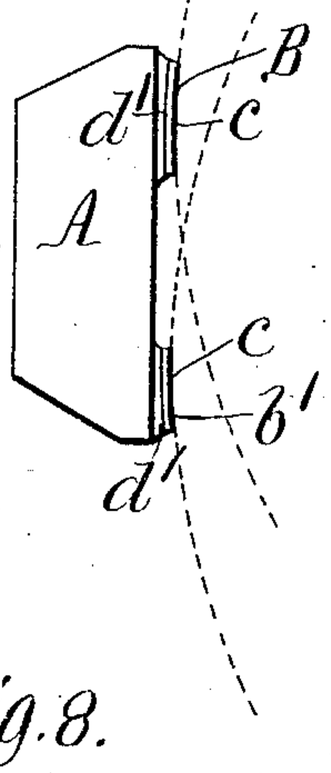


Fig. 6.

Fig. 7.

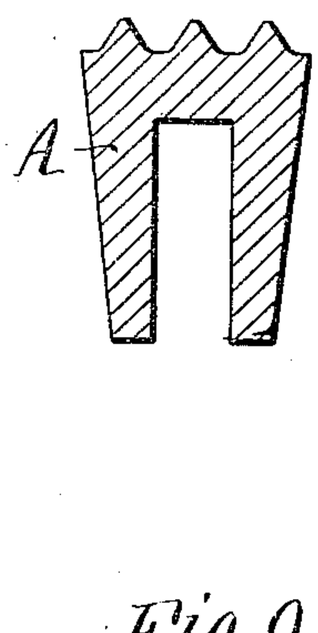


Fig. 8.

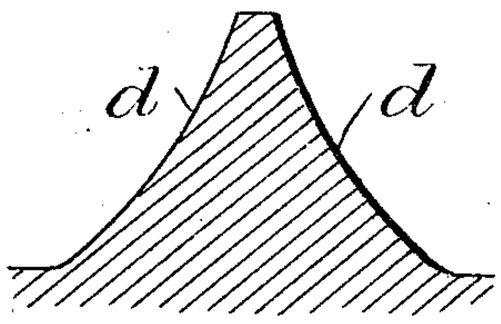
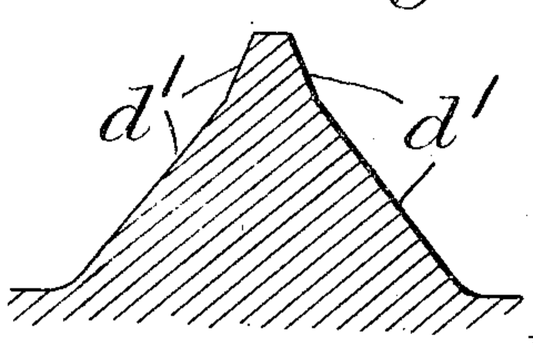


Fig. 9.



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UNITED STATES PATENT OFFICE.

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TYPE FOR TYPE-WRITING AND OTHER MACHINES.

935,519. Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed October 1, 1908. Serial No. 455,669.

To all whom it may concern:

Be it known that I, OSCAR C. KAVLE, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Types for Type-Writing and other Machines, of which the following is a specification.

This invention relates more particularly to types for various kinds of printing machines, such as typewriters, in which the impressions are made by the type striking and pressing an inked ribbon against the paper or surface to be printed. The type may be used on type-bars or type wheels arranged to print through an inked ribbon, and also in machines employing an inking pad for the type in place of the ink ribbon, but the improvements are of more especial advantage in type used with an inked ribbon.

The objects of the invention are to make the raised characters of the types of a novel form whereby the type will make sharper and cleaner impressions, produce more manifold copies, wear the ink ribbon less, make better stencil sheets, and require less power for operating them to make the impressions than type heretofore used.

Types for typewriting and analogous machines are ordinarily made of hard metal, the character being formed in relief by forcing the type blank against a die to cause the metal to flow into the die. As this is done without heat, great pressure is required, and it has been found necessary to make the character with broad base portions in order to displace the metal enough to raise the character to the required height and insure its having a perfectly formed and well defined top or printing face. Heretofore the characters have been formed with plane or straight side faces which slope gradually at the same inclination from the base to the top of the character. These plane sloping sides are objectionable because the crests of the characters sink more or less into the paper when making the impressions and the sloping sides thereof contact with the ribbon and make poor impressions with broad or blurred lines and often smut the paper. This fault is more pronounced in manifold work, when the several sheets of paper with the interposed carbon sheets form a relatively soft cushion or pad into which the characters can sink deeper. The pressure of the plane sloping sides on the paper also absorbs a considerable part of the force of the blow of the type and thus fewer copies can be made than would otherwise be possible. Furthermore, characters such, for example, as *a*, *b*, *e*, *g*, *m* and *w*, which have parts forming inclosed or partially inclosed spaces, when made with the plane sloping sides are prone to fill with ink. To overcome these objections the parts of the characters are formed with only sufficient thickness to insure the flow of the metal into the dies to make perfect crest portions, instead of having flat or plane sloping sides, being made with concave, sunken or hollow sides, which leaves considerably more space for the ribbon in the valleys between the projecting parts of the characters, so that the type make cleaner cut and more sharply defined impressions.

In the accompanying drawings: Figure 1 is a side elevation, full size, of a type-bar provided with a type embodying the invention. Fig. 2 is a side elevation, on an enlarged scale, of the type head detached. Fig. 3 is a front elevation or face view, on an enlarged scale, thereof. Fig. 4 is a cross section, on a larger scale, thereof. Figs. 5 and 6 are respectively a side elevation and cross section, on an enlarged scale, of a type head, showing a slightly modified formation of the characters. Fig. 7 is a cross section, on an enlarged scale, of a type head with a character as heretofore made. Fig. 8 is a profile, enlarged about fifty times, of one of the projecting parts of the character shown in Figs. 2–4. Fig. 9 is a similar profile of the modified form of the character shown in Figs. 5 and 6.

Like letters of reference refer to like parts in the several figures.

A represents the type head, which, in the construction shown, is provided with two printing characters and is slotted and soldered on the type-bar *a*, Fig. 1. It may, however, have only one or more than two characters and be formed integrally with or secured to the type-bar, or other supporting part, in other ways. The characters B *b'* are formed in relief on the type head and project far enough above the same to prevent the face of the head from contacting with the ribbon. In types to be used with cylindrical paper platens, the tops or faces of the characters are preferably made concaved, as shown at *c*, Figs. 2 and 5, so as to conform to and bear uniformly at all points on the

convex face of the platen. As shown in Figs. 2–4 and 8, the projecting parts of the character are made with curved, concave side faces so that a cross section of one of the projecting parts of the character has curved side lines, as shown at *d*, Fig. 8. All of the side faces of the component parts of the character, both the inside and outside faces, are thus concaved or curved. The curvature of the faces is governed by the flow of metal in making the type, and may be regular with a uniform or changing radius, or it may be irregular; or each side face may be made up of a plurality of straight faces *d'* at an angle one to the other, as shown in Figs. 5, 6 and 9, or otherwise formed so as to produce sunken or hollow sides instead of plane or flat sloping sides, as in the old form of type, shown in Fig. 7.

The improvement of the type described over the old form is especially noticeable in manifolding, as more copies can be made and the carbon copies are nearer like the first or ribbon printed sheet. The improved form of the character is better for stencil cutting than the old form because it does not spread the wax of the stencil sheet as much. A less forcible blow of the type-bar is required with the improved type than for the same work with the ordinary type. In type as usually made, the tops or printing faces of the projecting parts must be made quite sharp, being about three one-thousandths of an inch wide, because the plane sloping sides, as before stated, have the effect of broadening or blurring the lines of the impressions, whereas the improved type, with printing faces about five one-thousandths of an inch wide, will make impressions of corresponding appearance, because the relatively steep sides of the crests of the character have little or no tendency to widen the impressions. The effect of this increase in the width of the printing faces of the type is to considerably reduce the tendency of the type to cut the ribbon, so that the ribbon does not wear so rapidly. The concave or hollow-sided characters do not so readily fill with ink and they can be kept clean with less trouble and always make clean-cut clear impressions.

I claim as my invention:

1. A type for printing provided with a character in relief having side faces which slope to the printing faces and are hollow or sunken, substantially as set forth.

2. A type for printing provided with a character in relief having top and base portions of like form joined by hollow or sunken side faces, substantially as set forth.

3. A type for printing provided with a character in relief having sides which slope to the printing faces and are more abrupt at the crest portions of the character than at the base portions thereof, substantially as set forth.

4. A pressed type of hard metal for printing provided with an integral raised character having hollow or sunken sides, substantially as set forth.

5. A type for printing provided with a character in relief having concaved curved sides which slope to the printing faces of the type, substantially as set forth.

6. A type for printing provided with a character in relief having sides extending from the top of the character to the base thereof on irregular lines, substantially as set forth.

7. A type for printing provided with a character in relief having a concaved printing face, and hollow or sunken side faces, substantially as set forth.

Witness my hand, this 28th day of September, 1908.

OSCAR C. KAYLE.

Witnesses;
FRANK E. REID,
CHESTER W. REID.