Oct. 7, 1952 A. BAUER 2,612,836

EQUIPMENT FOR STRIKING TYPE CHARACTERS

Filed Feb. 26, 1948 3 Sheets-Sheet 1

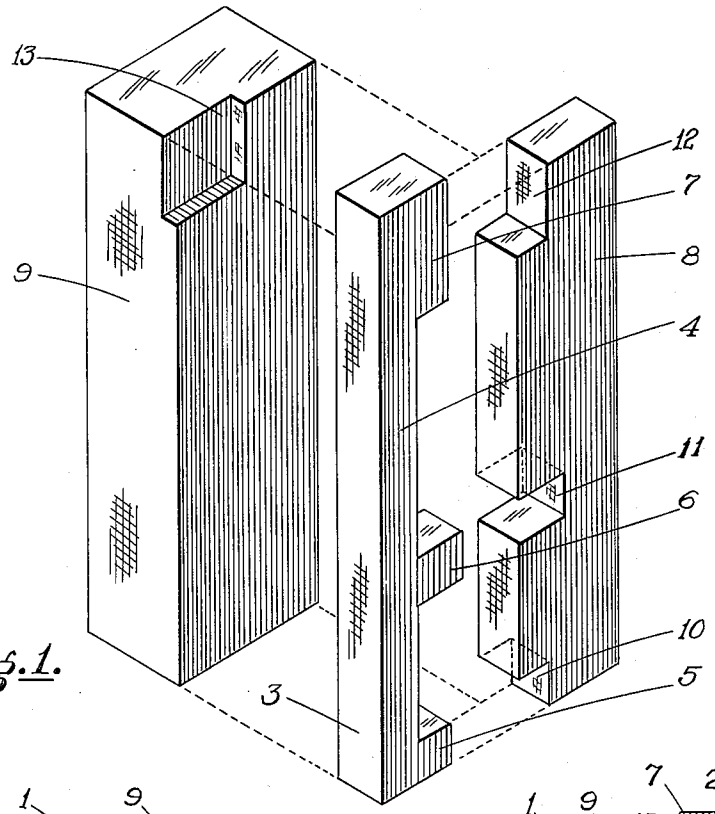

Fig. 1.

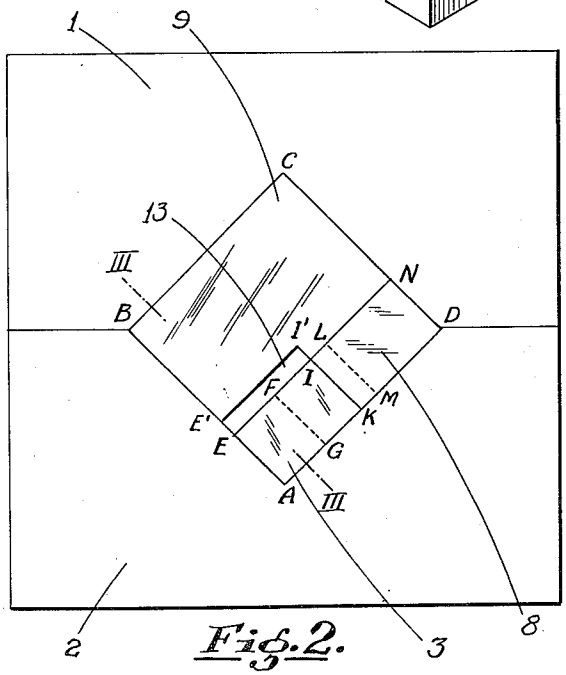

Fig. 2.

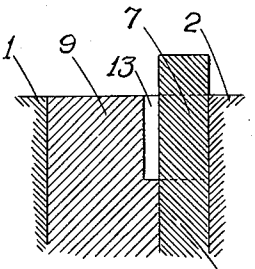

Fig. 3

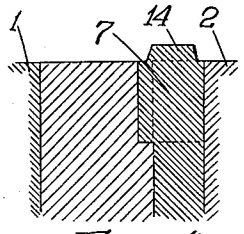

Fig. 4

INVENTOR
ALFRED BAUER
BY Robert E. Burns
ATTORNEY

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EQUIPMENT FOR STRIKING TYPE CHARACTERS

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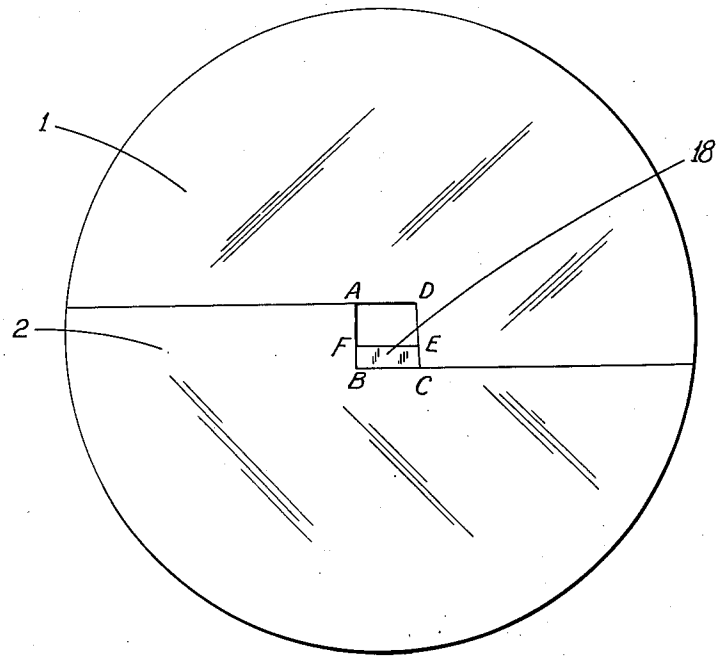

Fig. 5

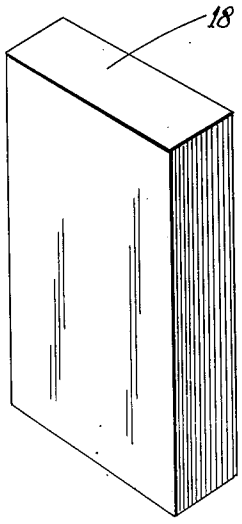

Fig. 6

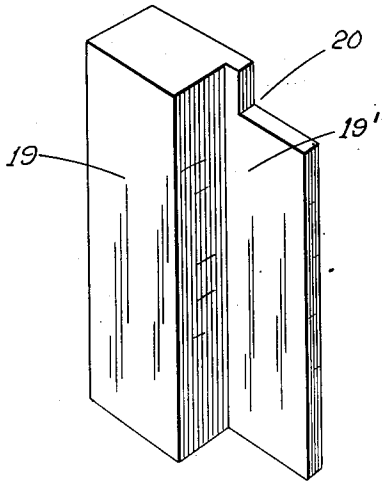

Fig. 7

INVENTOR
ALFRED BAUER

BY Robert E. Burns
ATTORNEY

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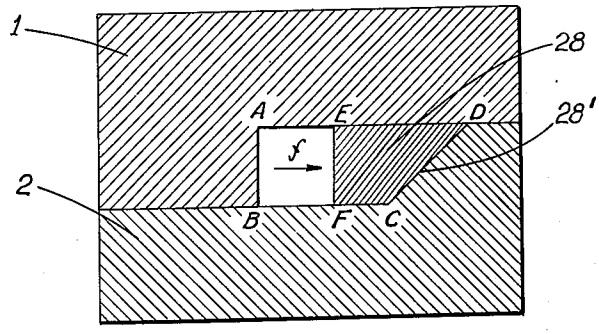

Fig. 8

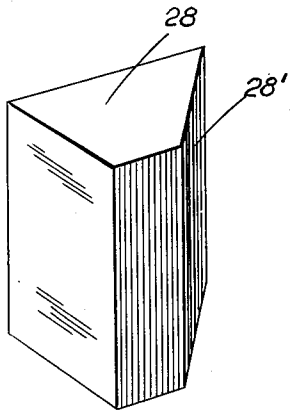

Fig. 9

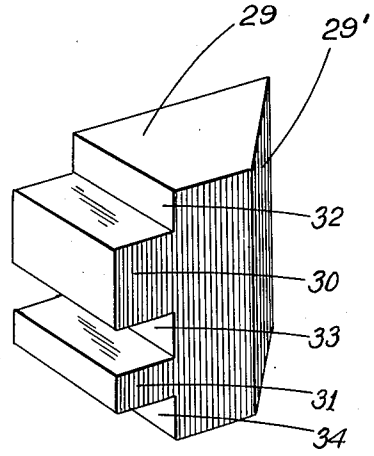

Fig. 10

INVENTOR
ALFRED BAUER
BY Robert E. Burns
ATTORNEY

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UNITED STATES PATENT OFFICE

2,612,836

EQUIPMENT FOR STRIKING TYPE CHARACTERS

Alfred Bauer, Le Locle, Switzerland

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In Switzerland July 20, 1946

Section 1, Public Law 690, August 8, 1946
Patent expires July 20, 1966

2 Claims. (Cl. 101—401.5)

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This invention relates to equipments for striking type characters for typewriters and calculating machines and more particularly to equipments for striking type characters of the kind in which the stem has on at least one of its sides recessed or prominent parts such as for instance, transverse studs for fixing the stem to the type bar of a calculating machine.

The usual equipment or apparatus for striking type characters comprises a stamp or punch and a die.

According to an important feature of the invention the die is formed of two adjacent parts bounding between them a space which is wider than the stem of the type character to be obtained, and of at least one shim or spacing block of hardened steel filling up a part of this space so as to bound a space exactly corresponding to the shape and dimensions, not modified by the striking of the stem with its recessed or prominent parts, the said shim or spacing block having perfectly plane surfaces fitting the space bounding surfaces of the die.

The adjacent parts of the die bounding between them the space designed to receive the spacing block or blocks and the blank to be struck may be approximately C-shaped or substantially L-shaped in horizontal cross section. In this latter case, more particularly the spacing block may advantageously have an oblique lateral face fitting with an oblique internal surface of one of the parts of the die, in order to facilitate, after the striking, the separation of the two parts of the die under the action of the internal pressure of the type struck.

Other objects and advantages of the invention will be gathered from the following description, given by way of example, of some forms of construction of the equipment illustrated in the accompanying drawings, in which:

Figures 1 to 4 relate to a first form of construction, Fig. 1 being a perspective view of a blank and spacing blocks utilized for striking this blank, Fig. 2 being a top plan view of the die as a whole mounted for striking, and Figures 3 and 4 being partial sectional elevations on the line III—III of Fig. 2 before and after striking respectively;

Figure 5 is a top plan view of a second form of construction of the die, ready for striking;

Fig. 6 is a view in perspective of a shim or spacing block utilized with this form of construction;

Fig. 7 is a view in perspective of another shim

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or spacing block utilized with this form of construction;

Fig. 8 is a horizontal sectional plan of a third form of construction of the die, ready for striking;

Fig. 9 is a perspective view of a shim or spacing block utilized with this third form of construction; and

Fig. 10 is a perspective view of another shim or spacing block utilized with this third form of construction.

The striking equipment illustrated in Figures 1 to 4 is designed for striking types of calculating machines having a stem with transverse studs and a head which is wider than the stem. This equipment comprises a stamp or punch, not shown, and a die, shown in Fig. 2 in top plan view. This die is composed of two adjacent parts or jaws 1 and 2, held gripped against one another by gripping means not shown, and bounding between their adjacent walls, in the direction of the height, a free space A—B—C—D of square horizontal cross section. The parts 1 and 2 of the die are approximately C-shaped in horizontal cross section. In the space A—B—C—D is arranged for striking a cut-out blank 3, comprising a stem 4 of cross section A—E—F—G, two transverse studs 5 and 6, designed for fixing the type to the type bar, and a transverse stud 7 designed to form the head of the type. The transverse stud 6 is of rectangular horizontal cross-section A—E—L—M, and the upper and lower transverse studs 7 and 5 are of rectangular horizontal cross section A—E—I—K. In order to hold up the blank for the striking, the space A—B—C—D between the parts 1 and 2 of the die is in part filled by two spacing blocks or shims 8 and 9 of hardened steel. The spacing block 8 is of a breadth D—N, equal to the breadth A—E of the blank 3, and is provided with three transverse recesses 10, 11 and 12, the dimensions of which correspond exactly to those of the studs 5, 6 and 7 of the blank 3, before striking. The spacing block 9 is a rectangular parallelipiped, of horizontal cross section E—B—C—N, and is provided at its upper end with a recess 13, of horizontal cross section E—E'—I'—I. When the blank 3 and both the spacing blocks 8 and 9 are in position between the parts 1 and 2 of the die, which are gripped against one another, the stem 4 and the studs 5 and 6 of the blank are closely gripped between the two spacing blocks and the part 2 of the die. The upper stud 7 is supported on three sides only: on the part 2, and

on the wall surface of the recess 12 of the spacing block 8. The space E—E'—I'—I which has remained free, is bounded by the walls of the recess 13 of the spacing block 9 and by the blank. The top of the blank extends above the upper surface of the die and of the spacing blocks, so that when a blow is struck by means of the stamp upon the top of the blank, the stud 7 is crushed, and fills up the space E—E'—I'—I of the recess 13, thus forming the head of the type wider than the stem 4, and bearing in relief the sign 14, indicated in Fig. 4.

This equipment enables of using for the striking blanks which are already machined by simple and economical methods such as by cutting-out, punching, turning, which working methods can not be used upon coined blanks without damaging the signs. Whatever the profile of the machined blank may be, the spacing blocks do closely fit the shape thereof and present to the adjacent parts of the die contact surfaces which are perfectly plane, thus enabling the blank and spacing blocks assembly to be easily extracted as a whole unit without loosening the parts of the die by more than a few hundredths of a millimeter.

In the second form of construction shown in Figures 5, 6 and 7, the two parts 1 and 2 of the die have what may be described as an approximately L-shaped horizontal cross section, and their adjacent faces form the boundaries of a cavity A—B—C—D, of which the breadth, which is uniform throughout its height, corresponds to that of the head of the type to be struck. A portion B—C—E—F of this cavity is filled up, to a height corresponding to that of the type stem, by a removable spacing block 18 of tempered steel, illustrated separately in Fig. 6. For the striking, a blank is used, the rectangular horizontal cross section of which is uniform throughout its height, and corresponds to the area A—F—E—D, bounded by the spacing block 18 and the internal wall surfaces of the parts 1 and 2 of the die. One of the parts 1 and 2 of the die is fixed and the other movable.

Figure 7 illustrates a shim or spacing block of more complex shape, comprising a parallelopiped-shaped body 19 and a longitudinal rib 19' having a recess 20 so as to form a clear space for the accommodation of a projecting portion of the blank utilised for the striking.

In Fig. 8, the two adjacent parts 1 and 2 of the die, gripped against one another by gripping means not shown, are of substantially L-shaped horizontal cross section as in the preceding example, but whereas the inner wall surface A—B of the smaller branch of the part 1 is perpendicular to the inner wall surface A—D of the larger branch, the inner wall surface C—D of the smaller branch of the part 2 makes an obtuse angle with the inner wall surface B—C of the larger branch of this part 2. When the parts 1 and 2 of the die are assembled, they form the boundaries of a trapezoidal space A—B—C—D, which is wider than the stem of the type to be struck. A prismatic spacing block 28, which is of trapezoidal horizontal cross section and is of less depth than the cavity A—B—C—D, fills up a part of this cavity corresponding to the area C—D—E—F. This spacing block 28 has an oblique lateral surface 28', which cooperates with the oblique wall surface C—D of the part 2 of the die.

When the type has been struck upon a blank of uniform breadth and thickness filling the cavity A—B—F—E, and when the parts 1 and 2 of the die have been freed from their gripping means, the internal pressures of the type struck act upon the spacing block 28 in the direction of the arrow *f*. The oblique face 28' of the spacing block 28 slides upon the oblique face C—D of the part 2, thus facilitating the detachment of the two parts of the die and the removal as a whole unit of the type and spacing block assembly.

The spacing block 29 shown in Fig. 10, which may be substituted for the spacing block 28, presents a prismatic body of trapezoidal horizontal cross section, the oblique face 29' of which is designed to co-operate with the oblique face C—D of the part 2 of the die.

The spacing block 29 has, on its face forming the side E—F of the cavity for the blank, projecting parts 30 and 31 bounding spaces 32, 33 and 34 designed to receive transverse studs presented by the blank when it is a question of striking a type the stem of which is already provided with the studs necessary for fixing it to the type bar.

When the blank to be struck has studs or like prominent parts on more than one of its faces, use will be made of a plurality of spacing blocks similar to the one described in order that all of the faces of the blank and spacing blocks assembly which are designed to co-operate with the inner wall surfaces of the die be perfectly plane to allow the said assembly to be easily extracted from the die as a whole unit without loosening the gripping means by more than a few hundredths of a millimeter, and this extraction being facilitated here by the cooperating oblique surfaces 29' and C—D of the spacing block and of the part 2 of the die, respectively.

What I claim is:

1. In a device for striking type for typewriting or calculating machines of the kind which comprise a stem having on at least one side prominent or recessed parts, a die formed from two adjacent parts bounding between them a space of which at least one of the horizontal dimensions is greater than the corresponding dimension of the stem of the type to be obtained, at least one removable spacing block filling up a part of said space and adapted to be inserted in said space and to be removed therefrom without opening the die, said spacing block bounding a space exactly corresponding to the shape and dimensions, not modified by the striking, of the stem to be obtained with its recessed and prominent parts, said spacing block having a vertical lateral face disposed obliquely with respect to the other vertical lateral faces of the block and one of the parts of said die having an oblique vertical face cooperating with the said oblique face of the spacing block whereby to facilitate, after striking, the separation of the two parts of the die under the action of the internal pressure of the type struck.

2. In a device for striking types of typewriting or calculating machines, a die formed from two adjacent parts bounding between them a space including an acute angle, both sides of which are formed by said parts, a removable spacing block of hardened steel inserted in said space and bounding a space exactly corresponding to the shape and dimensions of the stem of the type inserted in the die, said spacing block being provided with an acute extension exactly fitted in said acute angle, whereby said extension acts as a wedge in helping to separate said adjacent die parts one from the other, after striking, to allow

extraction of the type and spacing block assembly as a whole.

ALFRED BAUER.

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