

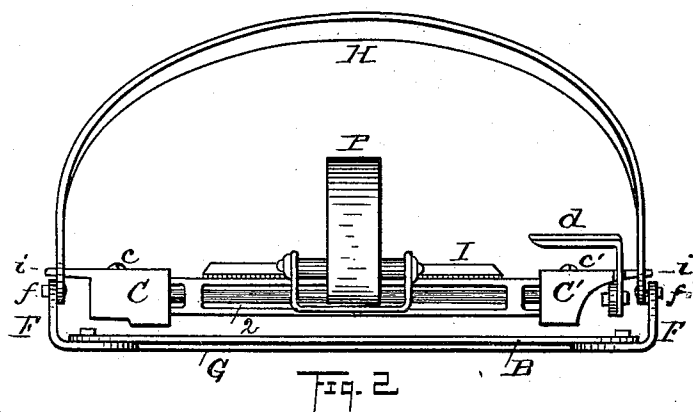
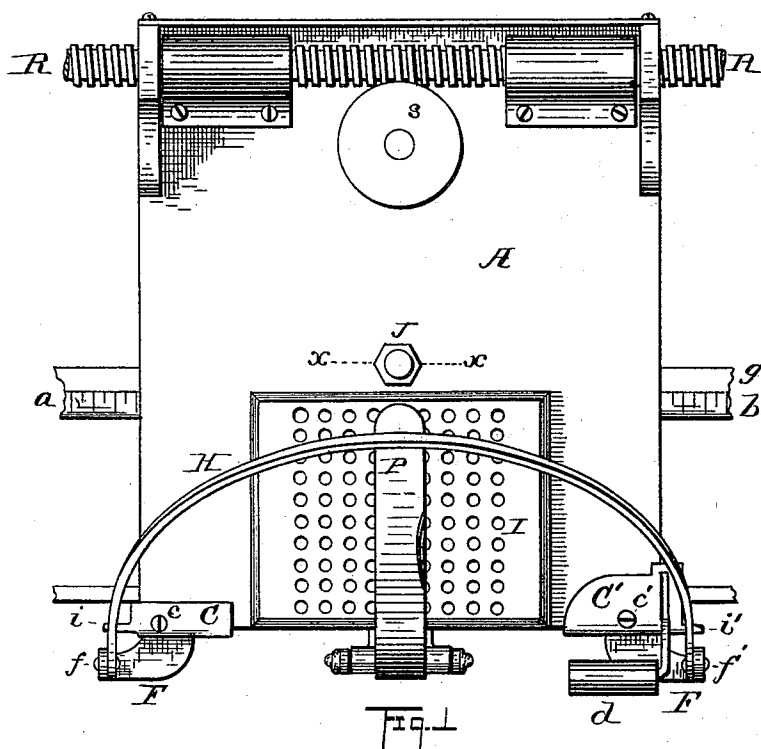
(No Model.)

2 Sheets—Sheet 1.

H. K. SAUDER.
TYPE WRITER.

No. 427,118.

Patented May 6, 1890.



Witnesses

B. S. Lewis.

C. E. Humphrey.

Inventor

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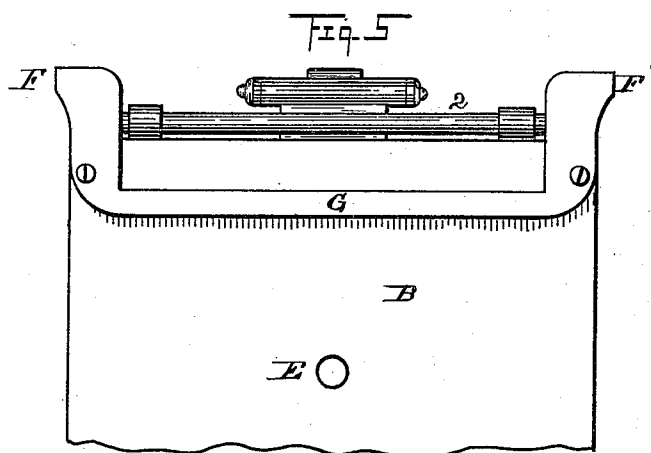
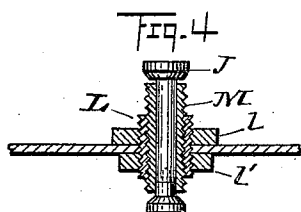
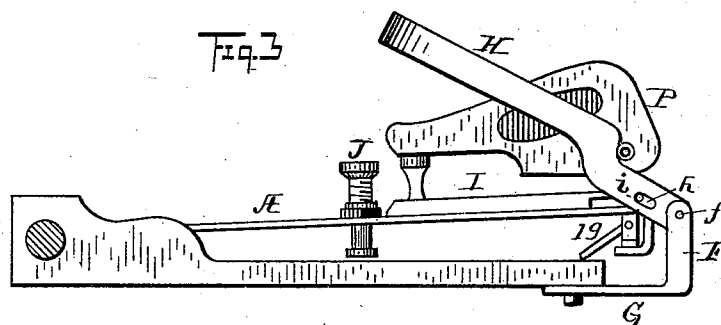
(No Model.)

2 Sheets—Sheet 2.

H. K. SAUDER.
TYPE WRITER.

No. 427,118.

Patented May 6, 1890.



Witnesses

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C. E. Humphrey.

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UNITED STATES PATENT OFFICE.

HENRY K. SAUDER, OF AKRON, OHIO.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 427,118, dated May 6, 1890.

Application filed August 8, 1889. Serial No. 320,097. (No model.)

To all whom it may concern:

Be it known that I, HENRY K. SAUDER, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Type-Writers, of which the following is a specification.

My invention has relation to improvements in type-writers of that class in which the type are carried on a plate made movable, so as to bring any required letter into alignment with any desired point upon the paper, and is an improvement upon which the machine for which United States Patent No. 238,387 was granted to Thomas Hall, March 1, 1881, and to the specification and claims of which reference is hereby made for a full understanding of the mechanism thereof and of the connection therewith of the invention hereinafter described, which is an improvement thereof.

In the operation of type-writers of this class, and particularly of the one hereinbefore referred to, the production of manifold copies requires, owing to the lightness of the printing mechanism and the short movement of the actuating hand-piece, a severe muscular action of the hand of the operator, necessarily causing great fatigue, and, as a consequence, reducing the amount of copy produced, and even by the utmost exertion the number of copies is limited.

The objects of my invention are to provide simple and effective mechanism by which this difficulty may be overcome and by which the muscular effort required in the hand-movement in making a single impression may communicate increased force to the printing-stud, to provide an improved printing-stud, and, finally, to render such mechanism easily connected with and detached from the machine.

To the foregoing objects my invention consists in the peculiar construction and combination of parts hereinafter described, and specifically pointed out in the claims, reference being had to the accompanying drawings, which form a part of this specification.

The accompanying drawings are designed to illustrate so much of the kind specified as will serve to explain the application of my improvement thereto, but in which minor de-

tails of construction not necessary to such explanation have been omitted.

Thus explained, the drawings—in which similar letters of reference indicate like parts—represent, respectively, in Figure 1, a plan of the type-carrying and printing apparatus (and which will, for convenience, be hereinafter referred to as the “carriage”) and portions of connected parts; Fig. 2, a front elevation; Fig. 3, a side elevation; Fig. 4, a section of the upper plate, showing my improved printing-stud, and Fig. 5 an under plan of the carriage, showing one manner of attaching my improvement.

In the drawings, A is the top plate of the carriage, hinged to the rack-bar R, and which carries the type-form and other parts auxiliary thereto, many of which it has not been deemed necessary to show, as they in nowise differ in construction or arrangement from those shown in the patent before cited. The other parts common to said patent are the platen g, on which the paper rests when impressed by the type; the roller a, over which the paper is moved to the platen; the clip b, which holds the paper firmly in place; the perforated plate B, through the opening E in which the several letters are singly and successively pressed to produce an impression on the paper on the platen g by the impact of the printing-stud J; the arm P, by which any letter of the type-form is brought into alignment with its opening E in the plate B, and by which the plate A is depressed to cause the stud P to force such letter down to produce the desired impression; the plate I, having holes provided with letters and figures corresponding in number and position to the letters and figures on the type-form, to enable the operator to determine the letter which shall be caused to register with the opening E in the plate B; the shaft 2 and arms 19, which raise the forward edge of the upper plate A; the side piece B', by which the plate B is hinged to the rack-bar R, and the spacing-key d, by each depression of which the carriage is moved over space to the right.

Thus far I have, for the purpose of enabling my invention to be readily understood, adopted the reference letters and figures of the before-mentioned patent to indicate like parts in the accompanying drawings.

Attached to the under front edge of the plate B by means of screws or other equivalent means of fastening is a narrow strap or flat bar G, whose extremities are carried forward and upward and terminate in brackets or bearings F, with their broader faces parallel to the sides of the carriage and provided near their upper ends with rivet-holes. Pivoted in and between these brackets by rivets *ff* passing through the holes therein is a metallic strap H, substantially of the form shown, and of such configuration that when swung downward it shall encounter the upper end of the stud J. In each end of the strap H, between the rivets *ff* and its center, are slots *h h'*, with their longer diameter substantially lengthwise of the strap. Attached to the front edge of the upper plate A are two small plates C C', bent so as to inclose said plate and the parts immediately connected therewith, and held by screws *c c'*, respectively, the plate C' being slotted to admit the arm of the spacing-key *d* and permit its free movement without interfering with the working of the machine. Extending outwardly from each of the plates C C', respectively, are pins or studs *i i'*, arranged to enter the slots *h h'*, and when the plate A is raised to rest in ends of said slots farthest from the rivets *ff*.

In operation, when the upper plate A is depressed by the hand-piece P, the pins or studs *i i'*, sliding in the slots *h h'*, simultaneously swing down the bar H upon the stud J and impart to it a sharp blow, thereby communicating to it and to the letter of the type-form beneath it an increased force over that imparted by the downward movement of the plate A, and as a consequence permit the printing of a greater number of manifold copies. To secure the full effect of the stroke of the strap or hammer H, I insert in the plate A a movable stud in place of the fixed stud ordinarily used in machines of this class. One form and arrangement of this stud that I have adopted and prefer is shown in detail in Fig. 4, in which A is a section of the top plate of the carriage, through an opening in which is inserted a sleeve L, having internal and external screw-threads and held in position by nuts *ll'*. Within the sleeve L is a smaller sleeve M, screw-threaded on the outside to mesh in the inner screw-threads of the sleeve L and smooth on the inside to receive the stud J. The stud J is in two parts of even diameter,

which screw together, and has enlarged heads, as shown, one to receive the thrust of the hammer H and the other to press the type-form, the distance between them slightly exceeding the length of the sleeve M, thereby permitting a longitudinal movement of the stud.

The arrangement and construction shown in the accompanying drawings is designed to form a detachable attachment for the typewriters of the kind specified; but it will be apparent that the form of the hammer H and its cross-section may be modified, the pins *i i'* may be integral with the upper plate A, the brackets F F' may be integral with the plate B, and any of the well-known means of connecting machinery be substituted for the slots *h h'* and the pins *i i'* without departing from my invention, the essential features of which and what I claim are—

1. In a type-writer of the kind designated, the combination, with the swinging upper plate bearing a stud to depress a selected part of the type-form, of a pivoted arm or hammer arranged to encounter said stud, and means for communicating motion from said plate to said pivoted arm or hammer, substantially as shown and described, and for the purpose specified.

2. The combination, in a type-writer of the kind specified, of a movable plate carrying a stud to impress the selected portion of the type-form, a swinging arm or hammer arranged to encounter said stud and provided with mechanism to cause said hand-piece to simultaneously operate said plate and hammer, substantially as shown, and for the purpose hereinbefore set forth.

3. The combination, in a type-writer of the kind specified, with the movable plate and actuating hand-piece, of the sliding bolt or stud mounted in said plate and a hammer arranged to encounter said bolt and mechanism to cause said hammer to encounter said bolt simultaneously with the depression of said plate, substantially as shown and described, and for the purpose specified.

In testimony that I claim the above I hereunto set my hand.

HENRY K. SAUDER.

In presence of—

C. E. HUMPHREY,
C. P. HUMPHREY.