

(No Model.)

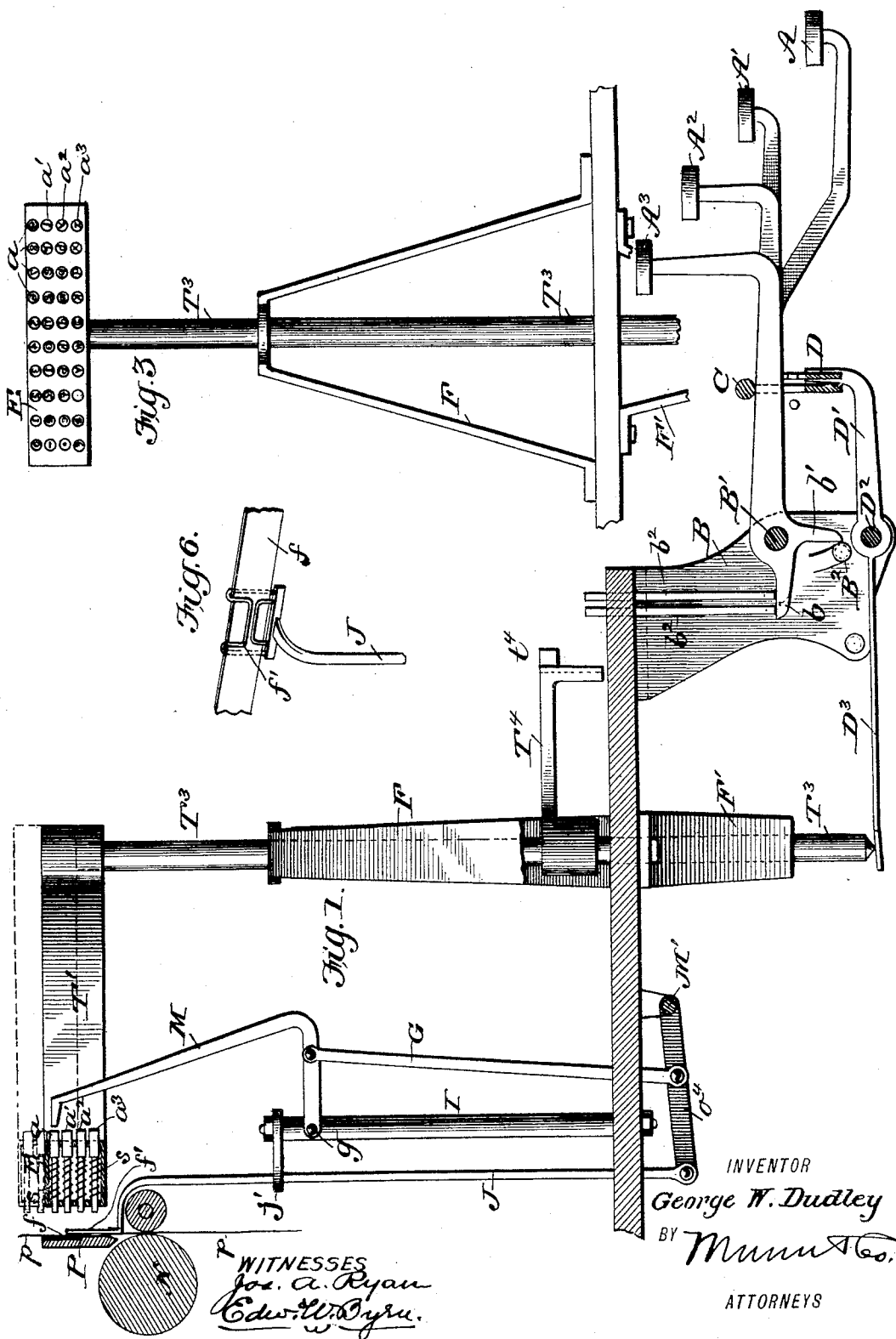
2 Sheets—Sheet 1.

G. W. DUDLEY.

TYPE WRITING ATTACHMENT FOR ADDING MACHINES.

No. 579,047.

Patented Mar. 16, 1897.



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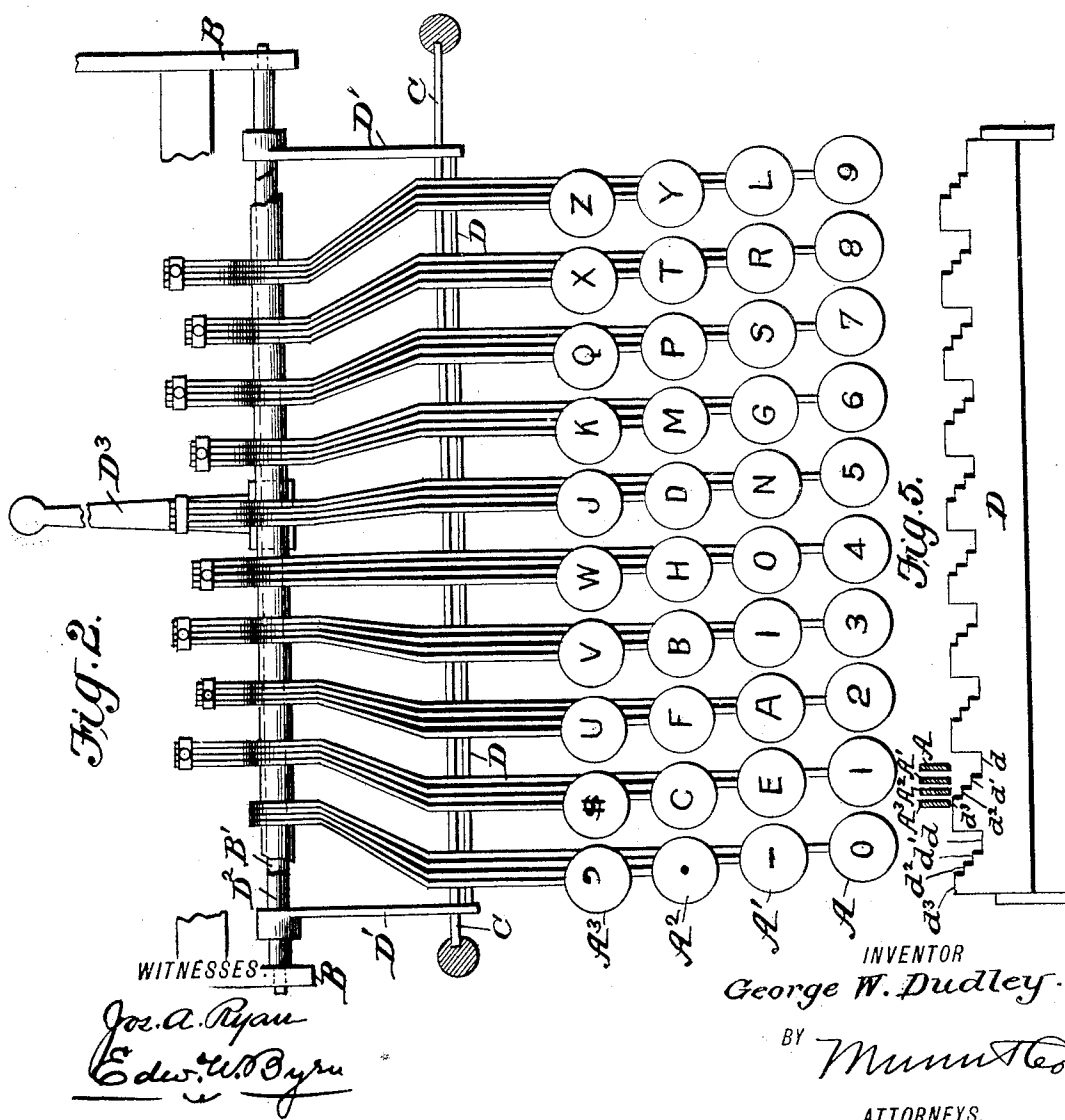
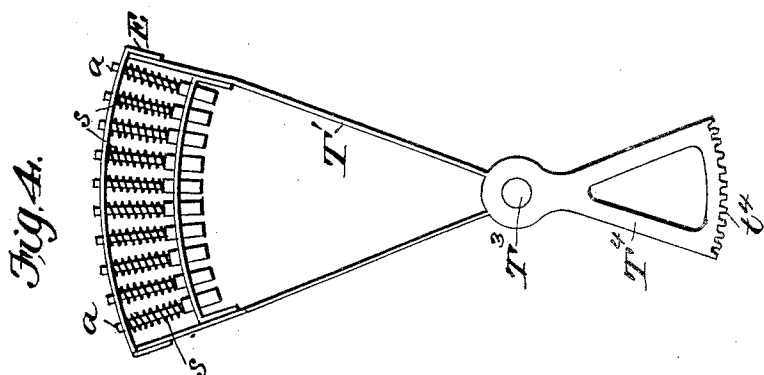
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UNITED STATES PATENT OFFICE.

GEORGE W. DUDLEY, OF CHARLESTON, WEST VIRGINIA, ASSIGNOR TO THE
NUMEROGRAPH MANUFACTURING COMPANY, OF SAME PLACE.

TYPE-WRITING ATTACHMENT FOR ADDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 579,047, dated March 16, 1897.

Application filed May 19, 1896. Serial No. 592,115. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DUDLEY, of Charleston, in the county of Kanawha and State of West Virginia, have invented a new and useful Improvement in Type-Writing Attachments for Adding-Machines, of which the following is a specification.

My invention is in the nature of an improvement upon my Patent No. 554,993, granted February 18, 1896, for a combined adding and printing machine; and it is intended to extend the scope of its utility by providing it with a fully-equipped alphabet, as well as numerals and characters, whereby the machine is adapted to the statement of accounts and performing all kinds of clerical work involving the use of letters or figures, or both.

It consists in the peculiar construction and arrangement of the various parts of the device, which I will now proceed to describe with reference to the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of so much of the machine as is necessary to illustrate my present improvements. Fig. 2 is a plan view of the keyboard. Fig. 3 is a front view of the oscillating type-carrier. Fig. 4 is a plan view of the same. Fig. 5 is a front view of the depressible bar which is acted upon by the key-levers, and Fig. 6 is a detail.

Referring to Figs. 1 and 2, the keys are arranged in a bank of four rows, of which the outer and lower row A carries the numerals and the other rows A' A² A³ the letters and characters. The lever-arms of these keys are constructed and arranged exactly like those of my former patent, No. 554,993, *i. e.* they are fulcrumed upon a shaft B', supported in side frames B, and have one set of tappet-arms *b*, that are adapted to lift stop-pins *b*² to limit the throw of the gage-bar of the escapement mechanism, while another set of tappet-arms *b'* act upon a rocking frame B². This is fully shown and described in my patent referred to and need not be further described here.

The key-levers pass through and play in slots in the front bar C of the casing and act upon the depressible frame D D' D², which is

fulcrumed upon a horizontal shaft D², arranged in the side frames B. This depressible frame D D' D² is moved a different distance by each of the three sets of keys A' A² A³, but is not acted upon by the set A at all. That is to say, referring to Fig. 5, the key-levers of A play above the notches *d'* of the bar D without depressing the latter, the key-levers A' act upon the first steps or notches *d'* and move the bar a minimum distance downwardly, the key-levers A² act upon the second steps or notches *d''* and move said bar a little farther, while the key-levers A³ act upon the upper steps *d'''* and move the bar the greatest distance down, the purpose of which will be explained a little farther along.

D³ is the rear extension of the depressible frame; and it consists of a single bar in the middle of the frame projecting rearwardly, as shown in Fig. 2. On the rear end of this extension is supported (see Fig. 1) the lower end of a vertical rock-shaft T³, journaled in bracket-frames F and F'. This shaft T³ has an arm T⁴, carrying a set of segmental teeth *t*, Fig. 4, which are engaged by a rack-bar (not here shown, but shown in my previous patent) for oscillating said arm T⁴, and the upper end of the shaft has an oscillating type-carrier T', also as shown in my previous patent, but this type-carrier is constructed in a somewhat different manner, as I will now proceed to describe. In its outer or rear end is formed a box-casing E in the form of a circular segment in which are arranged to slide four series of type-bars which are drawn inwardly by helical springs *s*, wound about their reduced shanks. The upper series *a* (see Figs. 1, 3, and 4) bear upon their outer ends type-faces made in the form of figures "0" to "9" corresponding to the keys A. The second lower series *a'* bear type-faces corresponding to the keys A'. The third series *a*² bear type-faces corresponding to keys A², and the fourth series *a*³ bear type-faces corresponding to the keys A³.

P is the platen arranged behind the type-head just above the feed-rolls N and O, between which the paper *p* is fed, and which latter passes in front of the platen.

M' is a rock-shaft corresponding to the rock-

shaft M of my previous patent and actuated in the same manner, as shown and described in said patent at each depression of a key, which it is not necessary to show or describe. This
 5 rock-shaft has a rigid arm o^4 , to which is attached a vertical thrust-bar G, pivoted to an elbow-lever M, which is fulcrumed at g to a standard I, so that when the shaft M' is rocked and arm o^4 and bar G are lifted the impact-lever M, whose upper end is turned inwardly to
 10 the type-bars $a a' a^2 a^3$ will advance to contact with the rear ends of the type-bars and strike whichever one of them which happens to be opposite and cause it to advance against the
 15 tension of its spring and deliver a printing blow upon the ribbon f and upon the paper p as it lies against the plate P. To the outer end of the crank-arm o^4 is also pivoted a lift-bar J, passing through a guide j on the stand-
 20 ard I, and carrying at its upper end the ribbon-shifter f' , (see Fig. 6,) that carries the ribbon f . This ribbon-shifter rises when a type is struck and shifts the ribbon vertically to a position in front of the type, and when the
 25 arm o^4 falls and the type recedes the ribbon-shifter f' drops down and lowers the ribbon sidewise in a vertical plane, so as to leave the printed matter on the paper visible for inspection.
 30 It will be seen that the ribbon-shifter and impact-lever M, which moves the type-bars, are both actuated by the same crank o^4 and both act at the same time.

In the operation of this device when a key
 35 of the lower row A is depressed to print a numeral its lever does not move the depressible frame D D' D³, and the normal position of the type-carrier T' therefore brings the numeral type a directly opposite the impact end
 40 of the lever M, but when a key A' is depressed the step or notch d' is struck by its lever and the frame D D' D³ is slightly moved and the shaft T³ is lifted just far enough to bring the
 45 second row of type-bars a' opposite the end of the impact-lever M, and when a key A² is depressed, a little greater tilt is given to frame D D' D³, and the shaft T³ and type-carrier T'

of type-bars a^2 opposite the impact-lever, and so on.

To swing the segment-head E of the type-carrier so as to bring the proper figure or letter of each horizontal series into printing position, this is provided for, as described in my
 55 previous patent, by oscillating shaft T³ and toothed arm T¹ t^1 , as heretofore suggested.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writer, the combination of a
 60 stationary platen, a ribbon, a vertically-reciprocating ribbon-shifter, an arm connected to the lower end thereof and operating the same, an impact-bar made in the form of an
 65 elbow-lever, a rod connected to said elbow-lever and extending below and attached directly to the ribbon-shifting arm, to cause a simultaneous vertical motion of the ribbon-shifter and a motion of the upper end of the
 70 impact-bar substantially at right angles to that of the ribbon-shifter, and a type-carrying head arranged between the platen and impact-bar and having both vertical and longitudinal series of spring-seated type-bars,
 75 and means for imparting both a vertical and longitudinal motion to the type-carrying head, substantially as shown and described.

2. The combination, in a type-writer, of a platen and the ribbon, and oscillating type-carrier T' with spring-seated type-bars arranged in vertical and longitudinal series, a
 80 vertically-adjustable and axially-oscillating shaft T³ supporting the type-carrier, type-levers fulcrumed in front of said type-carrying shaft, an oscillating frame D D' D³ fulcrumed beneath the fulcrum of the type-levers and having its rear extension D³ resting
 85 beneath the type-carrying shaft T³ and its front bar D formed with notched spaces $d d'$ $d^2 d^3$ adapted to be operated upon by the key-levers resting above said notched spaces, as
 90 and for the purpose described.

GEORGE W. DUDLEY.

Witnesses:

SOLON C. KEMON,
 EDW. W. BYRN.