

(No Model.)

3 Sheets—Sheet 1.

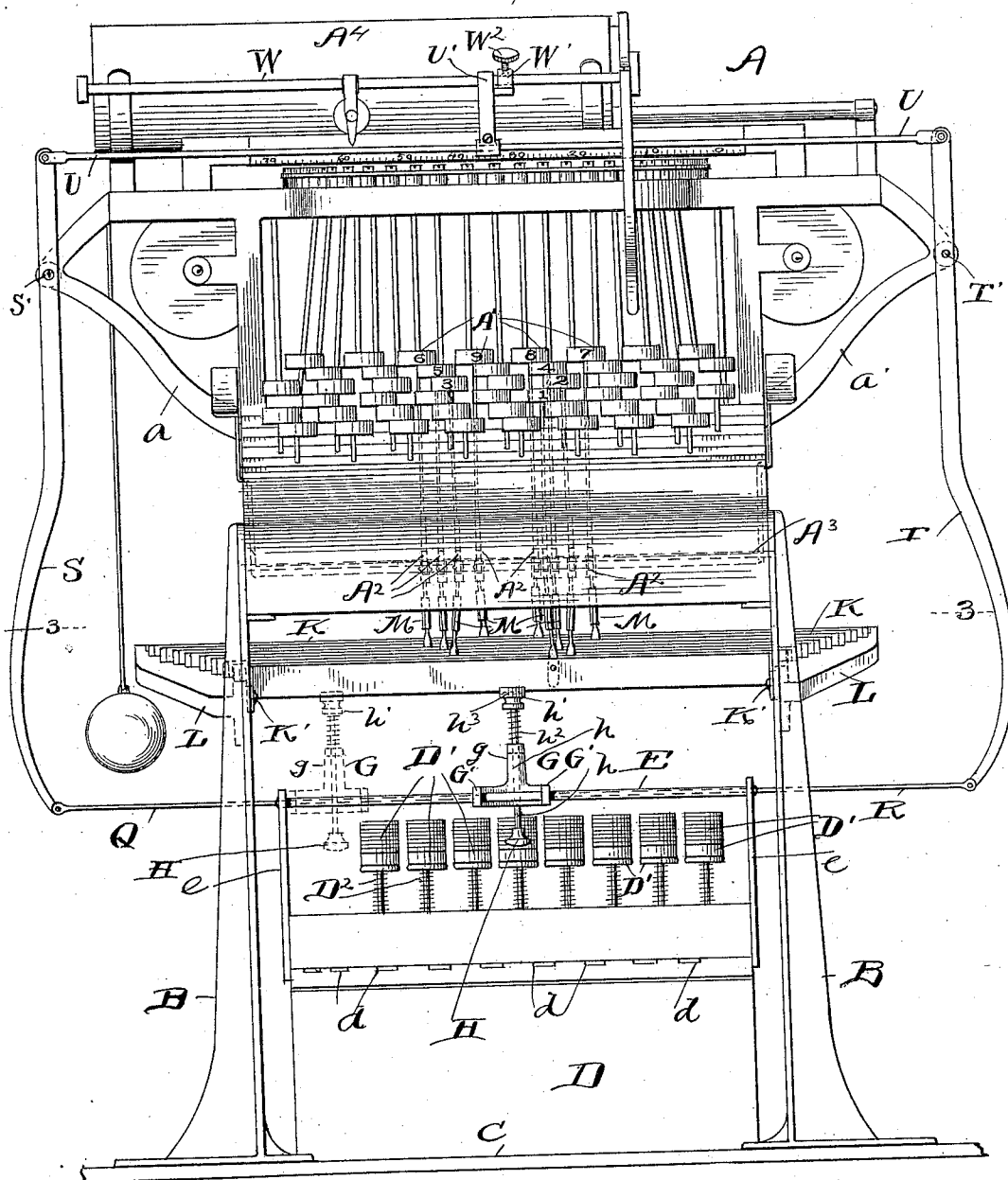
H. MARSHALL.

COMBINED TYPE WRITING AND COMPUTING MACHINE.

No. 575,570.

Patented Jan. 19, 1897.

Fig. 1.



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Inventor:
Holmes Marshall
By
Sydney Dorer & Donnelly
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(No Model.)

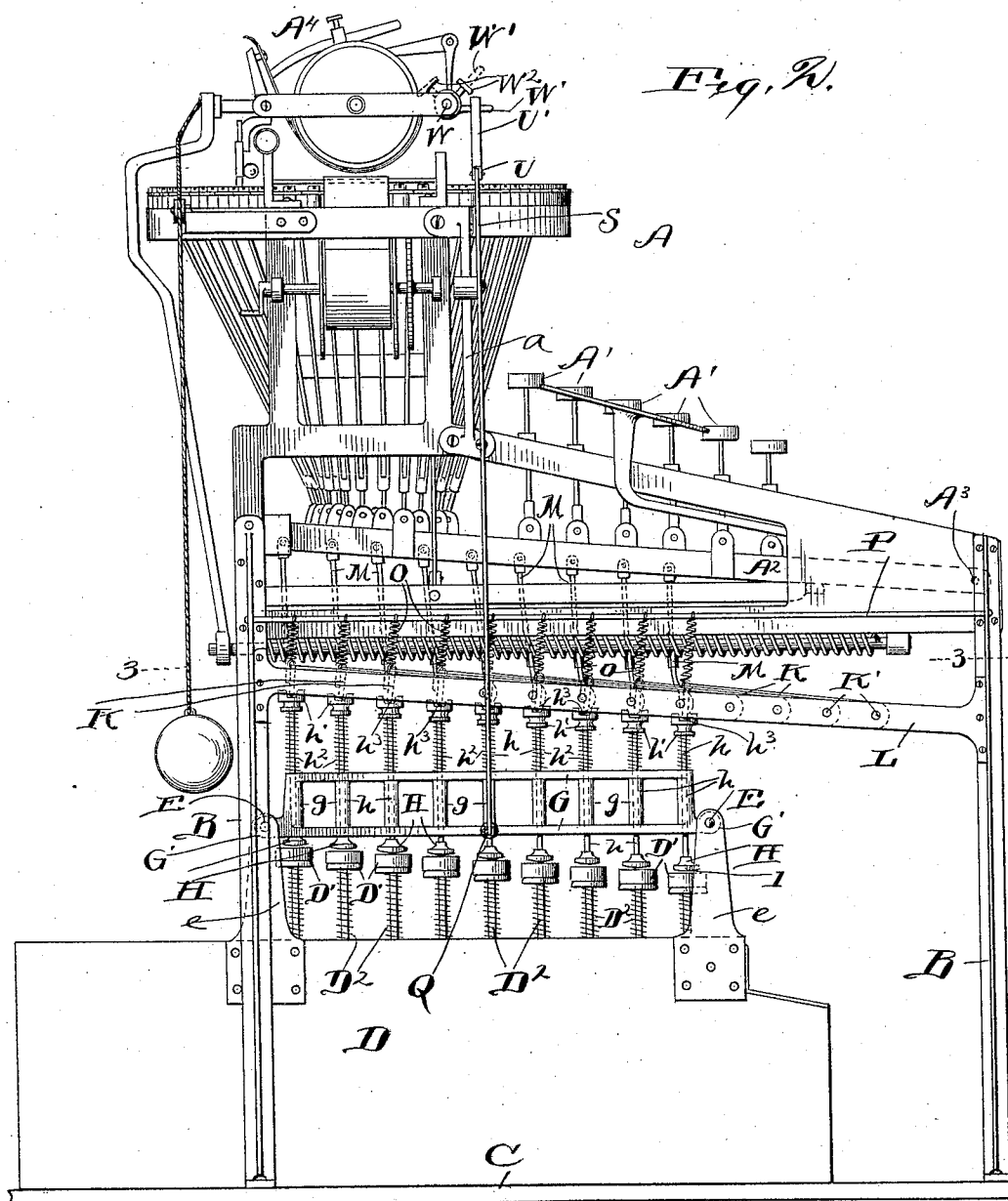
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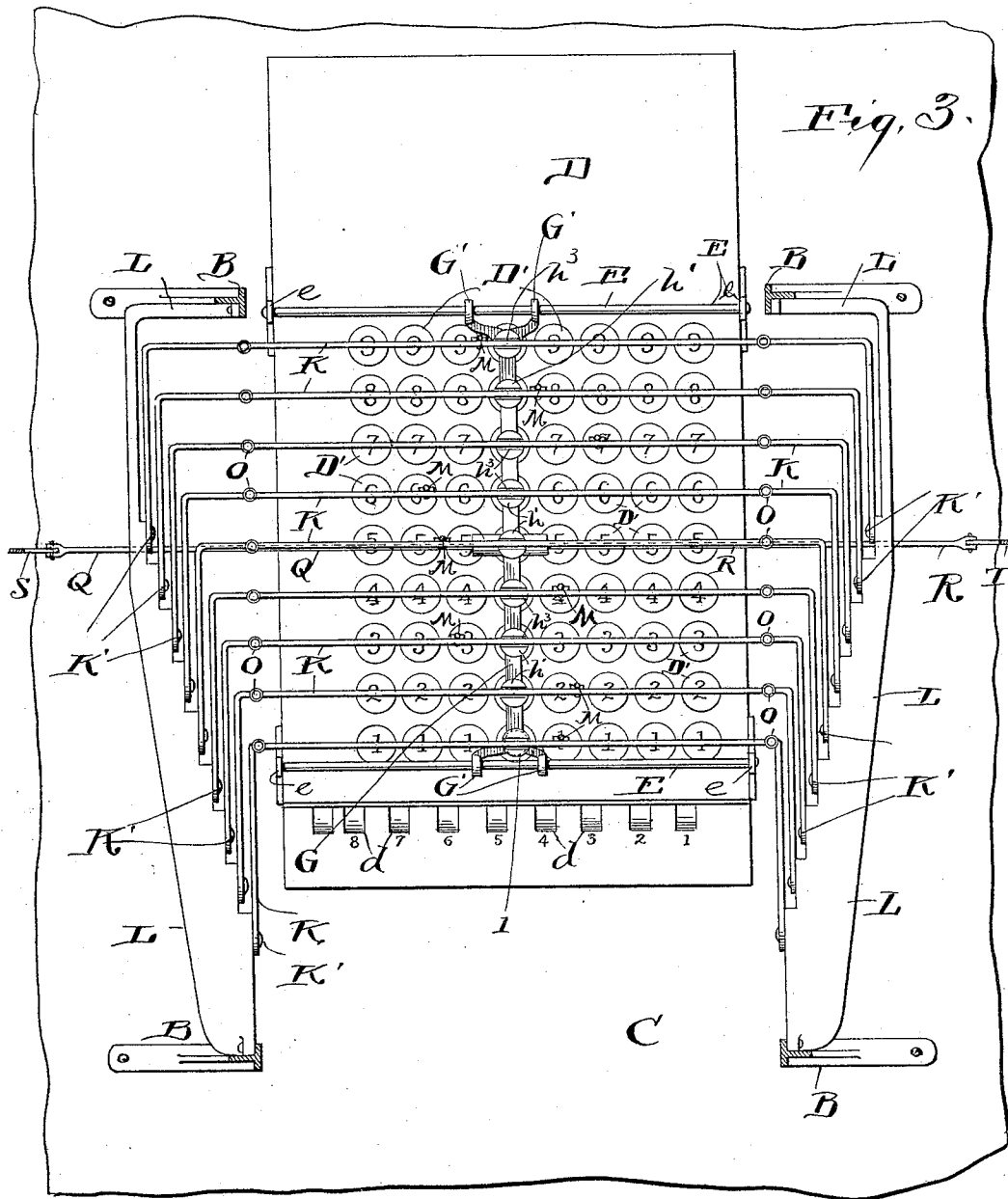
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UNITED STATES PATENT OFFICE.

HOLMES MARSHALL, OF CLEVELAND, OHIO.

COMBINED TYPE-WRITING AND COMPUTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,570, dated January 19, 1897.

Application filed April 22, 1896. Serial No. 588,538. (No model.)

To all whom it may concern:

Be it known that I, HOLMES MARSHALL, of Cleveland, Cuyahoga county, Ohio, have invented certain new and useful Improvements in a Combined Type-Writer and Computing-Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to an improved combined type-writer and adding or computing machine; and it consists, among other things, in the arrangement of the adding or computing machine below the type-writer and in view of the operator, a row of laterally-shiftable plungers arranged over the keyboard of the computing-machine, and mechanism for each plunger for depressing said plunger and operatively connected with the required operating-key of the type-writer, so that the operation of said type-writer key will simultaneously effect the operation of the computing-machine's key below said plunger.

My invention consists also in novel and meritorious features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a front side elevation of a combined type-writer and adding or computing machine embodying my invention. Fig. 2 is a left-hand side elevation of the same. Fig. 3 is a top plan in section on line 3 3, Figs. 1 and 2.

The type-writer A is suitably supported from legs B, mounted upon the top C of a table or desk. There are four legs B, arranged in pairs, located at the left-hand side and right-hand side, respectively, of the machine.

The adding or computing machine D is mounted upon the table-top or desk-top C between the two pairs of legs and sufficiently near the forward legs to enable the operator to see the computing-machine's sight-holes *d*, through which the amount that is added and registered by said machine is exhibited. Said sight-holes are arranged in a row in the usual manner widthwise of the top of the forward end of the adding-machine. The adding-machine in the case illustrated is provided with eight rows of operating-keys D', and said

rows are arranged forwardly and rearwardly of the machine. The two right-hand rows of keys D' are instrumental in registering cents or fractions of a dollar and the remaining six rows are instrumental in registering dollars. The third right-hand row of keys D' is the units row, and thence to the left are the tens row, hundreds row, thousands row, ten-thousands row, and hundred-thousands row in the order referred to.

A spiral spring D², confined upon the stem of each key D', between the key's head and the top of the case of the adding-machine, acts to retain said key in its upper or normal position.

The construction and operation of adding, computing, or calculating machines are so well known by those skilled in the art that further reference thereto or a more extended description thereof is not considered necessary in this specification. Suffice it to state, therefore, that any approved construction of adding, calculating, or computing machine is employed, and that the amount registered or added is exhibited or visible through the sight-holes *d* of said machine; that keys D' constitute the operating-keys of said machine; that the number and denomination represented by any one of said keys are registered upon the depression of said key; that there are nine keys in each row of keys, and that the keys of each row of keys, commencing with the forward key, are instrumental in registering numbers "1," "2," "3," "4," "5," "6," "7," "8," and "9," respectively, of the denomination represented by said row of keys.

Two horizontal and parallel bars E E are arranged a suitable distance above and widthwise of the adding-machine, and are arranged a suitable distance apart between the rear end and forward end of said machine. Bars E E are suitably supported from upright arms or standards *e*, rigidly secured to the case of the adding-machine. A carriage G extends between and is mounted upon and adapted to reciprocate endwise of bars E. Said carriage is of any suitable construction, and consists, preferably, of a frame terminating at its forward and rear ends in any suitable number of sleeves or slides G', slidably mounted upon bars or slideways E.

A row of plungers II, arranged forwardly and rearwardly of the adding-machine and just above the latter's keyboard, is provided, and said plungers are adapted to depress the different keys, respectively, of any one of the rows of keys of the adding-machine. Plungers II are located directly below carriage G, and each of said plungers is provided with an upwardly-extending stem h , that has bearing in an upright box g of carriage G, and a suitable distance above said carriage is provided with a head h' . A spiral spring h^2 , confined upon the stem of each plunger between head h' and the top of the plunger-carriage, acts to retain said plunger in its upper or normal position.

By the construction thus far described it will be observed that upon depressing any one of the plungers against the action of the spring acting to retain said plunger in its normal position when the series of plungers are in position over any one of the rows of operating-keys of the computing-machine the key in said row of keys that is below the plunger being depressed is depressed also, and thereby operated, and it will, furthermore, be observed that the plunger-carriage can be shifted laterally in the one direction or the other in order to bring the plungers in position over any one of the rows of keys of the adding-machine. I therefore provide mechanism whereby the plunger-carriage is shifted from left to right or from right to left, according as the paper-carriage of the type-writer, to which I will presently refer, is shifted from right to left or from left to right, and I provide also mechanism for each of said plungers for depressing the plunger and operatively connected with the key of the type-writer that bears and is instrumental in printing the numeral represented by the adding-machine's keys adapted to be depressed by said plunger, and hence when it is desired to print a column of amounts upon the paper carried by the type-writer's paper-carriage the adding-machine will, during the printing of said amounts upon the paper, add them and display the sum at its sight-holes, so that the operator is informed of and can at once print the sum upon his paper without delay.

A' designates the operating-keys of the type-writer. Said keys are operatively connected in any approved manner with different vertically-tilting levers A^2 , operatively connected in the usual manner with the type-bearing levers of the type-writer. Mechanisms for establishing operative connection between the type-bearing levers of a type-writer and the type-writer's operating-keys are so well understood by those skilled in the art that further reference thereto or description of same in this specification or illustration thereof is considered unnecessary. Suffice it to state that the vertically-tilting levers A^2 , that are instrumental, as already indicated, in operating the type-bearing levers of the type-

writer, are fulcrumed at one end upon a horizontally-arranged rod A^3 . (See Figs. 1 and 2.)

A series of bail-shaped vertically-tilting levers K, arranged between the type-writer and adding-machine, have their central members engaging grooves or recesses h^3 , formed in the top and extending transversely of the heads of the different plunger-stems, respectively. That is, the head h' of the stem h of each plunger II upon its top has a transversely-arranged recess h^3 engaged by the central member of a vertically-tilting lever K. Levers K are arranged in a row forwardly and rearwardly and are fulcrumed at K' at or near the forward extremities of their end members to forwardly and rearwardly extending bars L, rigid with legs A. The foremost bail-shaped lever is the shortest, and each of the remaining bail-shaped levers is somewhat longer than the next forward lever and straddles and is fulcrumed a short distance rearward of the next forward lever, and the lever-supporting bars are suitably notched or cut to accommodate the aforesaid arrangement of the fulcrumed ends of the bail-shaped levers. Said levers, it is obvious, are instrumental in effecting the depression of the different plungers, respectively, and are operatively connected, by means of links M, with the type-writer's levers A^2 , adapted to be operated by the type-writer's keys that are instrumental in printing numerals, and each of said type-writer keys is operatively connected with the bail-shaped lever that is instrumental in the operation of the computing-machine's key that bears and is instrumental in registering the corresponding number of the denomination recorded by the key-row of which said last-mentioned key is a member. For instance, plunger marked 1 in Figs. 2 and 3 is instrumental in effecting the depression of the key bearing the numeral "1" in the different rows of keys of the adding-machine, and the bail-shaped lever that is adapted to effect the depression of said plunger is operatively connected, through the medium of a link M and a lever A^2 , with the type-writer key A' , that bears numeral "1."

Any suitable number of suitably-applied springs O act to retain the bail-shaped levers in their elevated or normal position. A series of springs O are provided, preferably, at one side, or both sides, of the machine and are suitably attached at their lower ends to the different levers, respectively, and are suitably secured at their upper ends to a rod or rods P, extending between and secured to legs A of the machine, as shown in Fig. 2.

Two rods Q and R (see Fig. 1) are rigidly secured to and extend laterally of the central portion of the plunger-carriage in opposite directions, respectively. Rod Q at its outer end is operatively connected with the longer arm of a vertically and laterally tilting lever S, that is fulcrumed at S' , preferably a short distance from its upper end, to a stationary bracket a , rigid with the stationary frame of

the type-writer. Rod R is operatively connected at its outer end with the longer arm of a vertically and laterally tilting lever T, fulcrumed a short distance from its upper end at T' to a bracket a', rigid with the stationary frame of the type-writer. Levers S and T are fulcrumed in the same horizontal plane and at their upper ends are operatively connected with opposite ends, respectively, of a horizontally-arranged rod U.

Rod U extends along the forward side and longitudinally of the suitably-actuated paper-carriage A⁴ of the type-writer and is provided at any suitable point between its ends with an upright arm U', whose right-hand side is adapted to be engaged by the forwardly-projecting dog or arm W', mounted upon the round rod or bar W, that extends longitudinally of the forward side and is a member of the aforesaid paper-carriage. Member W' is preferably adjustably secured upon rod or bar W by means of a set-screw W².

Arm U' of rod U is preferably located about centrally between the ends of the rod, and the aforesaid dog or arm of the paper-carriage is located, preferably, near the right-hand end of the carriage, so that the type-writer, during the movement of said carriage between its point of starting at the right-hand end of the machine and the point at which its aforesaid dog or arm comes into engagement with arm U' of rod U, can be operated independently of the adding-machine, and hence the operator can write upon the left-hand side of his paper any remarks concerning the items of the column of figures to be placed upon the right-hand side of his paper, or any other matter that he desires to have appear upon the paper in addition to the numerical items; but as soon as the aforesaid paper-carriage, during the latter's longitudinal movement, comes into engagement with the right-hand side of the upright arm or rod U the latter will be shifted longitudinally to the left and actuate lever S in the direction required to move plunger-carriage G and the latter's plungers to the right, and the arrangement of parts is preferably such that when said forwardly-projecting dog or arm of the paper-carriage first comes into engagement with arm U' of rod U the plunger-carriage shall be in position (not shown) over the first row of keys at the left-hand side of the keyboard of the adding-machine, and shall thence be moved to the right from one row of keys D' to the next row of keys D' simultaneously with the leftward movement of the type-writer carriage. When the type-writer's paper-carriage during its operation has arrived in its extreme left-hand position and is thereupon moved to the right into its starting position, rod U is also actuated longitudinally to the right by hand or in any approved manner and thereby actuates lever T in the direction required to move the plunger-carriage to its starting position at the left-hand end of the keyboard of the adding-machine.

I would also remark that the forwardly-projecting dog or arm of the type-writer carriage can be oscillated rearwardly out of line with arm U' of rod U, as shown in dotted lines, Fig. 2, and the plunger-carriage actuated into a position over the space had at the left-hand side of the keyboard of the adding-machine (shown in dotted lines, Fig. 1) when it is desired to operate the type-writer independently of the adding-machine.

The recesses in the upper ends of the heads of the stems of the plungers accommodate the movement of the plunger-carriage without interfering with the operative connection between said plungers and the bail-shaped levers engaging said recesses.

My improved machine will be found especially useful in banks, clearing-houses, and wherever addition or computation and type-writing are to be done upon the same piece of paper.

What I claim is—

1. The combination with a depressible operating-key of a type-writer and a depressible operating-key of an adding or computing machine; of a plunger arranged above and adapted to be moved over said last-mentioned key, and mechanism interposed between said plunger and the aforesaid type-writer key and capable of depressing the computing-machine key simultaneously with the depression of the type-writer key, substantially as and for the purpose set forth.

2. The combination with a depressible key of a type-writer and a depressible key of an adding or computing machine arranged a suitable distance below the type-writer: of a plunger arranged above and adapted to be moved over said last-mentioned key; a spring acting to retain said plunger in its upper or normal position; a lever for depressing the plunger against the action of said spring; a spring acting to retain said lever in its normal position, and mechanism establishing operative connection between said lever and the type-writer key, substantially as and for the purpose set forth.

3. The combination with a depressible key of a type-writer and a depressible key of an adding or computing machine: of an upwardly and downwardly movable plunger arranged above and adapted to be moved over said last-mentioned key, and having an upwardly-extending stem terminating at its upper end in a head; a spring acting to retain the plunger in its upper or normal position; a lever for depressing said head and the connected plunger; a spring acting to retain said lever in its normal position, and mechanism establishing operative connection between said lever and the type-writer key, substantially as and for the purpose set forth.

4. The combination with the numeral-bearing depressible keys and suitably-actuated longitudinally-movable paper-carriage of a type-writer, and an adding or computing machine having several rows of depressible op-

erating-keys: of a suitably-supported plunger-carriage arranged above and adapted to be moved over any one of said rows of keys, and provided with a row of plungers movable upwardly and downwardly and arranged to depress the different keys, respectively, of any one of the aforesaid key-rows upon the actuation of the plunger-carriage over the respective key-row; different levers for depressing the different plungers, respectively; mechanisms establishing operative connection between the different levers and the aforesaid different type-writer keys, respectively; means acting to retain said plungers and levers in their normal position; mechanism for actuating the plunger-carriage from left to right, and means borne by the type-writer carriage for operating said plunger-carriage-actuating mechanism during the leftward longitudinal movement of said type-writer carriage, substantially as set forth.

5. The combination with the numeral-bearing depressible keys and suitably-actuated longitudinally-movable paper-carriage of a type-writer, and an adding or computing machine having several parallel rows of depressible operating-keys; of a suitably-supported plunger-carriage arranged above and adapted to be moved over any one of said rows of keys, and provided with a row of plungers movable upwardly and downwardly and arranged to depress the different keys, respectively, of any one of the aforesaid key-rows upon the actuation of the plunger-carriage over the respective key-row, each plunger having an upwardly-extending stem terminating at its upper end in a head, and the plunger-carriage being provided with a lateral bearing for each plunger; a spiral spring confined upon each plunger-stem and acting to retain the plunger in its upper or normal position; different levers for depressing the different plunger-stem heads, respectively; springs acting to retain the levers in their normal position; mechanisms establishing operative connection between the different levers and the aforesaid different type-writer keys, respectively; mechanism for actuating the plunger-carriage from left to right, and means borne by the type-writer carriage for operating said plunger-carriage-actuating mechanism during the leftward longitudinal movement of said type-writer carriage, substantially as set forth.

6. The combination with the numeral-bearing depressible keys and suitably-actuated longitudinally-movable paper-carriage of a type-writer, and an adding or computing machine having several rows of depressible operating-keys: of a sliding plunger-carriage arranged above and adapted to be slid over any one of said rows of keys and provided with a row of plungers movable upwardly and downwardly and arranged to depress the different keys, respectively, of any one of the aforesaid rows of keys upon the actuation of the plunger-carriage over the respective key-

row; any suitable number of slideways for the plunger-carriage; different levers for depressing the different plungers, respectively; springs acting to retain the said plungers and levers in their normal position; mechanism establishing operative connection between the different levers and the aforesaid different type-writer keys, respectively; mechanism for actuating the plunger-carriage from left to right, and means borne by the type-writer carriage for operating the plunger-carriage-actuating mechanism during the longitudinal movement of said type-writer carriage, substantially as set forth.

7. The combination with the numeral-bearing depressible keys and suitably-actuated longitudinally-movable paper-carriage of a type-writer, and an adding or computing machine located below the type-writer and having several parallel rows of depressible operating-keys: of two horizontal and parallel bars E E arranged a suitable distance above and widthwise of the computing-machine; a plunger-carriage slidably mounted upon said bars and provided with a row of plungers movable upwardly and downwardly and arranged to depress the different keys, respectively, of any one of the aforesaid rows of keys upon the actuation of the plunger-carriage over said row of keys; different levers for depressing the different plungers, respectively; means acting to retain said plungers and levers in their elevated or normal position, mechanism establishing operative connection between each of said levers and the required type-writer key; mechanism for actuating the plunger-carriage from left to right, and means borne by the type-writer carriage for actuating said plunger-carriage-actuating mechanism during the longitudinal movement of said type-writer carriage, substantially as set forth.

8. The combination with the keyboard of an adding or computing machine, and keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the computing-machine: of a carriage movable laterally over the different key-rows of the computing-machine and having different type-writer key-actuated plungers for depressing the different keys, respectively, of each key-row of the computing-machine; a longitudinally-movable bar or rod arranged longitudinally of and adjacent to the paper-carriage and provided with an arm; a member on the paper-carriage arranged to engage said arm and thereupon actuate the arm-bearing rod or bar during the longitudinal movement of the paper-carriage, and mechanism for actuating the plunger-carriage laterally and operatively connected with the aforesaid bar or rod, substantially as and for the purpose set forth.

9. The combination with an adding or computing machine having several rows of operating-keys, and the keyboard and suitably-actuated longitudinally-movable paper-car-

riage of a type-writer arranged above the computing-machine: of a carriage movable laterally over the different key-rows of the computing-machine, and having different type-writer key-actuated plungers for depressing the different keys, respectively, of each key-row of the computing-machine; a longitudinally-movable bar or rod arranged forward and longitudinally of the paper-carriage and provided with an upright arm; a forwardly-projecting dog or member on the paper-carriage arranged to engage the right-hand side of said arm and thereupon actuate said rod or bar during the leftward movement of the paper-carriage, and mechanism for actuating the plunger-carriage laterally and operatively connected with the aforesaid bar or rod, substantially as and for the purpose set forth.

10. The combination with an adding or computing machine having several rows of operating-keys, and the keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the computing-machine: of a carriage arranged between the computing-machine and type-writer and movable laterally over the different key-rows of the computing-machine and having different type-writer key-actuated plungers for depressing the different keys, respectively, of each of the aforesaid key-rows; a longitudinally-movable bar or rod arranged longitudinally of and adjacent to the paper-carriage and provided with an arm; a member on the paper-carriage arranged to engage the right-hand side of said arm and thereupon actuate the arm-bearing rod or bar during the leftward movement of the paper-carriage; two vertically and laterally tilting levers arranged at opposite sides, respectively, of the type-writer, said levers, at their upper ends, being operatively connected with opposite ends, respectively, of the aforesaid bar or rod and being operatively connected, at their lower ends, with the plunger-carriage, substantially as and for the purpose set forth.

11. The combination with an adding or computing machine having several rows of operating-keys, and the keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the com-

puting-machine: of a carriage arranged between the computing-machine and type-writer and movable laterally over the different key-rows of the computing-machine and having different type-writer key-actuated plungers for depressing the different keys, respectively, of each of the aforesaid key-rows; a longitudinally-movable rod or bar arranged longitudinally of and adjacent to the paper-carriage and provided with an arm; a member on the paper-carriage for engaging said arm and thereupon actuating the arm-bearing rod or bar during the leftward movement of the paper-carriage, and said paper-carriage member being shiftable out of line with the aforesaid arm, and mechanism for actuating the plunger-carriage from left to right and operatively connected with the aforesaid rod or bar, substantially as and for the purpose set forth.

12. The combination with an adding or computing machine having several rows of operating-keys, and the keyboard and suitably-actuated longitudinally-movable paper-carriage of a type-writer arranged above the computing-machine: of a carriage movable laterally over the different key-rows, and leftward of the computing-machine's keyboard a sufficient distance to accommodate the shifting of the plungers leftward beyond said keyboard; a longitudinally-movable rod or bar arranged longitudinally of and adjacent to the paper-carriage and provided with an arm; a member on the paper-carriage for engaging the right-hand side of said arm and thereby actuating the arm-bearing rod or bar during the leftward movement of the paper-carriage, said paper-carriage member being shiftable out of line with the aforesaid arm, and mechanism for actuating the plunger-carriage from left to right and being operatively connected with the aforesaid bar or rod, substantially as and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 18th day of April, 1896.

HOLMES MARSHALL.

Witnesses:

C. H. DORER,
ELLA E. TILDEN.