

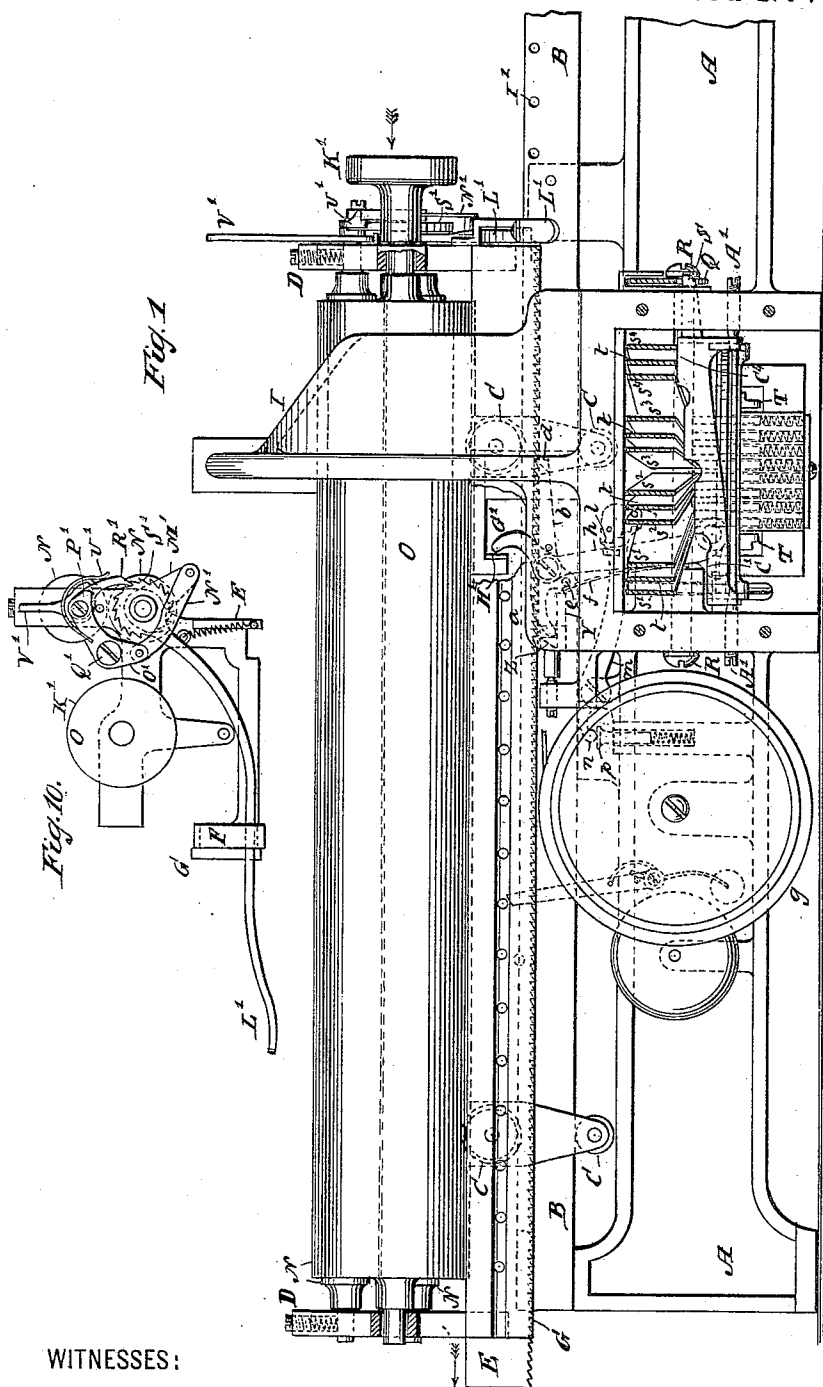
(No Model.)

4 Sheets—Sheet 1.

W. B. WAIT.
WRITING MACHINE.

No. 529,571.

Patented Nov. 20, 1894.



WITNESSES:

E. Wolff.
Chas. E. Hoerngen.

INVENTOR:

William B. Wait.

BY

Hauff & Hauff

ATTORNEYS.

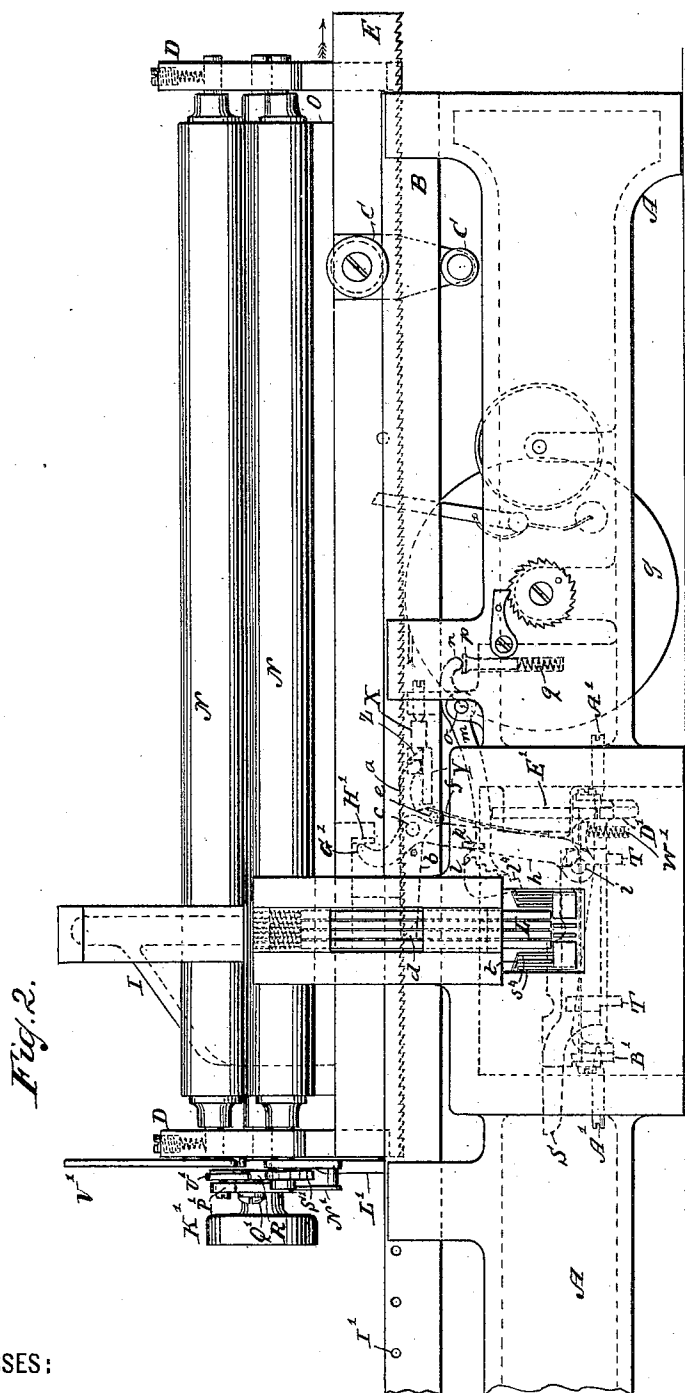
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4 Sheets—Sheet 2

W. B. WAIT.
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WITNESSES:

E. Wolff.
Chas. E. Townsend.

INVENTOR:

William B. Wait.

BY

Hauff & Hauff

ATTORNEYS.

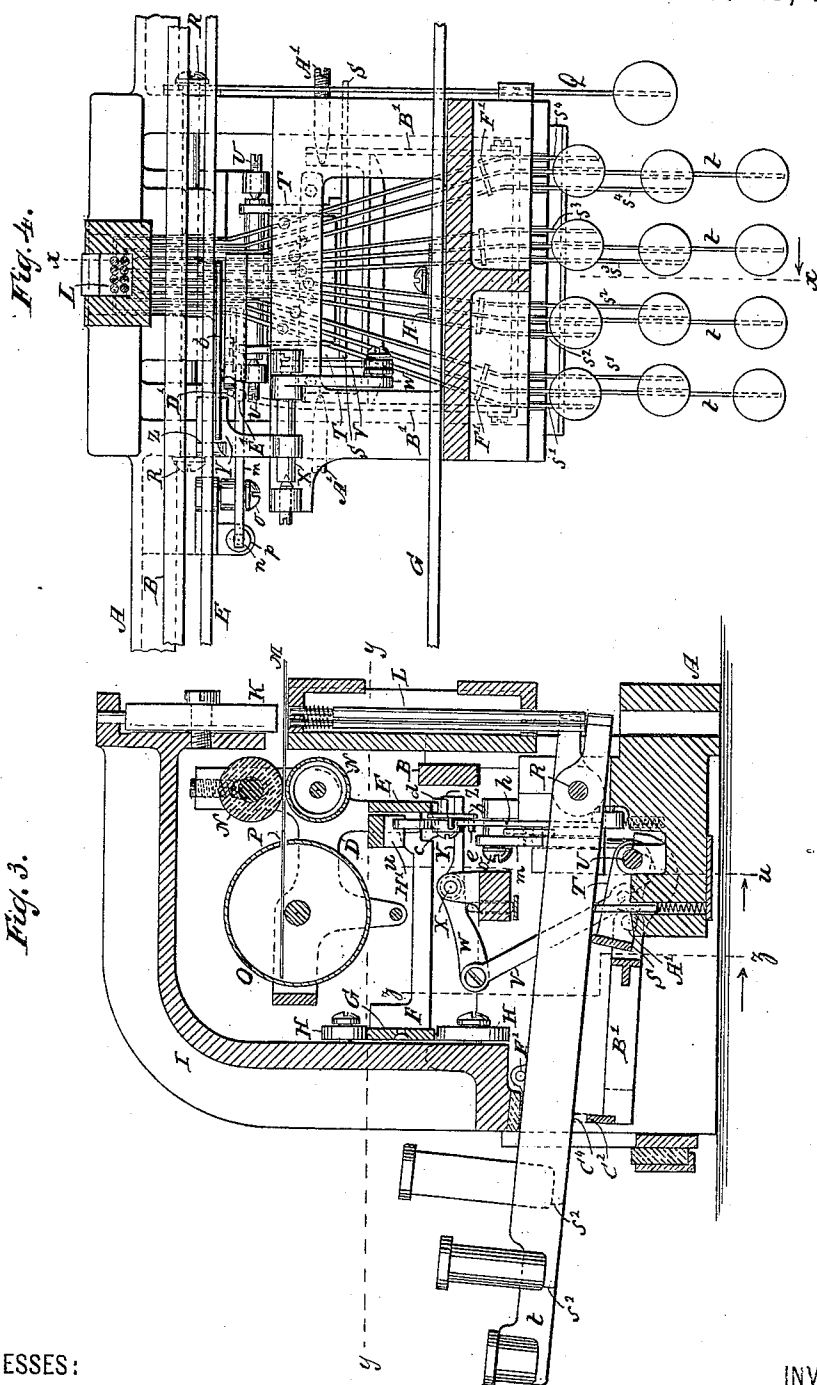
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WITNESSES:

E. Wolff.
Chas E. Ivensen

INVENTOR:
William B. Wait.

BY
Hauff & Hauff
ATTORNEYS.

(No Model.)

4 Sheets—Sheet 4.

W. B. WAIT.
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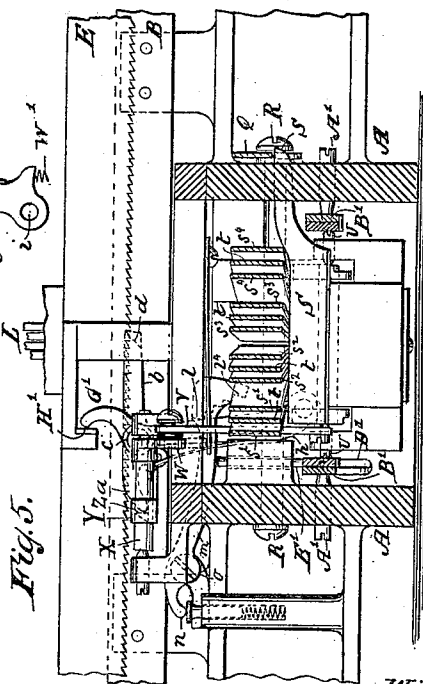
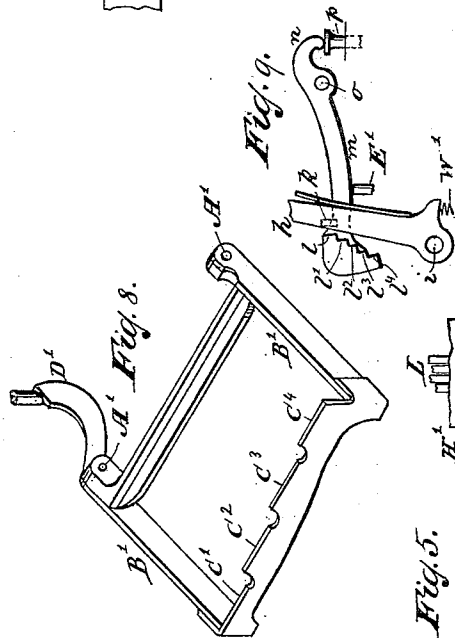
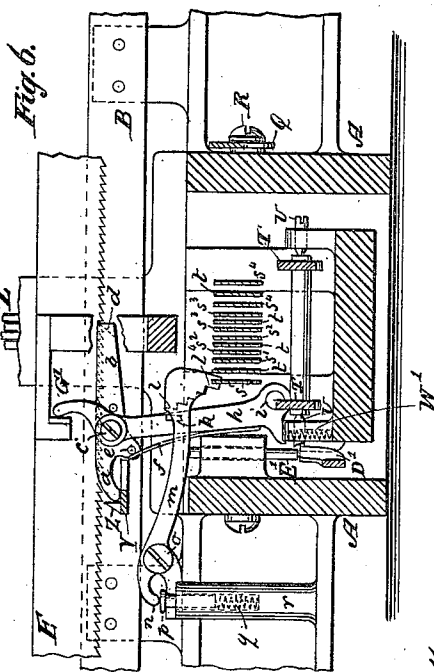
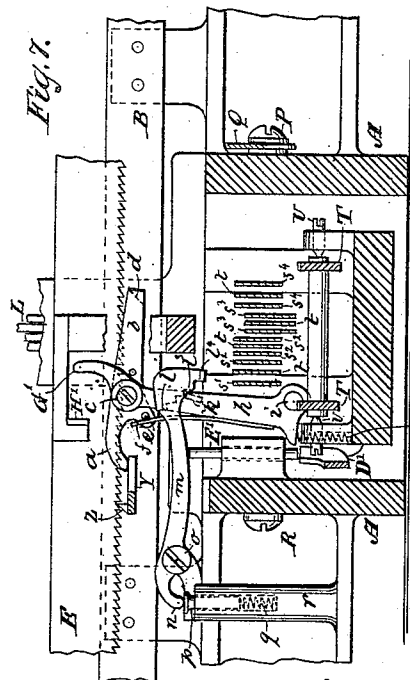


Fig. 11.



WITNESSES:

E. Wolff
Chas. E. Loewen

INVENTOR:

William B. Wait.

BY

Shuff & Shuff

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM B. WAIT, OF NEW YORK, N. Y.

WRITING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 529,571, dated November 20, 1894.

Application filed April 12, 1894. Serial No. 507,290. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. WAIT, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Writing-Machines, of which the following is a specification.

This invention relates to writing machines of the kind generally known as embossing machines or machines for executing point writing for the blind and the invention consists in the novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a front elevation of the machine partly in section. Fig. 2 is a rear elevation of the machine. Fig. 3 is a side elevation of the machine sectioned along *xx* Fig. 4. Fig. 4 is a section along *yy* Fig. 3. Fig. 5 is a section along *zz* Fig. 3. Fig. 6 is a section along *uu* Fig. 3. Fig. 7 is a section similar to Fig. 6 with parts in a different position than in Fig. 6. Fig. 8 is a detail view of the feed yoke. Fig. 9 is a detail view of a stop. Fig. 10 is a side elevation of part of the paper carriage. Fig. 11 shows a stylus and anvil.

The frame or support A carries a track or bar B along which run the wheels C connected to the paper carriage D or to its feed rack E. The carriage D has a forwardly extending portion F (Fig. 3) provided with a bar G (Figs. 1, 3 and 4) running between rollers H on the goose neck I rising from base A. The goose neck has at its rear an anvil or block K (Fig. 3) against which the styluses L act to emboss or print a sheet or paper M passing between the anvil and the styluses. The sheet M is fed from between rollers N on carriage D and said sheet may be stored or coiled about a hollow cylinder O having a slit P for the insertion of an edge of the sheet.

The paper carriage can be fed if desired without actuating a stylus, the feed lever or key Q fulcrumed at R serving for such feed. This key Q when depressed acts on a bar S of a lever frame or yoke S T fulcrumed at U. To the yoke S T is jointed a link V (Fig. 3) which link is jointed to an arm W secured to fulcrum or pivot X from which extends arm Y carrying a tooth or dog Z which is normally out of engagement with feed rack E

(Fig. 6) but which tooth Z is moved by the depression of key Q into engagement with said rack (Fig. 7). The depression of key Q actuates yoke S T, link V and arms W Y so that arm Y moves to carry the tooth Z into engagement with rack E.

On the arm Y rests the arm *a* of lever *ab* fulcrumed at *c* and carrying a tooth *d* normally in engagement with rack E (Fig. 6) but when arm Y is actuated to carry tooth Z into engagement with said rack (Fig. 7) said arm Y will act on arm *a* to actuate lever *ab* for carrying tooth *d* out of engagement with said rack. The lever *ab* has a stud *e* (Fig. 6) on which acts a spring *f*, the tendency of the spring being to press lever arm *a* into contact with arm Y and when the teeth Z *d* are free to assume their normal positions the spring *f* moves arm *a* to carry the arm Y with tooth Z out of engagement with rack E and to carry arm *b* with tooth *d* into engagement with rack E. The alternate engagement of the teeth Z *d* can be made to effect a feed of the paper carriage under the influence of an actuator such as a spring or drum *g* well known in writing machines and suitably connected by a cord or otherwise to the paper carriage.

The spring *f* already noted has the tendency to press lever arm *a* into contact with arm Y. The lever *ab* has its fulcrum *c* supported by arm *h* swinging on pivot *i*, and the spring *f* is secured to this arm *h*. When the tooth *d* is free from the carriage rack the spring W' swings arm *h* with lever *ab* backward or to the right of the spectator looking at Fig. 6, this direction being that opposed to the feed or travel of the carriage under the influence of actuator *g*. As soon therefore as tooth *d* is free from rack E the lever arm *a* glides backward along the face of arm Y away from tooth Z so that the lever *ab* with tooth *d* and arm *h* are swung backward until the lug *k* on arm *h* strikes against one of the stops *l* *l'* *l''* *l'''*, when the backward motion of the arm *h* and tooth *d* are arrested.

The stops or shoulders *l* to *l''* form what may be called a differential stop, since when the stop *l* is in alignment or position to arrest the backward jump of arm *h* said arm will be arrested after having jumped back say the distance of one tooth of rack E, while if stop

l' is in alignment or position to be struck by shoulder h in arresting the backward jump of arm h said arm will be arrested after having jumped back say the distance of two rack teeth, and stop l' may be arranged to allow the arm h with tooth d to jump back a distance of five rack teeth before arresting the backward motion of arm h.

The backward swing of arm h carries the fulcrum c downward or causes said fulcrum to swing away from the feed rack, and the lever a b acted on by spring f tending to force dog d toward said rack will compensate for the increased distance between fulcrum c and rack E.

The stops l to l' are formed on an arm m of lever m n fulcrumed at o. The lever arm or tail n is exposed to pressure of plunger p pressed by spring q in housing or post r. The action of the spring pressed plunger is to depress arm m so that normally said arm m will be in position to have stop l arrest arm h or say to allow the arm h a play equal to one tooth of rack E. The action of key Q not affecting arm m the actuation of said key Q will cause the paper carriage to feed the distance of one rack tooth at a time.

In addition to key Q there are fulcrumed at R four pairs of levers s' s', s² s², s³ s³ and s⁴ s⁴ together with four levers t of which one is between each of said lever pairs, and the function of which intermediate levers will be presently explained. The levers or keys s' to s⁴ actuate the yoke S T and dogs Z d similarly to the lever Q and said keys s' to s⁴ also actuate another yoke fulcrumed at A' and comprising the side bars B' and the front bar or step shaped portion C' C² C³ C⁴. From this last named yoke extends an arm or nose D' engaging a link or slide E' which latter is adapted to move lever m n against the action of spring plunger p and as said lever m n is variously moved or swung one or another of the stops l' to l' will be brought into position to arrest the arm h. Supposing the keys s' to s⁴ to have equal throw, then the depression of one or both of keys s' acting on the low step or portion C' of bar C' C² C³ C⁴ will cause a comparatively slight actuation of slide E and lever m n, or sufficient to bring stop l' into arresting position, since by reason of the low position of the step C' a lever s' will not strike said step C' until near the end of the throw. The step C⁴ being located higher will be struck by a key s⁴ at or near the beginning of the throw of such key s⁴ so that the slide E' will be actuated to move lever m n to carry step l' into arresting position. The other steps C² C³ have different heights so that the keys s² s³ when actuated will cause other stops as l' l' to be brought into arresting position as seen for example in Fig. 7 where the keys s³ have been depressed and the arm h has had its backward jump arrested by stop l'.

The keys s' to s⁴ are made to extend back

of fulcrum R (Fig. 3) so as to form rear portions or tails on each of which rests one of the styluses L, so that the action of a key or keys s' to s⁴ will actuate one or more styluses. The object of the differential stop l to l' effecting a varying throw of the dog d and consequently a varying feed of the paper carriage is manifest, since if for example all the styluses are depressed the subsequent feed of the carriage must be great enough to carry the impressed part of the sheet beyond the styluses, so that on the next actuation the styluses will strike a clear part of the sheet, and if only one or both of the styluses in the first or left hand row (Fig. 4) of styluses has been actuated, the subsequent feed of the carriage need not be so great as when styluses in two or more rows have been actuated. The dog Z it may be noted also serves as a stop to arrest the forward motion of arm a of the lever a b and dog d. By having the arm a stopped by dog Z the strain or jerk of stopping is taken off pivot c. The arm h can also have a nose G' which when arrested by stop H' will likewise arrest the forward motion of dog d but in this case jar or strain is brought on pivot c which is preferably avoided. Each one of the keys t when actuated will actuate the keys of its adjacent key pair, each key t having a stud F' (Fig. 3) which projects over the adjacent key pair, leaving each key of the pair free to be depressed independently but causing the depression of key t to effect a simultaneous depression of the two adjacent keys. If for example it is desired to depress all four lever pairs s' to s⁴ it is only necessary to depress the four intermediate keys t, so that only four fingers are required instead of eight, as would be the case if the intermediate levers t were omitted. It is at times desirable to limit the travel of the carriage as wider or narrower sheets are used. For this purpose I provide the track B with eyes or seats I' (Fig. 1) into which can be inserted pegs or stops suitably far apart to allow the carriage to travel only within determined limits.

The cylinder O can when required be rotated by hand by means of a projecting knob K' on said cylinder or its shaft and the rollers N might also be rotated by a knob (not shown) on a shaft of one of such rollers so as to feed the sheet out of the carriage, or said rollers can be rotated by a lever L' M' fulcrumed on a shaft of such a roller and connected by link N' to a lever O' P' fulcrumed at Q' and carrying a pawl R' engaging a ratchet S' on a shaft of a roller N.

One of the rollers N has its bearings adjustable in ways in carriage D and by suitably turning the eccentric or cam U' (Fig. 10) by means of lever or handle V' the roller N is raised or moved away from the other roller, forming a space between rollers N through which a sheet can be passed to cylinder O. The edge of the sheet being inserted or caught

in the slit P in cylinder O, and the cylinder then rotated the sheet will be suitably coiled up or stored in the carriage ready for use. The roller O might be omitted and a roll or
 5 coiled sheet laid freely into the carriage, but I prefer to have a roller such as roller O.

The various keys can be provided with restoring springs as well known in writing machines.

10 As in point writing under the well known New York system the degree of spacing is at times a factor in the interpretation of the writing, it is of importance that such degree of spacing be under the control of the opera-
 15 tor, and to this end I make the steps l to l^4 all equal to one another, so that the arrest of the dog d by step or stop l^4 will imply a play of the dog exactly five times as great as has taken place when the dog d is arrested by
 20 stop l . The stops l to l^4 may thus form a stop of multiple ratio.

The anvil K as seen in Fig. 3 can be detachably secured to goose neck I so as to be removable and replaceable as required.

25 The operating or printing ends of the styluses are tapered or somewhat pointed as seen in Fig. 11, and the recesses or seats in the anvil might be cup shaped to correspond to said pointed or conoidal stylus ends, but
 30 I have found especially in working on heavy material as for example a metal sheet, that better work is obtained by having the recesses in the anvil cylindrical so that the stylus end when entering will not fill the en-
 35 tire recess or cavity in the anvil. The ma-

terial is thus drawn or seated firmly over the stylus end and a clear impression produced.

What I claim as new, and desire to secure by Letters Patent, is—

1. A paper carriage provided with a feed 40 rack, combined with an actuator for the carriage, a dog made to alternately engage and release the rack, an actuating lever for said dog, a fixed pivot or fulcrum for said lever, a lever frame linked to said lever for actuating 45 the latter, independent keys made to loosely rest on the lever frame for independently actuating the latter with the lever and dog, a movable pivot mounted independently of 50 the fixed pivot, and a second dog mounted on said movable pivot to alternately release and engage and to move laterally along the rack, substantially as described.

2. A paper carriage provided with feed mechanism, substantially as described, com- 55 bined with keys made to actuate said feed mechanism, and yoke keys placed intermediate the first named keys, each yoke key having a stud fixed directly to the stem or shank of such yoke key and made to extend 60 into direct contact upon the shanks of two adjacent keys, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM B. WAIT.

Witnesses:

WM. C. HAUFF,
 E. F. KASTENHUBER.