

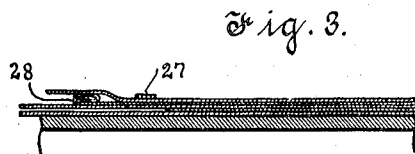
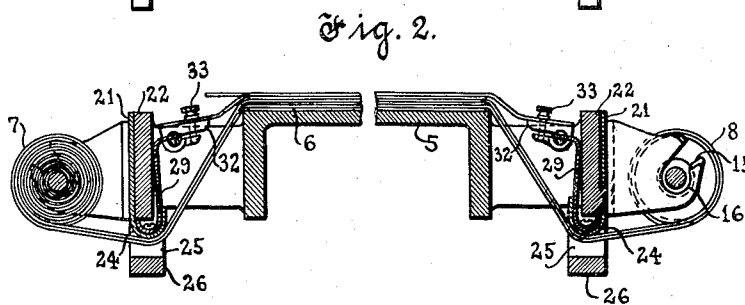
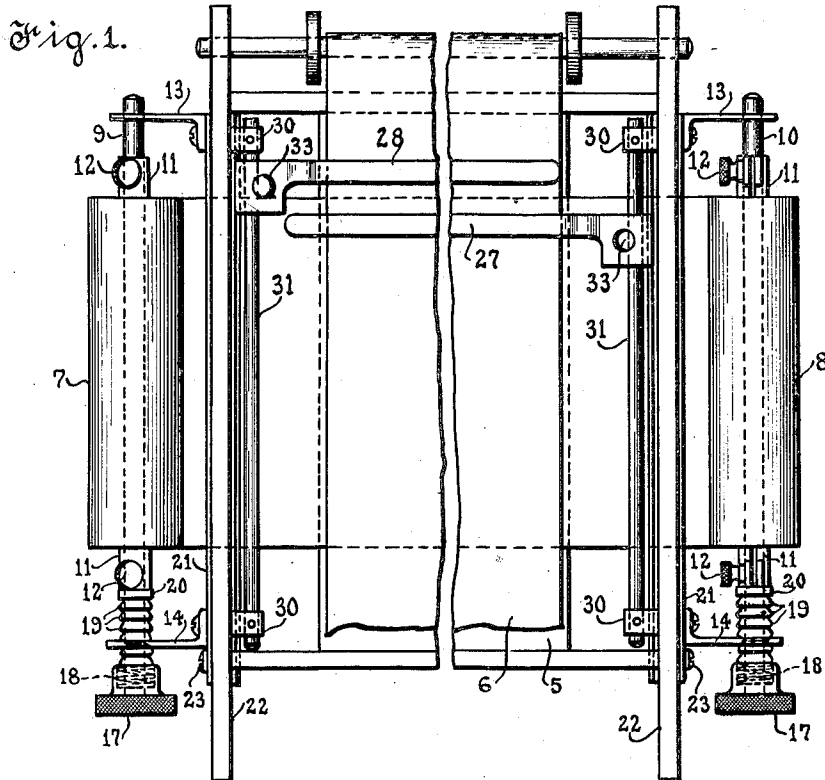
April 15, 1924.

1,490,692

H. A. BIESEN ET AL

TYPING MACHINE

Filed Sept. 25, 1922



INVENTORS
Hugo A. Biesen
Aldrick A. Bertrand
BY *Frank H. Mulford*
ATTORNEY

Patented Apr. 15, 1924.

1,490,692

UNITED STATES PATENT OFFICE.

HUGO A. BIESEN AND ALDRICK A. BERTRAND, OF MILWAUKEE, WISCONSIN.

TYPING MACHINE.

Application filed September 25, 1922. Serial No. 590,268.

To all whom it may concern:

Be it known that we, HUGO A. BIESEN and ALDRICK A. BERTRAND, citizens of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful improvements in Typing Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in typing machines, particularly machines of the flat bed type.

Typing machines wherein the bed or platen is flat and stationary and the typing mechanism movable with reference thereto are applicable with peculiar advantage to use in conjunction with stationery of large size in one or more dimensions. Also, particularly where one dimension of the stationery does not exceed a given maximum value, such machines are well adapted to manifolding by means of interposed carbon or other copying sheets, webs or media. However, the full value of such machines for this purpose has not heretofore been developed due to inadequate provision for position control of the copying medium.

Thus in machines as heretofore constructed adequate provision has not been made for guiding or otherwise assisting in positioning and adjustment of the copying medium in the direction of movement of the web of stationery, whereby the area covered by the copying medium is not accurately and permanently defined. Moreover the method and means heretofore employed for securing the copying medium have been such as to require an inordinate number of time consuming operations for releasing, adjusting and resecuring the same.

An object of the present invention is that of providing in typing machines of the character aforeindicated, improved copying medium positioning and holding apparatus whereby the aforementioned difficulties and disadvantages are obviated.

Another and more specific object is that of providing such apparatus wherein provision is made for insuring substantially rectilinear adjustment of the copying medium to any given or desired extent in either of two rectangularly related directions with reference to the position of the stationery and in the corresponding reverse

directions at will, while also providing for accurate positioning and holding of the copying medium.

Another object is that of providing such apparatus enabling practically universal adjustment of the copying medium at will.

Another object is that of facilitating and expediting the operation of effecting any desired adjustment of the copying medium.

Another object is that of providing apparatus enabling employment and accurate positioning and holding of the copying medium in relatively reduced dimensions and also in irregular shapes and sections, where required, with uniform results.

Other objects and advantages will hereinafter appear.

In the accompanying drawing, wherein is illustrated an embodiment of the invention.

Figure 1 is a plan view illustrating certain features thereof as applied to a standard typing machine;

Fig. 2 is a front elevational view of the same, certain portions being shown in section; while

Fig. 3 is a detail view more fully illustrating certain features of the invention.

In the drawing is illustrated a typing machine bed 5 the typing mechanism being omitted, said bed being preferably substantially flat and being assumed to be provided with one or more rolls for supplying thereto in a well known manner superposed continuous webs 6 of stationery which may include printed forms.

Additional rolls 7 and 8 are carried respectively at the opposite sides of the bed 5 for holding respectively the fresh and the used or exhausted carbon paper or other copying medium, such medium being also in continuous webs and being run between the adjacent superposed webs of stationery.

In practice the several webs of copying medium are preferably arranged in multiple ply relation upon the single rolls 7 and 8, whereas if desired the various webs of stationery may be similarly arranged upon a single roll.

Said rolls 7 and 8 are preferably carried by and upon individual spools each spool having a central longitudinal bore for reception of individual supporting rods 9 and 10 as shown. In practice the spools are releasably clamped and positioned upon their respective rods for movement therewith as by the means illustrated, such means

comprising split collars 11 to surround the rod adjacent the terminals of the spool and provided with clamping screws 12, whereby said collars may be secured upon the rod in a relation such as to clamp or bind the spool between the collars. Also if desired the collars may be provided with projecting tongues to take within corresponding recesses in the ends of the spool in a well known manner.

The individual rods are preferably supported at terminally located portions thereof by spaced brackets 13 and 14 secured to and projecting outwardly from the bed portion of the machine and provide with suitable openings to receive the rod. The opening in the bracket 13 may preferably be circular and of a size such as to make with the rod an easy or rather loose working fit.

The opening in the bracket 14 may preferably comprise an open slot extending downward and inward with reference to the machine bed and having a relatively reduced transit portion 15 to permit radial passage of the rod therethrough and also having a somewhat enlarged circular portion 16 partially offset with reference to the portion 15 and arranged in coaxial relation to the opening of the bracket 13.

Each of the rods 9 and 10 is provided with a rigidly secured handle member or portion 17 each handle further being provided upon its inner end with a counter-bored portion forming an annular recess surrounding the rod. A helical spring 18 is carried within each of said recesses whereas a plurality of annular spacers 19 are also strung upon each rod between the handle 17 and the adjacent collar 11, being in practice forced against said collar by expansive force of the spring 18.

Said spacers are preferably tapered or substantially frusto-conical in form to provide annular partial interstices therebetween when pressed together. Moreover the size of the individual spacers is preferably so correlated with that of the enlarged portion 16 of the slot in the bracket 14 as to permit the spacer to extend partially within such opening, whereas the latter may if desired be flared outwardly to so receive the spacer under the force of the spring 18, such relation providing for releasable yielding locking of the rod within the enlarged portion of the slot of said bracket and also for yielding restraint of the rod against timing movement with reference to the bracket. In practice the axial length of the individual spacers is preferably so selected as to constitute an even multiple, and preferably a unit multiple, of the width of a single line of typing of the machine, although such relation is not absolutely essential. The number of spacers employed

may be determined in accordance with the particular character of the typing to be performed, whereas additional plain spacers such as that indicated at 20 upon the drawing may be employed if desired.

While the supporting brackets 13 and 14 may be secured to the machine bed in any desired or preferred manner, nevertheless such securement is preferably effected by substantially the means illustrated. Thus in practice each associated pair of said brackets is preferably mounted upon an elongated resilient securing element 21 and said securing elements are adapted individually to be sprung upwardly about the outer bed rails 22 of the machine as illustrated particularly in Fig. 2, for permanent retention of the brackets and their associated parts in assembled relation to the machine, such attachment and securement moreover being accomplished without structural modification of the machine itself. Also if desired said elements 21 may be provided with suitably disposed openings to receive and fit about certain of the screws, bolts or the like, such as the screws 23 which are employed in the construction of the machine itself whereby still more positive securement may be effected but without structural modification of the standard machine parts or their assembly.

Said securing elements are provided at the lower part thereof with convexly curved surfaces 24 adapted to serve as guides for the web of copying medium passing therebelow. Here it may be observed that typing machines of the character herein contemplated are ordinarily provided with supporting feet or the like which serve to elevate the bed rails 22 sufficiently above the surface upon which the machine rests to provide ample space for the web of copying medium to pass freely between such surface and the guide surface 24. However, where such space is insufficient it is obvious that the same may be increased by increasing the height of such supporting feet or the like, or optionally, feet 25 may be secured to the bottom of the elements 21 in such spaced relation as to permit travel of the web of copying material therebetween. Also, if desired, bars 26 or the like may be secured to the lower ends of the correspondingly disposed feet 25, thereby providing true slots or slits for passage of the web.

In the operation of the aforescribed apparatus, adjustment of the copying webs laterally of the stationery is effected by simply turning the two handles 17 on the opposite sides of the machine in the proper direction, such rotation of one handle serving to unreel the copying medium from the fresh roll and the corresponding movement of the other handle serving to rewind the exhausted web upon the other roll, whereas,

turning of one handle alone in the proper direction provides for slack adjustment of the web and such adjustment will be maintained due to the frictional or braking interaction of the aforescribed spring and spacers with the brackets 14.

Here it is to be observed that the aforescribed arrangement provides for accurate rectilinear lateral adjustment of the copying medium whereby the possibility of unwarranted shifting of such medium in a direction having a component parallel with the direction of movement of the stationery is prevented and the exact position of the medium with reference to the length of the stationery is definitely fixed.

Moreover particularly in the typing of forms and the like, it frequently occurs that given areas of the copying medium are typed repeatedly whereas adjacent areas are impressed less frequently or not at all. In many instances such repeatedly typed area may comprise but a single line or a relatively small number of lines whereas under such conditions when the copying medium corresponding to such restricted typed area becomes exhausted it is merely necessary to release the rods from the brackets 14 and shift the former together with the webs carried thereby axially, a distance equal to the width of one or more of the spacers 19 and thereafter re-engage the rods within the slots of said brackets. This adjustment serves to bring fresh areas of the copying medium into register without unwinding fresh medium from the roll, whereby the rate of consumption of the web is materially reduced.

Again it is to be noted that owing to the definite and accurate control of the position of the copying medium the latter may for many purposes be employed in the form of relatively narrow webs whereby a further conservation of the medium may be effected.

In addition to the foregoing features it is also proposed herein to provide for accurate positioning and permanent retention of separate sheets or sections of the copying medium. To such end are provided one or more thin supports or fingers 27, 28 extending across or substantially across the width of the stationery and adapted to carry individual sheets of the impression medium terminally folded thereover or otherwise secured thereto as shown particularly in Fig. 3.

Said fingers are secured terminally to the machine bed frame preferably in the manner illustrated in Fig. 2. Thus in practice a pair of spaced clips 29 may be sprung upwardly about each bed rail 22 within the bent portion of the associated securing elements 21 and each provided with an upwardly and inwardly extending portion 30. Parallel rods 31 are secured to the corre-

sponding projecting portions 30 substantially as shown. Each of the cross fingers 27, 28 is further provided with a slotted connector 32 mounted upon one of the rods 31 and normally slidable axially and angularly thereof whereas a suitable thumb screw 33 serves both to secure the finger to the connector and to clamp the latter to the rod in axially and angularly adjusted relation.

In practice the opposite end of the cross finger is preferably free and where employed in conjunction with stationery which is open at both edges the finger may conveniently extend an appreciable distance beyond the width of the stationery, thus affording at its free end a convenient handle whereby the finger and any stationery located thereabove may be lifted and separated from the stationery or copying medium therebelow for any desired purpose, such for example as the insertion of a sheet or card to prevent transmission of impressions to given areas of the stationery located therebelow.

On the other hand the fingers such as 28 to be employed in conjunction with fan fold or other stationery which is closed upon one edge or upon both edges alternately are constructed somewhat shorter than the width of the stationery to permit the latter to pass about the former.

Thus when it is desired to transmit typed impressions to the successive layers of fan folded stationery, which form is obviously inadapated to the use of the transversely continuous web copying medium aforescribed, it is nevertheless possible to utilize a suitable number of short cross fingers 28 extending alternately from opposite sides of the machine and each carrying an individual sheet of the copying medium folded or looped at one end about the finger, as shown in Fig. 3, and extending in the direction of travel of the stationery.

By the aforescribed use of the cross fingers it is apparent that provision is made for accurate and permanent positioning of single sheets of the copying medium, whereby the same sheet when once inserted may be utilized without further attention in conjunction with a relatively large number of successive lengths of the stationery whereas heretofore in the typing of folded stationery it has been necessary following typing of each individual length to remove the copying sheets therebetween and reinsert the same manually and individually, between the adjacent folds of the subsequent length.

Again where it is desired that the several copies be not exact duplicates of one another, as where it is desired to suppress certain data upon individual copies, the cross fingers may be conveniently employed for carrying interrupted or mutilated sections of the copying medium, or in other cases blank sheets or cards to prevent the trans-

mission of impressions to definite areas of the copies located therebelow may be carried permanently by such fingers.

What we claim as new and desire to secure by Letters Patent is:—

1. An attachment for manifold typing machines, comprising, in combination, a plurality of substantially U-shaped resilient members adapted to engage pre-existing elements of the machine for frictional support thereby, and means carried by said members to provide for feeding a web of copying medium across the bed of the machine to be traversed in a given direction by webs of stationery.

2. An attachment for manifold typing machines to be traversed in a given direction by stationery, comprising, in combination, a plurality of substantially U-shaped resilient members adapted to frictionally engage pre-existing elements of the machine, and means carried by said members providing for feeding a web of manifolding medium to the machine transversely of the direction of movement of the stationery and for adjustment of said web with respect to said stationery in a direction having a component parallel to the direction of movement of the latter.

3. In a flat bed typing machine to be traversed in a given direction by webs of stationery, the combination with means for holding a manifolding medium in co-operative relation to a portion of the stationery, of associated means providing for adjusting said medium in a direction having a component parallel to the direction of travel of the stationery.

4. In a flat bed typing machine to be traversed in a given direction by webs of stationery, the combination with means for holding a web of manifolding medium in co-operative transverse relation to the stationery and providing for slack adjustment of said web medium, of associated means for positively maintaining the position and slack adjustments effected by said former means.

5. In a flat bed typing machine to be traversed in a given direction by webs of stationery, the combination with means for holding a manifolding medium in co-operative relation to a portion of the stationery, of associated means providing for adjusting said medium in a direction having a component parallel to the direction of travel of the stationery in predetermined steps whose individual length bears an even multiple relation to the width of a line of typing of the machine.

6. In a web holding device for typing machines and the like, the combination with supporting shafts for the web supply and rewind rolls and means for securing said shafts to the individual rolls, of spaced indi-

vidual supporting means for said shafts comprising fixed brackets each having an opening of materially larger diameter than that of the shaft, each shaft having a tapered annular shoulder element, and resilient thrust means to force and hold the reduced portion of said element within said opening for resisting relative rotation of said shaft and bracket.

7. In a web feeding and holding device for typing machines and the like, the combination with supply and rewind spools for the web and individual supporting shafts clamped to said spools, of spaced individual shaft supports comprising fixed brackets each having a circular opening of materially larger diameter than that of the shaft and an open ended slot leading inward to said opening to provide for lateral introduction of the shaft, a plurality of annular conical spacers arranged upon each shaft and springs terminally anchored to the individual shafts to force the spacers thereof axially toward one another, whereby upon insertion of the shafts within the brackets with similarly variable numbers of spacers interposed between the individual brackets and the springs the position of the web with reference to the brackets may be varied at will.

8. In apparatus for positioning the manifolding medium in manifolding typing machines to be traversed in a given direction by continuous webs of stationery, the combination with a carrier for the manifolding medium to extend transversely of the direction of travel of the stationery, of terminally located supporting means for said carrier providing for adjustment of said medium in a direction having a component parallel to the direction of travel of the stationery.

9. In apparatus for positioning the manifolding medium in manifolding typing machines, to be traversed in a given direction by webs of stationery, the combination with a carrier for the manifolding medium to extend transversely of the direction of travel of the stationery, of terminally located supporting means for said carrier comprising a bracket member to be secured to said machine solely through direct co-operation with pre-existing elements of the latter, a rod carried by said bracket and extending parallel to the direction of movement of the stationery and means for clamping said carrier to said rod at given or desired positions throughout the length of the latter.

10. In a flat bed typing machine to be traversed in a given direction by webs of stationery, the combination with means for holding manifolding medium in cooperative relation to a portion of the stationery, of associated means providing for adjusting said medium in a direction having a component parallel to the direction of travel of

the stationery, said last-mentioned means also providing for adjustment to accommodate different widths of manifolding medium.

- 5 11. In combination, a flat bed typing machine to be traversed in a given direction by webs of stationery, rods mounted on opposite sides of said machine to support respectively the supply and rewind spools of a manifolding medium extending transversely of the webs of stationery, spool engaging 20 collars mounted on each of said rods to be adjusted longitudinally of the latter, said collars having means for clamping the same to their respective rods.
- 10 In witness whereof, we have hereunto subscribed our names.

12. In combination, a flat bed typing ma-

HUGO A. BIESEN.
ALDRICK A. BERTRAND.