H. S. FREW & F. P. SEXTON.

WRITING MACHINE.

APPLICATION FILED NOV. 25, 1910.

1,033,067.

Patented July 16, 1912.

2 SHEETS—SHEET 1.

FIG. 1.

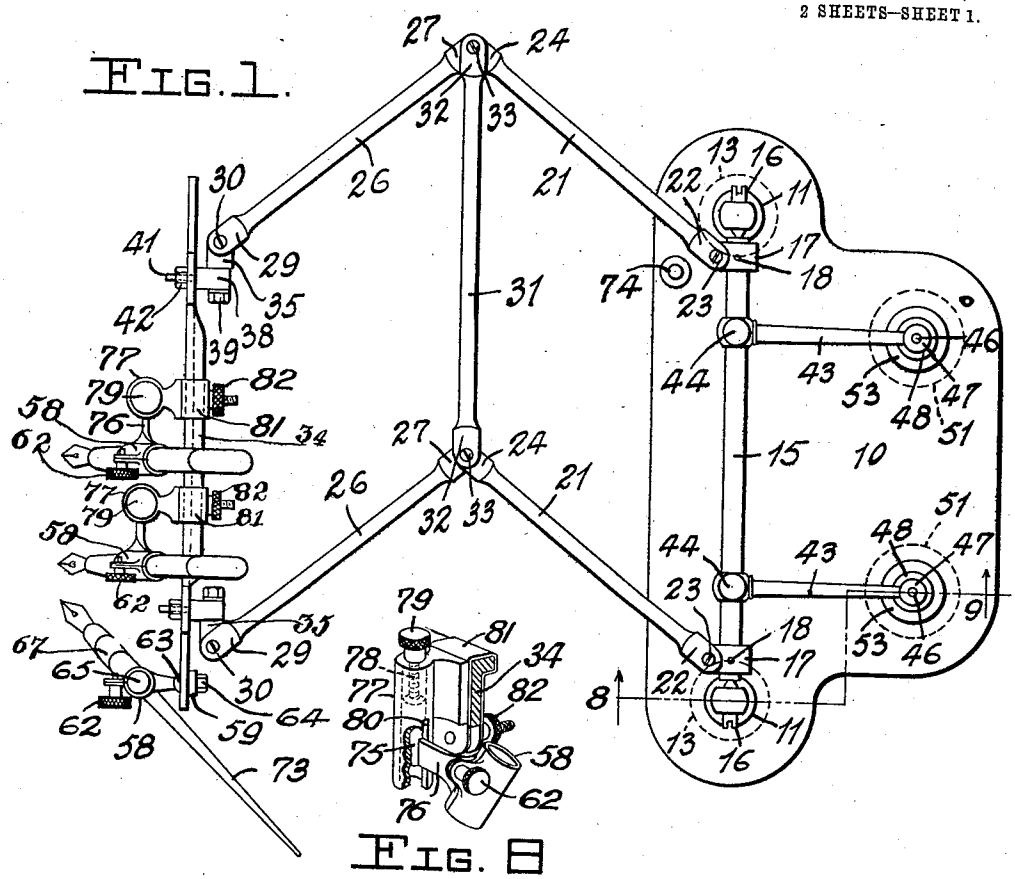

FIG. 8

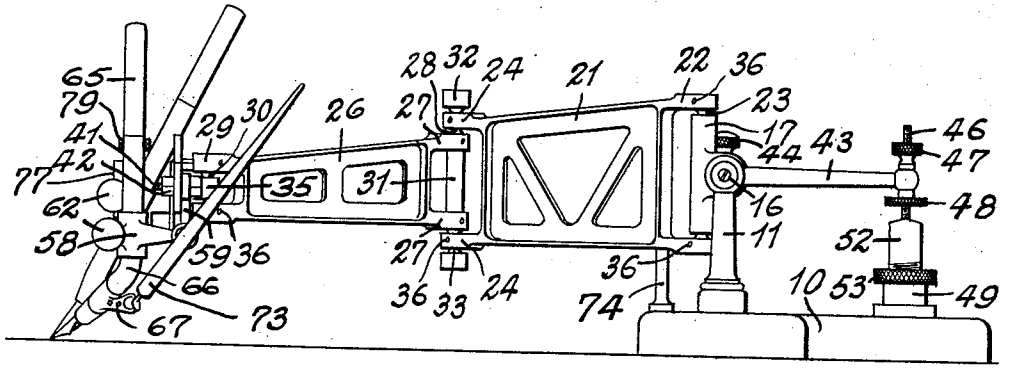

FIG. 2.

WITNESSES

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2 SHEETS—SHEET 2.

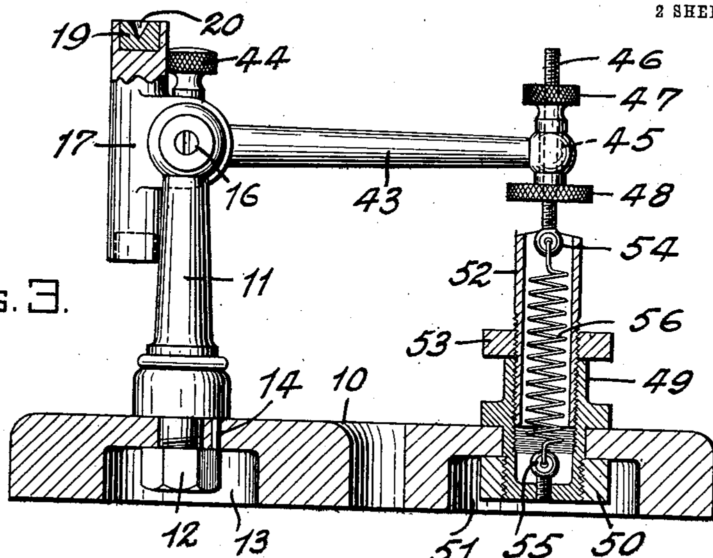


FIG. 3.

FIG. 4.

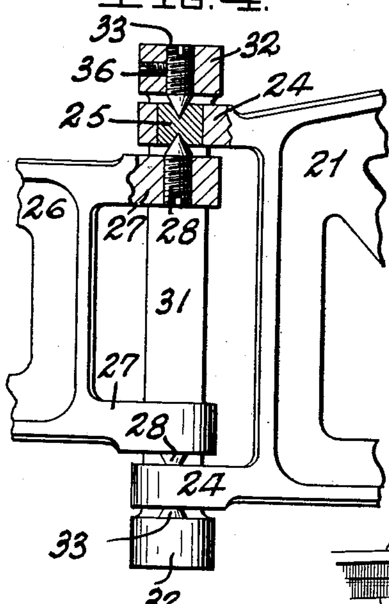


FIG. 5.

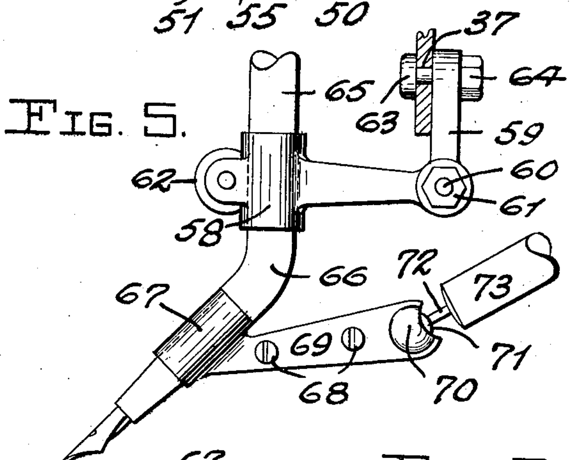
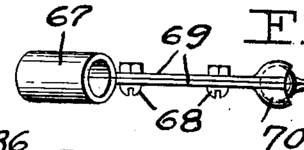


FIG. 6.



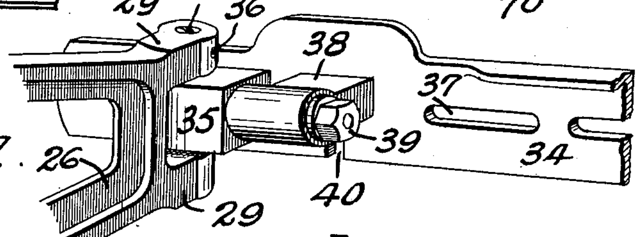


FIG. 7.

WITNESSES

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WRITING-MACHINE.

1,033,067. Specification of Letters Patent. Patented July 16, 1912.

Application filed November 25, 1910. Serial No. 594,189.

To all whom it may concern:

Be it known that we, HUBERT STANLEY FREW and FREDERICK PONSONBY SEXTON, of the city of Montreal, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Writing-Machines, of which the following is a full, clear, and exact description.

Our invention relates to improvements in writing machines and the object is to provide a simple and efficient device for simultaneously making a plurality of exact duplicates of a signature or other manually written matter.

The device consists of a base to which is fixed a pair of supporting posts carrying an axially pivoted shaft. Hinge posts are fixed to the extremities of the shaft and support a pair of pivoted latticed arms having a further pair of similar arms pivoted to their outer extremities. The arms of each pair are maintained parallel by means of connecting members, the outer of said members being slotted to receive a plurality of adjustable pen holders. The master pen is guided by a pen handle flexibly attached thereto. A pair of levers are fixed to the pivoted shaft and at their outer extremities are adjustably connected to balance springs whereby the weight of the extended arms is balanced.

In the drawings which illustrate our invention:—Figure 1 is a plan view of the device. Fig. 2 is a front elevation thereof. Fig. 3 is a partial vertical sectional view on the line 8—9 of Fig. 1. Fig. 4 is an enlarged partial sectional view on the central pivot point. Fig. 5 is a front view of the master pen and attachments. Fig. 6 is a plan view of the master pen guide. Fig. 7 is a perspective view showing the method of attaching the pen bar to the arms. Fig. 8 is a perspective view partly in section of one of the duplicating pen holders.

In the above defined figures, 10 designates a base substantially of the form shown. A pair of posts 11 are secured thereto by nuts 12 located in recesses 13 in the bottom of the base. The posts are prevented from turning by pins 14 passing through the base and into the posts. A shaft 15 is axially pivoted between the upper extremities of the posts by adjustable pointed pivot screws 16. A hinge post 17 is fixed to each extremity of the shaft 15 perpendicular thereto by taper pins 18. The axes of the hinge posts are offset from the axis of the shaft, as seen in Figs. 1, 2 and 3. The hinge posts are preferably made of aluminum and are therefore provided at each end with a hardened bushing 19, preferably steel, having a conical seat or recess 20 therein. A pair of latticed arms 21 are provided, having extending end lugs 22 adapted to embrace the hinge posts and be secured thereto by pointed pivot screws 23 engaging the seats 20 of the post bushings. The outer ends of the arms 21 are provided with lugs 24, having hardened steel bushings 25 pressed thereinto and having pivot seats above and below, as seen in Fig. 4. A second pair of arms 26 are provided similar to the first pair in general design but smaller and lighter. The inner end lugs 27 of the outer arms are provided with pivot screws 28 similar to the screws 23 of the arms 21. The outer end lugs 29 are provided with pivot screws 30 similar to the other pivot screws. A latticed connecting member 31 extends from the front to the back of the machine. The extremities of this member 30 are provided with lugs 32 having pivot screws 33 therein which engage the bushings 25 in the inner arms on the opposite side from the pivot screws 28 of the outer arms, as seen in Fig. 4, whereby the outer arms are pivoted between the inner arms and the connecting member 31.

A pen bar 34, substantially L-shaped in cross-section, is provided with end blocks 35 having hardened bushings, (not shown) similar to the bushings 25, pressed thereinto. The pivot screws 30 passing through openings in lugs 29 of the arms 26 engage these bushings, thereby securing the outer extremities of the arms 26 to the pen bar. As the distances between the pivotal centers of the hinge posts 17, and the pivotal centers of the connecting member 31 and the pen bar 34 are exactly equal, the arms 21 will be maintained parallel, the arms 26 will be parallel, and the pen bar, connecting member, and shaft 15 will be parallel. All the pivot screws are provided with small set screws 36 whereby, when the proper adjustment has been obtained, the pivot screws may be locked in place. The pen bar 34 may be provided with a plurality of slots 37 for the attachment of the pen holders.

The blocks 35 have posts 38 pivoted thereto and adapted to be locked at any angle by

means of nuts 39. The pen bar 34 is provided with a pair of recesses 40 in which the shanks 41 of the posts 38 engage, and are locked by nuts 42. This connection allows the pen bar to be removed from the machine without affecting any adjustment thereof. The nuts 42 are loosened and the pen bar simply lifted off the shanks 41. The plane in which the pen bar lies may be altered by loosening the nuts 39 and turning the posts 38 on the blocks 35 and then tightening the nuts 39 to lock the posts.

The pair of levers 43 are fixed to the shaft 15 by removable taper pins 44 and extend therefrom in the opposite direction from the arms. The outer extremities of the levers are provided with apertures 45 through which threaded bars 46 pass loosely. Adjusting nuts 47 and 48 are provided on the bars 46 above and below the levers, respectively, whereby the bars may be adjusted through the extremities of the levers without rotating the same. An internally threaded thimble 49 is secured to the base by means of a nut 50 located in a recess 51 under the base. Tubes 52 are screwed into the thimbles 49 and, when adjusted as required, are locked by jam nuts 53. The lower extremities of the bars 46 are formed into eyes 54 and corresponding eyes 55 are screwed into the bottom of the thimble 49. Helical springs 56 are secured between these eyes and serve to balance the weight of the extended arms, as will be readily understood. The tension of the springs may be regulated by means of the nuts 47 and 48, while the dip of the lever or elevation of the arms may be adjusted by screwing the tube 52 upwardly or downwardly in the thimble. The lower nut 48 is broad and flat so as to engage the top of the tube 52 which is very slightly wedge shaped, as seen in Figs. 2 and 3. The thimbles 49 are secured against turning in the base by pins not shown but similar to the pins 14.

The master pen holder comprises a split pen-gripping member 58 which is pivoted to an arm 59 by a bolt 60 and locked by a nut 61. The pen is secured in the split member 58 by means of the well known thumb nut 62. The whole holder is fixed to the pen bar 34 by means of a bolt 63 passing through one of the slots 37 and through the upper extremity of the arm 59, where it is locked by a nut 64 which clamps the arm firmly to the pen bar at any desired angle.

The master pen 65 stands normally vertical, as seen in Figs. 1, 2 and 5 so that it is out of the way of the operator's hand. This pen, however, is bent below the holder to a correct angle for writing, as seen at 66. A guide member 67 is clamped around the portion of the pen below the bend by screws 68 in the arms 69 thereof. A socket 70 is formed between the guide arms 69 by dishing the extremity of each arm, for the reception of a ball 71 mounted by means of a pin 72 on the end of a handle 73, so that the handle will have a free rotary motion without affecting the position of the pen point, while any movement in a longitudinal or lateral direction will be transmitted to the pen. This allows the necessary free play for rapid and easy writing, while at the same time it insures the accurate transmission to the master pen and the pen bar of all positive movements of the operator's hand. By this means the operator may write a word or signature and then changing the angle of the pen handle, possibly as much as 90°, cross a "t", dot an "i", or underline a word, without in any way changing the relation between the point of the master pen and the duplicating pens, which latter are necessarily rigid in every respect.

The duplicating pen holders are preferably formed as shown in Fig. 8, and each comprises a split pen-gripping member 58 rigidly attached to a bolt 75 by means of an arm 76. The bolt 75 is vertically adjustable in a tube 77 by means of a small screw 78 which revolves freely in the closed top of the tube but will not reciprocate, said screw being threaded into the bolt and provided with an external finger nut 79. The bolt is held from turning by the arm 76 which enters the tube through the slot 80. The tube is attached to the pen bar 34 by a clamping member 81 tightened by a finger nut 82. By turning the finger nut 79, the duplicating pens may be accurately adjusted in a vertical direction so that all bear equally on the paper.

Whenever hexagonal adjusting nuts are used on this device, they are of the same size so that all may be loosened or tightened with a single key wrench. A small post 74 is fixed to the base to prevent the arms coming so far forward as to interfere with the writer's hand.

The operation of the device is simple. The matter to be signed is suitably arranged and the pens adjusted. The writer then signs the matter nearest to him with the master pen, and the duplicating pens, moving a corresponding distance and exactly parallel at all times, exactly duplicate the signature.

The pen bar and attached pens may be rapidly and easily removed as before described, either for storing the machine or for the purpose of using another arrangement of pens, or pens filled with a different color of ink. When the machine is not in use, the pins 44 may be withdrawn and the arms and pen bar turned back over the base.

It will be obvious that the device will be of great value to banks for signing note issues, and to all large corporations for signing dividend or pay roll checks or bond

coupons, or other documents requiring the same signature a number of times, as it reduces the number of times the signature is made from one fourth to one tenth, or more, according to the number of pens used.

Having thus described our invention, what we claim is:—

1. In a writing machine, a base, posts mounted thereon, a shaft pivotally carried by said posts, a pair of arms, means whereby said arms are pivotally supported by said shaft, a second pair of arms pivotally connected to the first arms, a pen bar pivotally connecting said second arms, and means for adjusting said pen bar with respect to the arms carrying same.

2. In a writing machine, a base, posts mounted thereon, a shaft pivotally carried by said posts, a pantograph frame supported by said shaft, means for vertically adjusting one of the members with respect to the other members of said frame, a plurality of pen holders, a plurality of clamping members connecting the pen holders to the adjustable pantograph member, means for vertically adjusting said holders with respect to the adjustable pantograph member, and a master pen secured to said adjustable member.

3. In a writing machine, a suitably supported shaft, a pair of arms pivotally supported thereby, a second pair of arms pivotally secured to the first arms, a pen bar, blocks pivoted to said second arms, posts adjustably mounted on the pen bar and adjustably connected to said blocks, a plurality of pens rigidly connected to the pen bar, a master pen, and a handle therefor having a ball and socket connection to said master pen.

4. In a writing machine, a base, posts mounted thereon, a shaft pivotally carried by said posts, a pair of pivotally mounted arms supported by said shaft, a second pair of arms pivoted to the first arms, a pen bar pivotally connecting said second arms, means for angularly adjusting said pen bar, a plurality of writing members, a holding device for each of said writing members, clamping members slidably mounted on the pen bar supporting said holder, and means for vertically adjusting said holding devices with respect to the pen bar.

5. In a writing machine, a base, posts mounted thereon, a shaft pivotally mounted between said posts, hinge posts fixed to the shaft, a pair of arms pivoted to the hinge posts, a second pair of arms pivoted to the first arms, a pen bar pivotally connecting said second arms, a plurality of writing members, a holder clamped to each of said writing members having a post at one side thereof, a post barrel slidably mounted on the pen bar, and means for vertically adjusting said post within the barrel.

6. In a writing machine, a base, posts mounted thereon, a shaft pivotally carried by said posts, hinge posts fixed to the shaft, a pair of arms pivoted to the hinge posts, a second pair of arms pivoted to the first arms, a pen bar, blocks carried by the second arms, posts removably secured to the pen bar, a pivotal connection between said blocks and posts, and means for locking the pen bar at any desired angle.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

HUBERT STANLEY FREW.
FREDERICK PONSONBY SEXTON.

Witnesses:
C. W. TAYLOR,
E. R. MCKENZIE.