

Dec. 12, 1939.

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2,183,276

CLAMPING MEANS FOR COPY HOLDERS

Filed Oct. 26, 1938

2 Sheets-Sheet 1

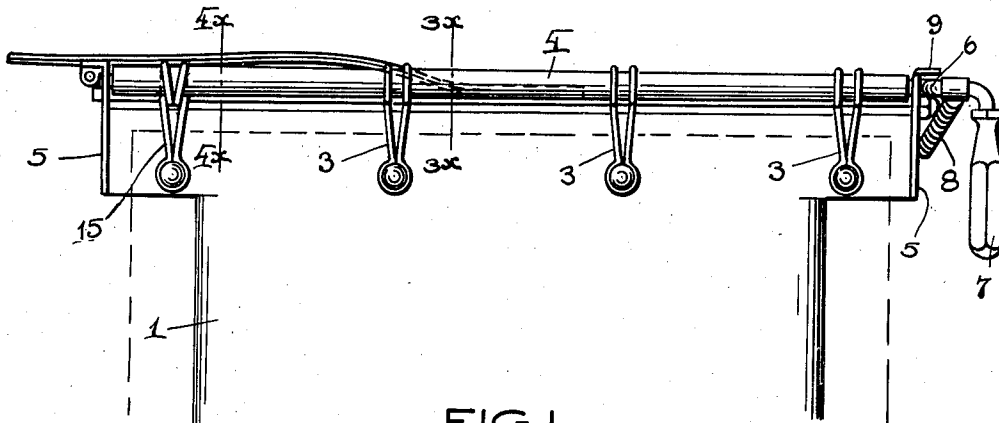


FIG 1

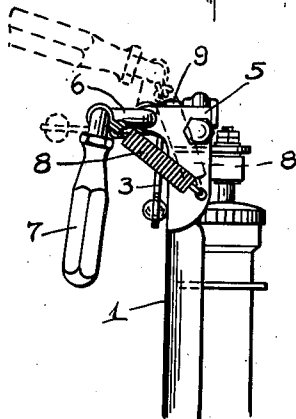


FIG 2

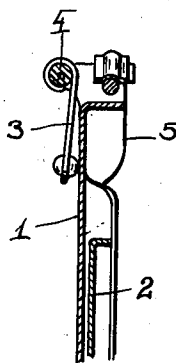


FIG 3

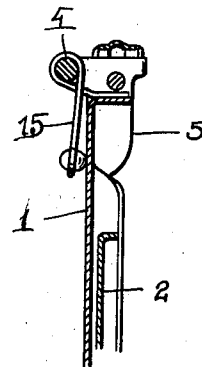


FIG 4

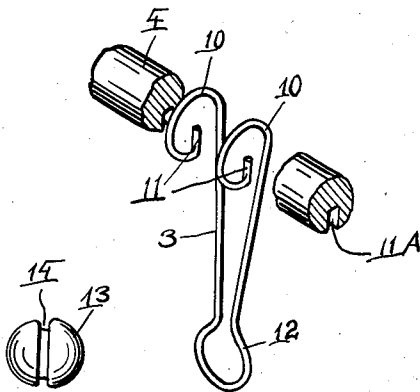


FIG 5 FIG 6

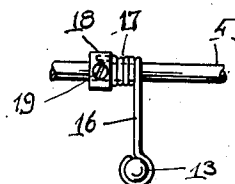


FIG 7

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2 Sheets-Sheet 2

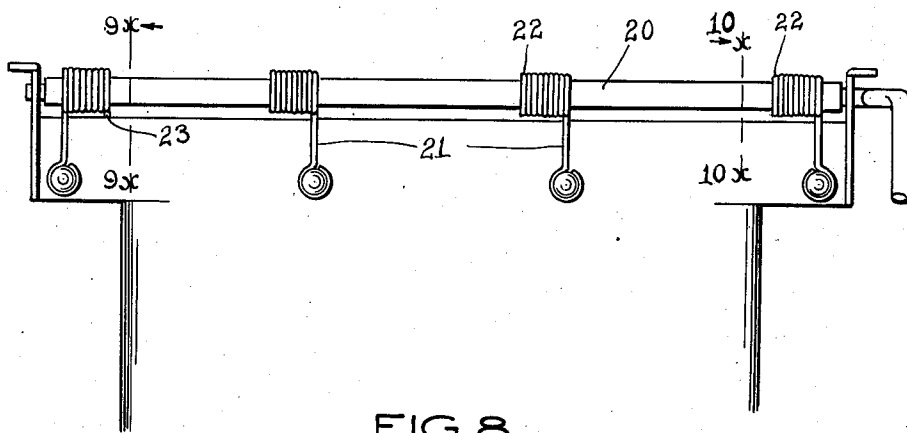


FIG 8

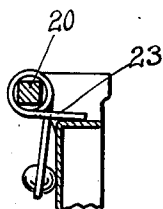


FIG 9

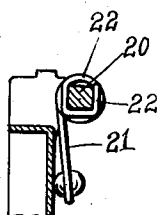


FIG 10

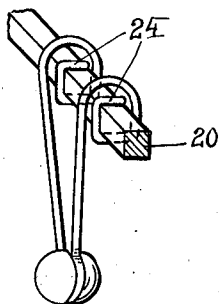


FIG 11

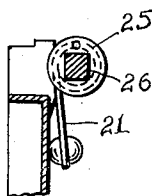


FIG 12

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2,183,276

CLAMPING MEANS FOR COPY HOLDERS

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Application October 26, 1938, Serial No. 237,040

17 Claims. (Cl. 24-66)

This invention relates to copy holders commonly used by typists and has for its principal object to provide such a copy holder with a novel form of clamping members with which the work to be copied may be conveniently and efficiently attached to the work supporting plate and firmly held in place thereon the full width thereof.

Another object of the invention is to provide the work supporting plate of a copy holder with a series of individual clamping members and means for collectively operating these clamping members so that each clamping member will efficiently perform its clamping function.

A further object of this invention is to combine a series of collectively operated clamping members with one or more individually operated clamping members in such a manner that the individually operated clamping members may be used to hold a portion of the work to be copied while it is being arranged for proper alignment and position on the work plate for engagement by the other clamping members.

A still further object of this invention is to provide for lateral adjustment of the clamping members relative to each other.

All these and other objects and attendant advantages will become more clearly apparent from the detailed description of the invention which follows, reference being had to the accompanying drawings in which

Figure 1 is a front elevation of the top of a copy holder with the movable work support thereof provided with the novel clamping members for holding the work to be copied in place thereon.

Figure 2 is an end elevation thereof.

Figure 3 is a sectional view taken on the line 3x-3x of Figure 1.

Figure 4 is a sectional view taken on the line 4x-4x of Figure 1.

Figure 5 is an enlarged side elevation of one of the rubber contacts carried by the clamping members.

Figure 6 is a detail perspective view of one of the clamping members.

Figure 7 is a detail front elevation of a modified form of the spring clamping fingers.

Figure 8 is a front elevation of the top of the copy holder embodying a modified form of the novel clamping members for holding the copy work in place on the movable work plate.

Figure 9 is a vertical section taken on the line 9x-9x of Figure 8.

Figure 10 is a vertical section taken on the line 10x-10x of Figure 8.

Figure 11 is a detail perspective view of another modified form of one of the clamping fingers and its support on the supporting rod.

Figure 12 is a vertical section similar to that illustrated in Figure 9 with a modified form of spring finger.

The novel clamping means for holding the work forming the subject matter of our present invention may be embodied in any copy holder having a work support on which the work is held in a predetermined position for quick and convenient reading by the copyist.

As illustrated in the figures of the drawings, the clamping means for holding copy in a copy holder are provided at or near the top of the movable work support or backing plate 1. This work support is mounted on a suitable stationary upright 2 on which it may be raised by a step by step movement and then released to drop back to its starting position. The mechanism for the operation of the work support forms no part of our present invention and is therefore omitted from the figures of the drawings.

The clamping mechanism comprises a series of spring fingers 3, 3 which are carried on the rod 4. The latter is pivotally mounted in bearings provided in the bearing plates 5, 5 one on each side of the work support at or near the top thereof. One end of the rod 4 is suitably extended and has formed thereon a crank 6 to which is attached the handle 7 for the rotation of the rod 4 and movement of the spring clamping fingers 3, 3 as will hereinafter appear.

A spring 8 is stretched between the crank 6 and the bearing plate adjacent thereto so as to yieldingly hold the crank in either the full line or the dotted line position illustrated in Figure 2. In the full line position the spring 8 draws the spring fingers 3, 3, yieldingly against the copy work placed on the work support and in the dotted line position the crank is drawn against the stop 9 provided on the bearing plate so as to hold the spring fingers in a substantially horizontal position away from the work support.

The spring fingers are formed from a single wire as illustrated and are provided with two parallel substantially circular loops 10, 10 which are adapted to embrace the supporting rod 4 and provide a yielding hub member for the support of the fingers on the supporting rod. The ends 11, 11 of these two loops are bent radially inward for anchorage to the supporting rod and movement thereby. For this purpose the supporting rod may be provided with individual holes to have the ends 11 of the spring fingers engage therein to be permanently located in a fixed position thereon, or the supporting rod may be provided with a longitudinal groove 11A as illustrated in Figure 6 so that the ends 11 of the spring fingers may engage into this groove for rotating movement by the supporting rod but also for endwise movement on the supporting rod to permit lateral adjustment of the spring fingers on the supporting rod.

At the outer end each spring finger 3 is provided with a loop 12 which embraces a rubber button 13 in the circular groove 14 thereof in order

to provide the finger with a non-slip contact surface.

For convenient adjustment of the work on the work support, especially if the work comprises a sheet or sheets of considerable width, it is desirable to first attach but one end of the work to the work support to permit horizontal alignment of the work on the work support before it is finally clamped in place by all of the spring fingers. This is made possible by the use of a spring finger 15 located at or near one end of the supporting rod 4. This spring finger, instead of having its ends engage into the supporting rod for rotation thereby, has its ends engage the work support in such a manner that they exert a constant pressure on the finger for clamping purposes but at the same time permit endwise movement of the finger on the supporting rod for lateral adjustment thereon. In this way the finger 15 can be laterally adjusted on the supporting rod 4 and then pulled out for the insertion of one end or a corner of the work thereunder and the release of the finger thereagainst. This is done while the remainder of the spring fingers are held away from the work support as illustrated in dotted lines in Figure 2 in order to permit free movement of the work into the proper alignment on the work support while one side is pivotally held supported thereon. After the work is properly aligned in this manner, the handle is turned down to have the fingers 3, 3 engage the work and hold it yieldingly against the work support. This permits the operator to use both hands to quickly attach one corner of the work to the work support and thereafter conveniently align and hold the work on the work support in aligned position with one hand while operating the handle 7 and moving the other spring fingers for attachment of the aligned work with the other hand.

Heretofore clamping members on copy holders were mounted and arranged on a rigid rod which was mounted to swing toward and away from the front of the work support. This made it necessary for the rod carrying the clamping members to be absolutely parallel to the front of the surface of the work support and necessitated the use of a spring at both ends of the rod to uniformly draw the rod with the clamping member against the surface of the work support in order that the work was properly engaged and held by all of the clamping members. In many instances this made it necessary to bend and adjust the rod holding the clamping members until all of the clamping members were simultaneously held against the work support at a uniform pressure.

In the present invention but one spring is needed for the tension on the supporting rod as this tension is supplemented by the tension of each spring finger which can be bent or adjusted on the rod so as to engage the work support in such a manner that each finger will apply a uniform pressure against the work on the work support. The spring fingers may even be adjusted so that they will engage the work progressively from one end thereof as the supporting rod is turned by the handle until all of the spring fingers are yieldingly held against the work by the action of the spring 8.

As will be seen in Figures 3 and 4, the supporting rod is held spaced in front of the work support so that work to be copied is free to extend behind the rod and above it.

In Figure 7 we have illustrated a modified

form for the clamping fingers. This form of finger 16 is provided with coils 17 which encircle the supporting shaft 4 to yieldingly support the finger on the shaft. The end of the wire from which the finger is formed is anchored in the collar 18 and this collar in turn is fixed on the shaft by means of a suitable set screw 19. In this way the finger 16 may be rotatably as well as slidably adjusted on the shaft 4 by means of the collar 18.

In Figures 8, 9 and 10 we have illustrated a simplified construction and mounting for the clamping fingers. In this construction a supporting shaft 20 is used which has a square cross section. The construction of the spring fingers 21 supported on this shaft is similar to that illustrated in Figure 7 except that the end coil 22 thereof is given a rectangular outline which snugly encircles the square outline of the supporting shaft for rotation thereby as well as endwise movement thereon. In this way the spring fingers may be adjusted on the supporting shaft by simply shifting them to the desired position and have them retain at all times their operative connection with the supporting shaft for their swinging movement thereby.

On the spring finger, which is used for individually holding a portion of the copy work while the remainder is adjusted for engagement by the collectively operated spring fingers, the square coil is omitted and instead the free end of the end coil is extended as shown at 23 so as to engage the top of the work plate and cause a normal yielding engagement of the spring finger with the work plate at all times. This permits this spring finger to be laterally adjusted on the supporting shaft and be individually operated to hold and release the copy work on the work plate and be unaffected by the rotating movement of the supporting shaft.

In Figure 11 we have shown still another modified form of construction of the spring fingers. This construction is similar to that illustrated in Figures 1, 2, 3 and 4 and provides additional substantially rectangular loops 24, 24 on this type of spring finger. These rectangular loops provide the movement transmitting connection for the swinging movement of the spring fingers by the supporting shaft 20 and at the same time permit lateral adjustment of the finger on the shaft.

In the modified form illustrated in Figure 12 the square coil 22 is replaced by a washer 25 having a square hole 26. In this case the wire end of the round coils is suitably connected to the washer to provide the connection between the washer and the coils which will cause the spring finger to swing on the rotation of the supporting shaft.

From the foregoing it will be apparent that we have devised new and useful clamping means for clamping copy work to copy holders which embodies the features and advantages enumerated as desirable in the statement of the invention and the above description, and while we have, in the present instance, shown and described preferred embodiments thereof which will give in practice satisfactory and reliable results, it is to be understood that these embodiments are susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

We claim:

1. Clamping means for copy holders having a

work support, said means comprising a supporting rod, means for rotatably supporting said rod, a yielding hub member carried by said rod, a finger supported by said hub member, and
 5 spring means engaging said rod for yieldingly holding said finger against said work support through said yielding hub member.

2. Clamping means for copy holders having a work support, said means comprising a supporting rod, means for rotatably supporting said rod, a spring finger, a loop on said spring finger embracing said rod and one end of the loop engaging said rod for rotation thereby toward and away from said work support.

15 3. Clamping means for copy holders having a work support, said means comprising a supporting rod, a longitudinal groove in said supporting rod, means for rotatably supporting said supporting rod, a yielding hub member carried by said rod and engaging into said groove to permit lateral adjustment of the hub member on said rod, and a finger supported by said yielding hub member for rotative movement by the rod through said yielding hub member.

25 4. Clamping means for copy holders having a work support, said means comprising a supporting rod, means for rotatably supporting said rod, a spring pressed finger carried by said rod for rotation thereby relative to said work support and a second spring pressed finger freely mounted on said rod for independent clamping movement relative to said work support.

30 5. Clamping means for copy holders having a work support, said means comprising a supporting rod, means for rotatably supporting said rod, a spring pressed finger carried by said supporting rod for rotation thereby relative to said work support, and a second spring pressed finger freely and slidably mounted on said rod for endwise movement and independent clamping movement on said rod.

35 6. Clamping means for copy holders having a work support, said means comprising a supporting rod, means for rotatably supporting said rod, a spring pressed finger, spring means connecting said fingers with said supporting rod, said rod for yieldingly holding said finger against said work support, a crank on said supporting rod, and a handle for operating said crank and rotating said supporting rod and spring means carried thereby and swinging said spring pressed finger.

40 7. In clamping means for copy holders having a work support and a supporting rod, the combination of a spring finger bent from a single length of wire, a pair of loops at the ends of the wire and arranged spacedly parallel to each other for engagement by said supporting rod, a third loop intermediate the ends of the wire and a yielding contact member mounted in said third loop.

45 8. In clamping means for copy holders having a work support and a supporting rod, the combination of a spring finger bent from a single length of wire, a pair of loops at the ends of the wire and arranged spacedly parallel to each other for engagement by said supporting rod, a third loop intermediate the ends of the wire, a yielding contact member mounted in said third loop, and a key member extending radially of said pair of loops for engagement with said supporting rod.

50 9. In clamping means for copy holders having a work support and a supporting rod, the combination of a spring finger bent from a single length of wire, a pair of substantially parallel loops near one end of the wire for its support on said supporting rod, spring members extending from said loops, a third loop formed between the outer ends of said spring members and a yielding contact member held anchored in said third loop.

10. A clamping finger for copy holders comprising an elongated spring member, a coil formed at one end of said spring member, a collar attached to said coil, a shaft for rotatably and slidably supporting said collar and coil and means for fastening said collar to said shaft.

11. A clamping finger for copy holders comprising an elongated spring member, a coil formed at one end of said spring member, a collar attached to said coil, a shaft for rotatably and slidably supporting said collar and coil, means for fastening said collar to said shaft, a loop at the outer end of said spring member and a contact member mounted in said loop.

12. A clamping finger for copy holders comprising a spring finger, a plurality of coils provided at one end of said spring finger, a supporting rod for extension thru said coils and means provided on said coils and engaging said supporting rod to provide for the rotation of said spring finger by said supporting rod with lateral adjustment of the finger on said supporting rod.

13. A clamping finger for copy holders comprising a spring finger, a plurality of circular coils provided at one end of said spring finger, a substantially rectangular coil at one end of said circular coils, a supporting rod having a rectangular cross section extending thru said circular and rectangular coils to provide for the rotation of said coils and spring finger by the engagement of said supporting rod with the sides of said rectangular coil.

14. A clamping finger for copy holders comprising a substantially V shaped spring member, a pair of substantially square coil members at the top of said spring member, said square coil members being axially in line with each other.

15. A clamping finger as set forth in claim 14 with an enlarged coil member partially encircling said substantially square coil members and connecting said spring member with said substantially square coil members.

16. Clamping means for copy holders having a work support, said means comprising a rotatably mounted supporting rod, spring means for rotating said supporting rod in one direction and handle means for rotating said supporting rod in the opposite direction, a clamping finger for engagement with said work support, and a spring coil interposed between said finger and said supporting rod for normally holding said finger yieldingly in engagement with said work support.

17. Clamping means for copy holders having a work support, a clamping finger rotatably mounted for engagement with and disengagement from said work support, a second clamping finger yieldingly mounted relative to said work support and cooperating with said first clamping means to one side thereof to pivotally hold a sheet member on said work support for alignment thereon and engagement by said first clamping finger.

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