July 2, 1929. R. A. BREITENBACH 1,719,422

PAPER OR SIMILAR CLAMP

Filed April 2, 1927

Fig. 1

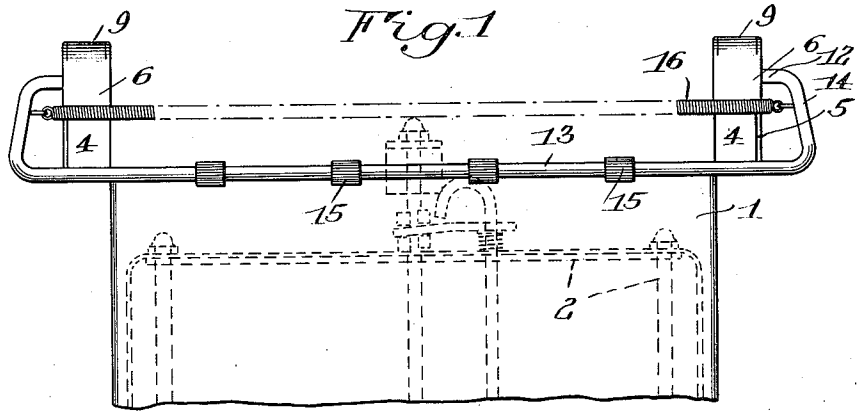


Fig. 2

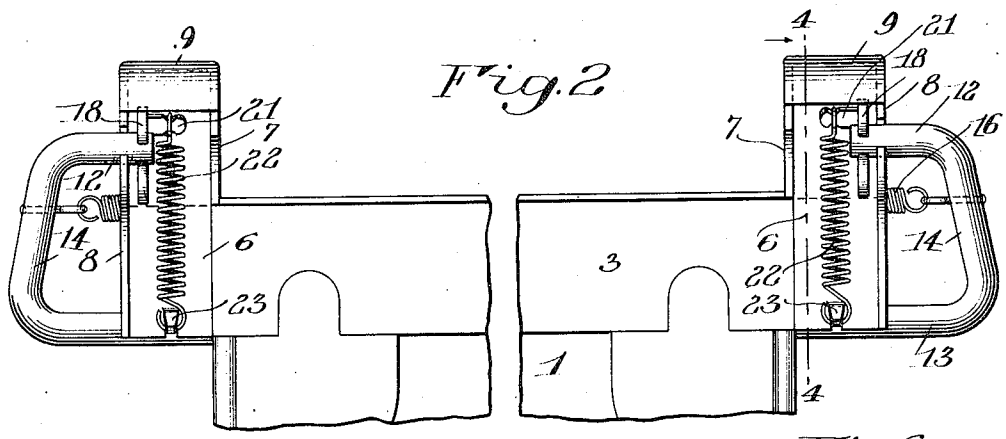


Fig. 3

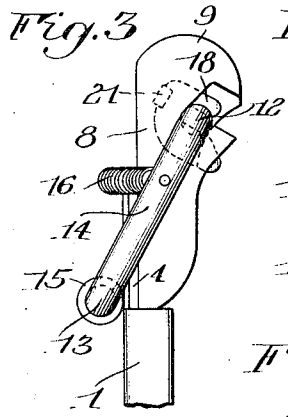


Fig. 4

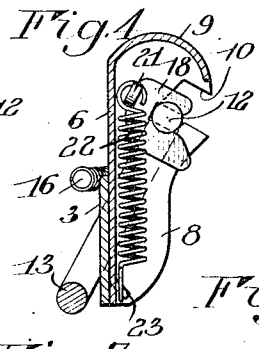


Fig. 5

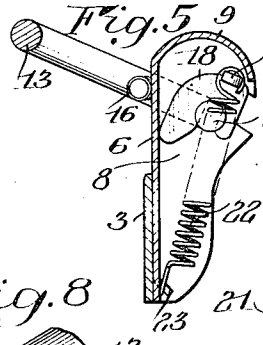


Fig. 6

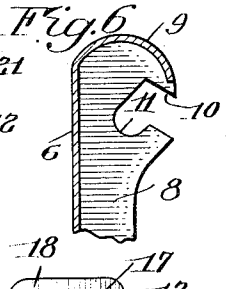


Fig. 7

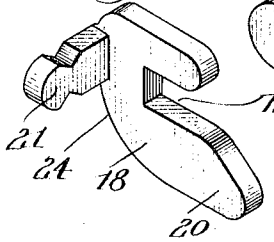


Fig. 8

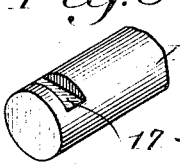
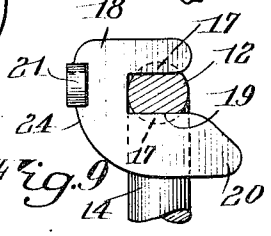


Fig. 9



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Patented July 2, 1929. 1,719,422

UNITED STATES PATENT OFFICE.

ROY A. BREITENBACH, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE LINE-A-TIME MFG. CO. INC., OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

PAPER OR SIMILAR CLAMP.

Application filed April 2, 1927. Serial No. 180,462.

My present invention relates to paper clips and clamps of the nature in which a sheet of paper or similar objects are held by spring action between jaws, or by a movable jaw working against a supporting surface, and the invention has for its object to provide a simple, inexpensive and efficient clamp or clip of this character and one which will offer certain improvements and advantages in the matter of assembling the parts. The improvements are directed in part to producing an arrangement whereby the elements are held together by a single operating spring and can be assembled, or disassociated with ease when the tension of this spring is released.

To these and other ends the invention resides in certain improvements and combination of parts, all of which will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a front elevation of a paper clamp constructed in accordance with and illustrating one embodiment of my invention;

Figure 2 is an enlarged rear elevation thereof partly broken away;

Figure 3 is an end view;

Figure 4 is a section taken on the line 4—4 of Figure 2 with the clamping jaw closed;

Figure 5 is a similar view showing the clamping jaw open;

Figure 6 is a similar view with the moving parts removed to show the construction of the supporting bearing;

Figure 7 is an enlarged perspective view of the spring attaching lever;

Figure 8 is a further enlarged perspective view of a fragment of the pivot bearing portion of the movable jaw; and

Figure 9 is an enlarged fragmentary sectional view showing the manner in which the spring lug and bearing portion are associated.

Similar reference numerals throughout the several views indicate the same parts.

I have illustrated and will describe my improved clamp as applied to the copy-plate of a copyholding machine, such as is used for holding loose sheets and note books in transcribing on a typewriter. In Figure 1 the top portion of the copy-plate of a familiar commercial form of such a device is shown at 1. This copy-plate is raised and lowered by suitable devices on a guide frame indicated generally in dotted lines at 2, but as this forms no part of the present invention, it need not be more extensively referred to.

Secured to the back of the copy-plate 1 at the top is a transverse reinforcing and mounting plate 3, the ends of which project beyond the side edges of the copy-plate as indicated at 4 in Figure 1. The extreme end edge of this reinforcing plate is indicated at 5 in Figure 1. Spot welded or otherwise suitably secured to the projecting ends of the reinforcing plate are a pair of vertically rising small plates 6 which have rearwardly turned side flanges 7 and 8 and a rearwardly and downwardly turned top flange 9 all of which together form a partial housing for the mechanism hereinafter described, principally for the purpose of preventing the fingers of the operator from coming in contact with the contained mechanism.

The construction may be made on one side only of the machine or on both sides. In the present embodiment I prefer to construct both sides alike, but for the purpose of explaining the construction a description of the parts at one side in the singular will suffice for both.

The outside flange 8 of the housing plate 6 has an angular slot 10 (Figure 6) cut from its rear edge, the inner end of which slot is semi-circular and extends at an angle to the outer end to provide an open bearing 11. Turning in this bearing is a pivot portion 12 constituted by the inwardly turned end of a round wire bail clamp 13 that thence proceeds downwardly at 14 and horizontally across the face of the support or copy-plate, against which latter it is normally held by spring pressure in the manner hereinafter described. The bearing portion of this clamp is inserted in the open bearing 11 by movement in two directions through the slot 10. The clamp has rubber sleeves 15 which frictionally engage the paper sheets to retain them against the supporting plate, and the portion 14 of the clamp with its adjoining angular connections constitutes a hand hold for manipulating the clip between the open position of Figure 5, and the closed position of the other figures. The coil spring shown at 16 extending across the top edge of the copy-plate between the clamp portions 14 is for the purpose of holding back the turned leaves or sheets.

The pivot portion 12 projects only par-

tially within the housing. This projecting portion is provided on opposite sides with transverse flat channels 17 producing the non-circular cross section shown in Figure 9. A preferably sheet metal lug 18 is slotted at 19 to slip detachably over the channeled portion of the pivot 12 to turn therewith. It has an extended stop portion 20 that co-operates with the support or housing plate 6 to limit the opening movement and define the wide open position of the clamp 13 as shown in Figure 5. The lug is also provided with a suitable lateral ear 21 projecting beyond the end of the pivot portion 12, and forming a means for the attachment of one end of an extensible coil spring 22, the other or lower end of which is hooked, with the spring under tension, on to a fixed spur 23 at the lower edge of the housing plate 6.

It will be seen from an inspection of Figure 4 that when the clamp 13 is in the closed position of that figure, the ear or spring attaching point 21 is forwardly of the axis 12 and hence, through the lug the spring holds the clamp down against the copy-plate with pressure. When the clamp is opened to the position of Figure 5, the ear 21 or spring attaching point passes across the dead center line defined by the axis and the fixed spring attaching point 23, so that the spring also holds the clamp open with the stop 20 of the lug abutting the plate.

The pivot portion 12 of the clamp is inserted in the bearing 11 or removed therefrom easily by a forward or rearward movement through the angular slot 10. When positioned in the bearing, the tension of the spring 22 operates at all times to so maintain it, as will be seen from an inspection of Figures 4 and 5. Not only this but the tension of the spring also holds the detachable lug 18 on the pivot portion 12, particularly in the open position of Figure 5. In the closed position the lug is prevented from disengaging additionally by the plate 6 in close proximity to which a suitably curved portion 24 of the lug turns.

In addition to other structural and functional advantages that accrue from the form and disposition of the lug 18, it is of particular assistance in assembling the device. There is more than one way of assembling, but the easiest way is to attach the upper end of the spring to the lug, slip the lug on the bearing portion, and then slide the latter into its bearing through the slot 10 while the clamp has approximately the position of Figure 4 relatively to the plate. That is, with the swinging movement about the approximate center 13. All that then remains to be done is to attach the other or fixed end of the spring at 23. Or else the clamp may be slipped into its bearings alone, and the lug 18, with the spring attached, then passed up under the housing and down into locking engagement with the pivot portion 12, while the clamp is in an intermediate or horizontal position between the positions of Figures 4 and 5. The lower end of the spring can then be attached at 23 as before.

I claim as my invention:

1. The combination with a support having an open bearing, of a clamp having a pivot portion turning in the bearing and detachable laterally therefrom, and a spring detachably connected to the support and to the clamp at a point which passes across the dead center between the connection of the spring with the support and the bearing as the clamp moves between open and closed positions, the spring operating to hold the clamp in at either side of said dead center, and to retain said clamp in its bearing.

2. The combination with a support having an angularly opening bearing, of a clamp having a pivot portion turning in the bearing and detachable therefrom by movement in two directions, and a spring connected detachably to the support and to the clamp at a point which passes across the dead center between the point of connection of the spring to the support and the bearing, as the clamp moves between open and closed positions, the spring operating to hold the clamp in its bearing at all times.

3. The combination with a support having an open bearing, of a clamp having a pivot portion turning in the bearing, a detachable lug locked for turning movement on the pivot portion, and a spring connected to the lug and to said support to operate the clamp, said spring acting to retain the lug on the pivot portion and the pivot portion in the bearing.

4. The combination with a support having an open bearing, of a clamp having a pivot portion turning in the bearing, a detachable lug locked for turning movement on the pivot portion, and a spring connected adjacent one end to the lug at a point which passes across the dead center as the clamp moves between open and closed positions and connected to the support adjacent its other end, said spring acting to retain the lug on the pivot portion and the pivot portion in the bearing.

5. The combination with a support having an open bearing, of a clamp having a pivot portion turning in the bearing, a detachable lug locked for turning movement on the pivot portion, and a spring attached adjacent one end to the lug at a point which passes across the dead center as the clamp moves between open and closed positions and attached to said support adjacent its other end, said spring acting to retain the pivot portion in the bearing and the lug on the pivot portion in one position of the clamp, and the lug being prevented from disengagement with the pivot portion by the support in another position of the clamp.

6. The combination with a support having

an open bearing, of a clamp having a pivot portion turning in the bearing, a detachable lug locked for turning movement on the pivot portion, and a spring attached adjacent one end to the lug at a point which passes across the dead center as the clamp moves between open and closed positions and attached to said support adjacent its other end, said spring acting to retain the pivot portion in the bearing and the lug on the pivot portion in one position of the clamp, and the lug being prevented from disengagement with the pivot portion by the support in another position of the clamp, said lug being provided with a stop cooperating with the support to limit the open position of the clamp.

7. The combination with a support having an open bearing, of a clamp having a pivot portion turning in the bearing, a detachable lug locked for turning movement on the pivot portion, and a spring attached to the lug and to said support to operate the clamp, said spring acting to retain the lug on the pivot portion and the pivot portion in the bearing when the clamp is open and the lug being prevented from disengagement with the pivot portion by cooperation with the support when the clamp is closed.

8. The combination with a support having an open bearing, of a clamp having a pivot portion turning in the bearing, a detachable lug locked for turning movement on the pivot portion, and a spring attached to the lug and to said support to operate the clamp, said spring acting to retain the lug on the pivot portion and the pivot portion in the bearing, and a stop on the lug cooperating with the support to limit the open position of the clamp.

9. The combination with a copy-plate having rearwardly turned flanges provided with angular slots constituting open bearings, of a paper clamp having pivot portions turning in the bearings and removable laterally therefrom and having transverse channels therein, slotted lugs having a slip connection with the channels locking them for rotation with the bearing portions, said lugs being prevented from disengagement by the copy-plate when the clamp is closed down against the latter and being provided with stops engaging the copy-plate to limit the open position of the clamp, and springs attached to the copy-plate and attached to the lugs at points passing across the dead center when the clamp is moved between open and closed positions, said springs operating to hold the clamp in either position and in its bearings and to hold the lugs on the bearing portions when the clamp is open.

ROY A. BREITENBACH.

CERTIFICATE OF CORRECTION.

Patent No. 1,719,422. **Granted July 2, 1929, to**

ROY A. BREITENBACH.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, line 82, claim 1, after the word "in" insert the word "position"; same page, line 88, claim 2, strike out the word "connected" and insert same after the syllable "tachably" in line 89, of same claim; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 30th day of July, A. D. 1929.

M. J. Moore,
Acting Commissioner of Patents.

(Seal)

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