March 7, 1950 V. C. HELBERG 2,500,032

FILING CLIP

Filed Aug. 4, 1945

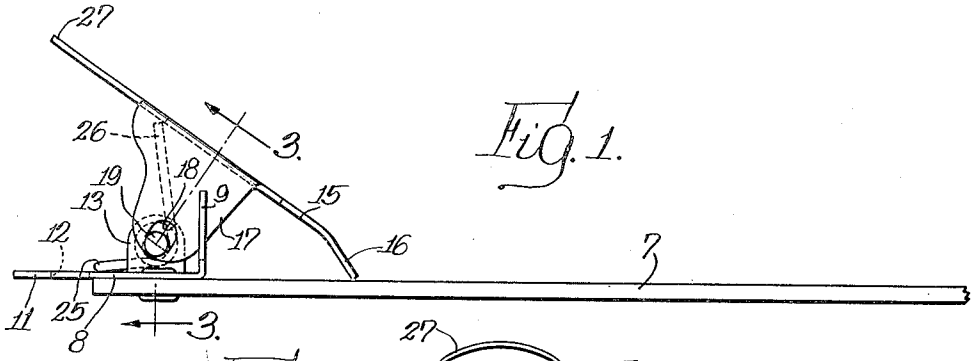


Fig. 1.

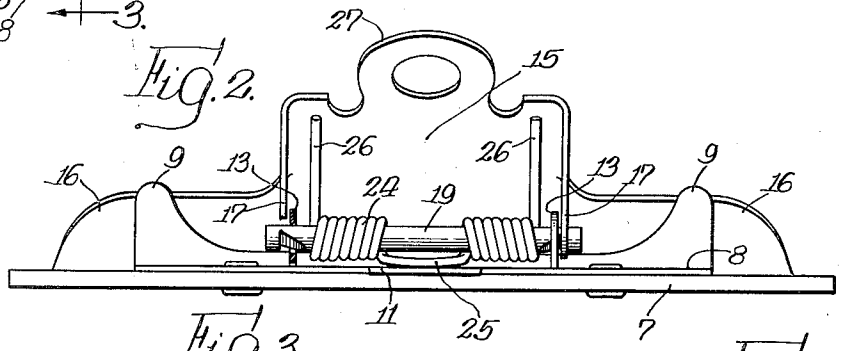


Fig. 2.

Fig. 3.

Fig. 4.

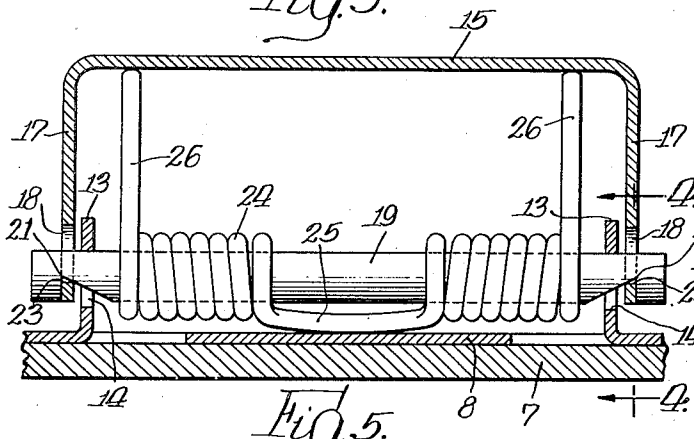


Fig. 5.

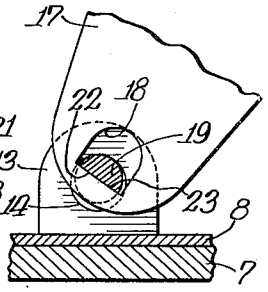
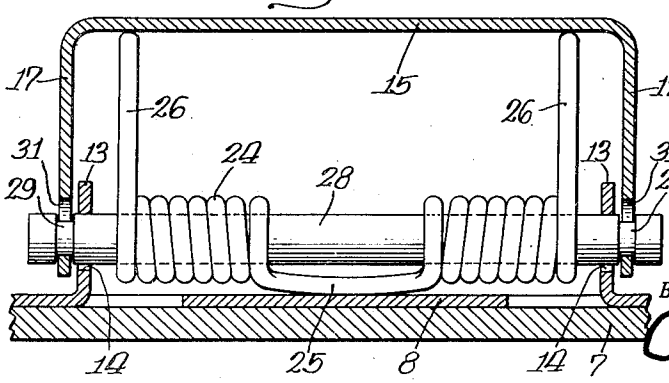
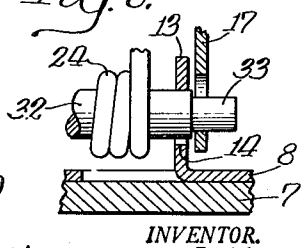


Fig. 6.





INVENTOR.
Vernon C. Helberg.
BY
Chas. J. Wilson
Atty.

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FILING CLIP

Vernon C. Helberg, Evergreen Park, Ill., assignor to Royal Tool & Manufacturing Company, Chicago, Ill., a corporation of Illinois

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4 Claims. (Cl. 24—66)

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This invention relates to the pivotal connection of various members, and, while not restricted to that use, is herein illustrated as embodied in a filing clip, although manifestly the principles of the invention may be utilized in various other articles and appliances.

In devices where an oscillatory movement between two members is required and economy in production is more important than accuracy or precision of operation, the usual practice has been to upset the ends of the connecting pintle which serves as a rock shaft, thereby preventing longitudinal displacement in use of the connecting pintle. The upsetting, however, necessitates the positioning of the assembled parts in a heading or upsetting machine, and since the pintles are not of a high quality of metal they are apt to become bent or distorted under the upsetting pressure, unless they are firmly held between their ends, which still further increases the time and cost of production.

One of the primary purposes of my present invention is to eliminate the upsetting operation and provide a connection which can be quickly and easily assembled, and which by reason of its structure will be self-locking, so that the pintle will be held against displacement by the action of the spring which is necessarily employed for producing the clamping or holding action of the clip.

Other purposes of my invention are to provide a connection of this character which will be strong, durable and, in addition to being economical to produce, will be capable of being quickly and easily assembled by unskilled labor.

Other objects and advantages of my invention will be appreciated as the same becomes better understood by reference to the following description when considered in connection with the accompanying drawing.

Referring to the drawing,

Fig. 1 is a side elevation of a mounted filing clip embodying my invention;

Fig. 2 is an end view looking toward the right at Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a fragmental section on the line 4—4 of Fig. 3;

Fig. 5 is a view similar to Fig. 3 of a modification; and

Fig. 6 is a view similar to Fig. 4 of another modification.

Referring to the drawing more in detail, reference character 7 indicates a board of wood or

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fiber composition, such as is commonly employed as the back board for a clip file. The clip, which is mounted thereon at one end thereof comprises the base member 8 having up-turned paper edge stops 9 and an extension 11 provided with an eye 12 by which the file may be suspended from a hook or the like, and a pair of spaced apart upstanding lugs 13 each provided with a circular aperture 14.

The clip member which is pivotally mounted on the base member is formed of sheet metal to provide the plate 15 having lateral extensions 16 to provide a long clamping edge and downturned wings 17 adapted to overlap the lugs 13, the wings being provided with apertures 18 adapted to be aligned with the apertures 14 of the lugs 13 to permit the projection through said apertures of the pintle 19.

The pintle, as shown in Figs. 1 to 4, inclusive, is cylindrical in shape and is formed from a rod which is cut off into suitable pintle lengths. The severance of such a rod into lengths is done in a machine of the punch press type, which is equipped adjacent to and at each side of the cutting knife with a notching tool which simultaneously with the severance of the rod cuts a notch 21 at each side of the severance line. It will be manifest, therefore, that each actuation of the cutting and notching tools produces a pintle provided near its ends with the notches 21 presenting a flat transversely extending surface 22. The apertures 18, instead of being circular in shape, have a flat bottom wall 23 which, as shown in Figs. 3 and 4, engages the flat surface 22 of the pintle.

The base member and the clip member are biased apart by a coiled spring 24 surrounding the pintle and having its looped end 25 engaging the base and its free ends 26 engaging beneath the clip plate 15 so as to rock the plate in a clockwise direction, viewing Fig. 1, into clamping or holding position with respect to the board 7.

The action of the spring tends to elevate the clip away from the base and thus cause the flat surfaces 23 of the apertures 18 to engage the opposed flat surfaces 22 at the bottom of the notches 21. When, therefore, the clip is rocked by the application of pressure to its projecting outer end 27, as is done in opening the clip, the pintle 19 rocks with the clip and its circular surface rides in the upper portions of the circular apertures 14 in the lugs 13. A circular bearing for the lug is thus afforded, which contributes to ease in operation and longevity of the device.

Since the lower ends of the wings 17 are consistently urged by the spring 24 into the notches 21, and, since the outer or end walls of these notches constitute abutments extending transversely of the pintle, it will be obvious that the pintle is locked by the walls of the wings against longitudinal displacement and the parts are consequently retained in assembled relation. The assembly of the parts may be readily effected by unskilled labor, since all that is necessary is that the clip be positioned with its wings 17 straddling the lugs 13 and that it be pressed down against the force of spring 24 until the apertures 18 and 14 are aligned, whereupon the pintle may be inserted through the apertures until the notches are aligned with the wings 17. When this position has been reached, release of the spring 24 permits it to elevate the clip to engage the lower walls of the apertures 18 in the notches 21, in which position the parts are retained by the spring without any riveting or upsetting of the pintle or the employment of threaded nuts, cotter pins, or other expensive appliances for holding the parts in assembled relation.

In the modification shown in Fig. 5, the pintle 28, instead of having notches formed therein, is provided with annular grooves 29 and the apertures 31 in the wings 17 are circular instead of having a flat wall. The action of the spring 24 causes the wings 17 to be interlocked with the grooves 29, whereby the pintle is held against displacement and the parts are retained in assembled position.

In the modified form of the invention illustrated in Fig. 6, the pintle 32 has end portions 33 of reduced diameter. The action of spring 24 holds the parts in the position illustrated, and prevents displacement of the pintle.

It should be apparent from the foregoing that I have provided a connection particularly suitable for filing clips of the character indicated, but also capable of other uses, which is strong and durable in construction, is economical to manufacture and is capable of being readily assembled by unskilled labor.

The structural details illustrated and described may obviously be varied within considerable limits without exceeding the scope of my invention as defined in the following claims.

I claim:

1. A filing clip, comprising a base member having a pair of upstanding spaced and apertured lugs, a clip member having a pair of spaced and apertured wings embracing said lugs with the wing apertures disposed for alignment with the lug apertures, a cylindrical pintle extending through said lug and wing apertures, said pintle having a portion reduced in diameter adjacent to each end thereof to provide a recess having a shoulder thereat, said shoulders being formed to face one another and spaced apart a distance substantially equal to the spacing of said wings, and spring means coiled about said pintle and reacting against and between said members for biasing said members apart transversely of the pintle axis to position the margin defining each of said apertures in said wings respectively in the recesses formed by said reduced diameter portions and behind and in alignment with the adjacent one of said shoulders for engagement therewith to limit axial displacement of the pintle.

2. A filing clip, comprising a base member having a pair of upstanding spaced and apertured lugs, a clip member having a pair of spaced and apertured wings embracing said lugs with the wing apertures in alignment with the lug apertures, said apertures in said wings being non-circular, a cylindrical pintle extending through said lug and wing apertures, said pintle having a portion reduced in diameter adjacent to each end thereof to provide a recess having a shoulder and an adjacent non-circular bottom surface for such recess adjacent to each end, said non-circular surfaces and non-circular apertures being substantially conformed in profile, the maximum transverse dimension of each reduced portion of the pintle being no greater than the minimum transverse dimension of the wing aperture through which such portion is disposed and the maximum transverse dimension of such aperture being greater than the maximum transverse dimension of said pintle disposed therethrough, said shoulders being formed to face one another and spaced apart a distance substantially equal to the spacing of said wings, and spring means coiled about said pintle and reacting against and between said members for biasing said members apart transversely of the pintle axis to position the margins defining each of said apertures in said wings respectively in the recesses formed by said reduced diameter portions and behind and in alignment with the adjacent one of said shoulders for engagement therewith and with said non-circular pintle surfaces to limit axial displacement of the pintle.

3. A filing clip, comprising a base member and a clip member each having a pair of spaced and substantially parallel projecting portions, each projecting portion of one member being spaced to overlap and be disposed adjacent to one of the projecting portions of the other member, said overlapping portions being provided with openings adapted to be aligned for the reception of a pintle, whereby the members may be pivotally connected, a substantially cylindrical pintle disposed through said apertures and having a notch adjacent to each of its ends to provide a non-circular surface thereat, each of the openings in one member being elongated defined by a cylindrical portion of greater radius than the pintle radius and a non-circular marginal portion to fit into one of said notches, the greatest transverse dimension of the pintle at a notch being less than the minimum transverse dimension of either opening in said one member, and spring means for urging the non-circular portion of said margins into engagement with the non-circular surfaces of said notches to lock the pintle against displacement and to cause the pintle to rotate with the member having the openings with non-circular margins.

4. A connection for the base and clip members of a filing clip or the like, comprising a generally cylindrical pintle provided near each end with a notch including a surface a line in which defines a chord of an arc of a circumference of the pintle, each of said members being provided with a pair of projecting portions extending in spaced relation to one another and in the same angular direction from its member and substantially in the opposite direction with respect to the angular extension of the projecting portions of the other member, each projecting portion of one member being adapted to overlap and lie adjacent to a corresponding projecting portion of the other member, said projecting portions having registering apertures of sufficient size to permit the projection of said pintle therethrough, a portion of the wall margin defining each aperture of one

member being a tangent to engage the said surface of the corresponding notch in said pintle, each of the apertures in one of said members being elongated in a direction substantially normal to said tangential portion thereof and in the same direction as the other, the elongated dimension of each of the elongated apertures being greater than the maximum diameter of the pintle, the width dimension of each elongated aperture from adjacent to one end to the said tangential portion at the other end thereof being not less than the maximum chord width of the pintle notch adjacent thereto, and a spring

for biasing said members apart to effect a pivotal connection of the members and for locking the pintle against displacement.

VERNON C. HELBERG.

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The following references are of record in the file of this patent:

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