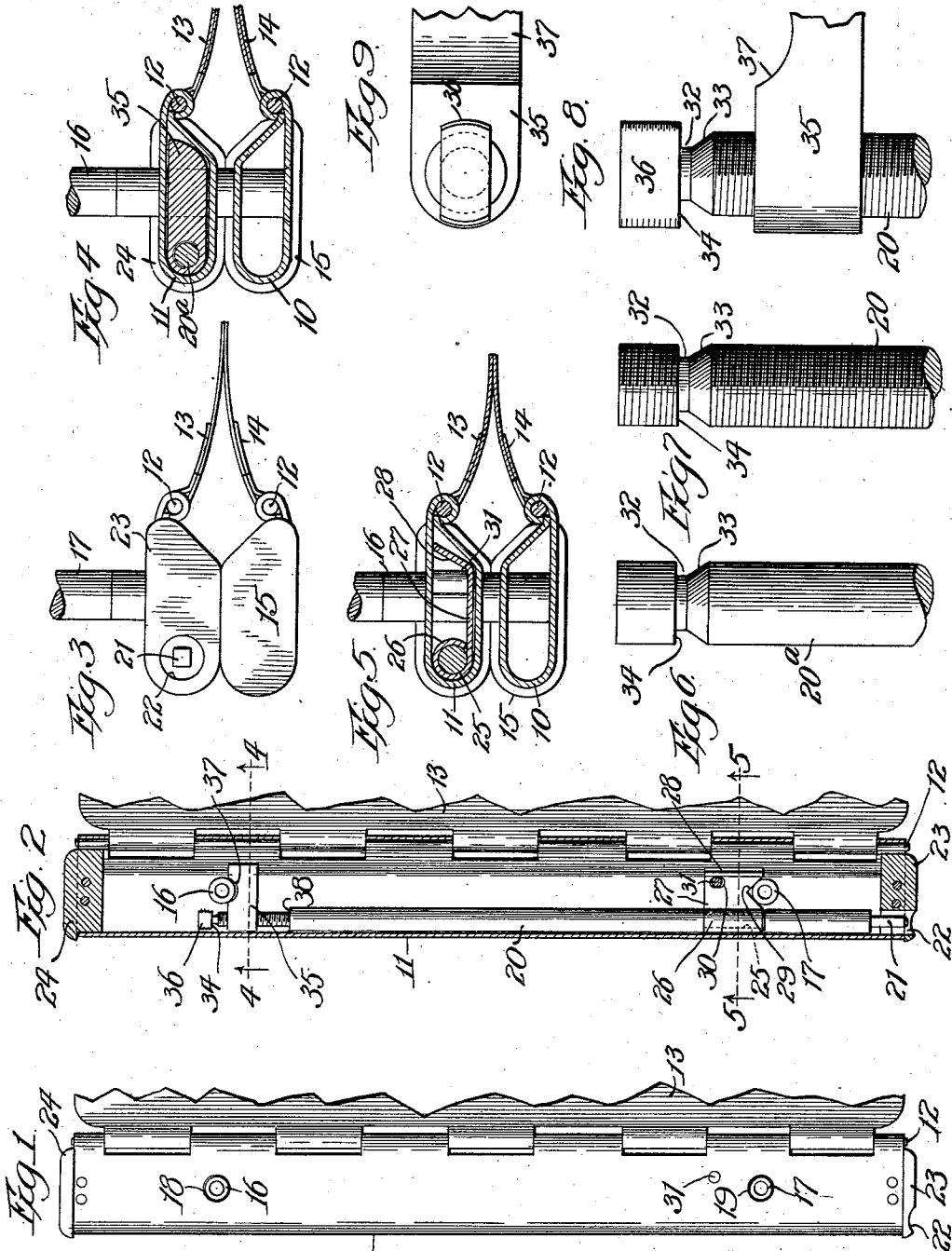


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 LOCKING DEVICE FOR TEMPORARY BINDERS.
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LOCKING DEVICE FOR TEMPORARY BINDERS.

1,019,149.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS P. HALPIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Locking Devices for Temporary Binders, of which the following is a specification.

My invention pertains to binders of the temporary or loose-leaf style, and aims to improve the construction and operation of the clamping or binding means co-acting with the binding posts usual in devices of this character. In some forms of these constructions it has been customary to employ a threaded shaft having associated therewith a pair of clamping or binding elements, and difficulty has been experienced in providing a simple and efficient means for preventing one of such clamps from becoming unthreaded from the shaft.

The leading aim and object of this invention is the provision of a simple and efficient clamping construction which will prevent both of the clamping blocks from leaving the shaft, the structure being such that such blocks will effectively and securely engage the binding posts even though the latter be introduced into one of the binding members only to a small extent.

In order that a full and complete understanding of this invention may be had, I have illustrated a preferred and desirable embodiment of the same in the accompanying drawing, forming a part of this specification, throughout the various views of which like reference characters refer to the same parts.

In this drawing—Figure 1 is a fragmentary face view of the binder, the covering portions of the same being omitted for clearness of illustration; Fig. 2 is a longitudinal section through one of the binder members or elements equipped with the clamps and actuating shaft; Fig. 3 is a fragmentary end view of the binder on an enlarged scale; Fig. 4 is an enlarged section through the same on line 4—4 of Fig. 2; Fig. 5 is a similar section taken at a different point on line 5—5 of Fig. 2; Figs. 6, 7, and 8 illustrate, on an enlarged scale, the manner of constructing the threaded end of the shaft in such a way as to prevent detachment of one of the binding or clamping elements;

and Fig. 9 is a top plan of the construction shown in Fig. 8.

Referring to the drawings, it will be noticed that, as is usual and customary in structures of this character, two binder members or elements 10 and 11 are employed, each being hollow and formed of sheet-metal, and each having hinged thereto at 12 the stiffening members 13 and 14 of the top and bottom covers, the covering or finishing material, whether of cardboard, leather, corduroy, or the like, being omitted. The opposite ends of the bottom hollow member 10 are closed by metal covers or blocks 15, such member also having rigidly secured thereto a pair of sectional posts 16 and 17. The upper or companion binder member 11 is apertured at 18 and 19 to permit the extension or projection of the posts there-through, as will be readily understood by those skilled in this art, it being customary to raise and lower the member 11 on these posts to accommodate a greater or fewer number of sheets between the two members. It is, of course, necessary to provide some form of clamping means to hold this member 11 in adjusted position, and for this purpose I provide in its hollow interior a metal shaft 20 having at one end a reduced angular portion 21 occupying an aperture 22 in one of the end plugs 23, the opposite end of the casing or member 11 being provided with a somewhat similar unapertured closure 24. The squared end 21 of this shaft is adapted to receive a socket key for turning the shaft, as is usual in constructions of this character.

Adjacent to the post 17 the shaft 20 is reduced in diameter at 25, and wrapped around such smaller part of the shaft is a portion or part 26 of a sheet-metal clamp resting on the bottom wall of the member 11 and having an upstanding portion 28 adapted to bear against the inner surface of the top wall, thereby maintaining the main body of the clamp against the bottom wall. The edge of this clamp 27 adjacent to the post 17 is notched at 29 so as to secure an effective and binding clamping action on the post. The clamp 27 has a small slot 30 through which passes a pin 31 fixed in the top and bottom walls of the shell 11 in any approved manner, this pin and slot connection of the clamp with the shell or binding

member permitting a slight longitudinal movement of the clamp relative to such member. The other end of shaft 20 in its manufacture is initially of reduced cylindrical formation 20^a and is provided with an annular groove 32, the inner wall 33 of which may be beveled or inclined, as shown in Fig. 6, while the outer wall 34 is preferably abrupt and in a plane at right angles to the axis of the shaft. This grooved end of the shaft is then threaded, as shown in Fig. 7, and subsequent to such threading operation the second clamping member 35 having a threaded hole extended therethrough is applied to the shaft, as shown in Fig. 8. After the application of this clamp 35 the threaded end portion 36 of the shaft beyond the groove 32 is flattened, as shown in Figs. 8 and 9, so as to increase one of its transverse dimensions whereby to make it greater than the external diameter of the threaded part of the shaft, which, as will be readily understood, provides the abrupt shoulder 34 to limit the travel of the clamp 35 on the screw-threaded end of the shaft without any binding action. In other words, the head or end 36 of the shaft is integral therewith, has a portion larger than the threaded part of the shaft proper, and has an abrupt shoulder limiting and restricting the movement of the clamp. This clamp 35 is shown in cross-section in Fig. 4 and is shaped to conform substantially to the hollow interior of the case or shell 11, so that displacement of the clamp is impossible. On one side at 37 the clamp is provided with a concave recess adapted to bear and press against the post 16 under certain circumstances. As is clearly indicated in Fig. 2, the threaded end of shaft 36 is of reduced diameter, providing an abrupt shoulder 38 which limits the travel of the clamp and block 35 on the shaft in the opposite direction.

The operation of this device is substantially as follows: In order to introduce sheets between the companion members 10 and 11 of the binder and the hinged covers attached thereto, the operator turns the shaft 20 by means of a key applied to the end 21 so as to free both of the clamps 27 and 35 from the posts. Under these conditions the upper member 11 may be lifted or removed entirely from the sectional posts 16 and 17, permitting the introduction of the leaves. The top member 11 is then again applied to the posts, resting upon the top leaf, and in order to clamp and tighten this member in position to prevent displacement of these leaves, the operator, by means of the key referred to, turns the shaft 20 in the opposite direction, which causes the block 35 to travel outwardly against the post 37, and as soon as contact between the parts 35 and 37 is secured the shaft is forced backwardly slightly, carrying the clamp 27 with it

against the post 17, this shifting of the shaft and clamp being permitted owing to the slot and pin connection of the clamp with the case or shell. Further turning of the shaft causes a binding clamping of both of the members 27 and 35 on the posts, in this way securing an effective frictional holding of the member 11 on such posts. When this binding member 11 is removed from the posts the block 35 can not travel beyond the hole 18, nor can it become displaced or removed from the shaft 20 due to turning of such shaft, owing to the presence of the enlarged head 36 at the end of the shaft and integral therewith.

Obviously, the improved means which I provide for limiting and restricting the travel of the block 35 is of extremely simple construction and economical to manufacture. Furthermore, this binding mechanism necessitates the cutting of but a single screw-thread on the shaft in order to obtain a binding action of both of the clamps on their corresponding posts. It will also be apparent that by turning up the part 28 on the clamp 27, such clamp, as well as the heavier and thicker one 35, is always in position to engage the post 17 even though the latter is introduced into the hole 19 but a slight extent, because this clamp is held down to the bottom of the shell or casing 11 at all times.

Merely a single embodiment of this invention has been set forth in this specification, but I wish to have it understood that the invention is susceptible of a variety of embodiments, and that it is in no wise limited and restricted to the exact and precise structure shown and described, because these may be modified within comparatively wide limits without departure from the substance of the invention, and without the sacrifice of any of its substantial benefits and advantages.

I claim:

1. In a temporary binder, the combination of a binder member carrying a pair of posts, and a companion binder member having a revoluble shaft and apertures to receive said posts, a clamp operated by said shaft and adapted to engage one of said posts, a second clamp having a screw-threaded connection with such shaft and adapted to bear against the other post, and means integral with said shaft providing a substantially square shoulder to prevent the said second clamp from being unscrewed from the shaft, the threads of said shaft being omitted immediately adjacent to said shoulder, substantially as described.

2. In a temporary binder, the combination of a binder member carrying a pair of posts, and a companion binder member having a revoluble shaft and apertures to receive said posts, a clamp operated by said shaft and

adapted to engage one of said posts, a second clamp having a screw-threaded connection with said shaft and adapted to bear against the other post, said shaft having an integral end enlargement providing a substantially square shoulder to prevent said second clamp from being unscrewed from said shaft, the threads of said shaft being omitted immediately adjacent to said shoulder, substantially as described.

3. In a temporary binder, the combination of a binder member carrying a pair of posts, and a companion binder member having a revoluble shaft, a clamp operated by said shaft and adapted to engage one of said posts, a second clamp having a screw-threaded connection with said shaft and adapted to bear against the other post, and a pair of square shoulders integral with said shaft and adapted to limit the travel of said second clamp on the threaded part of the shaft, substantially as described.

4. In a temporary binder, the combination of a binder member carrying a pair of posts,

and a companion binder member having a revoluble shaft, a clamp operated by said shaft and adapted to engage one of said posts, and a second clamp having a screw-threaded connection with said shaft and adapted to bear against the other post, said shaft at one end having an integral flattened portion with a cross-sectional dimension greater than the diameter of the threaded part of the post on which the second clamp is secured, substantially as described.

5. In a temporary binder, the combination of a hollow shell, a shaft in said shell having a portion of reduced diameter, and a clamp encircling the reduced portion of said shaft and bearing against one wall of the shell, said clamp having an upturned part bearing against the opposite wall of the shell to maintain the clamp in contact with the first wall, substantially as described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."