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W. J. STEENROD

1,976,198

LOOSE LEAF BINDER

Filed March 6, 1931

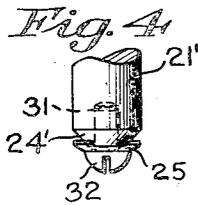
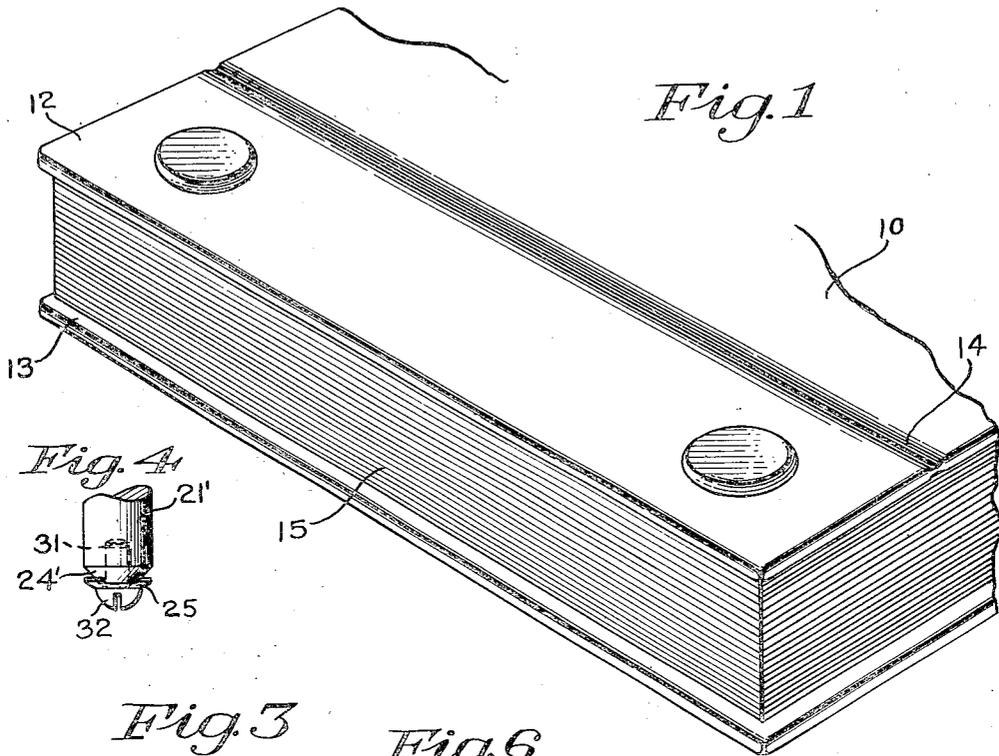


Fig. 3

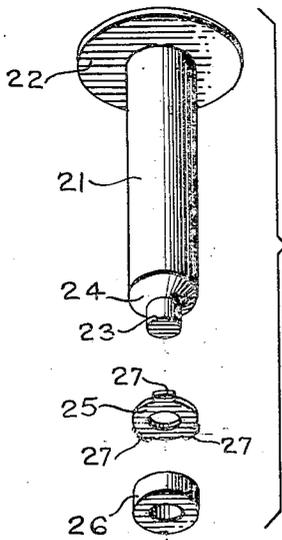


Fig. 6

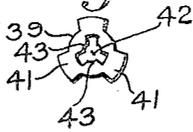


Fig. 2

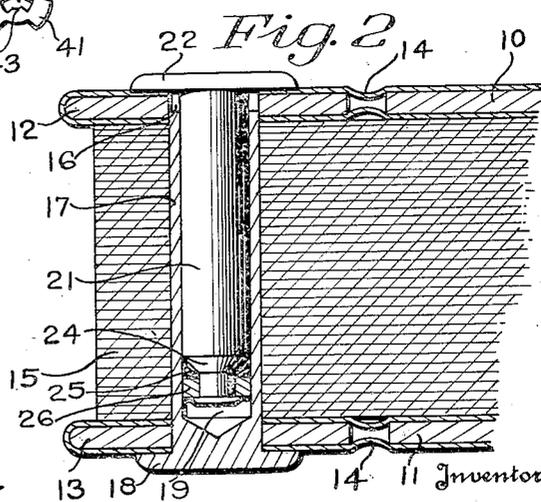
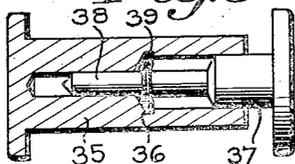


Fig. 5



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UNITED STATES PATENT OFFICE

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LOOSE LEAF BINDER

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6 Claims. (Cl. 85—5)

This invention relates to a means for binding together loose leaves, letters or papers and particularly to binder means for permanently securing such leaves together in such manner that they may thereafter not be detached except by destroying portions of the binders or leaves.

More particularly the invention relates to a binder post of simple and economical construction, comprising a pair of parts which may be interlocked together through openings punched in the sheets to be bound, one part being inserted from each of the opposite sides thereof. The parts are automatically engaged by entering movement in such manner that they may thereafter not be withdrawn or disengaged. One of the parts is preferably formed with a central bore or chamber for telescopically engaging the other of the parts, one of the parts being provided with a resilient locking member which is flexed upon entry of the parts into telescoped relation in such a manner that its edges will press against surfaces of the other part to effect interlocking of the parts.

The invention provides a means for interlocking the parts which is dependent upon the frictional engagement of portions of the resilient part with an even or smooth surface of another part, whereby the fastening elements may be held together in any one of an infinite number of relative positions, the number of positions being unlimited as compared with a limited number of securing positions of binding post parts such as have heretofore been constructed in which the interlocking of the parts was dependent upon the engagement of toothed or otherwise undulated surfaces.

These and other objects and advantages will become apparent from the following description of several typical embodiments of the invention, reference being made to the accompanying drawings wherein:

Fig. 1 is a perspective view of a binding edge of a binder employing the posts of the present invention.

Fig. 2 is an enlarged sectional view taken through the binding edge of the binder, one of the binder posts appearing in longitudinal section.

Fig. 3 is a disassembled view of one of the elements of the binder post shown in Fig. 2.

Fig. 4 is a fragmentary side elevational view of a modified form of the element depicted in Fig. 3.

Fig. 5 is a central longitudinal sectional view of a modified post construction.

Fig. 6 is a detailed view of the resilient locking member of the binder post shown in Fig. 5.

As shown in Figures 1 and 2 a binder construction in accordance with this invention may comprise a pair of cover members 10 and 11 having binding edge portions 12 and 13 respectively, hinged to the covers proper by flexible portions 14. The binding edge portions 12 and 13 and the filler 15, comprising a plurality of loose leaves to be bound together, are all provided with aligned apertures defining openings 16 extending therethrough.

The binder post comprises a tubular fastener element 17 having an enlarged head 18 engaging the binder edge 13 of one covering, the tubular shank portion extending into the opening 16. The bore 19 of this element is preferably smooth. A cooperating post element comprises a shank 21 telescoped into the tubular part 17 and an enlarged head 22 abutting the outer surface of the binding edge portion 12, having a reduced end portion 23 joined to the shank proper by a chamfered portion 24. A resilient locking member 25 of annular form is secured over the reduced extension or neck 23 by a washer 26, the end of the neck being swaged or riveted over the end of the washer to prevent its displacement. The locking or clutch member is normally of a radius greater than the radius of the bore 19 so that upon entry of the telescoped binder element into the bore 19, the peripheral portion of the locking member will be flexed upwardly, as depicted in Fig. 2, about the chamfered portion 24. The edges of the locking member present sharp edges in engagement with the walls of the bore, preventing, by frictional or biting contact, withdrawal of the shank 21 from the bore.

It will be understood that a sheaf of loose leaves may be bound together by first punching an opening therethrough and by inserting the post elements into the opening pressing the elements together until the enlarged heads thereof engage the opposite sides of the sheaf and compress the loose leaves to the desired degree. The binding elements are readily movable toward the chamfered portion 24 but being immovable in the opposite direction since such movement would tend to compress the metal of the locking unit or of the tubular member 17.

It will thus be seen that a permanent binding may be readily effected, it being impossible to effect a removal of the bound sheets except upon tearing of them from around the binder post or upon destruction of the post itself. In order to render the locking member more flexible, which

enables parts of less precise formation to be used, the peripheral portion of the locking member may be provided with a plurality of outwardly extending tongues 27 for engagement with the walls of the bore 19.

The washer 26 has a sliding fit with the bore 19 and will function to steady or guide the telescoped member. This function is of particular importance when the post is used with a very thick sheaf of papers, when the locking member 25 is disposed near the open end of the bore 19 and the shank 21 is not entered into the bore any appreciable extent.

In the modified construction shown in Fig. 4 a different form of securing means for the locking member has been provided. The shank 21' of the telescoped post element has a chamfered end 24' and a threaded opening 31 in the end for receiving a threaded screw 32. The locking member 25 is fitted over the shank of the threaded screw and is secured to the fastener portion 21' between the head of the threaded screw 32 and the chamfered portion 24'. The operation of this device is identical with that of Figs. 1 to 3 inclusive.

The modified post shown in Figs. 5 and 6 comprises a headed tubular member 35 having an annular groove or recess 36 extending about its bore. The other post element, likewise headed, has a shank 37 telescoped within the bore of the member 35, the inner end 38 of this member being of reduced diameter. A resilient locking member 39 is seated in the recess or groove 36, the locking member having peripheral tongues 41 which may be flexed upon initial entry of the locking members into the bore 35 and which will snap into assembled relation in the groove 36, thereafter being fixedly held in this position. The locking member has a central aperture 42 into which extend a plurality of tongues 43, these tongues being adapted, upon telescoped entry of the shank 37, to engage the extension 38 of the shank, being flexed upon such engagement in the direction of entering movement. Thus flexed the tongues 43 will present edges in contact with the surface 38 of the telescoped shank, which is preferably smooth, and while permitting further movement of the post elements to bring their heads in closer proximity will unyieldingly restrict movement in the opposite direction. The binder post may be applied to a sheaf of loose leaves in identically the same manner as has already been described in the form of post shown in Figs. 1 to 3 inclusive. It will be noted that the inner end of the bore of the member 35 is reduced to slidably receive the reduced end 38 of the telescoped shank, thus providing steadying or guiding means for the telescoped shank when the enlarged portion thereof is not entered into the bore, as when the post is used to bind a very thick sheaf of papers.

It will be understood that the binder posts of the present invention provide simple and economically manufactured devices by which a plurality of loose leaves may be permanently secured together, each post having a resilient locking member which is flexed in the direction of entering movement of the component post parts, enabling these parts to be moved together to compress the sheaf of loose leaves to the desired degree. Thereafter the leaves may not be separated except upon destruction of the binder posts or parts thereof or upon tearing of the leaves themselves. The smooth surfaces of the posts which engage the edges of the locking members permit of an infinite number of relative posi-

tions of the post parts so that the latter may be locked in any relative position which is desirable for a sheaf of leaves of a given thickness.

It will still further be understood that the embodiments which are herein described are merely illustrative of the principles of the invention and that these principles may be embodied in devices of other structural formation.

What is claimed is:

1. A permanent binder post comprising a tubular element and a second element telescoped within the tubular element, said tubular element having a resilient locking member secured in the interior thereof, said locking member having an aperture for receiving the second element, the walls of the aperture being flexed upon insertion of the second element and resiliently engaging the latter.

2. A permanent binder post comprising a tubular element and a second element telescoped therein, said tubular element having a resilient locking member secured to the inner walls thereof, said member having a central aperture and tongues extending thereinto, said tongues engaging and being flexed by engagement with said second element.

3. A permanent binder post comprising a tubular element and a second element telescoped therein, said tubular element having an annular groove therein, an annular resilient locking member seated in said annular groove, said locking member having portions receiving the second element and held flexed by said second element.

4. A permanent binder comprising a tubular member and a second member slidably telescoping therein, a reduced end portion on said second member having a tapered portion between said end and member, a resilient annular locking member mounted on said reduced end having its periphery engaging the inner walls of said tubular member, an annular washer mounted on said reduced end for retaining said locking member adjacent said tapered portion and providing a bearing portion for said locking member, and said reduced end having a retaining head at its extremity engaging and retaining said washer thereon, said locking member being held flexed by said tubular member and cooperating to prevent relative movement between said tubular member and second member in one direction.

5. A permanent binder post comprising a headed member having a tubular shank open at the end opposite the head, a second headed member having a shank, said shank having slidably interfitting cooperation with said tubular shank, and having a reduced end portion opposite the head connected to the shank by a chamfered portion, a resilient annular locking member mounted on said reduced end adjacent said chamfered portion, a washer mounted on said reduced end adjacent the locking member, said reduced end having its extremity formed to provide a rivet head and retaining said washer and locking member in adjacent assembled relation on said reduced end, said locking member being flexed in the engaged relation of said members with the outer edge portion engaging the inner surface of said tubular shank and cooperating therewith to lock said members against axial movement in one direction, said washer cooperating to provide a bearing support for said locking member.

6. A permanent binder post comprising a headed member having a tubular shank open at

one end opposite the head, a second headed member having a shank, said shank having slidably interfitting cooperation with said tubular shank and having a reduced end portion opposite the head connected to the shank by a chamfered portion, a resilient annular locking member engaged on said reduced end portion, engaged with said tubular shank and held in flexed position by said tubular shank for operation to prevent relative axial movement of said headed members in one direction and means on one of said headed members slidably engaging the other headed member on the opposite side of said locking member from said chamfered portion for cooperation with said headed members to retain said locking member in position and guide said members adjacent said locking member to insure positive uniform operation of said locking member.

WILLIAM J. STEENROD. 85

15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150