C. F. MacGILL, Jr.

TELESCOPIC FASTENER.

APPLICATION FILED MAR. 22, 1921.

1,431,674. Patented Oct. 10, 1922.

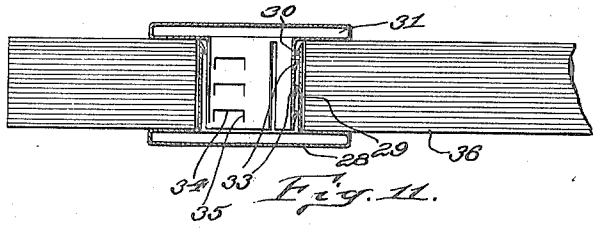


Fig. 11.

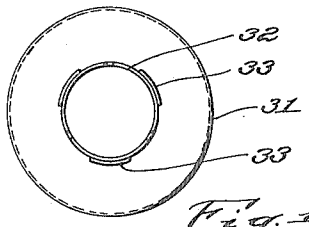


Fig. 10.

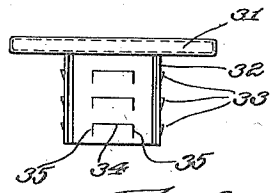


Fig. 9.

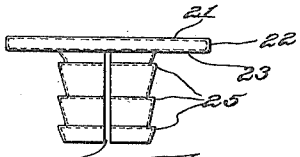


Fig. 7.

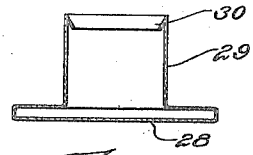


Fig. 8.

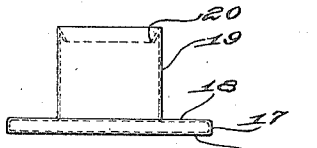


Fig. 6.

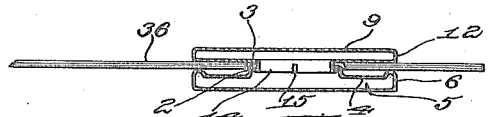


Fig. 5.

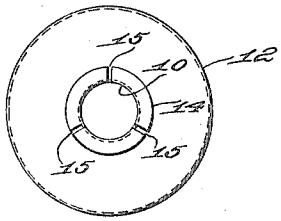


Fig. 4

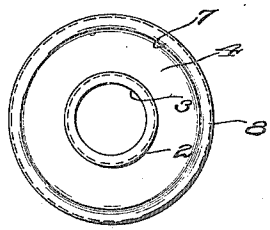


Fig. 3.

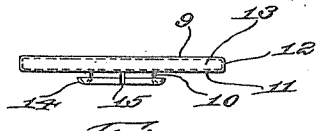


Fig. 2.

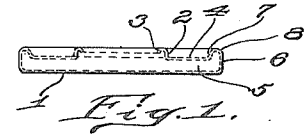


Fig. 1.

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Atty.

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UNITED STATES PATENT OFFICE.

CHARLES F. MacGILL, JR., OF CAMBRIDGE, MASSACHUSETTS.

TELESCOPIC FASTENER.

Application filed March 22, 1921. Serial No. 454,346.

To all whom it may concern:

Be it known that I, CHARLES F. MacGILL, Jr., a citizen of the United States, residing at Cambridge, county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Telescopic Fasteners, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to a telescopic fastening device for use in fastening together a number of sheets of paper or other sheet material.

The ordinary eyelet which is used in fastening together a plurality of sheets of paper and which is set with a punch is sometimes capable of being removed so as to separate, the sheets of paper, this being accomplished by prying up the riveted end of the eyelet and bending it back so that it can be withdrawn without mutilating the paper. This permits rearrangement of the sheets or the insertion of additional sheets or substitution of sheets, and then the papers can be fastened together again by another eyelet passing through the same hole as was previously used, and setting it with the punch so that there is no exterior evidence of the substitution. In the case of important documents, such as agreements, wills, or the like, in which a number of sheets have been fastened together and the instrument has been executed, the possibility of such separation of sheets and substitution of new sheets is fraught with great danger, as it opens the way to fraud. The object of my invention is to provide a fastener of such form as to render it impossible to separate the fastener from the sheets without so mutilating the sheets themselves that the mutilation will be evident. My invention consists in a two-part telescopic fastener in which the two members are telescoped together and become interlocked when they are assembled with the sheets of paper or other material fastened between the heads of the two members in such manner that it is impossible to separate them from each other, and the only way in which papers can be removed is by tearing or cutting out the paper around the fastener.

The invention will be fully understood from the following description when taken in connection with the accompanying drawings, and the novel features thereof will be pointed out and clearly defined in the claims at the close of this specification.

In the drawings, Fig. 1 is a side elevation of the outer or receiving member of short length.

Fig. 2 is a side elevation of the inner or corrugated member adapted to go with the receiving member of Figure 1, having only a single corrugation.

Figs. 3 and 4 are end views respectively of the outer and inner members shown in Figures 1 and 2.

Fig. 5 is a sectional view showing the two members in assembled position with a plurality of sheets of paper fastened together.

Fig. 6 is a side elevation of an outer member having a longer barrel than the one shown in Figure 1.

Fig. 7 is a side elevation of an inner member for use with the outer member shown in Figure 6.

Fig. 8 is a sectional view of a modified form of the outer member.

Fig. 9 is a side elevation of a modified form of the inner member adapted to go with the outer member of Figure 8.

Fig. 10 is an end view of the inner member shown in Figure 9.

Fig. 11 is a sectional view showing the members of the modified forms shown in Figures 8 and 9 in assembled relation with a plurality of sheets of paper fastened between them.

Referring now to the drawings, in Figures 1 to 5 there is shown a form of construction which is intended for use in which only a very few sheets are intended to be fastened together. Both members are preferably stamped out of sheet metal. In Figure 1 is shown the receiving member having a head provided with a flange cap portion 1 which closes the outer end, and having a short tubular shank or barrel 2 formed with

a hook-shaped lip 3 at its end which is turned inwardly and back in a direction toward the head. The metal out of which the fastener is made is preferably thin sheet metal, and the member is formed by stamping it out of a blank in such manner that there is an inwardly turned portion 4 to connect the cap portion 1 with the barrel 2. Instead of being turned back directly against the cap member 1, it is preferably turned in such manner as to leave a space 5 between the cap 1 and the inwardly turned portion 4. Preferably also the peripheral portion 6 of the head extends forward as far as the end of the barrel portion 2, and then it is folded back again, forming a backwardly turned portion 7, which connects with the portion 4 and makes the circular rim into a foot portion 8, which bears against the sheets 36 to aid in clamping the sheets to the head of the male member, as shown in Figure 5.

By forming the head with the reversely turned portion 4 spaced apart from the cap portion 1 and having a hollow space 5, the head is given greater strength than it would be if the head were composed of a single thickness of the thin metal.

The male member, as shown in Figure 2, has a head formed with a cap portion 9 and a barrel portion 10 connected with the cap portion 9 by an under portion 11 and a connecting peripheral portion 12, thus forming a hollow space 13 between the cap 9 of the head and the underturned portion 11.

The barrel terminates in an open end having an outwardly turned flange portion which is turned back toward the head. The barrel is formed with a plurality of longitudinal slits 15 which extend out through the flange portion, thus dividing the barrel and flange into a plurality of hook-shaped members 14, which are adapted to interengage with the hook-shaped lip 3 of the receiving member. As shown in Figure 4, there are three of the slits 15, thus forming three hooks or catches. The particular number of slits and hooks is, however, immaterial. By reason of the barrel being split to form the hooks, the hook portions may be sprung in toward the center so as to contract the diameter and enable the hook members to be inserted into the mouth formed by the lip 3 of the receiving member, and then when it has passed into the barrel of the receiving member, the resiliency of the members 14 will cause them to snap into hooking engagement with the lip 3.

In the modification shown in Figures 6 and 7, the barrels of both members are made longer than in Figures 1 to 5, so as to enable them to take in a thicker bunch of papers, and they are formed with a plurality of interengaging portions so that they may be adapted for use with a greater or less number of sheets as desired. The receiving member, as shown in Figure 6, has a hollow head with closed end portion 16 and the rim portion 17 and inwardly bent portion 18, which connects with the barrel portion 19. The barrel portion 19 is formed with an inwardly crimped lip 20 near its outer end to receive the cooperating hook portions of the male member.

The male member as shown in Figure 7 to cooperate with the female member, shown in Figure 6, has the head with the closed outer end 21, the rim portion 22 and the inturned portion 23, to connect with the barrel. The barrel has a plurality of slits 24 extending lengthwise thereof to enable it to be contracted for admission into the receiving member, and it is formed with a plurality of corrugations forming a series of peripheral hook portions 25 at different points in its length, any one of which is adapted to engage with the lip 20. By making three longitudinal slits 24, there will be formed three hooks or catches 25 in each set as in Figure 4. The number of hook portions in each series may be varied, and the number of series may also be varied. If it is desired to have the fastener used with the greatest thickness of papers for which the fastener is capable, then the male member would be introduced into the receiving member just far enough for the outermost set of hook members 25 to engage with the lip 20. For a lesser number of papers it may be pushed in farther so as to snap the second set of hook members 25 into engagement with the lip 20, and for a still lesser number, the male member will be pushed in far enough for the innermost set of hook members 25 to engage the lip 20.

In the form of construction shown in Figures 8, 9, 10 and 11, the receiving member is formed with a hollow head 28 similar to the receiving member shown in Figure 6, and with a barrel portion 29 which has its outer end crimped in to form a lip 30. The female member is formed also with a hollow head 31, and the barrel member 32 is formed with a plurality of hook members 33 at different distances from the head, so that it may be engaged with the receiving member at different points in its length, as described with reference to Figures 6 and 7. The hook members, however, are formed in a slightly different way from that previously described. In order to form each hook member there is formed a transverse slit 34, and at each end of the transverse slit there is formed a longitudinal slit 35 leading from the transverse slit 34 and extending toward the open end of the barrel, and the tongues thus formed are struck up to form the hook members 33 which project outward from the periphery of the barrel at an inclination, as shown in Figure 9.

In Figure 11, the two members of the fas-

tener are shown in assembled position with a bunch of sheets 36 clamped together between the two members of the fastener, the lip 30 being engaged with the set of hooks 33 which are nearest to the head of the male member, that is in the most compact position possible.

In all of the forms shown, the hooks or catches are inclined back toward the head of the member, and the lips of the female member are also turned back toward its head, thus making a sort of ratchet formation with teeth having inclined backs so that they can go in but not come out.

After the two members of the fastener are once interengaged, they cannot be separated, as any attempt at withdrawal of the two members from each other will result in pulling the hooks of one member into still firmer connection with the lip of the other member, and it is therefore practically impossible to remove one sheet and substitute another.

The cap ends of each member are closed tight, so that access cannot be gained in that way by a tool, as could be done with an eyelet. The peripheral flange of the cap of each member laps over onto the sheets and thus when the members are interlocked the sheets are firmly held against removal.

What I claim is:—

1. A two-part telescopic fastener comprising a male and a female barrel member, each having a closed outer end with a peripheral flange, the barrel of the female member being formed with an annular lip at its open inner end which is turned inwardly and backwardly toward the closed rear end, the barrel of the male member being formed with catches which extend outwardly from its outer periphery and which snap into engagement with the said lip of the female member when the two members are assembled.

2. A two-part telescopic fastener comprising a male and a female barrel member, each having a closed outer end with a peripheral flange, the barrel of the female member being formed with an annular lip at its open inner end turned inwardly and backwardly toward the closed rear end, the barrel of the male member being formed with a plurality of longitudinal slits extending from the open outer end toward the closed rear end and having catches which are turned outwardly and backwardly from the outer periphery and snap into engagement with the lip of the female member when the two members are assembled.

3. A two-part telescopic fastener comprising a male and a female barrel member, each having a hollow head portion formed with a closed cap at its outer end, and an inwardly turned annular flange portion which connects with the barrel portion and is spaced from the cap portion to form a hollow space between said cap and flange portion, the barrel of the female member being formed with an annular lip at its inner end turned inwardly and backwardly toward the closed rear end, and the barrel of the male member being formed with catches which extend outwardly from the periphery and which snap into engagement with the lip of the female member when the two members are assembled.

4. A two-part telescopic fastener comprising a male and a female member each having a flanged cap, the female member being formed with a lip turned inwardly from the outer end, the male member having a plurality of catches extending outward from the periphery at an inclination thereto and projecting toward the head, which are adapted to spring past the lip of the female member when the two members are assembled, and which spring back and hook over said lip of the female member to interlock and prevent withdrawal, the male member being formed with a plurality of longitudinal slits extending inward from the open end to permit contraction of the male member to enable it to be assembled with the female member.

5. A two-part telescopic fastener comprising a male and a female barrel member, each having a hollow head portion formed with a closed cap at its outer end, a peripheral edge wall and an annular turned under portion which connects said peripheral edge portion with the barrel portion and is spaced from the cap portion by said peripheral edge portion to form a hollow space between said cap and turned under portion, the barrel of the female member being formed with a lip at its open end turned radially and backwardly toward the closed head end, the barrel of the male member being formed with a plurality of longitudinal slits extending from the open end toward the head dividing the barrel into segmental sections, and being formed with catches which extend outwardly from said segmental sections and snap into engagement with the lip of the female member when the two members are assembled.

6. A two-part telescopic fastener comprising a male and a female barrel member, each having a hollow head portion formed with a closed cap at its outer end, a peripheral edge wall and an annular turned under portion which connects said peripheral edge portion with the barrel portion and is spaced from the cap portion by said peripheral edge portion to form a hollow space between said cap and turned under portion, said annular turned under portion of the head of the female member being first turned radially inward and then backward toward the head forming an annular fold at the rim, then

again turned toward the barrel and connecting therewith, the open end of the barrel portion terminating in an annular hook portion which is turned inwardly toward the head, the barrel of the male member being formed with a plurality of longitudinal slits extending from the open end toward the head dividing the barrel into segmental sections which are formed with catches to snap into engagement with the said hook portions of the female member

In testimony whereof I affix my signature.

CHARLES F. MacGILL, Jr.