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RESILIENT PLASTIC PIN AND FILLER STRIP
FOR SLOTTED HINGE CONSTRUCTIONS
Filed May 12, 1964

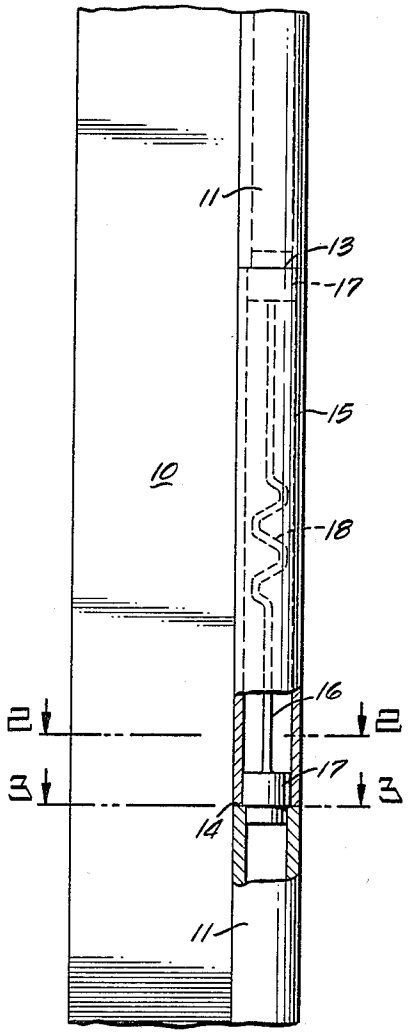


FIG 1

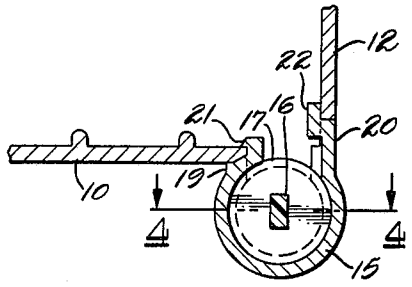


FIG 2

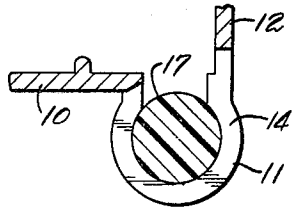


FIG 3

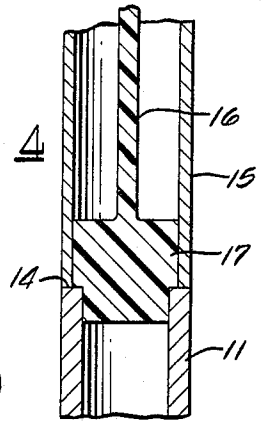


FIG 4

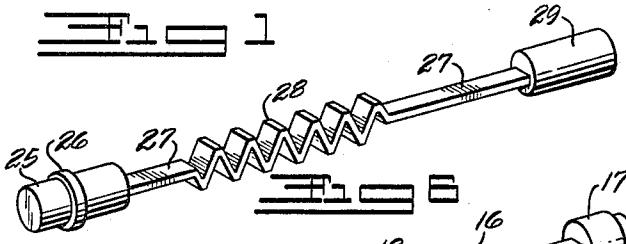


FIG 6

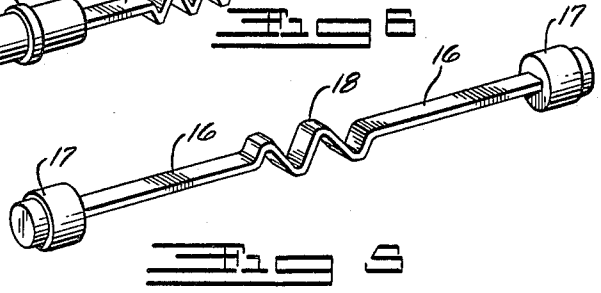


FIG 5

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RESILIENT PLASTIC PIN AND FILLER STRIP FOR SLOTTED HINGE CONSTRUCTIONS

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This invention relates to hinge constructions generally and more particularly to elongated slotted hinge knuckle constructions and filler strips therefor.

The principal object of the invention is the provision of a resilient hinge pin and filler strip combination for closing slots in hinge knuckles of storm door mounting frames and the like.

A further object of the invention is the provision of a simple, inexpensive molded resilient pin capable of holding a filler member in position in a hinge knuckle of a slotted door frame.

A further object of the invention is the provision of a resilient contractible device and a slotted tube filler section for insertion in an elongated opening in a hinge knuckle of a storm door mounting bar.

The invention disclosed herein relates generally to storm door constructions and improved door hinge structures for mounting the same, and particularly the so-called Z-bar type of mounting members in which an elongated metal extrusion having a hinge knuckle thereon is slotted at spaced intervals therealong to receive a similarly formed section to complete a continuous hinge structure. Such storm door constructions and mounting frames incorporating the aforesaid hinge structures are now commonly preassembled at the factory and delivered to the dealer for package sale and mounting in a door frame, and the choice as to whether the door is to be hinged to the right or to the left is left to the installer. Since such constructions come complete with the necessary Z-bar mounting frame constructions with the hinged knuckles on both sides of the door frame and both of the hinged knuckles being slotted in spaced longitudinal relation, it is obvious that the unused hinged knuckle on the non-hinged side of the door should be treated to hide the presence of the longitudinally spaced slots therein.

The present invention provides a filler section which is in the manner of a split tube of desirable cross sectional configuration, which will fit into each of the slots in the knuckle portion of the mounting frame, and the present invention relates primarily to a contractible resilient plastic mounting pin by which such filler sections may be quickly and conveniently and permanently mounted in the desired position so as to improve the appearance of the door frame. Those skilled in the art will observe that the device resembles somewhat the hinge constructions heretofore known in the art which were registrable with similarly longitudinally spaced slots in a continuous Z-bar type frame of a storm door mounting with the exception that such constructions are heretofore known in the art comprised actual hinge constructions whereas in the present disclosure, the principal object is merely the provision of a simple, efficient and attractive appearing closure for the unused slots in the knuckle portion of the Z-bar mounting frame.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being the intention to cover all changes and modifications of the example of the invention herein chosen for purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

The invention is illustrated in the accompanying drawing, wherein:

FIGURE 1 is a side elevation of a portion of a Z-bar mounting frame, showing the knuckle on the corner thereof and a cutaway portion therein and a filler member and resilient plastic mounting pin holding the same in position therein with parts broken away and parts in cross section.

FIGURE 2 is a horizontal section on an enlarged scale taken on lines 2—2 of FIGURE 1.

FIGURE 3 is a horizontal section on an enlarged scale and taken on line 3—3 of FIGURE 1.

FIGURE 4 is a vertical section on line 4—4 of FIGURE 2.

FIGURE 5 is a perspective view of the resilient retractable molded pin seen in FIGURES 1, 2 and 3 and 4 of the drawings.

FIGURE 6 is a perspective view of a modified form of the resilient retractable molded pin.

By referring to the drawings and FIGURE 1 in particular, it will be seen that a portion of a mounting frame for a storm door or the like has been disclosed, the portion illustrated comprising a vertically extending flange-like body member **10** having an arcuate knuckle **11** on a corner thereof and a right angular extending flange **12**. Those skilled in the art will recognize that this is a portion of a so-called Z-bar type of mounting frame used on the vertical sides of a door opening and wherein the flange-like body member **10** provides for registry with various sizes of door frames and wherein the knuckle portion **11** of the Z-bar mounting frame formed between the flanges **10** and **12** has longitudinally spaced cutaway sections therein, one of which is illustrated in FIGURE 1, and the ends of the cutaway section being indicated by the numerals **13** and **14** respectively.

By referring to FIGURE 3 of the drawings, a horizontal section taken at the bottom of the cutaway section and on the line **14** may be seen, and it will be observed that a considerable portion of the mounting frame has been cutaway, including all of the knuckle portion **11** so as to leave a section therein in which a portion of a similarly formed knuckle and hinge plate (not shown) and a hinge pin (not shown) can be inserted so that a storm door may be hingedly mounted on the Z-bar frame as will be understood by those skilled in the art. When the Z-bar frame with its longitudinally spaced cutaway sections, as hereinbefore described, is used in a pre-assembled storm door construction which includes the same, similarly formed and similarly cutaway Z-bar constructions are used at either side of the door frame and only one of these is used in the actual hinge construction mounting the storm door therein as will also be understood by those skilled in the art.

The present invention, therefore, discloses a means of providing attractive, economical and permanent fillers for the unused cutaway sections of the knuckle portion **11** of the Z-bar mounting frames.

Still referring to FIGURE 1 of the drawings, it will be seen that a filler section **15** of a length substantially the same as the cutaway area between ends **13** and **14** in FIGURE 1 has been positioned in the cutaway area and is retained therein by a resilient molded integral plastic mounting pin, the intermediate portion of which is indicated by the numeral **16** and which has enlarged shouldered end portions **17, 17** formed thereon, and an intermediate portion of the pin **16** is formed in an undulating sinuous shape **18**.

By referring now to FIGURE 2 of the drawings which is a horizontal section taken through the filler section **15**, it will be seen that it comprises in effect a slotted tube having short spaced parallel projecting flange portions **19**

and **20** respectively so that the filler section thus formed registers completely with and completely fills the slot between the lines **13** and **14** in the knuckle **11** of the Z-bar frame including the cuts in flanges **10** and **12** respectively.

By referring to FIGURE 3 of the drawings which is the horizontal section taken on line **14** defining the bottom of the cutaway section of the knuckle **11**, it will be observed that the configuration of the filler section **15** in cross section is similar with respect to its external appearance to the external appearance of the knuckle section **11** so that when the same is positioned therein and held in place by the configuration thereof as well as the mounting pin **16**, the filler section **15** will for all intents and purposes appear to be a substantial continuation of the knuckle **11** of the Z-bar frame member including the flanges **10** and **12** as heretofore described.

By referring again to FIGURE 2 of the drawings, it will be seen that the flange **19** on the filler section **15** has an offset end portion **21** which overlies the adjacent end of the flange **10** of the Z-bar frame so as to be positioned securely relative thereto. It will also be seen that the flange **20** of the filler section **15** has an offset end portion **22** which overlies the inner surface of the flange **12** of the Z-bar frame and with the end portion **21** of the flange **19** insures the accurate positioning of the filler section **15**.

In order to further assure that the filler section **15** will remain in position and will be capable of being snapped into such position rapidly and efficiently, the resilient mounting pin **16** is first positioned in the tubular portion of the filler section **15** with its shouldered ends **17, 17** partially extending therefrom as may be seen in the enlarged detail comprising FIGURE 4 of the drawings wherein one of said shouldered end portions **17** is illustrated. It will be observed that the undulating portion **18** of the intermediate portion **16** of the resilient mounting pin permits the end portions **17** to be moved toward one another temporarily while the filler section **15** is moved into the slot in the knuckle **11** of the Z-bar, and that thereafter the construction and configuration of the resilient mounting pin is such that it will again expand to the position shown in FIGURE 1 of the drawings and in enlarged detail in FIGURE 4 of the drawings.

By referring now to FIGURE 5 of the drawings, a perspective of the mounting pin **16** may be seen and it will be observed that each of the shouldered end portions **17, 17** has an area of smaller diameter at its outermost ends which is of a size capable of engaging the interior of the knuckle portion **11** of the Z-bar frame. In FIGURE 5 of the drawings, the shouldered end portions **17, 17** of the resilient mounting pin have been shown as cross sectionally circular and it will occur to those skilled in the art that they can be of any other desired configuration so that at least one dimension thereon matches the respective inner diameters of the filler section **15** and knuckle portion **11** in which they are inserted.

It will thus be seen that a novel filler section and resilient mounting pin therefor have been disclosed which makes possible the preassembly of storm doors and mounting frames and which mounting frames may then be adapted for left or right hinged mountings at the time of installation by applying the matching hinge section to the desired side of the actual storm door to be mounted and engaging the longitudinally spaced knuckle portions thereon in the cutaway areas of the knuckle portions of the Z-bar frame and that the unused cutaway portions of the opposite Z-bar frame may be filled quickly and easily and attractively with the device disclosed herein.

It will thus be seen that a resilient plastic pin and filler strip for slotted hinge constructions have been disclosed which meets the several objects of the invention as hereinbefore set forth.

It will occur to those skilled in the art that by modifying the resilient plastic pin in slight degree, as illustrated in FIGURE 6 of the drawings, the pin may be used as the actual hinge pin supporting the hinge assembly mounting a storm door in the Z-bar frame as hereinbefore described. In FIGURE 6 of the drawings, the modification disclosed includes a pair of spaced cylindrical body members **25** and **29**, the body member **25** having an annular flange **26** thereon and the body members **25** and **29** being interconnected by an integral molded portion **27** which incorporates an intermediate sinuous zigzag portion **28**. This modified resilient plastic pin is used in the same manner as the form of the invention hereinbefore described in that the body members **25** and **29** are arranged to be positioned in the knuckle of the Z-bar in which the matching hinge portion is to be movably engaged with the intermediate portions **27** and **28** extending through the movable hinge portion and with the annular flange **29** comprising a friction bearing resembling a washer which supports the hinge portion relative to the knuckle of the Z-bar, as will be readily apparent to those skilled in the art.

It will thus be seen that the modification illustrated in FIGURE 6 of the drawings is usable as a working hinge pin and is extremely easy to install as it is distorted lengthwise to shorten its effective length when it is positioned in the hinge portion, whereupon its resilience again extends to its normal length so that the cylindrical body members **25** and **29** form carrying members with respect to supporting the hinge and the storm door carried thereby.

Having thus described my invention and a desirable modification thereof, what I claim is:

1. As a new article of manufacture, a filler section and mounting member therefor for insertion in a slot in a cross-sectionally circular knuckle portion of a Z-bar storm door mounting frame having spaced longitudinally extending flanges disposed at right angles to one another, said article comprising a split tubular member having spaced parallel longitudinally extending secondary flanges thereon and arranged to engage the inner sides of said first flanges and a resilient mounting pin comprising an elongated member having enlarged shouldered end portions in oppositely disposed relation thereon and an integral intermediate sinuous displaceable portion, positioned in said tubular member with said end portions normally extending out of the ends of said tubular member engaging said knuckle portion.

2. In combination, a mounting frame member having a knuckle portion having cut away areas and a tubular member split longitudinally thereof and having spaced longitudinally extending flanges defining the edges of said split and having a cross-sectional configuration matching said knuckle portion of said mounting frame member and positioned in said cutaway areas therein and an integral distortable sinuous pin positioned in said tubular member with end portions normally extending out of the ends of said tubular member engaging said knuckle portion.

References Cited by the Examiner

UNITED STATES PATENTS

368,194	8/1887	Connel	16—65
1,628,501	5/1927	Lederer.	
2,157,408	5/1939	Greenberg	24—265
2,308,505	1/1943	Geoffrion.	
2,903,735	9/1959	Schneider	16—176
2,953,833	9/1960	Boots	24—265
3,015,839	1/1962	Eskridge et al.	16—136
3,132,371	5/1964	Enos et al.	16—90

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