MAGAZINE TUBE-RECEIVER JOINT STRUCTURE

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This invention relates to a novel method and means for connecting a tubular magazine to the receiver of a firearm. The tubular magazine is joined at one of its ends to the receiver and extends substantially parallel to the barrel of the firearm.

According to this invention, a novel split-ring connector preferably formed from a yieldable material such as glass filled nylon or a plastic is used to fasten one end of a tubular magazine to the receiver of a firearm. The split-ring connector forms a positive joint between the magazine tube and the receiver without the necessity of welding or providing screw threads as in conventional structures. The connector further functions as a spacing and guide member for a pair of slide bars which operate the gun action and as a forward support for a pair of cut-off supports mounted on opposite sides of the receiver.

Another feature of the split-ring connector of this invention is that it allows the assembly and disassembly of parts made from dissimilar materials which are not conducive to brazing or welding. By the use of this invention, one can assemble a magazine tube made from steel, plastic, or other material to a receiver which is made from a dissimilar material such as aluminum. The novel features and advantages of this invention will be more fully understood from the following detailed description of the accompanying drawings in which:

FIGURE 1 is a partial sectional view of a magazine tube and a receiver joined together in accordance with this invention.

FIGURE 2 is a perspective view without the receiver showing the relationship between the split-ring connector of this invention and the other cooperating elements of the firearm.

FIGURE 3 is a perspective view showing the details of the split-ring connector as it is about to be connected to a magazine tube.

Referring now to FIGURE 1 of the drawings, a receiver 1 is shown having an opening 2 in its forward end adapted to receive a tubular magazine 3. The tubular magazine 3 is inserted in opening 2 to the dotted line position shown in FIGURE 1. In this position, a split-ring connector generally indicated 4 is mounted on the magazine tube. The split-ring connector as shown in detail in FIGURE 3 includes an upper section 5 and a lower section 6. The manner in which the connector 4 is split is not critical so long as it can be readily assembled on the magazine tube. As an alternative to splitting the connector, provide upper and lower sections, it could be split so as to provide two side sections. The connector might alternatively have a single split which would allow it to be opened and positioned about the magazine tube. The upper section 5 includes a semi-cylindrical portion 7 and the lower section 6 includes a semi-cylindrical portion 8. When the split-ring connector 4 is mounted on the tubular magazine 3 in the manner shown in FIGURE 2, the semi-cylindrical portions 7 and 8 define a cylindrical body portion which substantially surrounds one end of the tubular magazine 3. The internal cross-sectional portion of the split-ring connector 4 is provided with grooves 9 and ridges 10. Likewise, the end of the tubular magazine 3 adapted to receive the split-ring connector is provided with grooves 11 and ridges 12 on its outer surface. When the split-ring connector is mounted on the tubular magazine as shown in FIGURE 2 and in solid lines in FIGURE 1, the ridges 10 on the split-ring connector engage in the grooves 11 of the magazine. The ridges 12 on the magazine tube engage in grooves 9 on the split-ring connector. In this way, the split-ring connector and the magazine tube are interlocked. The exterior surface of the cylindrical body portion of the split-ring connector is also provided with ridges 13 and grooves 14. Ridges 13 and grooves 14 are provided to permit deflection or elastic flow of the material of the connector as it is drawn into the opening 2 of the receiver and placed in compression between the magazine tube and the receiver.

When the tubular magazine 3 with the split-ring connector 4 attached is moved from the dotted line position in FIGURE 1 to the solid line position, the connector 4 is compressed between the magazine tube and the receiver and forms a joint which prevents ready or accidental displacement of the assembly.

The upper section 5 of the split-ring connector as shown in FIGURE 3 is provided with a flange 17 which limits the movement of the split-ring connector into the opening 2 in the receiver. The flange 17 is notched at 18 and 19 to provide guide and spacing means for a pair of slide arms 20 and 21 as shown in FIGURE 2. The slide arms 20 and 21 are actuated manually or by automatic means in a conventional manner to operate the gun action.

The upper surface of flange 17 is beveled at 22 to assist in guiding cartridges passing from the magazine tube 3 into the chamber (not shown).

The lower section 6 of the split-ring connector is also provided with a flange 23 adapted to limit the movement of the split-ring connector into the receiver opening 2. A pair of integral L-shaped projections 24 and 25 extend outwardly beyond flange 23 and are adapted to receive and support the ends of a pair of cut-off supports 26 and 27 as seen in FIGURE 2. The cut-off supports mount a pair of cutoffs 28 and 29 on opposite sides of the magazine tube to control the feeding of cartridges from the magazine to the receiver. The flanges 17 and 23 define a flange substantially surrounding the cylindrical body portion of the connector when the connector is applied to the magazine tube as seen in FIGURE 2.

When the magazine tube 3 is moved from the dotted line position of FIGURE 1 to the solid line position, the material of the split-ring connector is deformed elastically between the exterior of the magazine tube and the interior of the opening 2 in the receiver. The opening 2 in the receiver is stopped at 15 as seen in FIGURE 1 to limit the movement of the connector into the opening. The resulting connection is a tight joint that can only be disassembled by applying a substantial amount of force. An important feature is that these elements can be disassembled should the need arise whereas disassembly would not be possible with a brazed or welded joint.

While this invention has been described in detail with reference to the preferred embodiment shown in the drawings; the invention is intended to be limited only by the scope of the appended claims.

1. In a firearm having a receiver and a tubular magazine, a split-ring connector formed from a resilient material and adapted to securely fasten one end of said tubular magazine to the receiver, said connector including a generally cylindrical body portion adapted to substantially surround one end of said magazine tube and to be compressed between said tubular magazine and said receiver, said body portion being split longitudinally throughout its length to facilitate positioning said body portion around said one end of said tubular magazine, ridges and grooves formed on the internal surface of said body por-
3. A resilient split-ring connector for concentrically mounting a first tubular member within an opening in a second member, said connector including a tubular body portion, said tubular body portion having at least one longitudinal split through the sidewall thereof to facilitate mounting said connector in substantially surrounding relation on one end of said first member, corresponding ridges and grooves formed on said first member and said tubular body portion operatively interlocking said connector and said first member, ridges and grooves formed on the exterior surface of said tubular body portion operative to facilitate deformation of said tubular body portion as it is drawn into said opening and compressed between the side walls of said opening and the tubular member to form a rigid joint, and flange means on said body portion operative to position said tubular body portion in said opening.

4. A method for joining a tubular magazine to the receiver of a firearm including the steps of, inserting said tubular magazine into an opening in an end wall of said receiver so that one end of said tubular magazine projects into the interior of said receiver, attaching a resilient split-ring connector to said one end of the tubular magazine so that the connector substantially surrounds said one end, interlocking said connector and said tubular magazine, and drawing the tubular magazine with the connector attached into said opening so that the split-ring connector and the tubular magazine are concentrically positioned in said opening and the split-ring connector is compressed between the walls of said opening and the tubular magazine.

5. In a firearm having a receiver and a tubular magazine, connector means for securely fastening one end of said tubular magazine to the receiver, said connector means including a generally cylindrical body portion split longitudinally to provide first and second sections, ridges and grooves formed in the internal surface of said cylindrical body portion operatively interlocking with corresponding ridges and grooves formed on the outer surface of said magazine tube, flange means formed integral with said first and second sections of said body to locate said magazine in said receiver, said flange means on said first section having notches at each end to provide spacing and guide means for a pair of slide arms.

6. In a firearm having a receiver and a tubular magazine, connector means for securely fastening one end of said tubular magazine to the receiver, said connector means including a generally cylindrical body portion split longitudinally to provide first and second sections, ridges and grooves formed in the internal surface of said cylindrical body portion operatively interlocking with corresponding ridges and grooves formed on the outer surface of said magazine tube, flange means formed integral with said first and second sections of said body to locate said magazine in said receiver, a top edge of the flange means on said first section being beveled to provide a guide for cartridges feeding from said magazine into a chamber of a firearm.

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