Dec. 28, 1926. 1,611,942

L. M. PERSONS

HOLLOW RIVET AND PROCESS FOR MAKING SAME

Filed Oct. 20, 1920

FIG. 1.



FIG. 2.

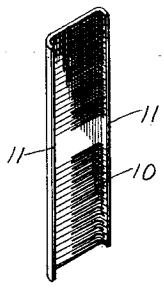


FIG. 3.

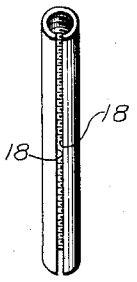


FIG. 4.

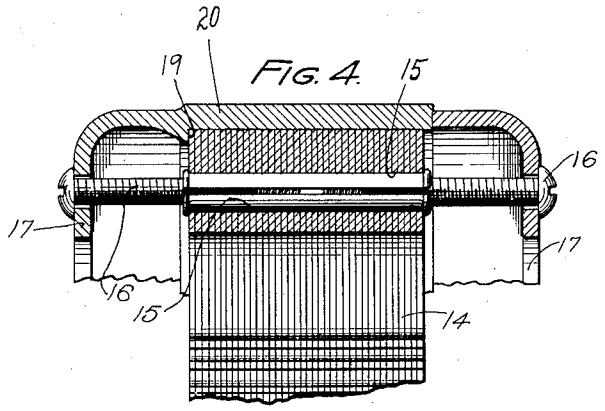


FIG. 5.

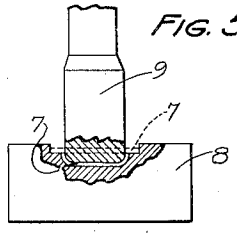
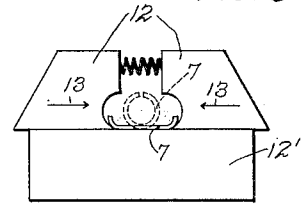


FIG. 6.



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UNITED STATES PATENT OFFICE.

LAWRENCE M. PERSONS, OF QUINCY, ILLINOIS, ASSIGNOR TO COOK ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

HOLLOW RIVET AND PROCESS FOR MAKING SAME.

Application filed October 20, 1920. Serial No. 418,308.

My invention relates to split tubular rivets and the process for making same.

One object of my invention is the provision of a simple and efficient tubular rivet capable of being easily expanded.

Another object of my invention is the provision of a tubular rivet internally threaded and capable of being expanded by adjusting a screw slightly larger than the internal diameter of the rivet.

A further object is the provision of a tubular rivet formed of sheet material having the threads formed by stamping serrations in the sheet material before the latter is made into tubular form.

A still further object is the provision of a simple and efficient method of making rivets, such as above referred to.

Other objects will appear hereinafter.

An embodiment of my invention is shown in the accompanying drawing, forming a part of this specification, and in which—

Fig. 1 is a perspective view of a blank from which my tubular rivet is formed;

Fig. 2 is a similar view of the blank having the serrations formed therein and the longitudinal edges bent up;

Fig. 3 is a similar view showing the tubular rivet completely formed;

Fig. 4 is an enlarged fragmental section of a motor core having a tubular rivet therein embodying my invention;

Fig. 5 is a fragmental section, more or less diagrammatical, illustrating the method of forming my improved rivet; and

Fig. 6 is an elevation, more or less diagrammatical, illustrating the finishing process of making my improved rivet.

My improved rivet has the advantage that it can be made very economically, much more so that where the tubular rivet must be made from a tube and internally threaded with dies.

In forming my rivet I first cut out a blank, such as indicated in Fig. 1, of the desired size to give a finished rivet in the size to be made. The next step in forming the rivet is to place it in the position indicated in Fig. 5 at 7 in a forming die 8. The punch 9 is then brought down onto the blank 7 pressing it from its dotted line position to its full line position shown in Fig. 5. The punch 9 and die 8 are so formed that the serrations 10, clearly indicated in Fig. 2, will be formed. At the same time the die 8 and punch 9 will turn up the longitudinal edges 11 of the blank, as indicated in Fig. 2. The blank is next placed in a die, such as indicated in Fig. 6, and upon members 12 of such dies being forced in the directions of the arrows 13 the blank will be bent from its full line position to that indicated in dotted lines in said Fig. 6, thus completing the formation of the split tubular rivet with its internal threads.

This rivet will be useful in many places and I find it particularly adaptable for securing the laminations of motors, dynamos, and the like, together. In Fig. 4 I have indicated the usual core laminations 14 of a motor which are provided with registering perforations 15 therein for receiving a rivet to secure such laminations together. With the use of my improved rivet the latter is placed in the perforations 15 and its ends riveted in the usual manner. After the rivet has been riveted screws 16 are passed through the cover members 17 of the usual motor, or the like, constructions and threaded into the serrations 10 of my improved rivet. In forming the serrations 10 it will be understood they are to be made so that when finished the screw threads formed thereby will have the same pitch as the screws 16 to be used.

I preferably use screws 16 slightly larger than the internal diameter of the split rivets so that in forcing the screws into said rivets the latter will be expanded into close contact with the walls of perforations 15. The rough edges 18 of the rivet will also tend to cut into the walls of the perforations 15 and facilitate holding the rivet against rotation while the screws 16 are being adjusted into or out of position.

In Fig. 4 I have indicated a screw 16 in each end of one of my improved rivets. This expands both ends of the rivet and binds all of the laminations together. One of the screws 16 holds the laminations 14 up against a shoulder 19 in the casing 20, and the other screw 16 holds the cap 17 in place on the frame. These parts may be arranged in other manners, an essential thing being that the screws extend into the rivet.

I claim:—

1. The combination with a plurality of laminations, of a tubular rivet extending through registering openings therein and having the ends thereof beaded, said rivet

having one side longitudinally split to permit expansion thereof, frame members enclosing said laminations and screws threaded into opposite ends of said rivet for securing said frame members to said laminations.

2. In combination, a laminated motor core having a perforation therein, a tubular rivet in the perforation having beaded ends engaging the surface of the outermost laminations, and a wedge member disposed in the tubular rivet holding the latter in close contact with the walls of said perforation.

3. In combination, a plurality of core laminations with registering perforations therein, a split tubular rivet in the perforations comprising a continuous sheet metal plate having a smooth outer surface, and a screw threaded in the tubular rivet adapted to expand the latter tightly against the laminations.

4. In combination, a plurality of core laminations with registering perforations therein, a split tubular rivet in said perforations, means in the split tubular rivet pressing the edges of the material of said rivet into close contact with the walls of said perforations, and beads on the ends of said tubular rivet to retain said laminations in a fixed position.

5. The method of securing core laminations together comprising riveting a split tubular rivet through the core laminations and then expanding the tubular rivet into close contact with the laminations by forcing a wedge into the tubular rivet.

6. The method of locking core laminations together comprising riveting a split tubular rivet through the laminations and then forcing a screw slightly larger than the internal diameter of the tubular rivet into the latter for expanding such tubular rivet into close contact with the laminations.

In testimony whereof I have signed my name to this specification on this 28th day of September, A. D. 1920.

LAWRENCE M. PERSONS.