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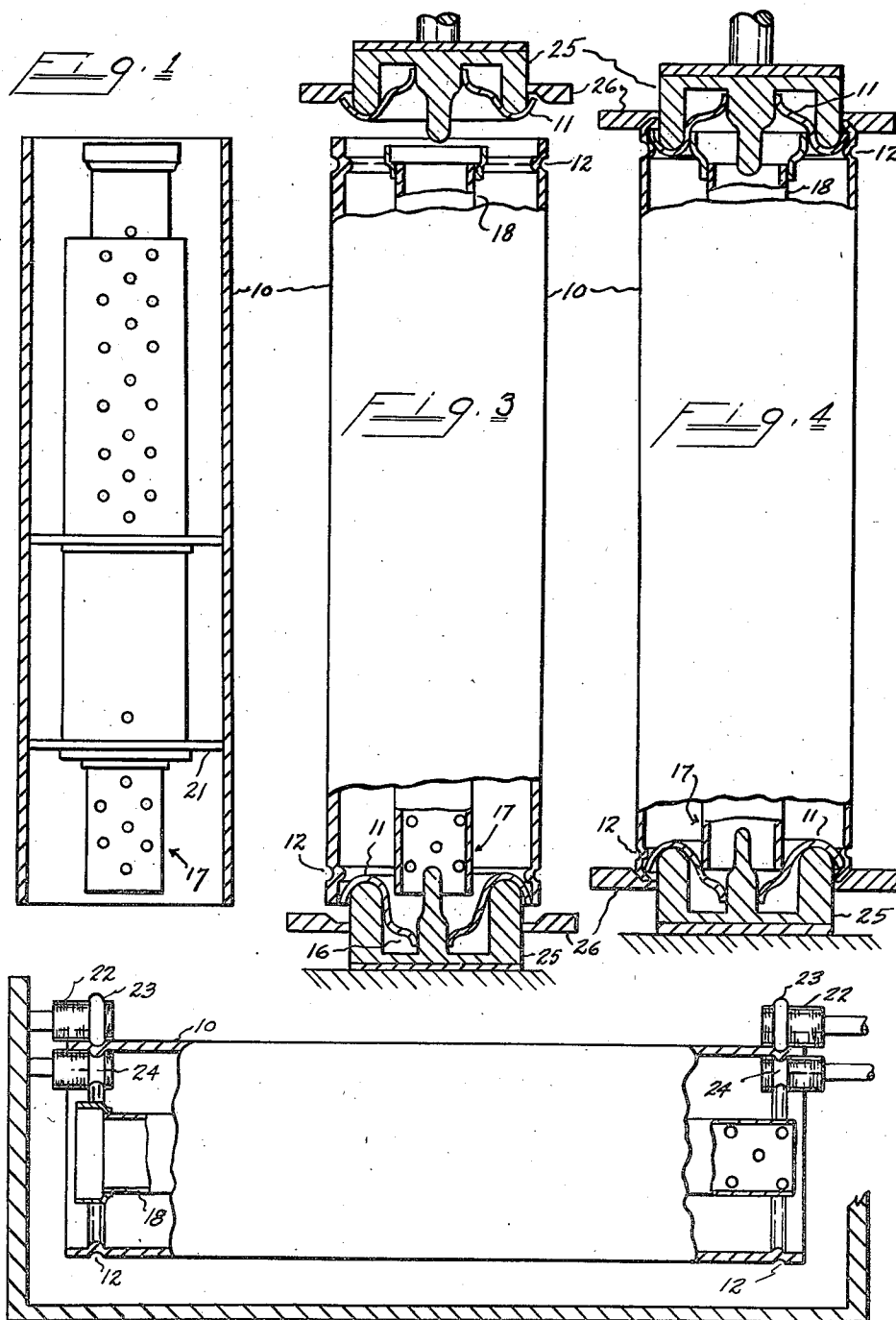
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2,264,524

METHOD OF MAKING MUFFLERS

Filed Feb. 3, 1940

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

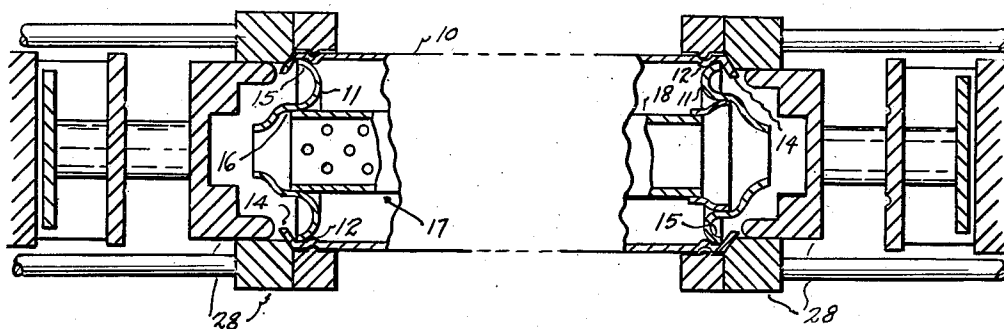


FIG. 5

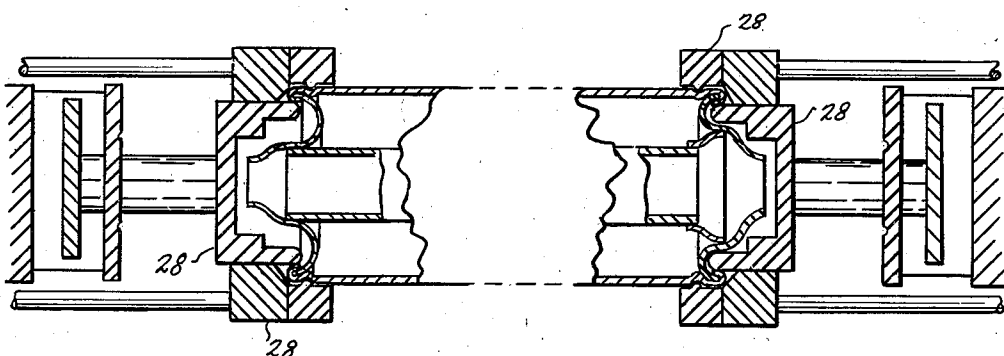


FIG. 6

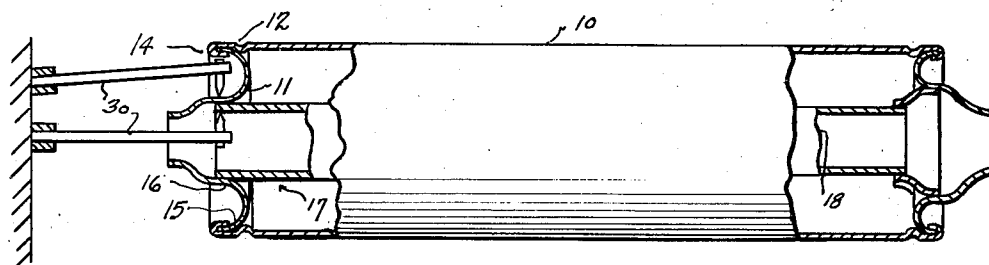


FIG. 7

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METHOD OF MAKING MUFFLERS

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1 Claim. (Cl. 29—157.4)

This application relates to mufflers or silencers and to methods of manufacturing such devices.

The muffler hereof, like mufflers now known, comprises a shell having two open ends receiving annular heads whose outer edges are secured to the ends of the shell and whose inner edges are secured to an inner assembly.

In this application, an improvement in the muffler construction is disclosed. That improvement consists in the formation of an inwardly projecting bead in the shell, near a head, against which the head abuts, with the end of the shell turned over so as to be within an outer flange of the head, thus forming a lock seam between the shell and the head and eliminating the necessity for welding, commonly used in relatively securing heads and shells in mufflers.

This application also discloses a novel method for assembly of mufflers having shells, heads, and inner assemblies.

For an understanding of the muffler herein disclosed and the novel method for making the same, reference should be had to the appended drawings. In these drawings,

Fig. 1 shows a muffler shell having an inner assembly therein;

Fig. 2 shows the inwardly beading of the shell near its ends;

Fig. 3 shows the placing of heads within the shell around the inner assembly;

Fig. 4 shows a part of the lock seaming or crimping of the ends of the shell around the outer flanges of the head;

Fig. 5 shows another part of the lock seaming or crimping step;

Fig. 6 shows the completion of the lock seaming or crimping step;

Fig. 7 shows the welding of the heads to the inner assembly and also shows the completed muffler.

Referring particularly to Fig. 7 which shows the completed muffler, it will be seen that this muffler has a shell 10 with two open ends in which are seated heads 11 whose outer edges abut inwardly projecting beads 12 of the shell, the latter having its ends turned over, as at 14, to form lock seams around the flanges 15 of the heads. These have center holes in the form of tubular extensions 16 telescoped around the ends of the inner assembly 17. The latter comprises an inner tube 18 surrounded by an intermediate tube and having numerous transverse diaphragms 21, the latter set tightly fitting within the shell.

The assembly of the muffler may be carried on in the following manner:

First, the inner assembly 17 is slid endwise into the shell through an open end and until the shell and inner assembly occupy the relative positions shown in Fig. 1. The friction between the shell and the diaphragms 21 holds the parts together while the shell is carried to and placed in a horizontal grooving or beading machine, as shown in Fig. 2, so that the grooving rollers 22, having beads 23 and grooves 24 may roll inwardly projecting beads 12 in the shell.

Then the shell may be turned vertically and its lower end telescoped over the flange 15 of a head 11 seated on a lower one of the dies 25, shown in Fig. 4, with the lower end of the inner assembly 17 telescoped into the flange 16 of the head. Another head 11 is placed in the upper one of the dies 25 which is then moved downwardly whereby the lower end of the shell is pressed tightly over the lower head and the upper head is pressed tightly into the upper end of the shell, each head abutting the adjacent shell bead or groove 12. Die plates 26 of the dies 25, when moved towards each other, will operate to turn in the ends of the shell sharply over the flanges of the heads, as shown in Fig. 4.

With the heads held in the shell against the beads by the turned in ends of the shell, the muffler is then moved to the horizontal machine shown in Figs. 5-6. This machine has dies 28 which further turn in the ends of the shell over the flanges of the heads, when the dies move towards each other, until the shell ends are completely turned in, as shown in Fig. 6 to form lock seams around the flanges of the heads.

The assembly operation is completed, as shown in Fig. 7, by welding the center hole flanges of one of the heads to the end of the inner assembly therein contained, the welding electrodes being indicated at 30.

It will be observed that the engagement between the diaphragms 21 of the inner assembly and the shell is tight enough to permit the shell to be transported from the station where the inner assembly is slid into a muffler shell to the grooving machine of Fig. 2 and there grooved, and then transported from the grooving machine to the head pressing-in machine of Figs. 3-4. Similarly the sharp turning in of the shell ends in the machine of Figs. 3-4 creates an interlocking between the shell and the heads sufficient to permit the shell and heads therein to be transported to the horizontal seaming machine of Figs. 5-6 and there manipulated.

Now having described the muffler herein disclosed and the assembly method shown herein, reference should be had to the claim which follows:

I claim:

A method for making a muffler having an open ended shell, flanged annular heads at and seated in its ends, and an inner assembly connecting the heads and filling their center holes compris-

ing, sliding the inner assembly lengthwise into the shell through one open end thereof, beading the shells inwardly near their ends, placing the heads in the shell ends and around the ends of the inner assembly, and against the beads, and turning the ends of the shell over the flanges, and welding the heads to the ends of the inner assembly.

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