

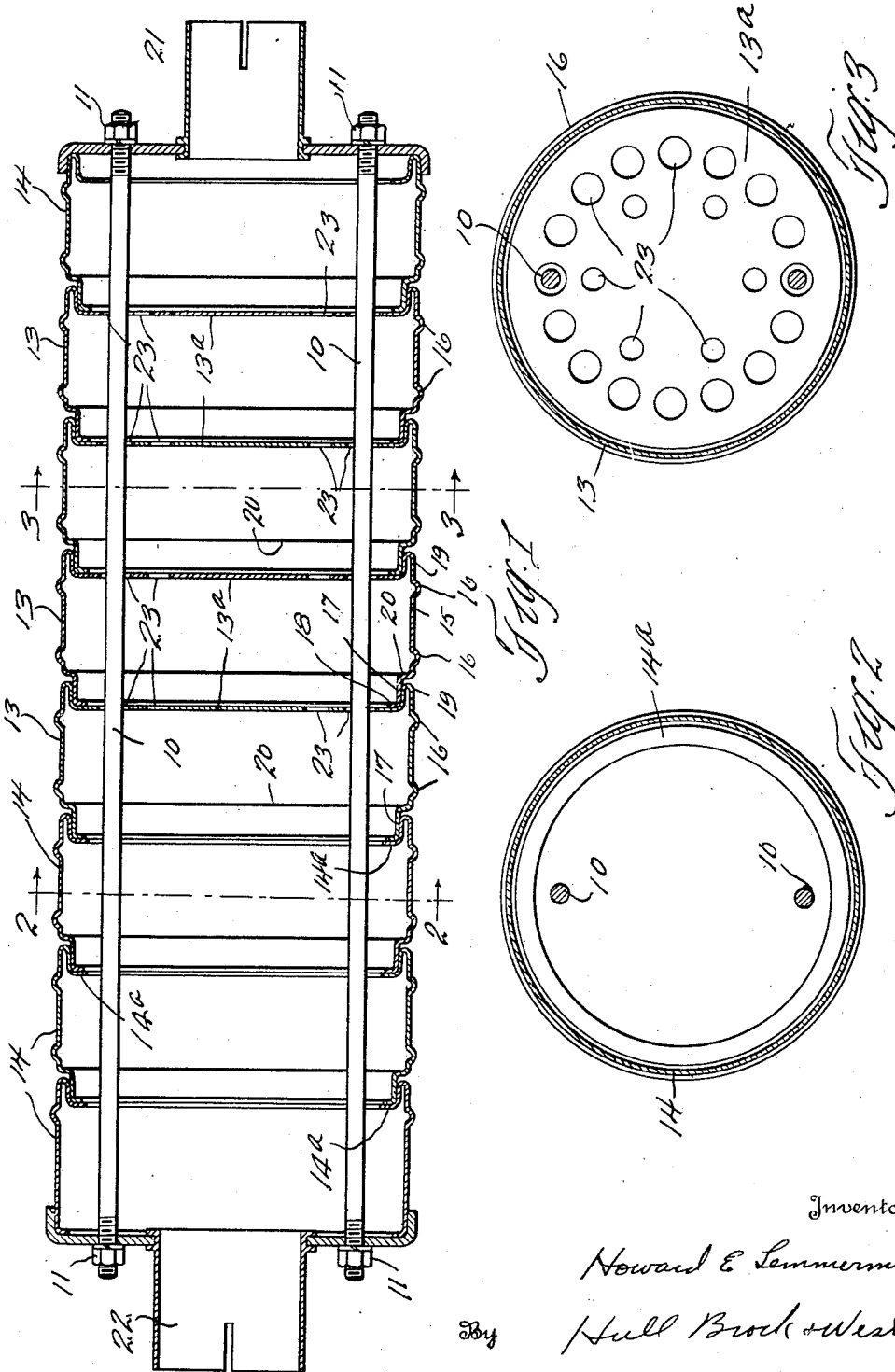
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MUFFLER

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MUFFLER

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This invention relates to a muffler for use in connection with internal combustion engines and particularly to a muffler of the cup type. An object of this invention is to provide a muffler which can be manufactured by the use of high speed machinery and at a low cost without sacrificing the operating efficiency or durability of the completed article. A further object is to provide a muffler of this type of such construction as to provide for expansion without jamming the parts or placing undue strain on the tie rods. With the foregoing and other objects in view, the invention consists in the details of construction and arrangement of parts as hereinafter fully described and claimed.

Fig. 1 is a central longitudinal section through my improved muffler; Fig. 2 is a section on line 2—2 of Fig. 1; and Fig. 3 is a section on line 3—3 of Fig. 1.

My improved muffler consists of a plurality of cup-like members of two varieties together with a pair of oppositely disposed end plates 10 and suitable tie rods 11. The cup-like members 13 are provided with perforated bottom portions 13^a while the other cup-like members 14 are provided with substantially open bottom members consisting merely of inwardly extending flanges 14^a. Aside from the construction just noted, the cup-like members 13 and 14 are identical.

Each of the members 13 and 14, in addition to the bottom thereof, is provided with a convex side wall 15 provided with girdling reinforcing corrugations 16, a constricted upper portion 17 having a narrow inwardly extending upper flange 18, and a bead 19 having one wall continuous with the side wall 15, another concentric wall continuous with the bottom, spaced from the first bead wall and merging therewith by an easy curve. It will be noted that the constricted portion 17 is joined to the convex wall 15 by a shoulder 20, the length of the constricted portion 17 being such that the bead 19 is spaced from the shoulder 20. When the rise in temperature causes an expansion in a longitudinal direction, the same is compensated for both by flexing or rolling of the adjoining edge of the bead 19 and by the flexing of the shoul-

der 20. A slight movement of the cup members with respect to each other is allowed at these points by reason of the slight spacing between the bead 19 and the shoulder 20. From the foregoing description it becomes obvious that the tie rods 11 may be tightened to such an extent that this muffler will not rattle when cold, yet will not be sufficiently tight to cause undue strain on the tie bolts under the severest operating conditions.

The muffler is assembled by telescoping or nesting the required number of cup-like members of each kind and passing tie rods 11 of suitable length therethrough to clamp the end plates 10 at the two ends thereof. Any suitable connecting means 21 and 22 may be provided for attachment to the exhaust pipe of an automobile or other internal combustion motor. The member 22 will preferably be connected to the motor whereby the gases will pass in the direction from the member 22 toward the member 21. The tie rods 11 may extend through oppositely situated perforations 23. An important feature of my invention is the spacing of the corrugations 16 from the ends of the convex wall 15, which better adapts the construction to production by high speed machinery.

From the foregoing it will be evident that I have provided a muffler of very simple yet highly efficient and durable construction which is well adapted for its intended purpose, and while I have illustrated and described the preferred form, I wish it understood that my invention is limited only in accordance with the appended claims.

Having thus described my invention, what I claim is:

1. In a muffler, a plurality of cup-like members each having a portion telescoping and fitting within a portion of an adjacent member, each of said members having a bead comprised of two, spaced, cylindrical wall portions extending beyond the bottom wall, each member having at its top a constricted, cylindrical portion adapted to telescope within the bead of an adjacent member, said constricted portion being longer than said bead whereby to space the main wall portions of said members.

2. In a muffler, a plurality of cup-like members each including, a generally cylindrical side wall having at one edge an integral, backwardly extending, cylindrical portion positioned therewithin and spaced therefrom and
5 at the other edge a constricted, cylindrical portion adapted to fit tightly within the backwardly extending, cylindrical portion of an adjacent cup-like member, said backwardly
10 extending cylindrical portion terminating in an inwardly extending portion and said constricted, cylindrical portion being adapted to abut against said inwardly extending portion.

15 In testimony whereof, I hereunto affix my signature.

HOWARD E. LEMMERMAN.

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