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MUFFLER PIPE CONNECTER

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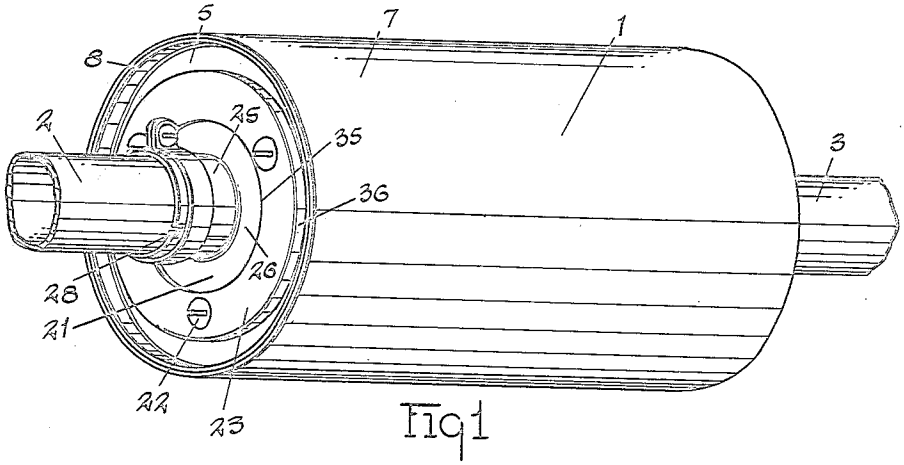


Fig 1

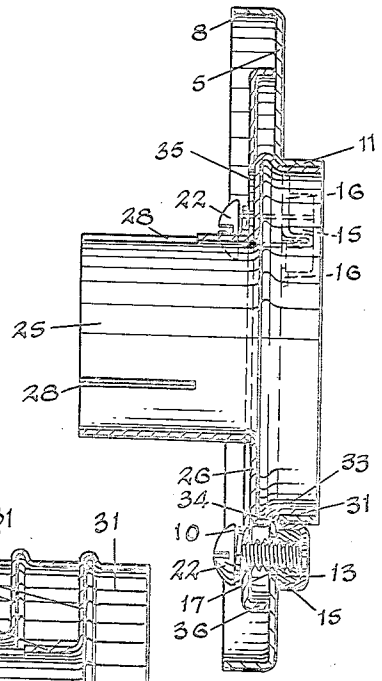


Fig 2

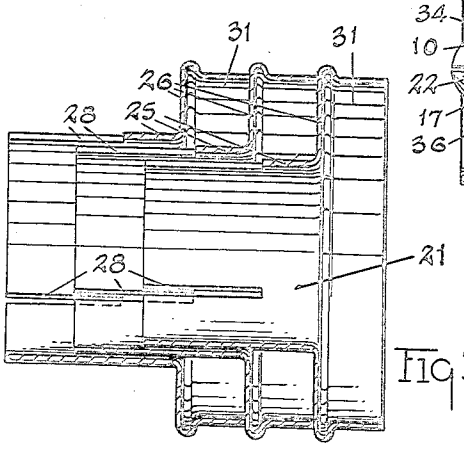


Fig 3

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MUFFLER PIPE CONNECTER

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2 Claims. (Cl. 285—198)

My invention has for its object to provide muffler pipe connecters for connecting mufflers to pipes of any of the usual sizes and being so formed that when connected to the ends of a muffler their contact areas will be sealed against the escape of exhaust gases at the points of jointure of the muffler and the connecters.

As is well known, engine exhaust pipes and muffler discharge pipes are not of uniform size, but vary in dimension and size in different types and makes of motor-driven vehicles. The invention thus provides muffler connecters to accommodate the various dimensional characteristics of the pipes. Thus, mufflers may be standardized as to dimensions and interior construction, which standardization materially reduces the cost of manufacture and sales price, and the muffler pipe connecters, which can be manufactured at a minimum price, may be used to make the pipe connections.

Structures containing the invention may vary in their details without departing from the spirit of the invention, and to illustrate a practical application of the invention, I have selected a connecter or pipe adapter as an example of the structures containing my invention. The structure selected as an example is shown in the accompanying drawing and is described hereinafter.

Fig. 1 is a perspective view of a muffler and the connecter of my invention. Fig. 2 is an end view of the connecter. Fig. 3 shows a nested set of connecters illustrating the manner in which the connecters may be stacked for purposes of shipment.

In Fig. 1 is shown a muffler 1 connected to the exhaust pipe 2 of an internal combustion engine and provided with a muffler discharge pipe 3. The pipes 2 and 3 are ordinarily of different sizes. The interior construction of the muffler may be varied to produce the desired reduction in the pulsating pressure and thus muffle the explosive engine exhausts. The adapter or connecter of my invention pertains to the connection between such a muffler and the exhaust pipe of the engine and the tail pipe of the muffler and is adapted for use in such connection with any form of muffler and pipes of varying sizes and diameters.

In the form of construction shown in the drawing, the heads or end plates 5 of the drum 7 of the muffler 1 are preferably formed of sheet metal stamping and may be provided with a suitable flange 8 that fits the interior surfaces of the end edges of the drum 7 and is welded thereto to secure the heads 5 as against the pressures created within the drum. The heads 5 are provided with openings 10 provided, for purposes of strengthening the central portions of the drum at the connections with the pipes, with inwardly extending flanges 11, which fit wedgewise with parts of the connecters to form a gas-tight seal. Prior to assembly of the heads 5 within the drum 7, nuts 13 are secured to the inner face of each head to form means which will cooperate efficiently to secure a connecter to the head. The nuts 13 are secured in position by clips 15, within which they are located, formed of sheet metal and shaped to enclose the nuts. The clips 15 are provided with ears 16 that may be spot-welded to the interior surfaces of the heads 5 to secure the threaded portions of the nuts in alignment with openings 17 in the heads 5. The nuts 13 give thickness of material that could not be obtained by threading portions of the sheet metal of which the heads are formed. This thickness gives a pressure-resisting strength sufficient to withstand the highest peak of pressure produced upon delivery of exhaust gases from the engine to the muffler.

The connecters 21 are constructed of various diameters in a diameter range to correspond with that of exhaust and discharge pipes and may be shipped in nested arrangement. In assembly the connecters 21 are selected according to the size of the engine exhaust and muffler discharge pipes. The connecters may be secured to the ends of the muffler by means of screws 22 that pass through openings in clamp rings 23, which project over portions of the connecters. The screws 22 may be threaded into the nuts 13, and thus the connecters may be securely sealed and placed in position for connection with the pipes 2 and 3. Consequently, mufflers of any type having heads 5 may be installed in automobiles having exhaust and muffler discharge pipes of different dimensions. The use of a standard muffler and connecters for adapting its use to various pipe dimensions greatly reduces the cost of production and the price of the muffler by reason of the fact that particular adjustments for pipe dimensions need not be made in producing mufflers for internal combustion engines, the connecter of my invention permitting the use of a standard muffler regardless of the pipe dimension of the various engines in which mufflers are to be installed.

Each connecter 21 is provided with a cylindrical part 25, and a lip part 26. The cylindrical part 25 forms a passageway through the connecter and protrudes centrally with respect to

the lip part 26. The outer end portion of the cylindrical part 25 is slotted as at 28 and renders the end portion flexible for clamping around the pipes 2 or 3 by means of suitable split-ring clamps of the well-known type. The connecter 21 has an inwardly protruding flange 31, which is preferably so constructed as to flare slightly. When the connecters are inserted in the heads, the flanges 31, due to their construction, fit tightly against the inner surfaces of the flanges 11.

The lip part 26 is preferably formed integral with the flange 31 and has an inclined surface, as at 33, and the lateral surface 34 of the head is inclined so that when the connecter is pressed against the drum, the two surfaces will wedge against each other. The lip part 26 protrudes over the edge of the opening 10 to form a gas-tight seal between the connecter and the muffler.

In order to form a tight seal around the edge of the lip 26, the clamp ring 23, having a substantially central opening 35 of smaller diameter than the diameter of the connecter, is fastened in position by the screws 22 over the lip part 26 and to the head 5. The interior surface of the clamp ring 23 is raised and formed to fit the lateral surface of the lip part, and the outer edge of the clamp ring is provided with a flange 36 so that when the ring is clamped in position, the lip 26 will tightly fit the inner surface of the ring 23, and the flange 36 will be forced tight against the lateral surface of the head 5 to form a gas-tight seal.

Thus, the invention provides a means for connecting a standard muffler with pipes of different dimensions and tightly sealing the connection.

I claim:

1. In a muffler having end plates, the end plates having openings and lateral edge portions about the openings inclined relative to body portions of the plates, pipe connecters having cylindrical parts and peripherally disposed lips having inclined portions, clamp rings having raised circular portions and depending flanges, the raised circular portions fitting the said lips, and means for securing the said clamp rings to the end plates and forcing and holding the inclined lateral edge portions of the end plates and the inclined portions of the lips wedgewise against each other.

2. In a muffler having end plates, the end plates having openings and lateral edge portions about the openings inclined relative to the body portions of the plates, frustumal flanges about the openings, pipe connecters having cylindrical parts and frustumal flanges, peripherally disposed lips formed integral with the flanges, said lips having inclined portions and fitting the inclined lateral edge portions of the end plates, clamp rings having raised circular portions and depending flanges, the lateral surfaces of the raised circular portions formed inclined and fitting the lateral surfaces of the said lips, and means for securing the said clamp rings and connecters to the end plates of the muffler and forcing the last-named flanges against the body portions of the end plates and holding and forcing the frustumal flanges wedgewise against each other and forcing the inclined lateral edge portions of the end plates and the inclined portions of the lips wedgewise against each other.

JOHN J. COMPO.