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MUFFLER AND EXHAUST PIPE ASSEMBLY AND CLAMP THEREFOR

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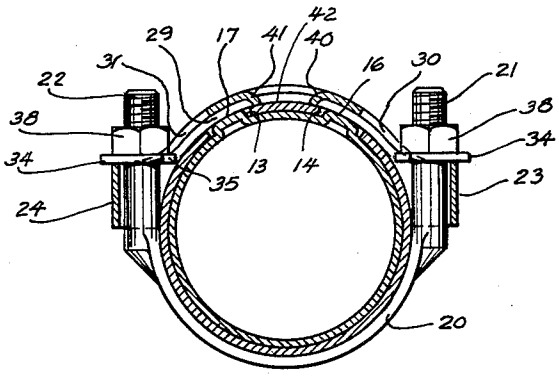

FIG. 2

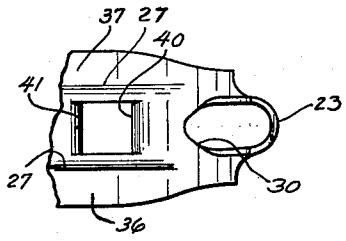

FIG. 3

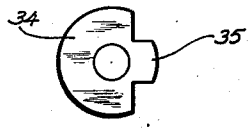

FIG. 4

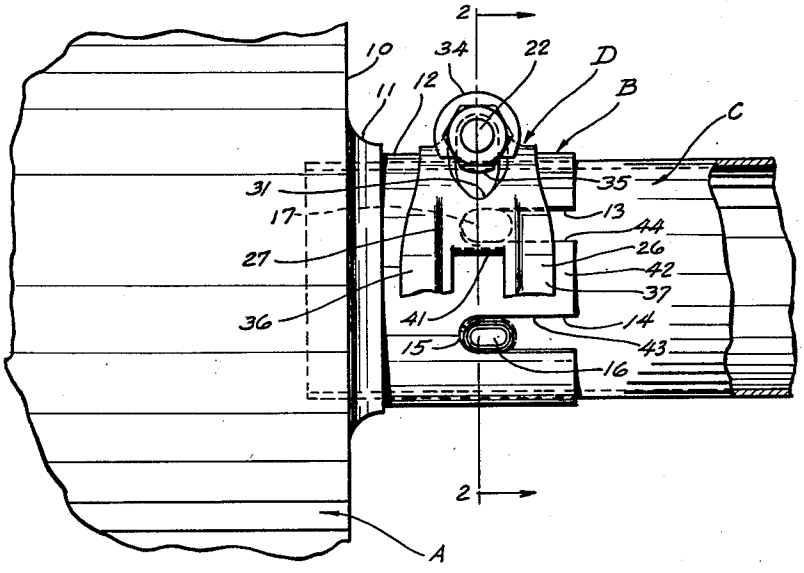

FIG. 1

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MUFFLER AND EXHAUST PIPE ASSEMBLY AND CLAMP THEREFOR

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6 Claims. (Cl. 285—322)

The invention relates to a muffler and exhaust pipe assembly with clamping means therefor.

The invention has particular reference to the coupling of one end of an exhaust pipe to the inlet or outlet stub of a muffler and providing means for reducing the tendency of such members from becoming uncoupled.

The principal object of the invention is to provide an assembly which is particularly resistant to becoming uncoupled.

A specific object is to provide a clamping device with means for resisting tendency of radial expansion of the tongue portion of the muffler stub.

Other objects and advantages of the invention will be apparent from the ensuing specification and appended drawing in which:

FIGURE 1 is a plan view of one end portion of a muffler and a portion of an exhaust pipe with the clamping device shown fragmentarily.

FIGURE 2 is a sectional view taken on the line 2—2 of FIGURE 1 and then rotated counter-clockwise 90 degrees.

FIGURE 3 is a fragmentary detail plan view of the upper half of the clamp.

FIGURE 4 is a detail view of the washer used with the clamping device.

In general, the muffler A has a cylindrical inlet or outlet stub B extending therefrom and securely anchored thereto. The exhaust pipe C has its end telescopically received within the muffler stub and a clamp assembly D serves to anchor the exhaust pipe with reference to the muffler stub.

The end wall **10** of the muffler has an annular flange **11** into which the inner end **12** of the muffler stub is received and anchored.

The stub may be in the form of a short length of pipe and has circumferentially spaced notches **13** and **14** formed therein. The axially directed notches terminate at **15** and are arranged in generally parallel relationship to each other to receive the beads **16** and **17** which are integrally formed in the external wall of the exhaust pipe. The exhaust pipe is inserted into the muffler stub until the ends of the beads engage the terminals **15** of the notches **13** and **14**, as best shown in FIGURE 1. The clamp assembly includes a lower half in the form of a U-bolt **20** which partly encircles the muffler stub and terminates with threaded extremities **21** and **22**. The remaining half of the clamp assembly may be in the form of a singular stamping having bight portions **23** and **24** formed at either end thereof through which the U-bolt extremities project.

The saddle portion of the stamping, identified generally by the numeral **26**, is of arcuate shape to generally follow the arc of the cylindrical muffler stub and is crimped at **27** throughout its length so as to be channel shaped in cross section, thereby making possible the formation of the bights **23** and **24**. As a result of the crimping, the central or bridge portion of the channel is radially spaced from the external wall surface of the muffler stub, such spacing being indicated at **29** in FIGURE 2. Slots **30** and **31** are formed in the blank prior to the final fabrication of the stamping and makes possible the formation of the bights at each end of the stamping. The washers **34** are formed in the manner best shown in FIGURE 4 with

the tongue portions **35** of such a width as to permit insertion between the side walls of the slots **30** and **31** so that the ends of the tongues bear against the external wall surface of the muffler stub, as best shown in FIGURE 2. Such bearing pressure assists in resisting tendency of radial expansion of the muffler stub under any rotative thrusts exerted between exhaust pipe and muffler stub. When such rotative thrusts are encountered the beads **16** and **17** exert radial thrust on the internal wall of the muffler stub tending to radially expand same so that rotative shifting of the exhaust pipe relative to the stub occurs.

The side runner portions **36** and **37** of the saddle bear against the external wall surface of the muffler stub and in conjunction with the arcuate portion of the U-bolt serve to constrict the stub into tight contact with the outer wall surface of the exhaust pipe when the nuts **38** are tightened.

In the central area of the bridge portion of the stamping, appropriate slitting is effected to permit the ears **40** and **41** to be struck downwardly so as to engage the muffler stub tongue **42** as best shown in FIGURE 2. The ears **40** and **41** are appropriately spaced so that each engages the stub tongue in the vicinity of the longitudinal side edges **43** and **44** thereof. Thus when the nuts **38** are tightened, the constrictive forces imposed on the upper and lower halves of the clamp assembly likewise cause the ears **40** and **41** to apply similar inwardly directed radial forces against the tongue **42** thereby reducing the possibility of said tongue from expanding radially sufficiently to ride over the beads **16** and **17** under the influence of rotative forces imposed on the exhaust pipe relative to the muffler stub.

I claim:

1. A muffler and exhaust pipe and clamp assembly comprising: a muffler pipe stub having generally axially directed slots opening through the end of the stub and circumferentially spaced from each other to form a generally axially directed tongue between such slots; an exhaust pipe telescopically received within the pipe stub and having a radially outwardly directed bead projecting into a slot on one side of the tongue; a clamp encircling the muffler pipe stub and including a U-bolt and a saddle in engagement with the U-bolt; said saddle overhanging the tongue and overlying the slots; means in engagement with the saddle and U-bolt for constricting the clamp to constrict the pipe stub into clamping engagement with the exhaust pipe and means formed on the saddle for engaging the tongue to resist tendency of radially outward movement of the tongue, said last means including a generally radially inwardly directed ear rigid with the saddle portion of the clamp.

2. A muffler and exhaust pipe and clamp assembly comprising: a muffler pipe stub having generally axially directed slots opening through the end of the stub and circumferentially spaced from each other to form a generally axially directed tongue between such slots; an exhaust pipe telescopically received within the pipe stub and having a radially outwardly directed bead projecting into a slot on one side of the tongue; a clamp assembly encircling the pipe stub and including a U-bolt and a saddle in engagement with the U-bolt; said saddle having a channel shaped portion with spaced side runners and a bridge portion interconnecting the side runners, the side runners engaging the muffler pipe stub and the bridge portion being spaced from the muffler pipe stub; a rigid ear formed on the bridge portion and projecting inwardly therefrom into engagement with the tongue; said bridge portion overhanging the tongue and overlying the slots; and means associated with the U-bolt and saddle for constricting the clamp assembly to constrict the pipe stub into clamping engagement with the exhaust pipe.

3. A muffler and exhaust pipe and clamp assembly comprising: a muffler pipe stub having generally axially di-

rected slots opening through the end thereof and circumferentially spaced from each other to form a generally axially directed tongue between such slots; an exhaust pipe telescopically received within the pipe stub and having radially outwardly projecting beads circumferentially spaced from each other and projecting into the slots on either side of the tongue; a clamp assembly encircling the pipe stub and having a bridge portion overhanging the tongue and overlying the slots; said bridge portion having integral spaced ears projecting generally radially inwardly and engaged with the tongue between the beads for resisting tendency of radially outward movement of the tongue and means on the clamp assembly for constricting same to constrict the muffler pipe stub into clamping engagement with the exhaust pipe.

4. A muffler and exhaust pipe and clamp assembly as set forth in claim 3 wherein the ears on the bridge portion engage the tongue adjacent to the longitudinal side edges thereof and in the circumferential path defined by the beads.

5. Apparatus as set forth in claim 3 wherein the clamp assembly has hollow bights formed at either end of the bridge portion and a U-bolt has its free ends projecting

one through each bight, said free ends being threaded and a washer and nut being mounted on each free end, said washers each having an edge with a tongue formed therein, said washer tongue projecting into the interior area of the bridge portion and engaging the exhaust pipe.

6. A muffler and exhaust pipe and clamp assembly as set forth in claim 4 wherein the bridge portion is channel shaped and has an opening therethrough at each end of which one of the ears is formed.

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