March 9, 1937. W. B. LEE 2,072,893

CARBURETOR CONNECTION

Filed Nov. 17, 1934

Fig. 1

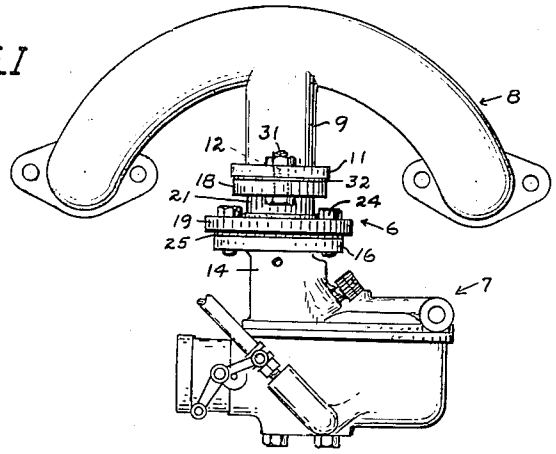


Fig. 2

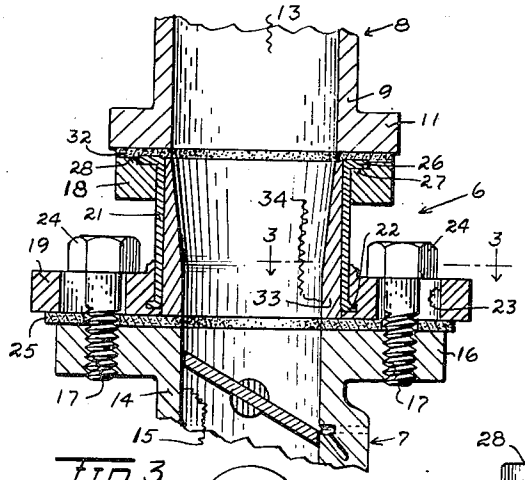


Fig. 3

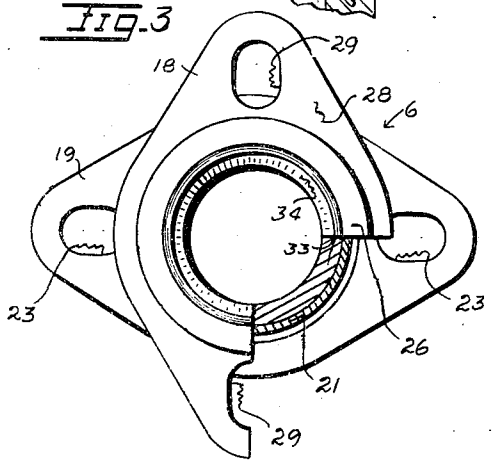
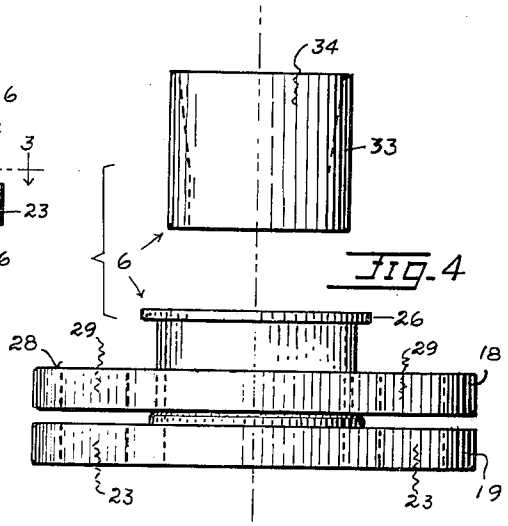


Fig. 4



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CARBURETOR CONNECTION

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7 Claims. (Cl. 285—198)

The invention relates to a device for connecting a carburetor to the fuel intake manifold of an internal combustion engine.

An object of the invention is to provide for the operative association of a carburetor with a manifold for which it was not specifically designed to be associated.

Another object is to provide a connection which permits a variable angular adjustment of a carburetor in its mounted position and with respect to an engine with which it is associated.

A further object is to provide a connector having an appropriately tapered bore for smoothly connecting carburetor and manifold ducts of different sizes.

An added object is to provide a connector unit which is generally adapted for universal installation as an adapter connector for the mounting of carburetors.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth or be apparent in the following description of a typical embodiment of the device, and in the accompanying drawing, in which,

Figure 1 is an elevation showing a carburetor mounted on an intake manifold for an internal combustion engine by the use of a connector unit embodying the invention.

Figure 2 is an enlarged fragmentary vertical section of the connector and portions of the carburetor and manifold.

Figure 3 is a plan view of the connector unit having its parts arranged as in Figure 1, a portion of the structure being broken out to the plane of the line 3—3 in Figure 2.

Figure 4 is an elevation of the unit, a throat-piece thereof being shown as axially removed from the remainder of the assembly.

As is particularly illustrated, the features of present invention are incorporated in the structure of a connector 6 by which a carburetor 7 is supportedly and removably mounted on an intake manifold 8 for an internal combustion engine (not shown).

The manifold 8 includes a usual fuel-receiving nozzle portion 9 having a usual oval flange 11 at its free end. The flange 11 is provided with bolt holes 12 at its opposite ends, and the nozzle 9 has a bore 13 terminating at the lower flange face. In the present instance, the carburetor 7 is of the up-draft type, provides an upwardly directed discharge nozzle portion 14, and is formed with a usual oval flange 16 at its free end. The flange 16 is provided with threaded holes 17 for receiving the usual stud bolts by which the carburetor may be directly fixed to a cooperating flange of an intake manifold for which it has been designed.

It will now be noted that it is often found desirable to associate carburetors with intake manifolds with which they were not originally intended to be used, and the present connection means has been particularly designed to facilitate such an association. In the present instance, the manifold flange 11 is transverse to the carburetor flange 16, and the manifold bore 13 is larger than the carburetor nozzle bore 15; under these circumstances, it will be understood that a direct connection of the flanges 11 and 16 would not be feasible while the carburetor is in the disclosed relation to the manifold.

By reference to the structure of the unit 6, the same is seen to essentially comprise flanges 18 and 19 engaging a nipple or sleeve member 21. As particularly illustrated and brought out in Figure 2, one end of the member 21 is fixed within the bore of the flange member 19 to extend axially therefrom; in the present instance, said nipple has a radial rib 22 at one end, and the member 19 has been cast about the nipple end at the rib 22 for effecting a fixed and unitary association of the member and nipple. The flange member 19 is provided with bolt holes 23 which are diametrically opposite each other and preferably comprise radial slots for facilitating the mounting of this member on carburetor nozzle flanges having differently spaced bolt holes 17; as is shown in Figures 2 and 3, stud bolts 24 are engaged through the slots 23 and in the holes 17 of the flange 19, a usual sealing gasket 25 being interposed between the flanges.

At its outer end, the nipple member 21 is provided with a radial flange 26 which is arranged to engage in a complementary annular seat 27 which is provided in the flat outer face 28 of the flange member 18. The latter member is freely rotatable about the nipple 21, and when the flange 26 is engaged in the seat 27 the flange preferably protrudes slightly from the face 28 of the flange member, as is illustrated. The flange 18 is provided with bolt holes 29 in the form or radial slot; as shown in Figure 1, bolts 31 are engaged through the bolt holes 29 of the member 18 and the bolt holes 12 of the manifold flange 11 for securing the member to the manifold.

A relatively thick sealing gasket 32 of somewhat yielding material is engaged between the flanges 26 and 11 whereby a tightening of the bolts 31 is arranged to sealedly engage the gasket between the said flanges and at the same time

engage the nipple 21 against rotation in the flange member 18, the latter by reason of the forcible engagement of the nipple flange 26 with the flange 18. In this manner, a carburetor mounted on the flange 19 may be fixed in rotatably adjusted relation to the manifold portion 9 and to the engine whereby the controls for the carburetor may extend therefrom as required. It will be understood that until the bolts 31 are tightened to forcibly engage the nipple flange 26 between the gasket 32 and the member 18, a swivel joint is provided between the nipple and member. Aside from the question of relative rotative adjustment of the flanges, it will be noted that the provision of the described swivel mounting of one flange permits the provision and use of particularly short adapter connectors through facilitating the mounting of the securing bolts in their operative positions.

When, as in the present instance, the manifold bore 13 and the carburetor bore 15 are of different size, the bore of the unit 6 is preferably tapered from one size to the other to provide a smooth connection between the carburetor and manifold bores. In order that the present connector may be most universally used, the bore of the nipple 21 may be uniform and said nipple may, as required, appropriately receive a throat or lining member 33 which itself provides a bore 34 which is formed to effect the desired smooth connection between the connected carburetor and manifold bores of different sizes.

The throat member 33 is preferably of a proper length for fixed engagement by and between the gaskets 25 and 33, and different such members may be readily and inexpensively provided for use with a given unit to fit different carburetor and manifold bore combinations, it being understood that the bore of the nipple 21 is preferably no smaller than the larger of the two bores to be connected. Furthermore, it will be understood that one or both of the bores to be connected may have other than circular cross-sections, and that the bore of a member 33 may provide the desired transition from one shape and/or size to the other.

While the present embodiment of the connector 6 is particularly shown as applied as a supporting hanger between a carburetor and manifold in which the manifold inlet bore is larger than the carburetor bore, it will be understood that in some instances the manifold nozzle bore might be the smaller; under the latter circumstances, the appropriate member 33 would be reversed in its mounting or the connector would itself be installed in a reverse position to that particularly shown. If the nozzle bores to be connected are alike, it will be noted that a unit having a nipple of like bore might be used, or that a throat member having a uniform bore might be provided within the bore of a larger nipple member.

Although the present adapter connector is particularly disclosed as in use for mounting an up-draft carburetor on an intake manifold, it will be understood that such an adapter may be as readily applied in supportedly mounting a down-draft carburetor on a manifold and in desired rotative adjustment with respect thereto and to the engine with which it may be used.

From the foregoing description taken in connection with the accompanying drawing, the advantages of the construction and method of use will be readily understood by those skilled in the art to which the present invention appertains. While I have described the features and principle of operation of a device which I now consider to be a preferred embodiment of my invention, I desire to have it understood that the showing is primarily illustrative, and that such changes may be made, when desired, as fall within the scope of the following claims.

1. In means for connecting a tubular discharge nozzle of a fuel carburetor with a tubular receiving nozzle for the fuel intake passage of an internal combustion engine for mutual rotative adjustment, said nozzles being provided with terminal radial flanges fixedly related thereto, a connector means comprising a nipple for connecting the ducts of said nozzles, and radial flanges mounted on said nipple for fixed and sealed connection with the opposed flanges of the different said nozzles to lock the nipple and nozzles against relative rotation, one of said connector flanges being swivelled to said nipple for rotative adjustment with respect to the other connector flange whereby the mounted carburetor may be rotatively adjusted to any desired degree with respect to the said receiving nozzle.

2. A structure in accordance with claim 1 wherein the various flanges are each provided with a pair of diametrically opposed and axially directed bolt holes for receiving bolts as the sole securing means for the connector, said holes being of oval cross-section and having their greatest widths in their diametric line.

3. A structure in accordance with claim 1 wherein the nipple extremity at the swivelled flange extends axially outwardly of the latter flange and a sealing gasket is engaged between said nipple extremity and the nozzle flange with which the swivelled flange is engaged whereby the latter flange is arranged to be locked against rotation with respect to the other connector flange when the swivelled flange is fixed in place on a said nozzle flange.

4. In means for connecting a tubular discharge nozzle of a fuel carburetor with a tubular receiving nozzle for the carburetted fuel, said nozzles being provided with radial flanges at their extremities and having bores of different sizes, a nipple for connecting the bores of the nozzles and provided with flanges at its extremities for fixedly mounting the nipple on and between the nozzle flanges, and a tubular throat member lining the nipple bore and providing a tapered bore having its different end portions of substantially the same size as the different nozzle bores whereby to provide a smooth connection between said nozzle bores when the nipple is operatively installed between the nozzles.

5. A structure in accordance with claim 4 wherein the throat member is removably engaged in the nipple and is arranged for fixed engagement by and between the nozzle flanges as the sole securing means longitudinally thereof.

6. In means for connecting a tubular discharge nozzle of a fuel carburetor with a tubular receiving nozzle for the carburetted fuel, said nozzles having bores of different sizes, a nipple for connecting the bores of the nozzles, means to connect the nipple extremities with the nozzles for fixedly and sealedly mounting the nipple on and between the nozzles, and a tubular throat member lining the nipple bore and providing a tapered bore having its different end portions of substantially the same size as the different nozzle bores whereby to provide a smooth connection between said nozzle bores when the nipple is operatively installed between the nozzles.

7. In means for connecting a tubular discharge nozzle of a fuel carburetor with a tubular receiving nozzle in rotatively adjusted relation thereto, said nozzles being provided with terminal radial flanges fixedly related thereto, a connector comprising a nipple for connecting the ducts of said nozzles, a radial connector flange fixed to an end of said nipple for use in fixing the same to a said nozzle flange, a radial flange fixed at the other nipple end, a connector flange encircling said nipple for rotative adjustment thereabout and arranged to be fixed to the second nozzle flange, said last connector flange being disposed between the nipple flanges, and said last connector flange and the second nozzle flange being cooperative to sealedly clamp the second nipple flange between them.

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