July 13, 1965 W. T. STEPHENS 3,194,257

STACKED VALVE ASSEMBLY

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Fig. 1

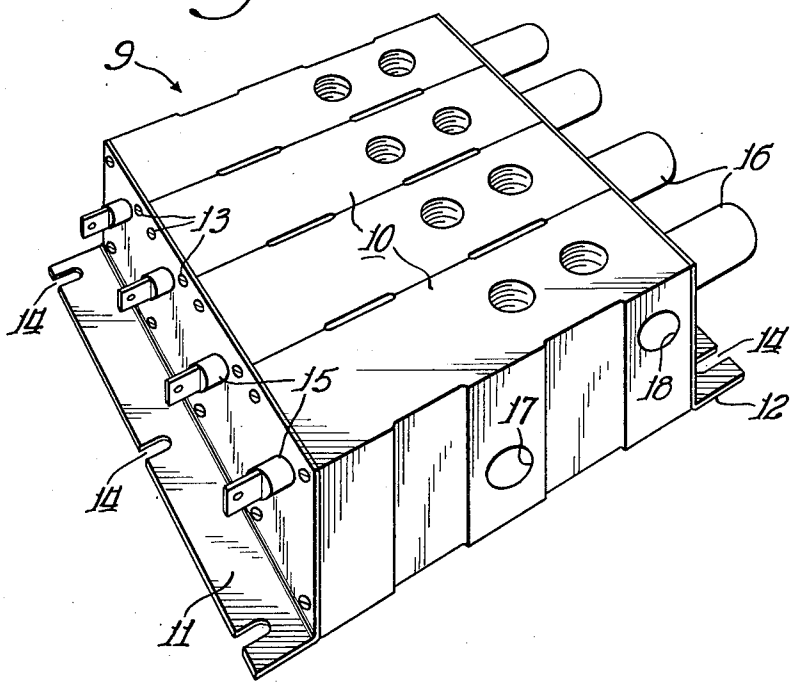
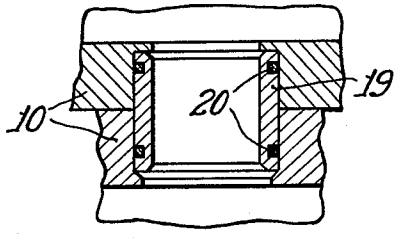


Fig. 2



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STACKED VALVE ASSEMBLY

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The present invention relates to stacked valve assemblies and more particularly to stacked valve assemblies wherein the valve sections are held together by means of mounting brackets fastened to opposite ends of the stacked valve sections.

Conventional stacked valve assemblies normally employ a plurality of valve sections connected to each other by means of bolts running laterally therethrough. This type of connection stresses the body of the valve and tends to distort the body in a direction transverse the longitudinal axis of the bore in which the spool operates, which tends to interfere with the normal operation of the spool in its respective bore.

In the present invention, the use of mounting brackets fastened to opposite ends of the stacked valve sections by screws or studs eliminates the above-mentioned stresses and the resultant distortion of the bore.

It is therefore the main object of the present invention to provide an improved means of connecting the valve sections of a stacked valve assembly.

The present invention consists of the novel constructions, arrangements and devices to be hereinafter described and claimed for carrying out the above stated objects and such other objects as will be apparent from the following description of a preferred form of the invention, illustrated with reference to the accompanying drawing, wherein:

FIGURE 1 is an isometric plan view of a stacked valve assembly according to the present invention; and

FIGURE 2 is an enlarged view of a ferrule serving as a coupling, illustrating the joining of passages between adjacent valve sections, shown in fragment.

FIGURE 1 shows a stacked valve assembly **9** comprising valve sections **10** assembled in alignment and connected at opposite ends thereto by mounting brackets **11** and **12** which are fastened by screws **13** and are provided with openings **14** as a means for mounting the stacked valve assembly **9**.

The valve sections **10** are provided with valve spools **15** operable in bores, not shown, and are associated with detent means, not shown, which are housed in spool detent caps **16**.

The stacked valve assembly **9** is provided with inlet and outlet passages **17** and **18** each of which is sealed against fluid loss between the sections by suitable coupling means such as a ferrule **19**, provided with O-rings **20**, as shown in FIGURE 2.

A stacked valve assembly according to the present invention may comprise valve sections which consist of more than one spool valve unit and this in no way would affect the characteristics of the assembly. Expediency may dictate that valve sections comprise units that consist of more than one spool valve.

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Whether or not the valve sections consist of one or more spool valve units, the benefits derived from my type of stacked valve assembly would be substantially the same in that any stresses that may result from connecting the valve sections would be directed only with respect to the coring or passages within the assembly, which is not detrimental, as compared with conventional stacked valve assemblies in which the valve sections are tied together by means of bolts that are run laterally through the sections thereby creating stresses with respect to the spools and the bores in which they operate.

In the present invention dowel pins may be used between the valve sections thus facilitating alignment of the sections and serve to bolster sheer stresses.

The mounting brackets **11** are provided with openings for convenient use in mounting the assembly. Other means of mounting the assembly for operational use may be employed without departing from the spirit of the present invention.

While this invention has been described in connection with certain specific embodiments thereof, it is to be understood this is by way of illustration and not by way of limitation and the scope of this invention is defined solely by the appended claims which should be construed as broadly as the prior art will permit.

I claim:

1. A stacked valve assembly comprising in combination:
   (a) a group of valve sections assembled in face-to-face alignment,
   (b) a pair of mounting brackets,
   (c) one each of the said mounting brackets connected to the opposite ends of the said assembled valve sections,
   (d) fluid passages in intercommunication between the said valve sections,
   (e) and, fluid sealing means at the juncture of said fluid passages.

2. A stacked valve assembly according to claim 1 wherein the said mounting brackets are provided with means for mounting the said stacked valve assembly.

3. A stacked valve assembly according to claim 1 wherein a ferrule is provided at each of the junctions of the fluid passages between the said valve sections each of said ferrules being provided with sealing means.

4. A stacked valve assembly according to claim 3 wherein each of said ferrules is provided with an O-ring at each end thereof as sealing means.

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M. CARY NELSON, *Primary Examiner.*