May 12, 1942. M. W. BANOWETZ 2,282,552

NON-GASKET FLANGE

Filed Nov. 15, 1940

Fig. 1.

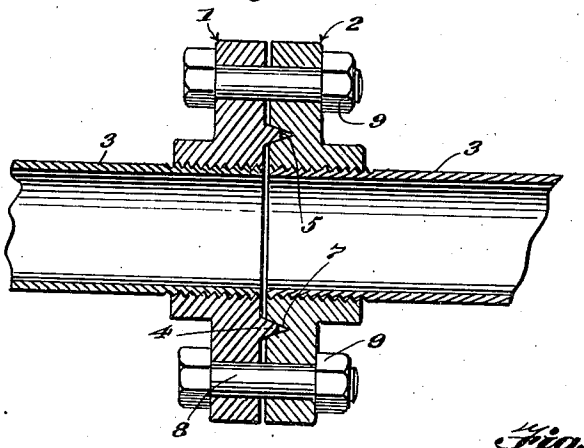


Fig. 3.

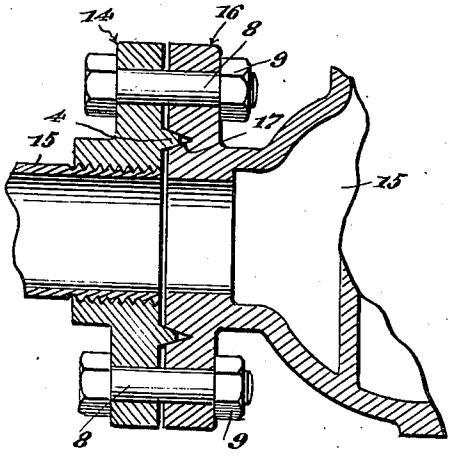


Fig. 2.

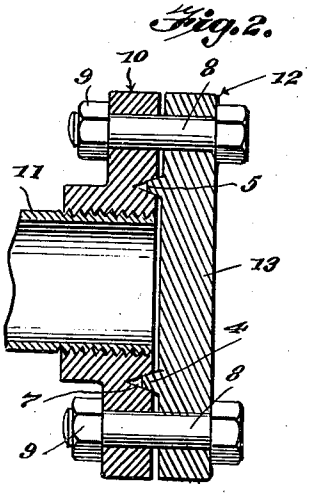


Fig. 4.

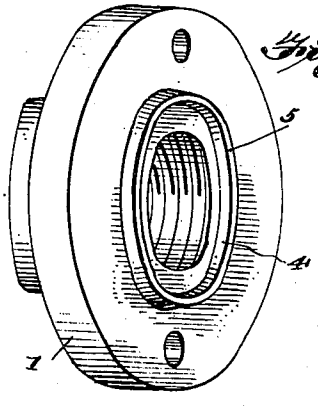
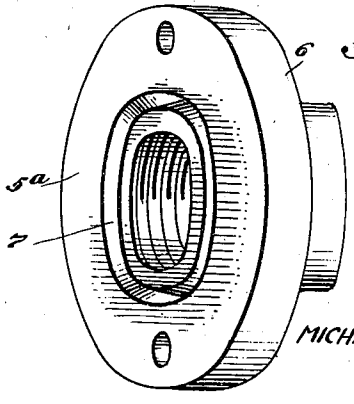


Fig. 5.



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UNITED STATES PATENT OFFICE

2,282,552

NONGASKET FLANGE

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Application November 15, 1940, Serial No. 365,828

1 Claim. (Cl. 285—137)

This invention relates to a non-gasket flange structure.

An object of the invention is the construction of a very simple and efficient device for the elimination of gaskets, joint compounds, etc. in producing a highly efficient joint which will not leak, even under high pressure.

Another object of the invention is the construction of a joint that is inexpensive to manufacture, and which will give the highest efficiency in operation.

A still further object of the invention is the construction of an inexpensive and efficient joint wherein the tongue and groove structure is only machined, with the tongue having a flat outer end to allow room for setting up the seat.

With the foregoing and other objects in view, the invention comprises certain novel constructions, combinations, and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawing, and more particularly pointed out in the appended claim.

In the drawing:

Figure 1 is a vertical sectional view of a device constructed in accordance with this invention, showing same mounted on two pipe sections.

Figure 2 is a vertical sectional view of another embodiment of this invention, showing the same mounted on one pipe section.

Figure 3 is a vertical sectional view of another embodiment of this invention.

Figure 4 is a perspective view of the male or primary unit.

Figure 5 is a perspective view of the female or auxiliary unit.

Referring to the drawing, in Fig. 1, the male or primary unit 1 and the female or auxiliary unit 2 are mounted upon the contiguous ends of pipe sections 3. The primary unit 1 is provided on its inner face 3 with an annular tongue 4, which is substantially V-shape in cross section. This tongue 4 is provided with an outer flat edge 5; this edge 5 is not rounded or curved. It is an advantage, from a cost standpoint, to have only tongue 4 machined, whereas the rest of the unit 1 need not be machined. The female or auxiliary unit 6 is provided on its inner face 5a with an annular groove 7 that is V-shape in cross section; for accurate operation this groove 7 is machined, whereas the rest of the unit is not. When the two units 1 and 6 are screwed together, as clearly shown in Fig. 1, the tongue 4 is snugly seated in the annular groove 7. It has been discovered that the machining of the groove and tongue produces such a tight and permanent joint that no additional means is ever needed for the most satisfactory results. When the parts are so assembled bolts 8 and nuts 9 are placed upon the units for securely fastening same together, and against rotary movement on pipe sections 3.

In the embodiments shown in Figure 2, the female or auxiliary unit 10 is mounted upon the pipe section 11. The male or primary unit 12 comprises a solid, flat, disc-like body 13, which substantially closes the end of pipe section 11. The body 13 is provided with a substantially V-shape tongue 5 and the auxiliary unit 10 is provided with the V-shape groove 7, the same being in structure and operation as hereinbefore explained in connection with the embodiment shown in Figure 1. In this embodiment (Fig. 2) the device is what the trade calls a "blind flange" which is used on end of pipe section to plug lines; this is a novel, useful and meritorious device. The bolts 8 and nuts 9 are used in this embodiment for holding the two units securely together.

In Figure 3 the male or primary unit 14 is mounted upon the end of the pipe section 15. This primary unit 14 is similar in construction to the primary unit 1 of the embodiment shown in Fig. 1. The valve body 15 is provided with the integral female or auxiliary unit 16, which unit has the V-shape annular groove 17. The operation is the same as hereinbefore explained, in connection with the embodiment disclosed in Figure 1.

From the foregoing it is to be understood that in all of the embodiments of this invention, only the tongue and groove structure is machined, leaving the other parts of the joint structure to be manufactured in an inexpensive manner, whereby it has been found from extensive tests under high pressures that my improved joint structure shows no sign of leaking. Further, the flat end 5 of the tongue in all of the embodiments allows room for setting up the seats, which is another important feature of the invention.

I am conversant with the prior art. In U. S. Patent No. 1,468,187 a series of Y-shape tongues and Y-shape grooves is shown, and joint compounds are mentioned "to render the coupling more efficient." From extensive experience I have found that my invention to be far more superior to said complicated patented structure. In U. S. Patent No. 1,537,755 devices are disclosed only adaptable to pipe fittings; this patent does

not show a tongue with a flat edge, nor that only the tongue and groove are machined. Therefore, I have invented a novel, useful and meritorious article of manufacture.

While I have described the preferred embodiments of my invention and illustrated the same in the accompanying drawing, certain changes or alterations may appear to one skilled in the art to which this invention relates during the extensive manufacture of the same and I, therefore, reserve the right to make such changes or alterations as shall fairly fall within the scope of the appended claim.

What I claim is:

In a device of the class described, the combination of a primary and an auxiliary unit, said primary unit comprising a flat disc-like body, said body provided on its inner face with a single substantially V-shape tongue, said tongue being machined and having flat side faces and a flat outer edge face, said auxiliary unit provided with a groove of greater depth than the rib V-shaped in cross section and having its walls machined, and means for holding said units in cooperating engagement with each other with the rib wedged into the groove and the flat edge face of the tongue spaced from the bottom of the groove.

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