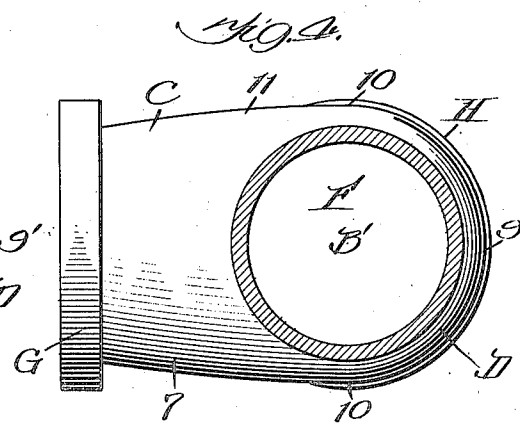
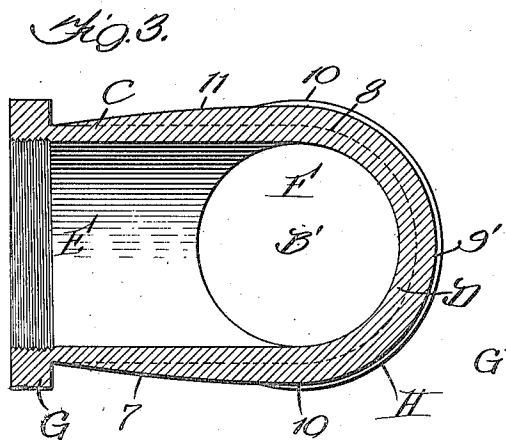
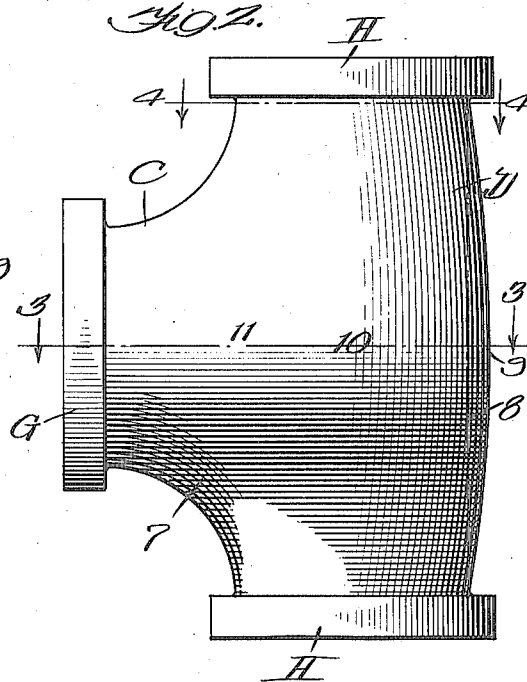
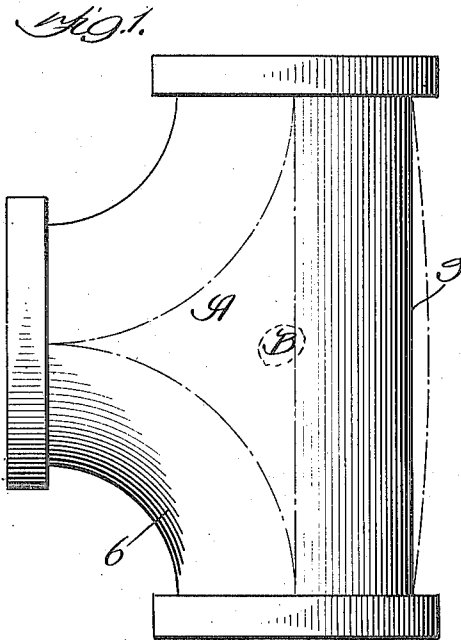


1,255,562.

C. A. OLSON.
PIPE FITTING.
APPLICATION FILED AUG. 21, 1917.

Patented Feb. 5, 1918.
2 SHEETS—SHEET 1.



Witnesses:
John H. Nelson
W. H. Fowkes.

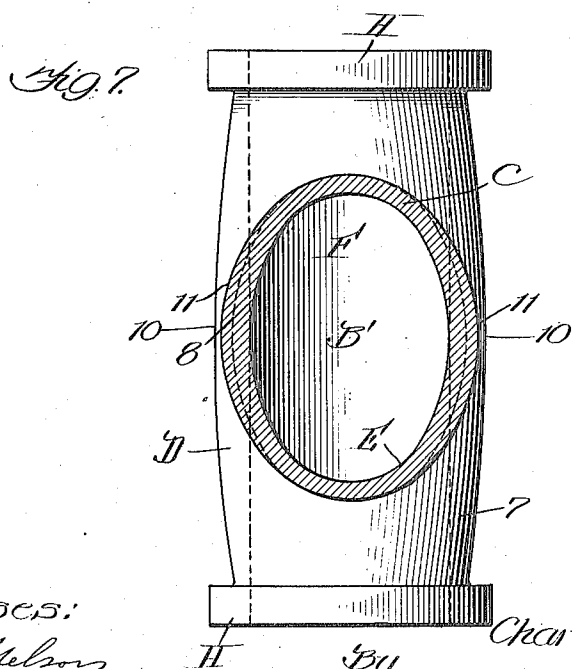
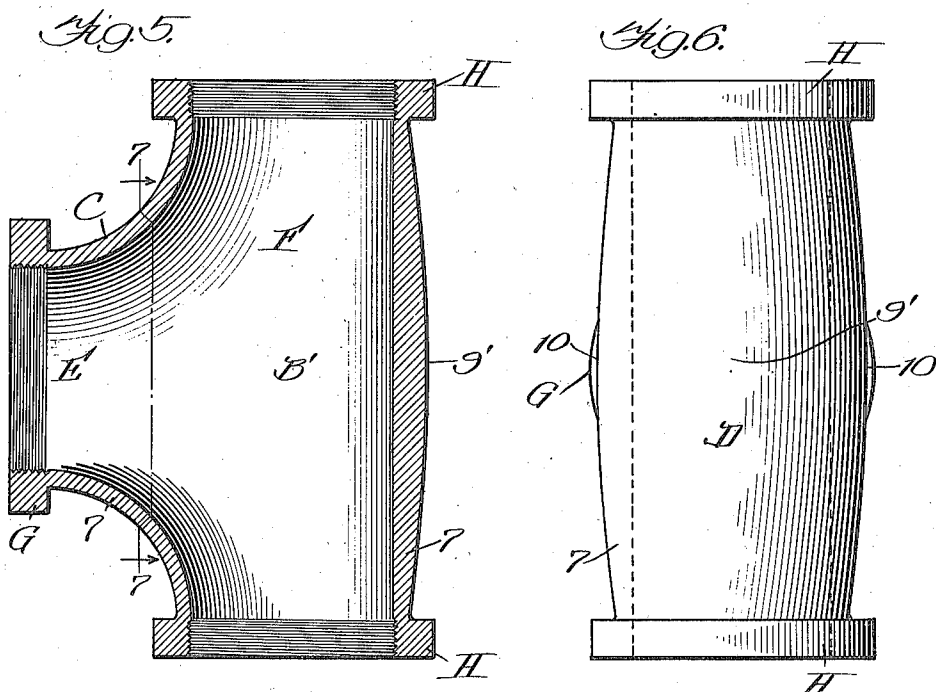
Inventor:
Charles A. Olson.

By *Symmes & Co. Bradley & Co. Fowkes*
attys.

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2 SHEETS—SHEET 2.



Witnesses:
Jno. H. Nelson
W. H. Howkes

Inventor:
Charles H. Olson.
By
Sydney L. Bradley, Attorney at Law

UNITED STATES PATENT OFFICE.

CHARLES A. OLSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO CRANE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PIPE-FITTING.

1,255,562.

Specification of Letters Patent.

Patented Feb. 5, 1918.

Application filed August 21, 1917. Serial No. 187,397.

To all whom it may concern:

Be it known that I, CHARLES A. OLSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pipe-Fittings, of which the following is a specification.

My invention relates to pipe-fittings, and has for its objects to provide an improved construction of body designed, generally, to increase the efficiency, utility, and durability of the fitting, thereby adapting the same for extremely high working pressures, and more specifically in this connection to obtain an increase of over one hundred per cent. in the pressure resisting power of the improved fitting, as compared with the customary straight body fitting, and without appreciably increasing its weight, at the same time providing therefor a finished and commercially acceptable appearance.

The above, together with such other objects as may hereinafter appear, or are incident to my invention, I obtain by means of the construction illustrated in preferred form in the accompanying drawings, wherein:—

Figure 1 illustrates the ordinary straight body-type of T fitting;

Fig. 2 is a side elevation of my improved construction of T-body;

Figs. 3 and 4 are horizontal sectional views taken on lines 3—3 and 4—4 in Fig. 2;

Fig. 5 represents a central vertical section taken through Fig. 2;

Fig. 6 is a rear elevation of the same; and Fig. 7 represents a front elevation of the main bore and a vertical section of the neck or branch bore taken on the line 7—7 of Fig. 5.

Experience in the use of the ordinary straight body fittings in extremely high pressure lines has determined that they are appreciably weaker than the line. This relative weakness is frequently evidenced by the bursting of the fitting; or the stretching and bulging of the body to a point where it takes a permanent set, with consequent leakage at joints; which, in either case, would impair the functioning of the high pressure line in which the fitting may be interposed. In the case of a T-fitting, for example, it has been ascertained by test, that such stretching and bulging takes place within the flat zone that occurs at each side

of the fitting, the greatest stretch taking place at points near the intersection of the two center lines of the bores, which points form the margin of the maximum internal cross-sectional area of the fitting.

This flat zone is clearly portrayed in A, in the T shown in Fig. 1 of the drawings, which serves to illustrate the ordinary straight bodied fitting 6, and the point of intersection referred to is approximately indicated by the reference letter B in said figure, and B' in the other figures.

With a view of eliminating these flat side zones, and rendering the fitting capable of withstanding considerably higher internal pressure, at least equal to the rating of the line into which it would normally be introduced, I form the body of the fitting or T, 7, in the manner illustrated in Fig. 2, *et seq.*, wherein the reference letter C designates the neck and D the body portion of the fitting, and E the branch bore communicating laterally with the main longitudinal bore F, the former being flanged terminally at H in the customary manner.

In carrying out my invention I externally form the fitting with an oval body intermediate its ends, without in any way changing the normal conformation or diametrical proportions of the bores E and F. The dotted line 8 in Figs. 2, 3, and 7, is indicative of the normal wall thickness of the ordinary fitting, said line 8 in Fig. 2 corresponding with the full line 9 to the right of Fig. 1.

From an inspection of the drawings it will be apparent that the sweep of the oval or bulge has its inception at the arcuate lines of juncture, at the sides of the T, between the side walls of the bores E and F and their respective terminals G and H, the metal increasing slightly in thickness, in a direction away from said terminals and the crotches therebetween, over each of those side portions 11, which would normally embody the flat spot A, the increase or distribution in thickness of metal being at least in proportion, approximately, to the internal cross-sectional area of the fitting.

In the points 10, which if joined would pass through the axis B', the greatest thickness of the metal is reached and the curvature thus established, taken in a direct line through the points 10 and terminating in the flanges H, extends preferably without

reduction or increase, about the rear face 9' of the fitting and intermediately of said side portions 11. I have found by actual test of a T embodying my invention, that only
5 with an increase of body weight amounting to eleven per cent. over the straight body fitting, such T was enabled to withstand an internal pressure of one hundred and
10 twenty per cent. greater than the ordinary straight body fitting could withstand under like circumstances.

What I claim is:—

1. In a high pressure system, the combination with a line constructed to conduct
15 extremely high working pressures, of a fitting bored for interposition therein as part of said line and having a concaved crotch portion disposed at one side of the bore intermediate end portions of the fitting, the wall
20 of the fitting provided externally with a gradual increase in metal thickness inwardly from said end portions and from said crotch portion toward the other side of the bore and distributed to form an external convex
25 contour with the greatest metal thickness disposed about the maximum internal cross-

sectional area of the fitting, and the least about said crotch and end portions, substantially as and for the purposes set forth.

2. An improvement in fittings of the type
30 designed for interposition in lines conducting extremely high working pressures, the fitting having a through bore and a concaved crotch portion disposed at one side of the bore intermediate end portions of
35 the fitting, the wall of the fitting provided with a gradual increase in metal thickness inwardly from said end portions and toward the other side of the bore from said
40 crotch portion and distributed to form a convex contour with the greatest metal thickness disposed about the maximum internal cross-sectional area of the fitting and diminished in thickness at the crotch and
45 end portions, said increase representing approximately eleven per cent. of the weight of the fitting; substantially as described and for the purposes set forth.

In testimony whereof I have hereunto set my hand to this specification.

CHARLES A. OLSON.