Feb. 14, 1939. P. J. FEYKERT ET AL 2,146,948

TRANSFERRING APPARATUS FOR HIGH PRESSURE FLUIDS

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Fig. 1.

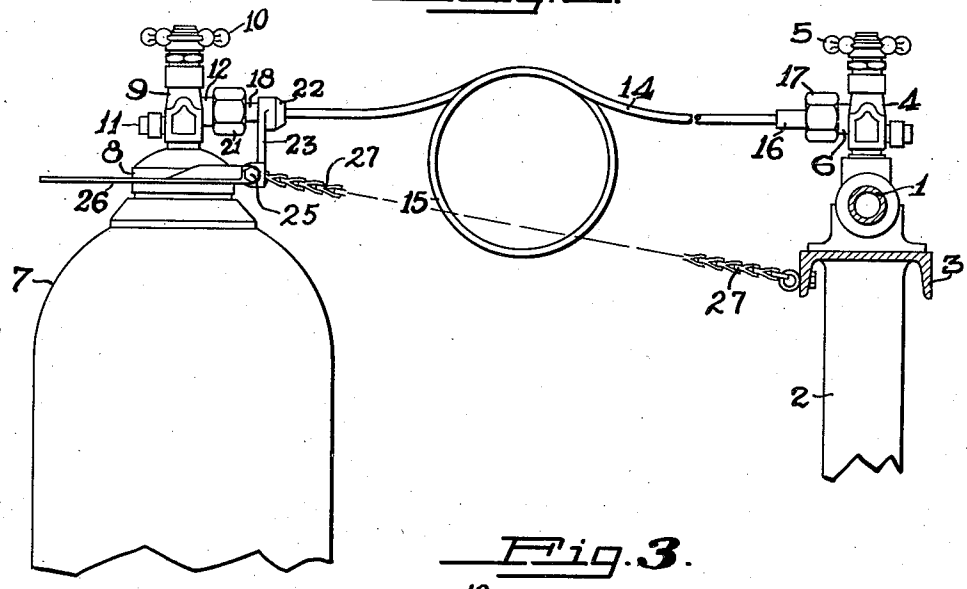
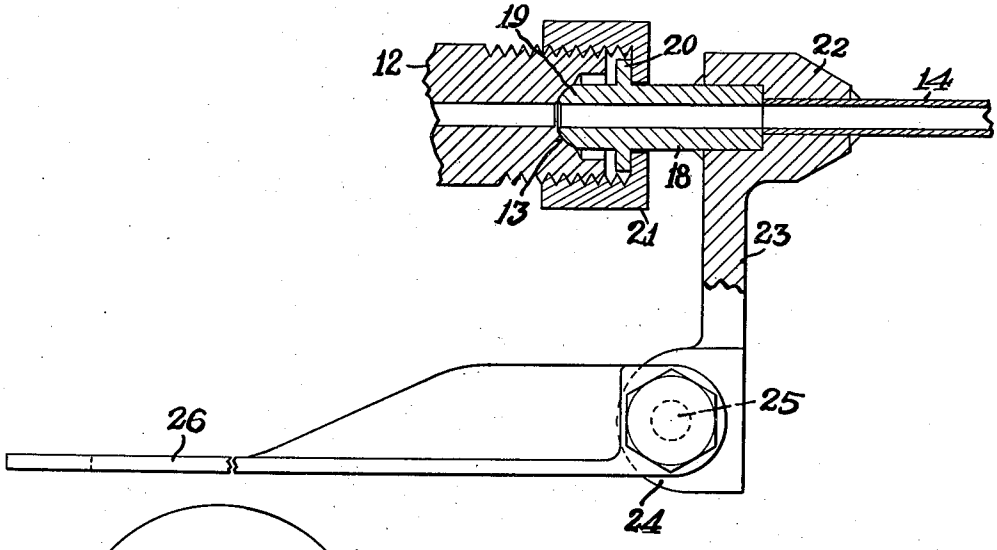


Fig. 3.



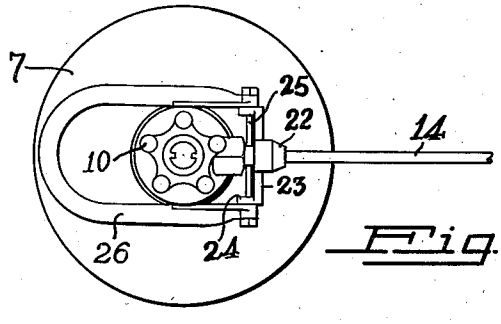


Fig. 2.

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Fig. 4.

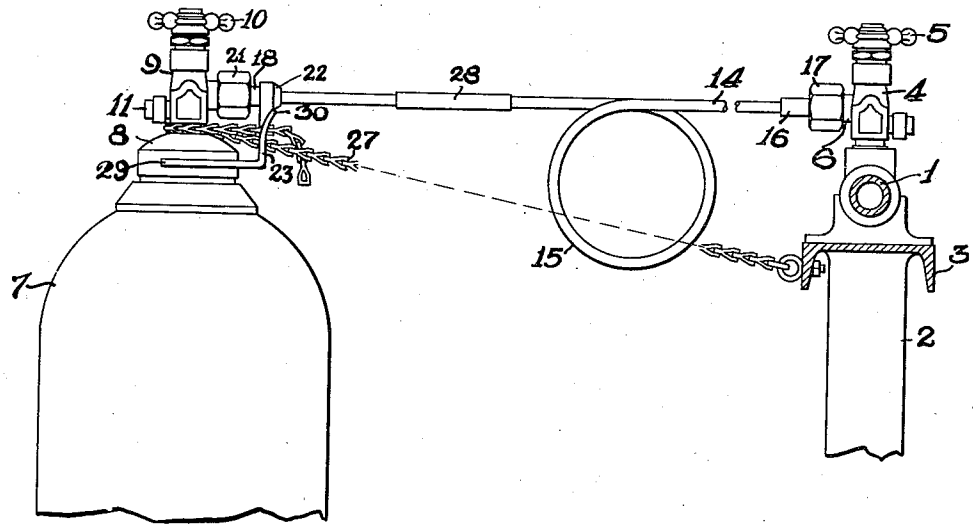
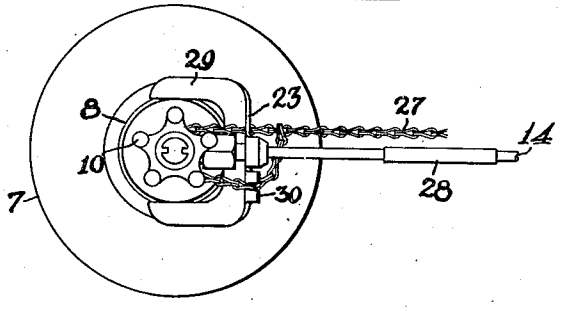


Fig. 5.



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TRANSFERRING APPARATUS FOR HIGH PRESSURE FLUIDS

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Application May 28, 1937, Serial No. 145,276

3 Claims. (Cl. 226—20)

This invention relates to improvements in apparatus for transferring high pressure fluids from a supply line into manifold tanks, and more particularly to means for preventing damaging strains and stresses from being imparted to the tubing which connects a tank with its supply line.

The primary object of our invention is to provide improved fluid transferring apparatus of the kind characterized, embodying novel means capable of being readily applied to a tank to be filled with high pressure fluid, for preventing the tubular conduit connecting the tank with its supply line from being twisted or otherwise damaged when the apparatus is installed and dismantled.

Another object of our invention is to provide improved fluid transferring apparatus of the kind characterized, embodying novel means associated with a tank to be filled with high pressure fluid and its supply line, for preventing damage to the tank or its associated equipment in the event there is a sudden discharge of fluid from the tank while the latter is in the process of being filled.

Other and further objects of our invention will be pointed out hereinafter, indicated in the appended claims or will be obvious to one skilled in the art upon an understanding of the present disclosure. For the purpose of this application we have elected to show herein certain forms and details of apparatus for transferring high pressure fluids from a supply line to tanks representative of our invention; it is to be understood, however, that the embodiment of our invention herein shown and described is for the purpose of illustration only, and that therefore it is not to be regarded as exhaustive of the variations of the invention, nor is it to be given an interpretation such as might have the effect of limiting the claims, short of the true and most comprehensive scope of the invention in the art.

In the accompanying drawings:

Fig. 1 is a side elevation of apparatus of the kind heretofore characterized, embodying the preferred form of our invention;

Fig. 2 is a vertical sectional view taken longitudinally through the union means connecting the tubular conduit with the charging valve of the tank;

Fig. 3 is a top plan view of that part of the apparatus applied to the tank;

Fig. 4 is a side elevation of a modified construction embodying our invention; and

Fig. 5 is a top plan view of that part of the apparatus shown in Fig. 4 which is applied to the tank.

Referring to the drawings the numeral 1 designates a tubular conduit connected to a compressor or other suitable source of high pressure fluid such as hydrogen. The tubular conduit is supported by a number of spaced upright standards 2 which have horizontally disposed angle irons 3 secured thereon for supporting and strengthening purposes. The tubular conduit is provided with an upwardly disposed valve 4 having an operating handle 5 and an externally threaded fluid outlet means 6.

Suitably positioned with respect to the valve 4 of the fluid carrying conduit 1 is a metal tank or bottle 7 having a neck 8 and a filling or charging valve 9. The valve 9 is provided with an operating handle 10, an exhaust port 11 which is controlled by suitable means for allowing the escape of fluid from the tank when the pressure thereof reaches a predetermined point, and an externally threaded inlet means 12 having a concave seat 13 at its outwardly disposed end.

Connecting the outlet means 6 of the valve 4 with the inlet means 12 of the valve 9 is a metal tube 14 having, preferably, a looped portion 15 which gives a certain amount of flexibility to the tube. One end of the tube 14 is provided with a flanged member 16 of the usual kind having a union 17 thereon which is adapted to screw onto the threaded end of the outlet means 6 to connect the tube to the valve 4.

The opposite end of the tube 14 is rigidly connected to a tubular extension 18 having a rounded end 19 which is adapted to fit in the concave seat 13 of the inlet means 12. The tubular extension 18 is provided with an annular flange 20 which is engaged by the inwardly flanged end of a union 21. The union 21 screws onto the tubular inlet means 12 of the valve 9 and serves to securely connect the tubular extension 18 to the said inlet means.

So as to prevent the turning or twisting of the metal tube 14 when the union 21 is screwed onto the inlet means 12 to bring the rounded end 19 of the tubular extension 18 into firm and leak proof engagement with the seat 13 of the said inlet means, we have provided suitable bracing means engageable with the neck 8 of the tank which securely maintains the tubular extension 18 and the connected end of the metal tube in fixed positions so that neither is permitted to turn during the assembly or dismantling of the apparatus. Rigidly secured to the tubular extension 18 and the metal tube 14, as by welding, brazing or other suitable means, is an enlarged reenforcing collar 22 which engages with and extends over the adjoining ends of the said ex-

tension and tube. The collar 22 is rigidly secured to the upper end of a vertically disposed triangular shaped member 23 which has suitable eyes 24 formed at its lower end for receiving a bolt 25. Pivotally secured at its ends to the bolt 25 is a yoke 26 which is adapted to extend around the neck 8 of the tank 7. The closed end and opposite sides of the yoke 26 normally engage with the neck of the tank 7 and maintain the triangular shaped member 23 and the collar 22 in a stationary position while the union 21 is being screwed onto or unscrewed from the threaded inlet means 12 of the valve 9. The maintenance of the collar 22 in a stationary position during the assembly or dismantling of the apparatus prevents damaging strains and stresses from being applied to the metal tube 14. Secured at its ends to the angle iron 3 and to the triangular shaped member 23 or to the bolt 25 is a chain 27 which is adapted to maintain the tank 7 in an upright position in the event of a sudden discharge of compressed fluid from the exhaust port 11 of the valve 9.

In the modified form of our invention illustrated in Figs. 4 and 5, the metal tube 14 is provided with a resilient or flexible section 28 which is made preferably from rubber. The flexible section 28 is intended to give the tube 14 a greater amount of flexibility and to thereby facilitate the assembly and dismantling of the apparatus. In the modified form the triangular shaped member 23 is rigidly secured to the closed end of a yoke 29 which is also adapted to partially extend around the neck 8 of the tank 7. Extending upwardly from the triangular shaped member 23 is a forked member 30 to which a chain 27 is detachably secured after the latter is passed around the neck of the tank or the casing of the valve 9 to securely hold the yoke 29 on the neck of the tank during the assembly and dismantling operations. The chain 27 not only securely holds the yoke 29 on the neck 8 of the tank 7, but being attached to the angle iron 3, it prevents the tank 7 from tipping or falling from an upright position.

Having described our invention what we claim is:

1. In union means of the kind described, an externally threaded tubular member having a concave seat in one end, a male tubular member engaging with the seat, the said male tubular member having a flange thereon, a union member threaded onto the first mentioned tubular member and having holding means engaging with the flange, the said union member being so constructed and arranged as to bring the tubular member into firm engagement with the seat when the said union member is screwed onto the externally threaded tubular member, a reenforcing collar secured to the male tubular member, and means secured to the collar for engaging with a stationary member to prevent the turning of the collar and the male tubular member when the union member is screwed on or off the externally threaded tubular member.

2. In union means of the kind described, a tubular member having a concave seat at one end thereof, a second tubular member having one of its ends engaging with the said concave seat of the first mentioned tubular member, a union member detachably secured to the first mentioned tubular member for connecting the tubular members so the end of the second mentioned tubular member engages with the seat of the first mentioned tubular member, and yoke means secured to the second mentioned tubular member for engaging with a stationary bottle or tank to prevent the turning of the said second mentioned tubular member when the union member is applied.

3. In union means of the kind described, a pair of tubular members for conveying fluid, union means connecting the tubular members, and a bottle embracing member secured to one of the tubular members and adapted to engage with a stationary bottle for preventing the twisting of the last mentioned tubular member when the union means is being operated to connect the tubular members.

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