Nov. 1, 1927. 1,647,321

S. THURSTENSEN

RETURN BEND AND TERMINAL FITTING

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Fig. 1.

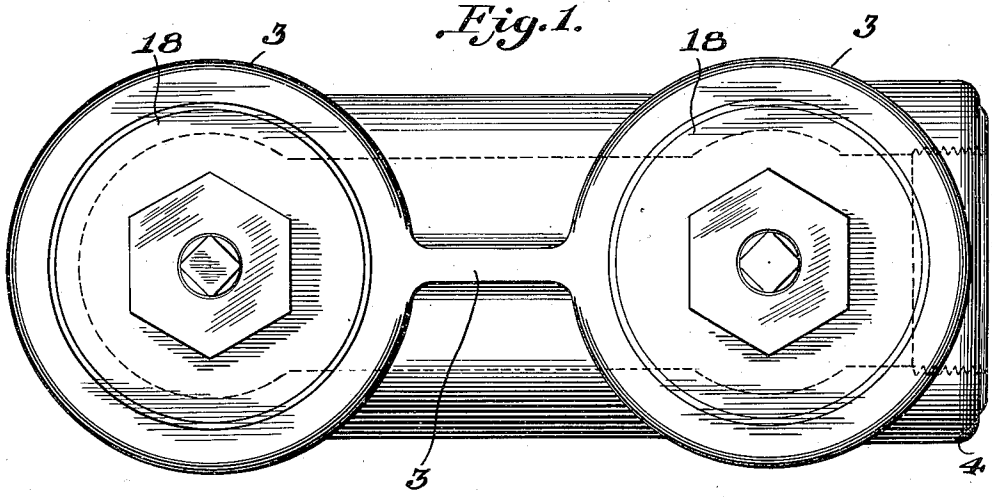
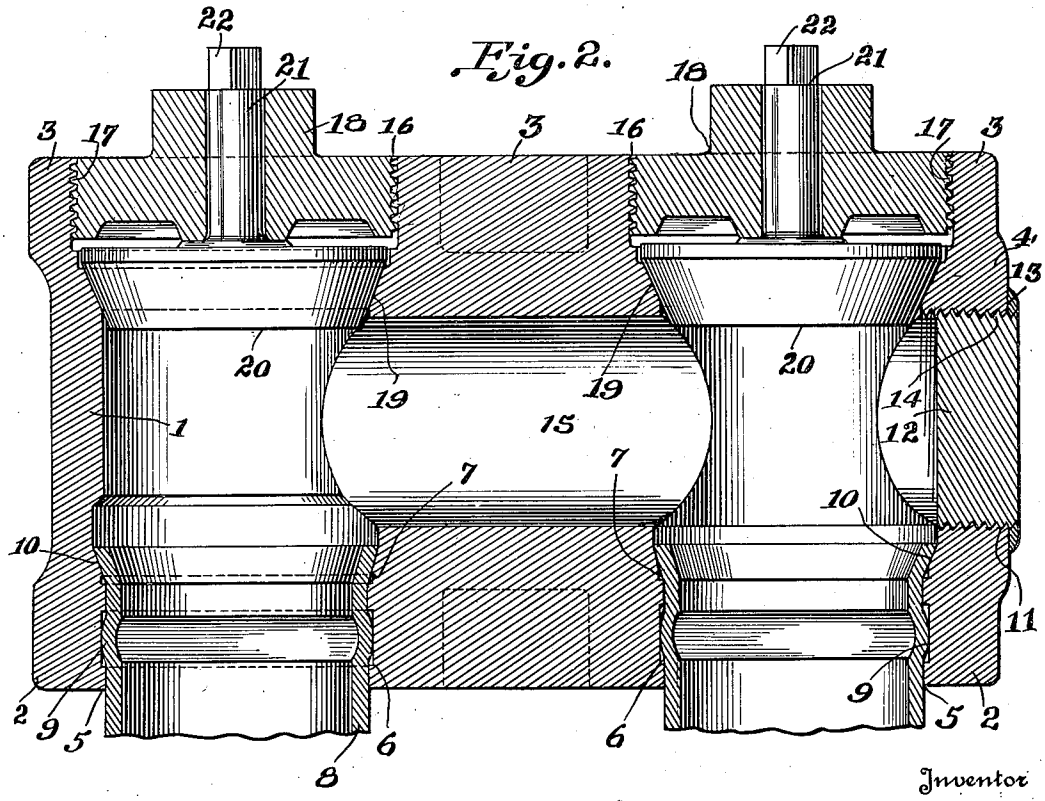


Fig. 2.



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Fig. 3.

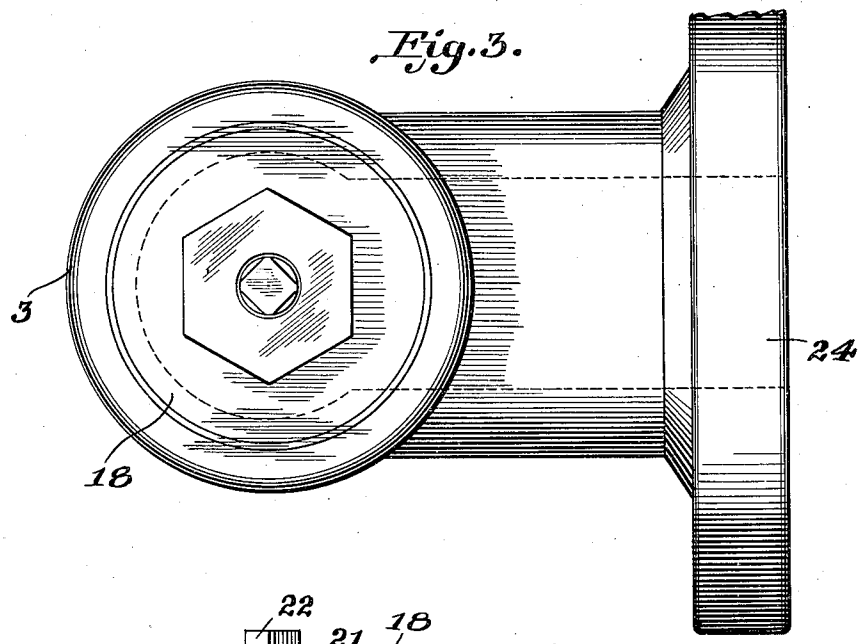
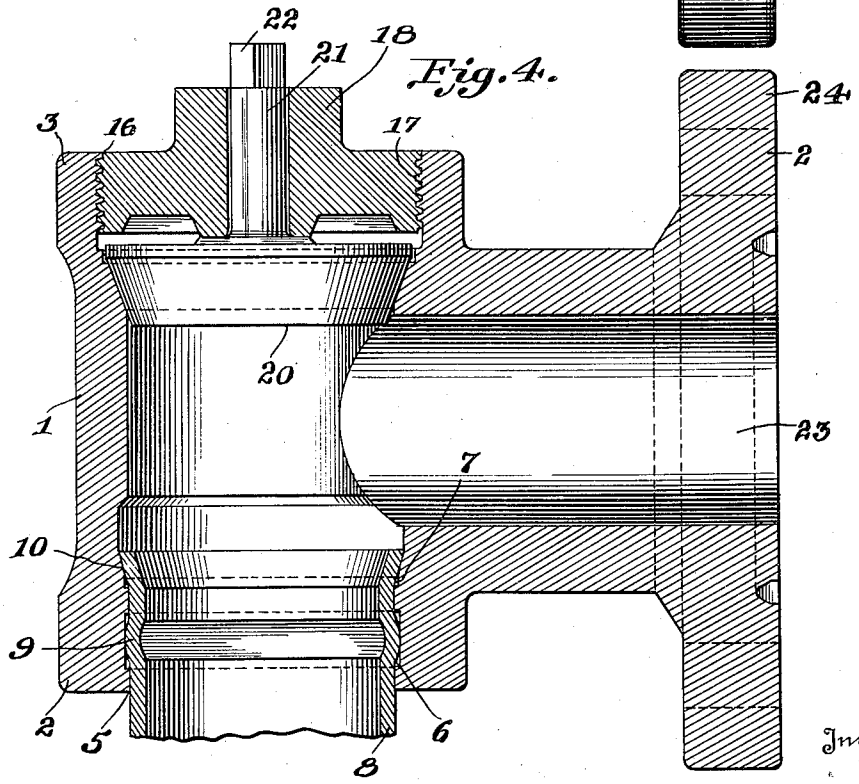


Fig. 4.



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UNITED STATES PATENT OFFICE.

SOREN THURSTENSEN, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO HENRY VOGT MACHINE CO., OF LOUISVILLE, KENTUCKY.

RETURN BEND AND TERMINAL FITTING.

Application filed September 11, 1925. Serial No. 55,809.

This invention relates to improvements in return bends and terminal fittings, particularly to improved tube fittings adapted for use in the construction of heat exchangers for high temperature work in oil cracking stills.

An object of this invention is to provide a drop forged steel tube fitting having a back outlet supplied with ground seat plugs and means for firmly holding the plugs in position.

A further object of this invention is to provide means for grinding or revolving the plug while in position in the fitting.

By this invention means are further provided for easy access to the tubes for cleaning purposes.

In the drawings,

Fig. 1 illustrates a top plan of a return bend.

Fig. 2 represents a side sectional elevational view of the return bend.

Fig. 3 illustrates a top plan view of a terminal fitting.

Fig. 4 represents a side sectional elevational view of the terminal fitting.

Numeral 1 designates the body of the return bend preferably made of solid forged steel having bosses 2, 3 and 4 and openings 5 drilled through the bosses 2, the openings in the bosses 2 being grooved as disclosed at 6 and 7 in order to receive tubes 8, which are inserted and rolled into the grooves 6 and 7 thereby forming several shoulders on the tube as at 9 and 10 thus preventing the tube from slipping in the openings 5, while under high pressure. A passage 11 and 15 is drilled through the boss 4, thus completing the opening in the return bend. Ordinarily the passage 11 in the boss 4, not being required, is closed by means of a plug 12, which is screwed tightly into the opening 11 by means of threads 14, and preferably electrically welded to the forging 1, the electrical welding being designated by the numeral 13. The opening 11 is required for the purpose of drilling the passageway 15 in the return fitting 1 and obviously is not required after this operation has been completed.

The bosses 3 of the return bend are drilled with openings 16, the openings being provided preferably with straight acme threads as disclosed at 17, adapted to receive a threaded cap 18. A portion of the opening or passageway 16 is formed with a ground coned seat 19 for the purpose of receiving a ground joint cone plug 20. The cone plug 20 is adapted to be inserted and tightly fit the ground seat portion 19 of the forging 1, the threaded cap 18 being adapted to press tightly against the plug 20, thereby firmly holding it in desired position. A shank 21 ordinarily having a square end 22 is provided on plug 20, extending through the cap 18 and is adapted for the purpose of grinding the cone plug while in position in the return bend forging.

Figures 3 and 4 illustrate a terminal fitting preferably adapted for use in oil cracking stills where high working temperatures are common. Numeral 24 designates a flanged coupling common to terminal fittings, while 23 represents a passageway leading to the usual outlet or inlet tubes, the remaining portions of the terminal fittings are preferably constructed in a similar manner to the corresponding portions of the return bend as disclosed in Figures 1 and 2 and as described above. The terminal fittings or, what may be termed inlet or outlet fittings, are likewise preferably made of drop forge steel and drilled through the solid metal.

In operation this invention provides a drop forged steel return bend or a terminal fitting having a ground joint back outlet. It has been determined from experiment that bends provided with standard tapering pipe threads with the back outlets, are inefficient, in that the necessary use of unskilled labor frequently crosses the thread, thereby ruining the return bend. This invention calls for straight acme threads thereby making it practically impossible to cross the threads. The threads in this invention are not expected to prevent leaking, the valve itself being designed for that purpose the plug 18 being intended only to resist the pressure on the valve 20. The use of ground joint back outlet plugs for the drop forged steel return bends and terminal fittings as described in this application, have been found by experiments to be highly efficient, particularly upon high temperature work required in oil cracking stills, although it is not intended to confine the use of this invention wholly to high temperature work.

What I claim is:

A pipe fitting having an aperture therethrough provided with a conical valve seat

and with a cylindrical screwthreaded part extending with unbroken surface from the wide end of said seat, a conical valve plug positioned in said seat and having a cylindrical stem integral with said plug and extending perpendicularly from the center thereof, a holder member rotatable on said stem and screwthreaded into said part to contact with said plug and having a central polygonal boss extending as a hub around said stem, the stem projecting beyond the top of said hub and having the projecting part squared to receive a wrench said member being slidable freely along said stem and over the said squared part thereof.

In testimony whereof I affix my signature.

SOREN THURSTENSEN.