

W. H. CRAWFORD.
VALVE.

APPLICATION FILED DEC. 8, 1909.

998,676.

Patented July 25, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

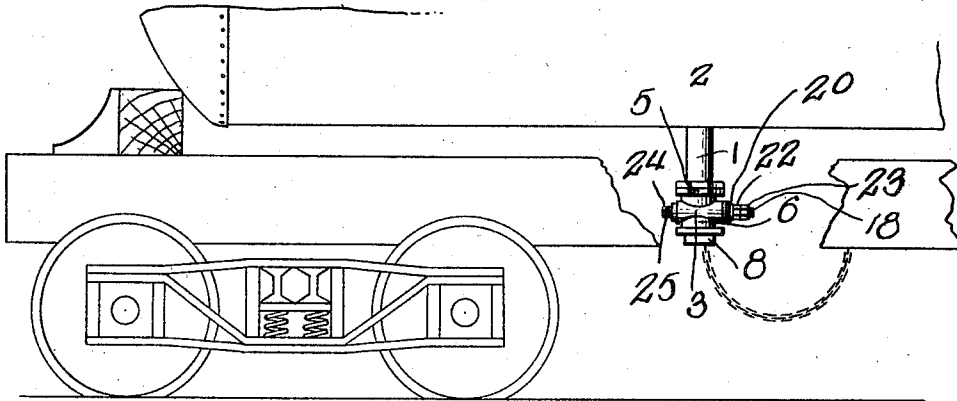
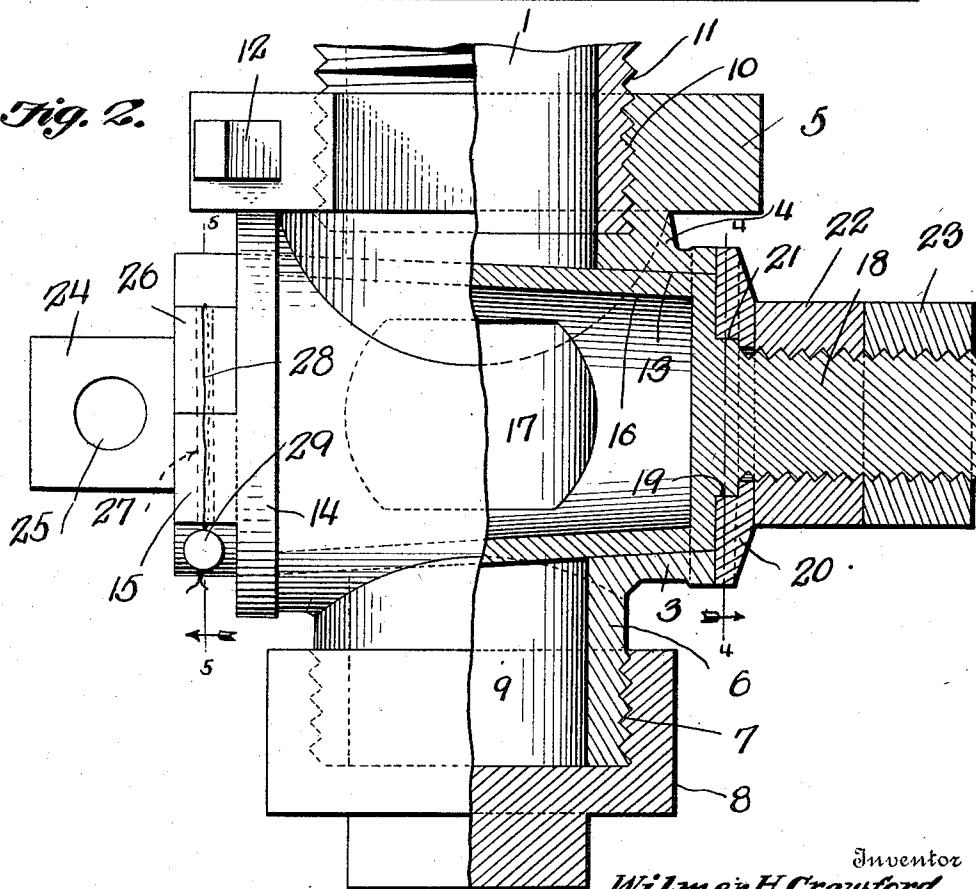


Fig. 2.



Inventor
Wilmer H. Crawford,

Witnesses

Chas. L. Richardson,
D. W. Gould,

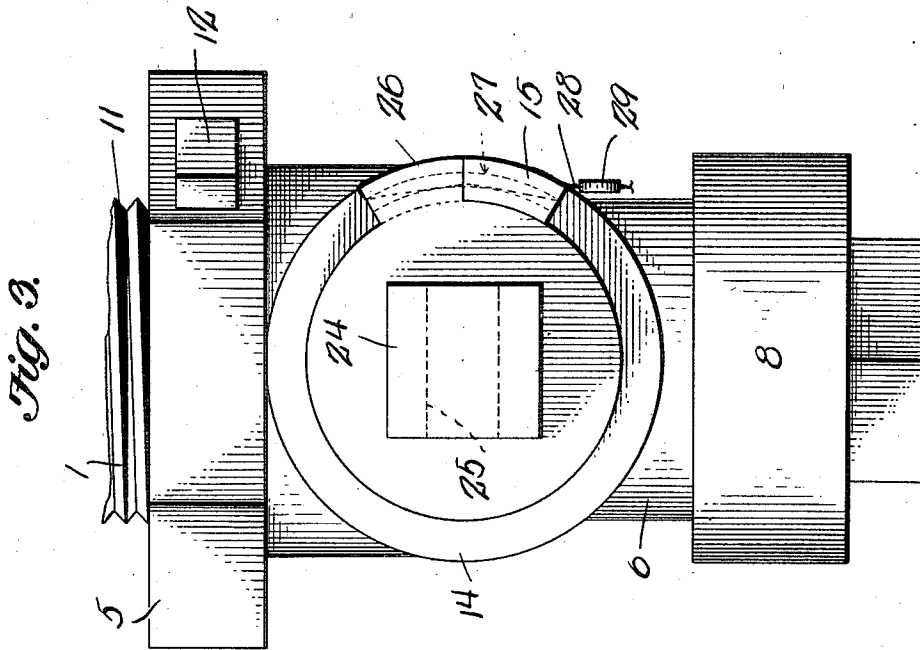
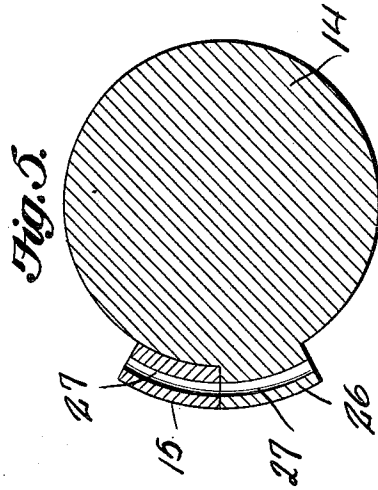
By *Victor J. Evans*
Attorney

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2 SHEETS—SHEET 2.

Fig. 4. A cross-sectional view of a circular component. The outer ring is labeled 19, the inner hole is labeled 20, and the central opening is labeled 21. The entire component is hatched with diagonal lines.



Chas. C. Richardson
D. W. Gould.

Inventor

Wilmer H. Crawford,

By *Victor J. Evans*
Attorney

UNITED STATES PATENT OFFICE.

WILMER H. CRAWFORD, OF CINCINNATI, OHIO.

VALVE.

998,676.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILMER H. CRAWFORD, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Valves, of which the following is a specification.

The invention relates to an improved valve structure designed particularly for use in connection with tank cars and particularly serviceable in obviating the necessity of climbing to the dome structure to operate the outlet valve as is necessary in the present structures.

The main object of the present invention is the provision of a valve designed to be readily applied to the outlet pipe from tank cars and constructed to permit of the sealing of the valve in closed position to provide against its unauthorized opening.

The invention in its preferred details of construction will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a broken elevation illustrating the application of the improved valve. Fig. 2 is an enlarged view in elevation, partly in section, illustrating the valve structure. Fig. 3 is an end elevation of the valve. Fig. 4 is a section on line 4—4 of Fig. 2. Fig. 5 is a section on line 5—5 of Fig. 2.

Referring particularly to the accompanying drawings wherein is shown the preferred details of construction, the improved valve is designed for application to the terminal of the outlet pipe 1 from the usual tank 2 of the car. The valve proper comprises a body 3 having upwardly projecting member 4 terminating in an angular head 5, and a depending projection 6 in vertical alinement with the projection 4 and exteriorly threaded at 7 for the reception of the usual closing cap 8. The body is formed with a vertical bore 9 extending throughout the height thereof, said bore within the projection 4 and head 5 being circumferentially enlarged and interiorly threaded, as at 10, to engage the threaded terminal 11 of the pipe 1. The enlargement of the bore 9 corresponds approximately to the thickness of the outlet pipe so that when the valve body is secured in place the bore or conduit pipe 1 and body are of uniform diameter. The head 5 which is angularly constructed to permit the application of the wrench or

other tool is preferably provided with a set screw 12 whereby when applied the set screw may be utilized to secure the same against removal. The body is also formed with a longitudinal opening that is transverse the bore 9, as at 13. The opening tapers from one end to the other and the body at the larger end of the opening is formed with an annular projecting flange 14 provided on its free surface at an approximate point with an abutment 15, the inner edge of which is alined with the wall of the opening 13.

The valve proper is mounted in the opening and comprises a hollow body 16 of a size to more or less snugly fit within the opening, the valve body is closed at the respective ends and centrally formed with diametrically opposed openings 17 designed when alined with the bore 9 to provide an unobstructed passage for the fluid through the pipe 1 and the valve. The opposing position of the valve body will of course interpose an obstruction to such flow, as is usual in valves of this type. Beyond the smaller end of the body the valve proper is projected in the form of an exteriorly threaded stem 18 which immediately adjacent the end wall of the valve is slightly enlarged circumferentially and planed to provide a washer seat 19, which seat together with the washer 20 cooperating therewith are formed with angularly registering portions 21 to provide independent movement to the washer. The washer overlies the end of the body 3, and the valve proper is secured against endwise movement through the medium of a nut 22 secured upon the threaded projection 18 and reinforced by the usual jam nut 23.

The valve proper at the larger end is projected beyond the valve body to provide a centrally arranged lug 24 properly formed, as for example with the opening 25 whereby the valve proper may be rotated within the body to close or open the valve. The end wall of the valve proper is formed with an abutment 26 which projects beyond the circumferential edge of said wall being so located that in the movement of the valve proper the abutment 26 will contact with the abutment 15 on the valve body 3. These abutments are each formed with longitudinally arranged openings 27 and are so located with relation to each other that when the valve proper is in closed position the

abutments 15 and 26 will be in contact with their openings 27 alined. A sealing wire may be then passed through the alined openings 27 and returned beyond the upper edge 5 of the abutment, as at 28, their terminals being then intertwined and provided with the usual seal 29. By this means when the valve is closed it may be sealed against unauthorized opening, insuring the contents 10 of the tank in original quantity as long as the seal remains unbroken.

By the application of the improved valve to the outlet pipe of the tank I am enabled to quickly operate the valve to deliver the 15 contents of the tank, it being understood that said valve is readily accessible from the ground. The objection heretofore incident to the usual constructions, namely that of climbing on to the body of the tank to reach 20 the valve operating rod, is entirely avoided by my construction, and obvious disadvantages incident to such previous constructions are overcome.

The various parts of the valve structure 25 are to be constructed of such materials and in such size as will best adapt them for the particular use for which they are designed, and in this connection it is to be understood that while preferring the details of structure 30 herein described, I do not desire to limit myself thereto but consider as within the spirit of the present invention, such changes and variations as may fall within the scope of the appended claim.

35 Having thus described the invention, what I claim as new, is:—

An outlet pipe for tank cars having a valve secured thereto and comprising a body

arranged at one end for threaded connection with the pipe and having a vertically extending bore of uniform diameter corresponding to the interior diameter of the pipe, said body being formed with a conical bore at right angles to the vertically extending 40 bore, a valve mounted in and fitting said conical bore, said valve comprising a hollow body formed with openings in the wall thereof corresponding to and adapted to register with the vertical bore of the body 45 when the valve is in open position, said valve being projected beyond the body in one direction and formed to provide a lug for operating the valve within the body, the end wall of the body being formed with an abutment disposed immediately beyond the plane 50 of the outer surface of the valve proper, said valve being formed with an abutment disposed wholly beyond the plane of its outer surface, said abutments being both arranged in the same circular plane of movement of the valve abutment and formed with openings adapted to register when the abutments are in contact, and a sealing strip 55 passed longitudinally through the registering openings in the abutments when said abutments are in contact, the terminals of the strip being sealed beyond the abutments, the respective abutments being locked to maintain the valve in closed relation when 60 the abutments are in contact.

In testimony whereof I affix my signature in presence of two witnesses.

WILMER H. CRAWFORD.

Witnesses:

H. M. BOOTH,

J. A. HALLSTED.