Feb. 4, 1941. S. H. FRANKLIN 2,230,241

CONDUIT CONNECTION

Filed Dec. 20, 1937

Fig. 1.

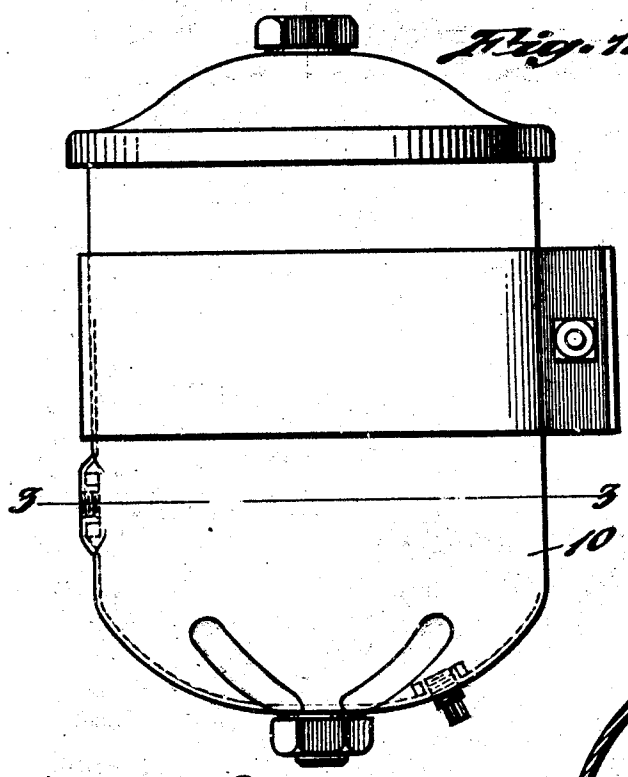


Fig. 2.

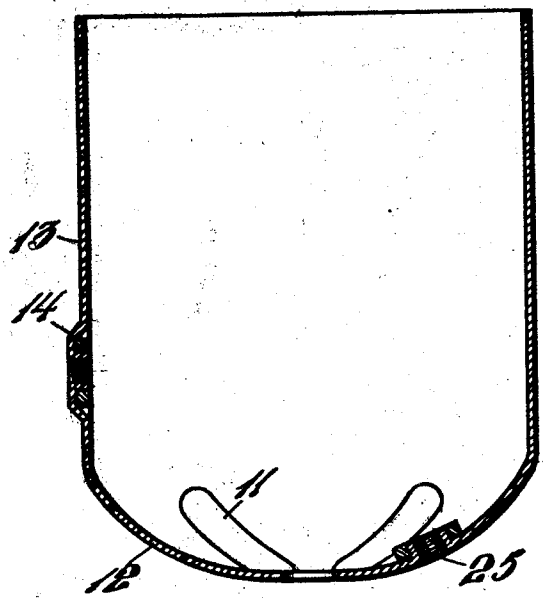


Fig. 4.



Fig. 5.

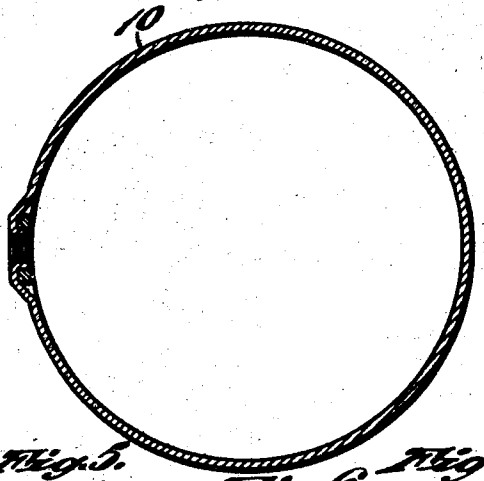


Fig. 3.

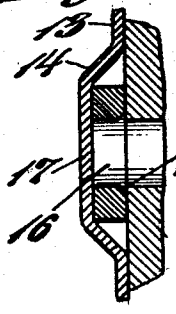


Fig. 6.

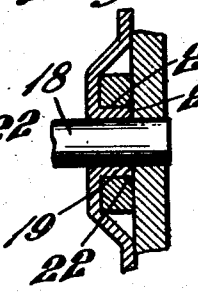
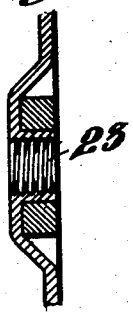


Fig. 7.



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Patented Feb. 4, 1941 2,230,241

UNITED STATES PATENT OFFICE

2,230,241

CONDUIT CONNECTION

Stanley H. Franklin, Fremont, Ohio, assignor to Fleming Manufacturing Company, a corporation of Rhode Island

Application December 20, 1937, Serial No. 180,721

7 Claims. (Cl. 29—148.2)

This invention relates to the threading of a connection into a casing, and is particularly adapted for the casing of an oil filter in connection with which the invention is illustrated. An object of the invention is to prevent a leak about the connection of a tubing or pipe to the casing which may occur in use.

A more specific object of the invention is the strengthening of the walls in which threads for the connection are placed so as to strengthen and enforce these walls.

Another object of the invention is the holding of the reinforcing and strengthening part securely in position at the time the opening is formed.

A further object of the invention is the simple method by which these parts are assembled in position.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a side elevation of a filter to which this invention is applied;

Fig. 2 is a sectional view of the filter casing shown as cut through both of the openings in the casing;

Fig. 3 is a section on line 3—3 of Fig. 1;

Fig. 4 is a perspective view of the reinforcing member alone;

Figs. 5, 6 and 7 show progressively different steps in the formation of the opening which is shown in Fig. 3.

In the use of oil filters of the type in which a casing is connected in the flow line of the oil it is usual to form an opening and collar about this opening, which collar is taperingly threaded to receive the connection for the oil flow lines. Two of such openings are usually provided in the casing, one for the inlet and the other for the outlet, and splitting due to the taper thread and thin stock has occurred, and the relatively thin stock of the casing often will be of such a character that, due to vibration, a leak will occur about the connections and difficulty has been experienced in formulating the opening of a uniform and accurate size due to the head of the metal and the expansion and contraction which occurs; and in order to obviate these difficulties I have reinforced this connection and done so at a point in its manufacture so that the usual provision of the opening serves to secure this reinforcing in place; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, the casing which illustrates this invention is designated generally 10 and consists of a shell of sheet metal stock for receiving a filter cartridge or the like, the casing being reinforced by ribs 11 in its lower bottom wall 12. The side wall 13 of the casing is heated and stretched to bulge the same outwardly as at 14 a distance sufficient to form a space for the reception of a collar providing a sufficient length for the threads of the connection.

Into this space there is then positioned a washer-like member 15 having a circular opening 16 therein. The web of stock 17 which extends across this opening 16 is then pierced, forced inwardly and expanded by means of different tools, one of which is illustrated at 18, so as to cause the stock which formerly formed the web 17 to form a collar 19 of circular formation and which is expanded against the wall 20 of the opening 16 so as to firmly and tightly engage therewith, while at the same time the ends 21 of this collar are bent over the chamfered edges 22 of the member 15 so as to rivet the member securely in position. A tap is then passed into the opening so as to further expand the collar and provide threads 23 which are formed in this manner in a very secure support and one which when the threaded member is attached will still further expand the collar to connect the casing in the flow line of oil will be very secure and will prevent any leaks occurring about the collar or through the threads which connect the parts together.

The opening 25 in the bottom wall of the casing is similarly formed and provided with a reinforcing member except that this opening occurring below the position of the cartridge when it enters the casing need not have its wall first bulged outwardly but otherwise the attachment is the same as heretofore and the reinforcement is as heretofore stated.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. A casing comprising a shell having an outwardly bulging portion with an opening therein, an inwardly extending collar about said opening, and a reinforcing member in said bulging portion

and having an opening receiving said collar, said collar being internally threaded.

2. The method of providing a threaded opening in a case which consists in providing a member with an opening therein located at the point where the opening in the case is to be, punching a hole in the case and expanding the stock punched into engagement with the wall about the opening in the member, and then threading the stock so expanded.

3. The method of providing a threaded opening in a case which consists in providing a member with an opening therein located at the point where the opening in the case is to be, punching a hole in the case and expanding the stock punched into engagement with the wall about the opening in the member and over the end of said member, and then threading the stock so expanded.

4. The method of providing a threaded opening in a case which consists in providing a member having an opening therein with a smooth cylindrical wall located at the point where the opening in the case is to be, punching a hole in the case and expanding the stock punched into engagement with the wall about the opening in the member and then threading the stock so expanded.

5. The method of providing a threaded opening in a case which consists in providing a member having an opening therein with a smooth cylindrical wall located at the point where the opening in the case is to be, punching a hole in the case and expanding the stock punched into engagement with the wall about the opening in the member, and then threading the expanded stock and by such threading operation further expanding the stock into engagement with said wall.

6. A casing comprising a metal shell having an outwardly bulging portion with an opening therein, an inwardly extending collar about said opening, a reinforcing member engaging the inner surface of the bulging portion and of a thickness substantially equal to the depth of the recess formed by the bulging portion, said member having an opening therein snugly receiving said collar, said collar being internally threaded.

7. A casing comprising a shell having an outwardly bulging portion with an opening therein, an inwardly extending collar about said opening of no greater extent than said bulging portion, and a reinforcing member wholly within said bulging portion and having an opening receiving said collar, said collar being internally threaded.

STANLEY H. FRANKLIN.