Dec. 12, 1961 H. D. MUEHL 3,012,446

FUSIBLE RELEASE HANDLE

Filed July 5, 1960

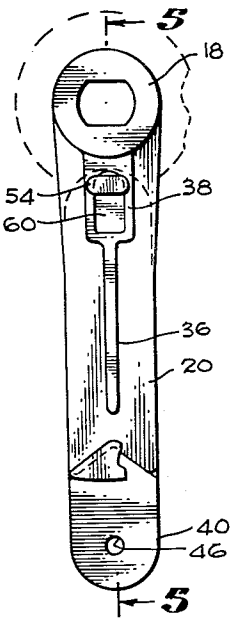


Fig. 2

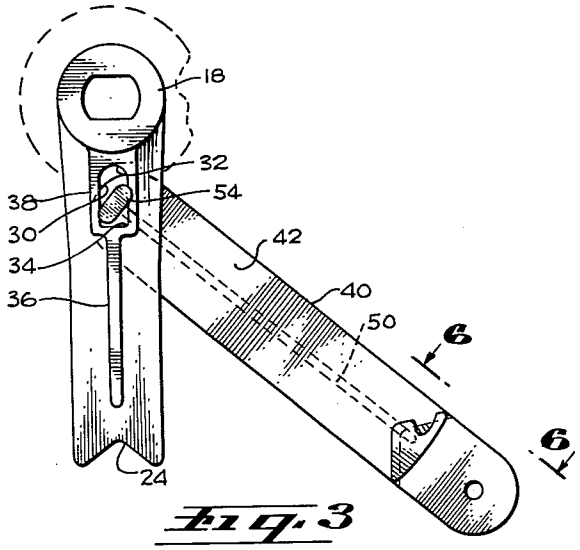


Fig. 3

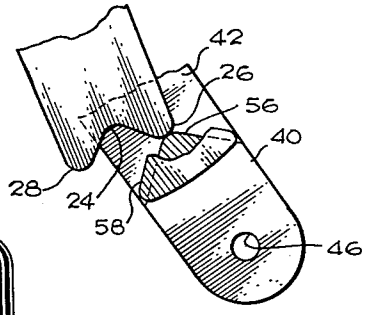


Fig. 4

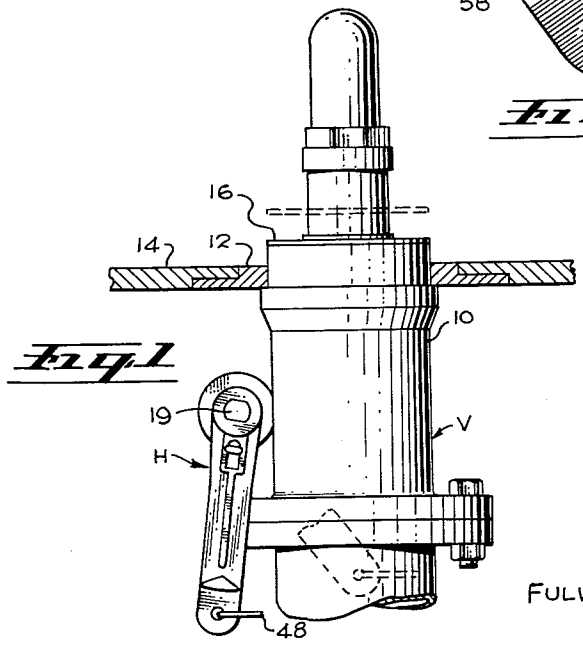
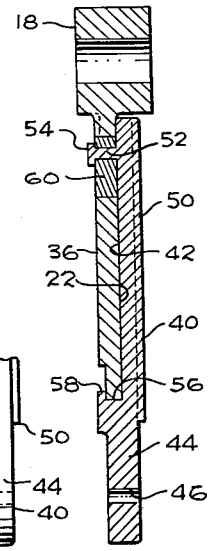


Fig. 1



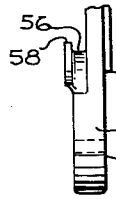


Fig. 6 Fig. 5

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FUSIBLE RELEASE HANDLE

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This invention relates generally to emergency release devices and particularly to a novel fusible release handle for controlling valve operation of tank trucks or the like transporting flammable liquids.

One of the main objects of the invention is to replace the conventional valve handle controlling truck tank valves with a substantially integral interlocking handle having a pivot that is automatically loosened in case of fire to quickly release the handle and automatically close the tank valve.

Another object of the invention is in the provision of a valve tank handle composed of dual elements fixedly attached and held in interlocked relation by a metal body that is fusible at approximately 160 degrees to release the handle and automatically close the tank valve.

It is standard structural practice in valve control for trucks transporting gasoline or other flammable liquids to have a control handle or lever connecting the dump valve with a control rod remotely operable from the cab. In case of fire the control rod may be unapproachable or inoperative for manual closure of the tank valve and stop the flow of flammable liquid. The conventional tank valve is normally spring urged to a seated or closed position and it is merely necessary in an emergency to release the control rod connected lever or handle Applicant provides a valve control handle that simulates in overall configuration and normal operation the well known standard handle or lever. However, as shown in the present embodiment of the invention, the handle is made of two parts, a lever and a coinciding arm that are securely attached and interlocked. They form a substantially integral handle when a fusible metal body secures them into a sturdy united device. The fusible metal normally secures the loose pivotal connection between the lever and arm. In case of fire, the metal fuses and slight loosening of the pivot permits the cam-surfaced latching members to disengage and the lever to be moved clockwise under valve torque and the valve automatically seated to shut off liquid flow. The handle is sufficiently rugged to withstand the strain of truck travel with no danger whatsoever of releasing the normally rigidly interconnected handle elements.

Still another object of the invention lies in the manner of loosely pivoting and securing the handle parts together so that they coact as a unitary rigid lever.

Yet another object of the invention is to provide a combined loose pivotal connection and latching mechanism that affords an initial easy interlocking assembly that may be inter-connected thereafter to form a substantially integral structure by a fusible metal.

Still another object of the invention is in the connection of the parts to prevent extension or sideward displacement when these parts are secured together by the fusible metal.

A still further object of the invention is in the provision of a release handle with dual parts that have a laterally secured loose pivotal connection at one end and a cam-surfaced latch connection at the other end, the elements being normally held in rigid, integral position by a fusible metal.

Another object of the invention is to provide a fusible release handle that is sturdy in construction, easily assembled and quickly disengageable in case of fire.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those

skilled in the art to which this invention relates as this specification proceeds, the invention consists essentially in the arrangement and construction of parts all as hereinabove more particularly described, reference being had to the accompanying drawings in which:

FIGURE 1 is an elevational view showing a device embodying the present invention in operative position on a truck tank valve;

FIGURE 2 is a front elevational view of the fusible release handle in sealed locked position;

FIGURE 3 is a view similar to FIGURE 2 showing the handle in released position;

FIGURE 4 is an enlarged partial elevational view showing the initial disengagement movement of the cam surfaced latch portions;

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 2; and

FIGURE 6 is a view taken on the line 6—6 of FIGURE 3.

Referring to FIGURE 1 of the drawings, a device embodying the present invention is referred to generally as H. The handle H is shown in operative position of use on a standard truck tank valve V. The valve V is entirely conventional and all of the structural details have not been shown. A valve casing **10** is sealed at **12** in a lower section **14** of a standard truck tank used in delivering gasoline or other flammable liquids. A closure valve **16** is shown seated in full line and open in phantom line. The valve is always spring urged toward a seated position and can only be opened by movement of the handle H. The handle H is shown in open position by the phantom lines in FIGURE 1. The handle H is always urged to the closed position shown in FIGURE 1 by the torque exerted by the downward spring pressure on the valve **16**.

A hub **18** on the handle H is keyed or otherwise secured to a shaft **19** that actuates the tank valve mechanism in the usual manner. A lever **20** flat sided at **22** extends from the hub **18**. The outer end of the lever **20** has a substantially concave latching surface **24** formed therein. The outer edges of the latching surface or portion **24** are rounded at **26** and **28**, respectively, to form an overall cam faced latching face or surface. The lever **18** has an elongated pivot slot **30** in its inner end adjacent the hub **18**. The slot **30** is curved at **32** on its inner end and flattened at **34** on its outer end. The lever **20** which is preferably formed of brass has a longitudinally disposed ridge **36** cast integrally therewith. The ridge **36** extends around the pivot slot **30** as indicated at **38**.

A control arm **40** is flat sided at **42** throughout a portion of its length to coincide with the flat side **22** of the lever **20** as shown in FIGURE 5. A thicker outer end **44** of the arm **40** is apertured at **46** to receive a conventional control rod **48** remotely controlled from the truck cab or elsewhere. A ridge **50** is integrally formed on the back of the brass arm **40**. A pivot pin **52** cast integrally therewith projects inwardly from the flat sided inner end of the arm **40**. A cross lug **54** cast integrally with the pin **52** is formed and disposed in a manner to be engageable with the pivot slot **30** when the arm **20** is positioned at right angles to the lever **20**. However, when moved through the slot **30**, and the arm **40** placed in a coinciding position with the lever **20**, the lug **54** is positioned across the slot **30** in a manner to hold the inner ends of the lever **20** and arm **40** from displacement. Near the outer end of the arm **40** in the thickened portion **44** thereof, a substantially convex latch and cam surface **56** is cast. The surface **56** is obviously adapted to engage and cooperate with the concave cam surface on the adjacent outer ends of the lever **20**. A ledge **58** is integrally cast over the convex cam surface **56** and projects over the

adjacent concave cam surface **24** in a manner to prevent sideward displacement of the outer ends of the lever **20** and arm **40** when maintained in a secured latched position. When the lever **20** and the arm **40** are assembled in the position shown in FIGURE 5, they are rigidly secured into a substantially integral unit by fusible metal **60** poured in the pivot slot **30** and against or about the pivot pin **52**.

The operation of the device is simple. The lever **20** and the arm **40** are first assembled by placing the arm **40** at right angles to the lever **20** so that the cross lug **54** may be passed through the pivot slot **30**. The arm **40** is then moved to coinciding normal position as shown in FIGURES 1 and 5. A fusible metal such as solder is then poured into the slot **30** against and around the pivot pin **52**. Once hardened, the pivotal connection is rigidly secured and the cam faced latching surfaces **24** and **56** are interlocked in non-displaceable position. The fusible metal prevents displacement by extension and the cross lug **54** and ledge **58** prevent any sideward release. The handle H normally becomes an integral sturdy unit similar in configuration and use to the conventional single piece element. With the handle H attached to the valve V and connected to the control rod **48**, it operates in a standard manner until emergency such as fire occurs. The danger of fire is always present when the valve V is dumping the flammable fluid. In case of fire, the metal **60** fuses and the pivotal connection is loosened. Immediately the latching members **24** and **56** are released and the cammed surfaces facilitate movement of the parts with the lever **20** moved clockwise by the torque created by the spring tensioned downward movement of the valve **16**. The truck tank valve is thus automatically closed upon release of the handle lever **20** and control arm **40**.

Since various modifications can be made in my invention as hereinabove described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense.

I claim:

1. An emergency release device for tank valves, comprising: a valve actuating lever; a lever control arm underlying said lever in a manner to form a handle with a control rod attachment outer end; a loose pivotal connection between said lever and arm including an elongated slot in one end of said lever and a slot engaging pin on the same end of said arm, said pin having a securing lug substantially conforming to but slidable through said slot; a body of fusible metal normally disposed in said slot and rigidly securing said pin; and latching means releasable upon fusing of said metal, said latching means including cam-faced interfitting substantially concave and convex surfaces on said lever and arm.

2. An emergency release device for tank valves, comprising: a valve actuating lever having a flat side; a lever control arm having a coinciding flat-sided portion underlying said lever in a manner to form an elongated handle; a pivotal and attaching connection between said lever and said arm including an elongated slot in one end of said lever disposed in a plane parallel thereto, and a pivotal pin on said arm having a laterally disposed lug slidable through said slot and movable to a cross position relative to said slot to secure said one end of said lever to said arm; a body of fusible metal disposed in said slot to normally rigidly secure said pin in said slot; and latching means releasable upon fusing of said metal, said latching means including a substantially convex cammed surface on the end of said arm remote from said pin, said surface interfitting with a complementary substantially concave surface formed on the end of said lever remote from said slot.

3. An emergency release device for tank valves, comprising: a valve actuating lever; a lever control arm underlying said lever in a manner to form an elongated handle with a control rod attachment end; a loose pivotal connection interposed between said lever and arm; a body of fusible material normally rigidly securing said pivotal connection whereby said lever and arm are normally rigidly interconnected; and latching means interposed between said lever and arm, said latching means being releasable upon fusing of said material.

4. An emergency release device for tank valves, comprising: a valve actuating lever; a lever control arm underlying said lever in a manner to form a handle with a control rod attachment end; a loose pivotal connection between said lever and arm including an elongated slot in one end of said lever and a slot-engaging pin on the same end of said arm; a body of fusible metal normally disposed in said slot and rigidly securing said pin within said slot; and latching means releasable upon fusing of said metal interposed between said lever and said arm, said latching means including cam-faced interfitting substantially concave and convex surfaces on said lever and arm.

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