

### Improvement in Oil-Tanks.

Patented May 2, 1871.

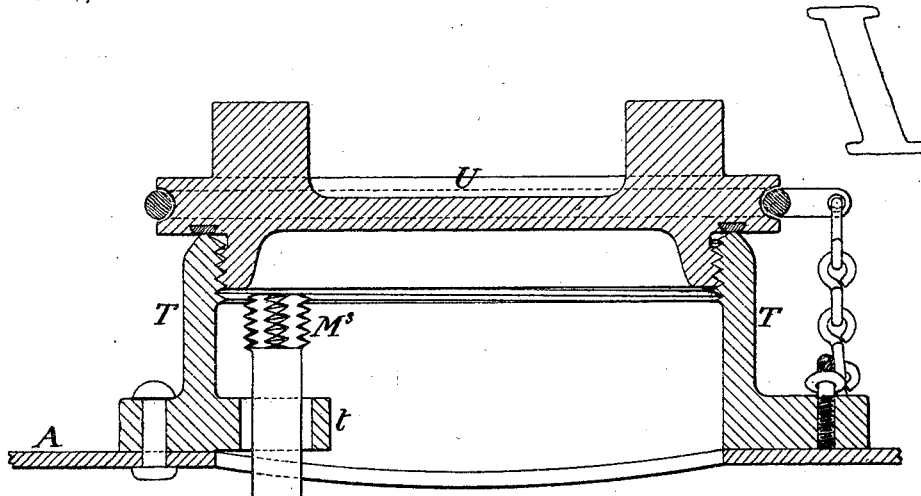
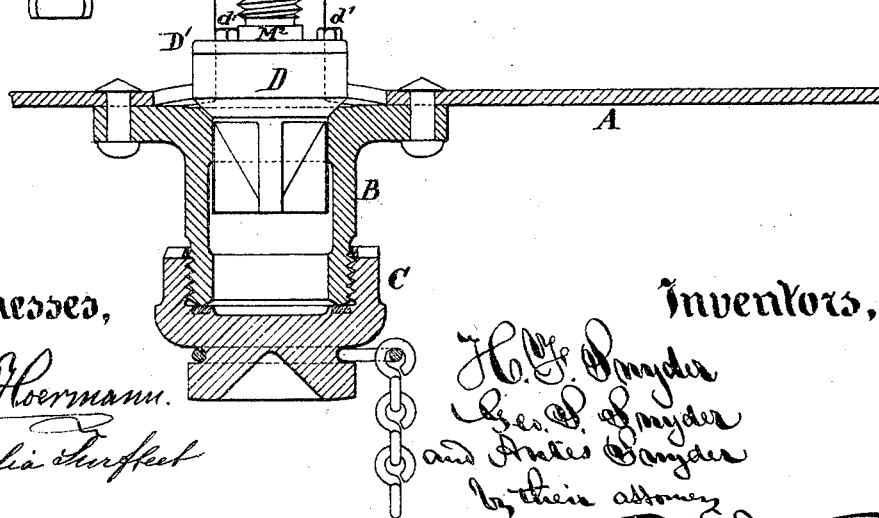
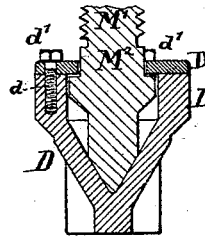
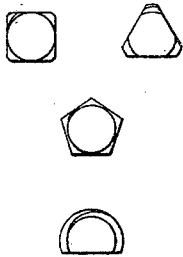


Fig. 1,

Fig. 2.

### Varieties of Heads.



Witnesses,

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# United States Patent Office.

HENRY F. SNYDER AND GEORGE S. SNYDER, OF WILLIAMSPORT, AND  
AUTES SNYDER, OF FREEPORT, PENNSYLVANIA.

Letters Patent No. 114,361, dated May 2, 1871.

## IMPROVEMENT IN OIL-TANKS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that we, HENRY F. SNYDER and GEORGE S. SNYDER, of Williamsport, Lycoming county, State of Pennsylvania, and AUTES SNYDER, of Freeport, Armstrong county, in same State, have invented certain new and useful Improvements in Oil-Tanks and their appurtenances.

Our invention is intended more particularly for tanks, to be carried on proper running-gear, for the transportation of petroleum on railroads; but it may be used in other situations.

The invention relates to a peculiar construction of the head of the operating shaft, whereby the work may be put together and taken apart by means which are simpler and more convenient than would be otherwise possible with the same size of head.

It also relates to the arrangement of the shaft for operating the valve relatively to the man-hole through which oil is introduced, and through which access is obtained to the interior of the tank for cleaning or repairs when necessary; and also to a collar or cylindrical part formed in the operating shaft larger than the screw-threads, and below the same, with means for making such collar serve to properly raise and lower the valve.

The following is a description of what we consider the best means of carrying out the invention.

The accompanying drawing forms a part of this specification.

Figure 1 is a central vertical section through the man-hole and the adjacent parts at the top of the tank, and also of the valve at the bottom and the adjacent parts. A portion of the operating shaft is represented as broken away to allow these parts to be represented nearer together than they would appear in practice. The section is longitudinal to the cylindrical tank. The valve and its operating stem are not sectioned, but are represented in side elevation.

Figure 2 is a section through the valve, showing the lower end of the operating shaft in section therein.

Similar letters of reference indicate like parts in both the figures.

A is the body of the tank;

B, the lower casting;

C, the lower cap; and

D, the valve.

T is the top casting, and

U the top cap.

M is the operating shaft, which, on being turned, raises and lowers the valve D, by acting on the under face of a bolted or detachable ring or cap piece, D', forming a part of the latter.

The valve D and its seat in the bottom of the tank

are a little forward or backward of a line drawn perpendicularly downward through the center of the man-hole.

The operating stem M is of such length as to stand with its upper end within the casting T, as represented. It is guided near the top by an internal lug, t, within the casting T.

The man-hole is of such size that the shaft M and its guiding-lug t may thus stand just within its interior without so far obstructing the hole as to prevent the entrance of a man when necessary. By this arrangement the single man-hole, and cover perform very completely both functions of securing the man-hole proper, or the hole through which a man enters and emerges when necessary, and in which a hose is dropped in taking in oil; and also of guarding and allowing access to the operating shaft to open and close the valve at the bottom.

It is highly important that the shaft M shall be easily and quickly accessible, and that a key or other suitable turning device may be applied with facility and certainty when required. It has been common to provide for this either by a separate casing, with separate cap, &c., or by terminating the shaft M at a low point in the tank and providing a long-necked wrench with which to reach down into the oil, and, after some time spent in efforts to find and make connection with the shaft, to operate the valve. This and all ways known previously to this invention involve difficulties which this arrangement overcomes.

We have represented the upper end of the shaft M as square and adapted to be received into a square socket in the operating key. We can employ a triangular form, a semicircular, or many other forms other than round, if preferred, taking care to provide in every case an operating key having a corresponding cavity or socket. Such arrangement affords some advantages as an additional guard against the liability of the valve to be operated and oil discharged by improper parties. (See additional figures marked "Varieties of Heads.")

The main body of the operating shaft is smaller than the smallest part of the threaded portion M<sup>1</sup>, which latter is tapped through the yoke B' and serves as the operating screw to raise and lower the valve D. It follows from this construction that the main body of the shaft M may be moved freely through the yoke B' in applying together or separating the work; but it is important that the head M<sup>2</sup> of the operating shaft M be larger than the small part of the body, in order to allow a sufficient hold for strongly operating the valve.

We have devised a very simple means of over-

coming the difficulty and making a large head go through the hole in the yoke B'. This is accomplished by threading the head, as represented. Thus threaded, it can be passed slowly through the yoke B' by turning it properly around, and so soon as the head is passed through then the main body of the shaft M may be moved freely until the thread M<sup>2</sup> is reached, and then the shaft must be again turned, as will be obvious.

The threaded head M<sup>2</sup>, being made square, triangular, or of other proper form to be turned by a suitable socket, is received within the socket and turned one way or the other by turning the key exactly the same as if the head were not threaded. In other words, the threaded head is of sufficient depth and allows a sufficiently long bearing in the socketed key, not represented, to give a firm hold by the key on the angular portions and allow it to be turned, notwithstanding the fact that some of the metal in the angular portions of the head has been removed by the threading process.

The appearance of the head when square corresponds very closely with that of a tap such as is used for cutting screws.

Although the several screw-threads are represented as V-shaped, it will be understood that this is nowise essential to the success of the devices. They may be of any suitable section. In practice thus far we have usually made them square.

The collar M<sup>2</sup> is higher than the heads *d*' of the bolts *d*'. When the valve is raised forcibly to its utmost limits this collar M<sup>2</sup> strikes the under side of the yoke B' and affords a strong stop to arrest its further

rise. If this collar were not thus arranged the bolt-heads *d*' would be liable to be battered against the yoke and soon made unavailable and frequently broken off.

The guide-lug *t* in one side of the interior of the man-hole may, if preferred, be made in two pieces and halved together upon the stem M. This allows it to fit closer, but the advantage will hardly compensate for the increased expense.

We claim as our invention—

1. The head M<sup>2</sup> on the operating shaft M, threaded as represented, and arranged to serve relatively to the valve D and tank A, as represented.

2. The guide *t* in the side of the man-hole casting T, serving relatively to the shaft M, valve D, and tank A, as and for the purposes herein set forth.

3. The wide collar M<sup>2</sup>, forged and forming a permanent part of the shaft M, standing with its upper edge a little above the heads of the bolts *d*', and the cap D' of the valve D applied, and removed by slipping over the whole upper portion of M, combined and arranged to operate together so as to protect the bolt-heads *d*' from injury, as herein set forth.

In testimony whereof we have hereunto set our names in presence of two subscribing witnesses.

H. F. SNYDER.  
G. S. SNYDER.  
AUTES SNYDER.

Witnesses:

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HENRY D. HEISER,  
J. W. MCKEE.