

1,432,882.

F. LOBL.
HOSE CLAMP.
APPLICATION FILED JULY 14, 1919.

Patented Oct. 24, 1922.

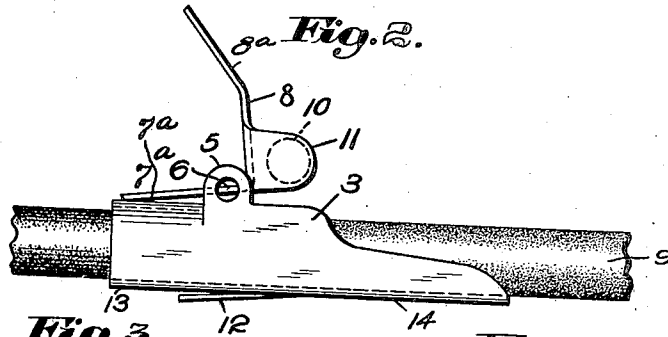
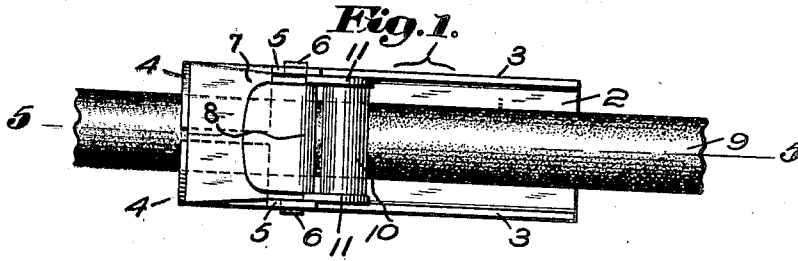


Fig. 3.

Fig. 4.

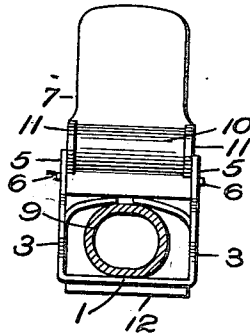
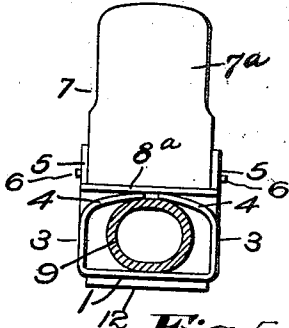


Fig. 5.

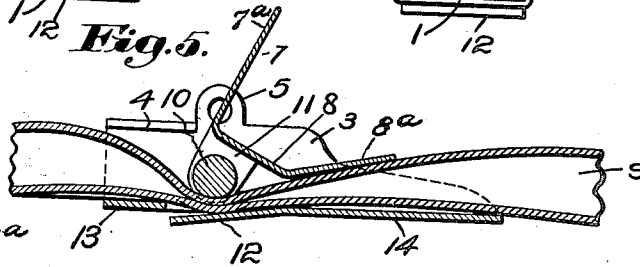
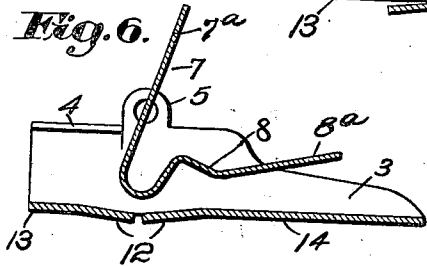


Fig. 6.



Inventor:
Frederick Lobl,
by *Ernest North James Vassar*
Attys

UNITED STATES PATENT OFFICE.

FREDERICK LOBL, OF MIDDLEBORO, MASSACHUSETTS.

HOSE CLAMP.

Application filed July 14, 1919. Serial No. 310,640.

To all whom it may concern:

Be it known that I, FREDERICK LOBL, a subject of the Emperor of Austria, and a resident of Middleboro, in the county of Plymouth and Commonwealth of Massachusetts, have invented an Improvement in Hose Clamps, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to pipe or hose clamps, or shutoffs, for use upon flexible hose, and its object is to provide an improved clamp having the novel features hereinafter pointed out.

Referring to the drawing of one embodiment of my invention selected for description herein:

Fig. 1 is a plan thereof;

Fig. 2, a side elevation with the clamping member in inoperative or released position;

Fig. 3, a forward or Fig. 2 left hand view;

Fig. 4, an opposite end view;

Fig. 5, a vertical longitudinal section on the line 5-5 Fig. 1, showing the swinging jaw however, in operative position, and

Fig. 6, a similar view of a modified construction.

Referring first to Figs. 1 to 4 inclusive, the clamp is shown as comprising a body 1, having a base 2, and sides 3, preferably formed integrally, as from a single piece of spring metal.

The forward portions of the sides 3, Figs. 3 to 5, are fashioned originally somewhat higher than the rear side portions, and are then turned over and down until their ends are quite close to each other, to form pipe engaging flanges 4-4 and adapted to engage the pipe or hose sufficiently to prevent the clamp from sliding on the hose. Of course these flanges may be adjusted until they engage the particular piece of hose in use with the necessary friction to hold the clamp in position thereon.

The sides 3-3 are, intermediate their ends, provided with upwardly extended ears 5-5 in which are pivotally mounted the pintles 6-6 of the pivoted clamping or hose compressing member 7, comprising also a laterally extended jaw 8 adapted to swing thereon, and to compress the hose or pipe 9 between the jaw 8 of the member 7 and the bottom 2 of the body 1. In the construc-

tions in common use the handle of the jaw lies substantially flat against the hose when the jaws are closed. This makes it necessary to lift the handle to open the jaw from a substantially flat position and closely against the hose which is inconvenient. To obviate this difficulty the jaw 8 is provided with handles 7^a and 8^a, one of which is always in substantially an upright position, so that whether the jaws are to be opened or closed, the handle for manipulating the same will be in a substantially upright position, and it remains only to move the same to the right or left to effect the desired action of the jaws.—

While fairly good results may be obtained with a clamping member 7 provided with an offset or otherwise formed jaw or pipe engaging rib 8, as shown in Fig. 6, I have found that the friction of the rib against the hose 9, particularly when the latter is of inferior rubber and therefore rough, and when the hose is of a rough ribbed or corrugated surface, interferes considerably with the action of the jaw 8.

I have found however, that if the jaw 8 be provided with a roller 10, of any suitable material as metal or fibre, and mounted as in ears 11 downwardly extended from the member 8, it facilitates very much the certainty of the clamping action of the member 8, as the roller 10 is affected less by its engagement with the rough pipe surface, rolling thereon slightly when conditions are conducive to that action and when the rib 8 would not slide.

I have found also that different pieces of hose or pipe intended to be of the same size, vary considerably in measurement, and also that in the course of time the particular piece of hose in use becomes smooth on its outer surface and loses enough of its surface material to prevent the clamp 7 closing the hose as tightly as it should and does at first. The result is that the closure made under such conditions is not perfectly tight and not always effective.

To remedy both of these difficulties I have conceived the novel idea of providing the base 2, and substantially opposite the ears 5, with a spring or yielding base or jaw 12, which may be conveniently formed from the base 2 by fashioning therefrom a tongue-like jaw which will yield to the desired extent under the clamping action of the mem-

ber 8 against the hose thereon, whenever the pressure of the roller 10 makes it desirable so to do.

The tongue is preferably made sufficiently rigid, and yet resilient, to remain in place under normal conditions and until considerable pressure is exerted thereon by the downward travel of the clamping member 8 against the hose 9, when the spring jaw 11 will yield sufficiently to effect a tight closure. The peculiar effectiveness of this clamping member 9 on the spring jaw 12 seems to be due to the fact that the yielding member 12 is provided between the forward and rear non-yielding areas 13, 14, which are rendered so by the sides 3—3 upwardly extended therefrom.

I prefer to construct the ears 11 and roller 10 of such dimension that normally when the member 8 is pressed downwardly it will force the hose 9 against the jaw 12 with sufficient force to flex it slightly downward. Thereafter when the hose has become smooth and relatively thin from use, the roller 10 will still engage it with sufficient pressure to tightly close it against the member 12.

The provision of this spring jaw 12, also avoids the necessity for bending the clamping member 8, which is frequently done, to make it longer, when it is attempted to cause the member 8 of whatever construction, to engage the hose against a member or jaw where there is too much clearance between the jaws.

If the attempt is made to remedy this difficulty by bending the jaw 8 it is almost certain that this member or the member 7 will be so distorted and thrown out of adjustment that it will be rendered useless.

On the other hand if the natural resiliency of the member 8 is relied upon to provide a yielding effect and necessary compressing effect on the hose, it is uncertain in its action. To be effective, it seems that the engagement with the hose must be at a point properly positioned relative to the bearings of the pivot points 6 of the member 7, usually opposite to the point 6 or just beyond the point in an arc described from the pivot point where the member 8 swings, in order for the compressing member 8 to remain in locking position and not fly back or into unlocking position.

This desired result does not seem to be obtainable, so far as my experiments indicate, when the yielding effect is obtained, either by

a flexible clamping member 8 or a mounting for the same, or a yielding base unless the same is between two rigid areas as herein, which supports the hose at points opposite the point of contact of the movable jaw therewith to insure the proper positive locking effect of the members 8 and 12.

The construction shown in Fig. 6 also provides a plurality of spring jaws which may be used if desired, instead of one, particularly when the hose is of thick rubber and therefore less compressible.

Having described one embodiment of my invention, I claim:

1. A hose clamp comprising a body having non-yielding base areas, a yielding jaw between the areas, a swinging jaw operatively positioned relative to the yielding jaw, and clamp positioning flanges on the body to engage the hose to prevent the clamp from sliding longitudinally thereon.

2. A hose clamp comprising a body having non-yielding base areas, a yielding jaw between the areas, a swinging jaw having a handle substantially upright at all times, opposite the yielding jaw, and clamp positioning flanges on the body to lock the clamp upon the hose to prevent its sliding longitudinally thereon.

3. A hose clamp comprising a body having a jaw with a fixed contact face, and a swinging jaw with a plurality of handles, one of which is always in substantially an upright position, and clamp positioning flanges on the body to lock the clamp to the hose to prevent its sliding longitudinally thereon.

4. A hose clamp comprising the body 1, having a base 2, sides 3 and inwardly turned pipe engaging flanges 4, 4 thereon to engage the pipe and prevent the clamp from sliding longitudinally thereon, the hose compressing member 7 pivoted to the sides 3, the longitudinally extended jaw 8 on the member 7, downwardly extended ears 11 on the member 8, a roller 10 mounted in the ears 11, a movable jaw 12 with immovable areas 13, 14, at either side thereof in the base 2, whereby the hose is compressed between the roller 10 and the movable jaw 12 when the roller contacts with the hose at a point without the vertical plane of the pivot of the swinging jaw 8.

In testimony whereof, I have signed my name to this specification.

FREDERICK LOBL.