April 5, 1927. 1,623,477

P. P. HORNI

CLOSURE

Filed Nov. 27, 1922

Fig. 1

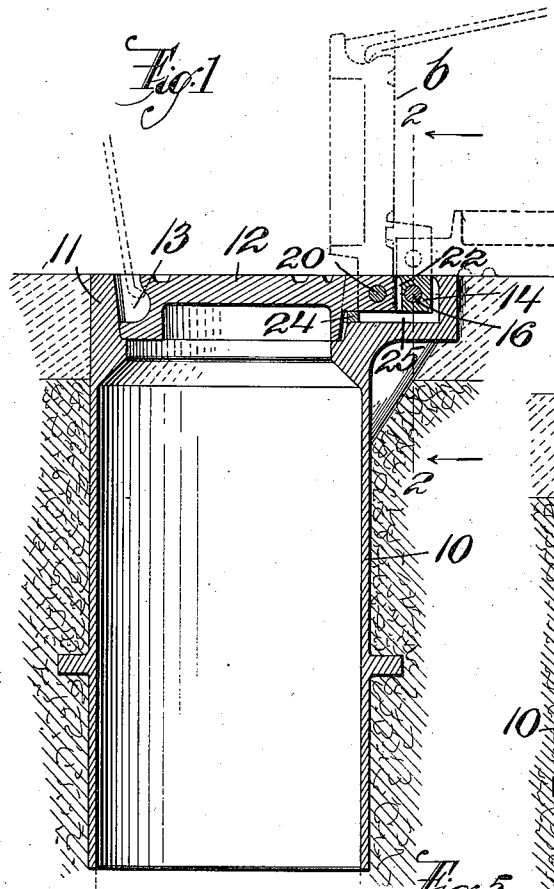


Fig. 4

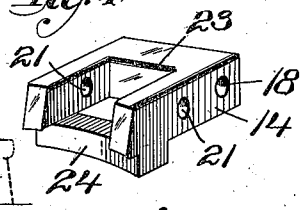


Fig. 2

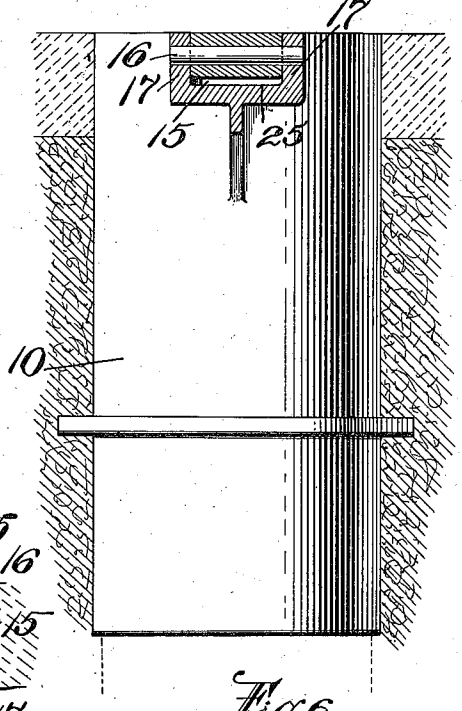


Fig. 5

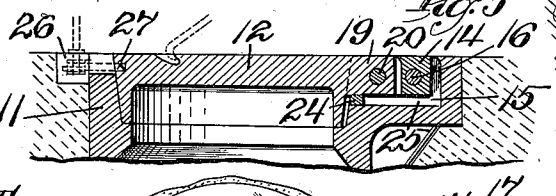


Fig. 3

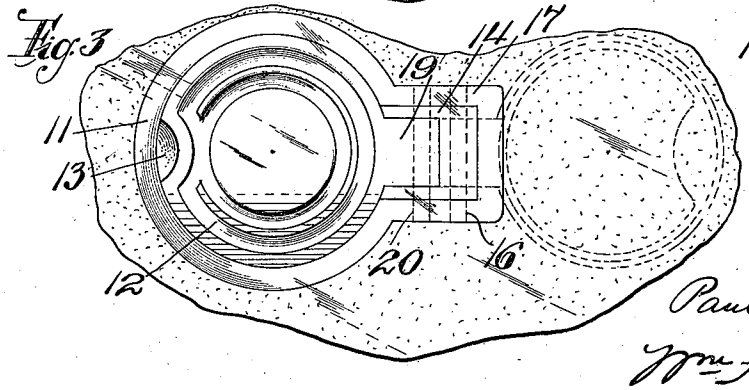
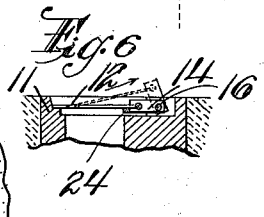


Fig. 6



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Patented Apr. 5, 1927. 1,623,477

UNITED STATES PATENT OFFICE.

PAUL P. HORNI, OF NEWARK, NEW JERSEY.

CLOSURE.

Application filed November 27, 1922. Serial No. 603,440.

This invention relates to an improved closure and is adapted to provide a rim, a lid and a link hinged together so that the lid, when fully opened, can be laid flat on the floor or ground adjacent to the rim, so that the lid does not project up to be broken by contact therewith when it is in its open position, and for this reason it is well adapted for use on the covers or lids for man-holes and water valves in streets, where the box over the valve is situated in the pavement.

This invention has also for its object the provision of a closure which provides a substantially flat smooth surface when it is shut, so that there are no projections on the hinged part, so that it is well adapted also for use on doors on sidewalks, since there is nothing projecting above the walk, when the door is shut, to cause anyone to trip.

Another object of the invention is to provide a closure in which the lid, when locked at its free end, can not be raised at its hinged end; in other words, the link hinged to the lid can not be swung upward until the free end of the lid has been raised, thus preventing any raising of the hinged part to slide the free end of the lid away from any locking element that may hold it down.

The invention is illustrated in the accompanying drawing, in which Figure 1 is a section of a box having a rim on which a lid is shown closed in full lines and is shown partly opened and fully opened in dotted outline. Figure 2 is a section on line 2—2 in Figure 1. Figure 3 is a top view of Figure 1. Figure 4 is a perspective view of a link adapted for use in the invention. Figure 5 is a section similar to Figure 1, but showing only the top part of the rim and illustrating a locking mechanism for the lid, and Figure 6 is a small view showing how the link is held down and can not be raised without a previous raising of the lid.

The lid is adapted to be used in any form of support or rim, but in the drawing I show a box 10 of the conventional type used over water valves on street mains and the like, the box 10 being shown with a rim 11. The rim is adapted to receive the lid 12, which fits down in the rim to hold it, and may be provided with an opening 13 for the insertion of a proper tool to initiate the raising of the lid, the lid being hinged to a link 14.

The link is pivoted to the rim and sets into the recess 15 in the rim, the pintle 16 being passed through the link 14, and the walls 17 of the rim form the sides of the recess 15. The link is preferably made U-shaped, and the pintle 16 preferably passes through the opening 18 extending from one side to the other of the link through the connecting arm of the U-shaped structure thereof.

The lid 12 has a tongue 19 which fits into the U-shaped link and is hinged thereto by a pin 20 which passes through the openings 21 in the link and through an opening in the tongue of the lid, the link thereby connecting the hinge and the lid.

The parts, when closed, present a substantially flat top surface without projection, as will be seen from Figure 1, the parts having their coacting edges fitting substantially close, as shown in Figure 3, but to permit swinging of the tongue in the recess of the U-shaped link, the link is partly cut away, as at 22, to provide clearance for the top corner of the back of the tongue.

When the lid is opened it swings freely on the hinge 20 until it engages the back edge 23 of the opening in the link, and any further movement of the hinge causes a swinging of the link on its pintle 16, so that the link, when swung, permits the lid to lie flat on the face that is normally the top face, so that it is not projecting materially above the surrounding surface and the hinged parts are not subjected to any strain in holding it up.

When the lid is to be closed and is swung toward its closed position, the link is carried with it and the parts are in the position shown at *b* in Figure 1, the link being halted in its movement by the engagement of a projecting part, and in the form shown this projecting part consists of a bar 24 which extends across underneath the open end of the link and rests on the bottom 25 of the recess so as to keep the parts above the bottom of the recess, so that the accumulation of any dirt in this recess will not interfere with the operation of the parts of the closure, the link and therefore this part of the lid being kept raised above the bottom

25, as will be evident from Figure 1. The bar 24 limits the movement of the lid relative to the link, so that it will not be possible to move the lid relative to the link through a distance of more than what is substantially ninety degrees.

The lid may be locked as shown in Figure 5, in this figure the lock being shown at 26 with a bolt 27 to enter a recess in the lid. The lid can not be pulled back away from this bolt, since the bar 24 prevents it, as will be seen from Figure 6, whereas if the bar were not present, in other words, if there were no elements coacting between the lid and the link to limit the swinging of the lid relative to the link, the link could be raised as shown in dotted outline in Figure 6 and the lid could be withdrawn longitudinally relative to the bolt.

I claim:

A closure comprising a rim having a recess therein a U-shaped link in the recess and hinged to the rim, a lid having a tongue fitting the link and hinged thereto, and a bar on the link and adapted to engage the under side of the lid to prevent the link alone swinging upward while the lid is down.

In testimony that I claim the foregoing, I have hereto set my hand, this 24th day of November, 1922.

PAUL P. HORNI.