(No Model.)

A. BOLL.

DEVICE FOR MAKING PLUMBERS' TRAPS.

No. 384,956. Patented June 26, 1888.

Fig. 1

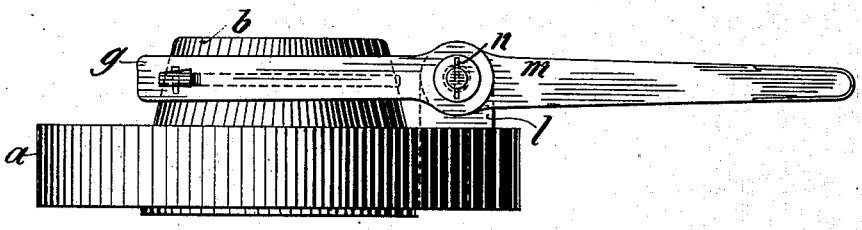


Fig. 2

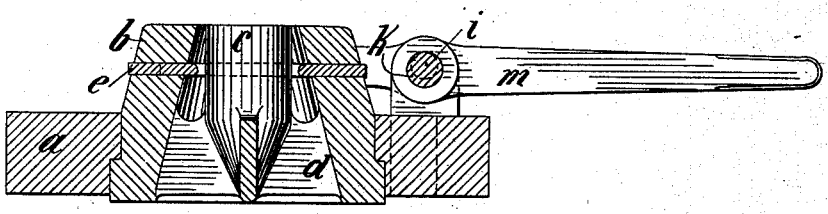
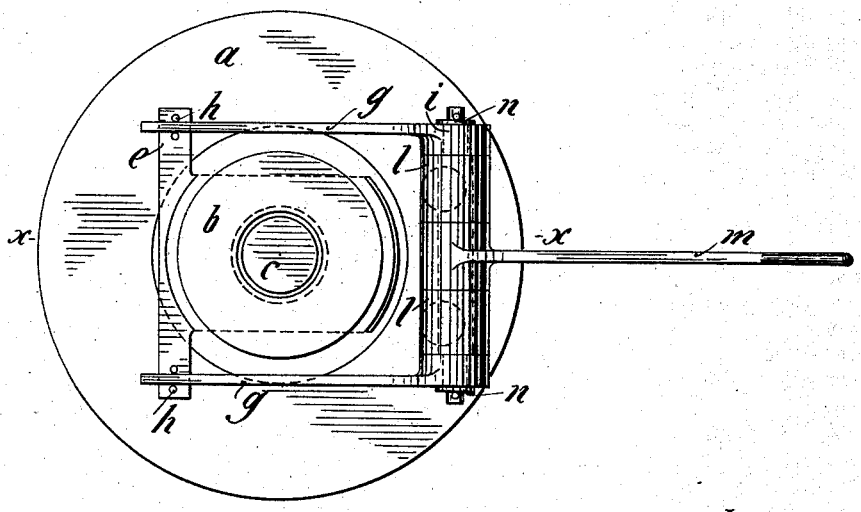


Fig. 3.



Witnesses.

David Mayer.

Wilhelm Vogt.

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UNITED STATES PATENT OFFICE.

AUGUST BOLL, OF BERLIN, GERMANY, ASSIGNOR TO EDWARD STRONG TORREY, OF SAME PLACE.

DEVICE FOR MAKING PLUMBERS' TRAPS.

SPECIFICATION forming part of Letters Patent No. 384,956, dated June 26, 1888.

Application filed September 21, 1887. Serial No. 250,275. (No model.)

To all whom it may concern:

Be it known that I, AUGUST BOLL, of the city of Berlin, Prussia, Germany, have invented certain new and useful Improvements in Devices for Making Water Traps and Bends, of which I declare the following to be a specification.

This invention relates to improvements in devices for making water traps and bends from lead or other suitable metal or alloy.

I am aware that a United States patent has been granted to Robert Cunningham, of Chicago, Illinois, for improvements in devices for making water-traps, dated June 17, 1873, No. 139,946, and my invention relates to a similar device, the object of which is to improve the device patented to the said Robert Cunningham; that the apparatus is fitted for practical use, which is not the case with the invention claimed, (shown and described in the Patent No. 139,946,) for the reason that Cunningham was either not able to move his diaphragm at all in consequence of the great pressure on the same, or the diaphragm very soon became defective, the surfaces of the same being subjected to so much wear and tear from one hard metal being in heavy frictional contact with the other that the invention really proved of no practical value whatsoever.

Now, in order to overcome all the obstacles presented by the invention of the said Robert Cunningham, I do not make my slide or diaphragm of one piece of hard metal for the reasons given above, and I have also found it equally impracticable to use softer metals, as the same are crushed or deformed by the great pressure exerted on the same by the lead or composition for forming the trap or bend. What I have found to be practicable and the only manner of rendering the invention of Cunningham useful is to make the body or main part of the slide or diaphragm of hard durable metal—such as iron or steel—and to sheath or cover the surfaces of the said slide or diaphragm or the surfaces of the slot in the die with a sheathing of softer or anti-friction metal—such as phosphorus bronze, Delta metal, Ajax metal, or other suitable alloy—and to connect the slide or diaphragm with the mechanism of such power and strength that the slide or diaphragm can be readily operated by hand, which was absolutely impossible according to Patent No. 139,946.

Figure 1 is a side view of the die and the mechanism for moving the slide or diaphragm. Fig. 2 is a section through Fig. 3 on the line *x x*. Fig. 3 is a plan or top view.

The die *b*, of steel, iron, or other hard metal, is fixed in the base plate *a*, securely attached to a suitable frame. The core or mandrel *c* is connected to the die *b* by means of the wings or projections *d*, said die being provided with a slot or opening in which the slide or diaphragm *e* can move, said slide or diaphragm *e* consisting of a strong plate of metal, preferably sheathed or clad with layers of anti-friction metal, and provided at its outer end with laterally-projecting lugs, which gear into slots in the connecting-rails *g* with so much play that the movement of the slide or diaphragm *e* is in no way impeded, said slide or diaphragm being prevented from making any lateral movement by the bolts or pegs *h*. The opposite ends of the connecting-rails *g* are bored so as to fit the journals *i*, which are so turned that they stand eccentrically to the axis of the shaft *k*, which is carried in the bearings *l*, the latter being rigidly attached to the base-plate *a*.

The shaft *k* carries in the central part of the same a lever, *m*, firmly keyed or otherwise attached to the same, the parts being held in position on the said shaft *k* and journals *i* by the strong washers and bolts or splints *n* or suitable counter-nuts. The parts are represented in the drawings in the position they occupy when straight tubes are to be produced.

If it is desired to make a trap or bend, the lever *m* is raised or depressed according to which side the bend is to run, whereby the slide or diaphragm is moved forward or backward and the passage to the one side of the core or mandrel decreased in like proportion to the increase of size at the opposite side. In consequence of the great power which can be exerted by applying the lever, and in consequence of the anti-frictional sheathing of the surfaces of the slide or the die, the slide or diaphragm can, in spite of the enormous pressure on the same, be moved with facility, thus converting an otherwise useless idea into a practical mechanical contrivance.

Having now particularly described and as-

certained the nature of my said invention and in what manner the same is to be performed, I desire it to be understood that what I claim is—

1. In a device for making water traps and bends, sheathing or covering the surfaces of the slide or diaphragm or die with an anti-friction metal, substantially as described in the foregoing specification, and shown in the accompanying drawings.

2. In a device for making water traps and bends, the combination of the sheathed slide *e* with the connecting-rails *g*, shaft *k*, journals *i*, and lever *m*, substantially as described in the foregoing specification, and shown in the accompanying drawings.

3. In a device for making water traps and bends, the device for operating the slide or diaphragm *e*, characterized by the base-plate *a*, connecting-rails *g*, journals *i*, bearings *l*, lever *m*, and shaft *k*, substantially as described in the foregoing specification, and shown in the accompanying drawings.

In witness whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

AUGUST BOLL.

Witnesses:
FRANZ HENSEL,
STANISLAUS ROSSÉ.