(No Model.)

E. THAYER.

PISTON AND PLUNGER FOR HYDRAULIC MACHINERY.

No. 248,119. Patented Oct. 11, 1881.

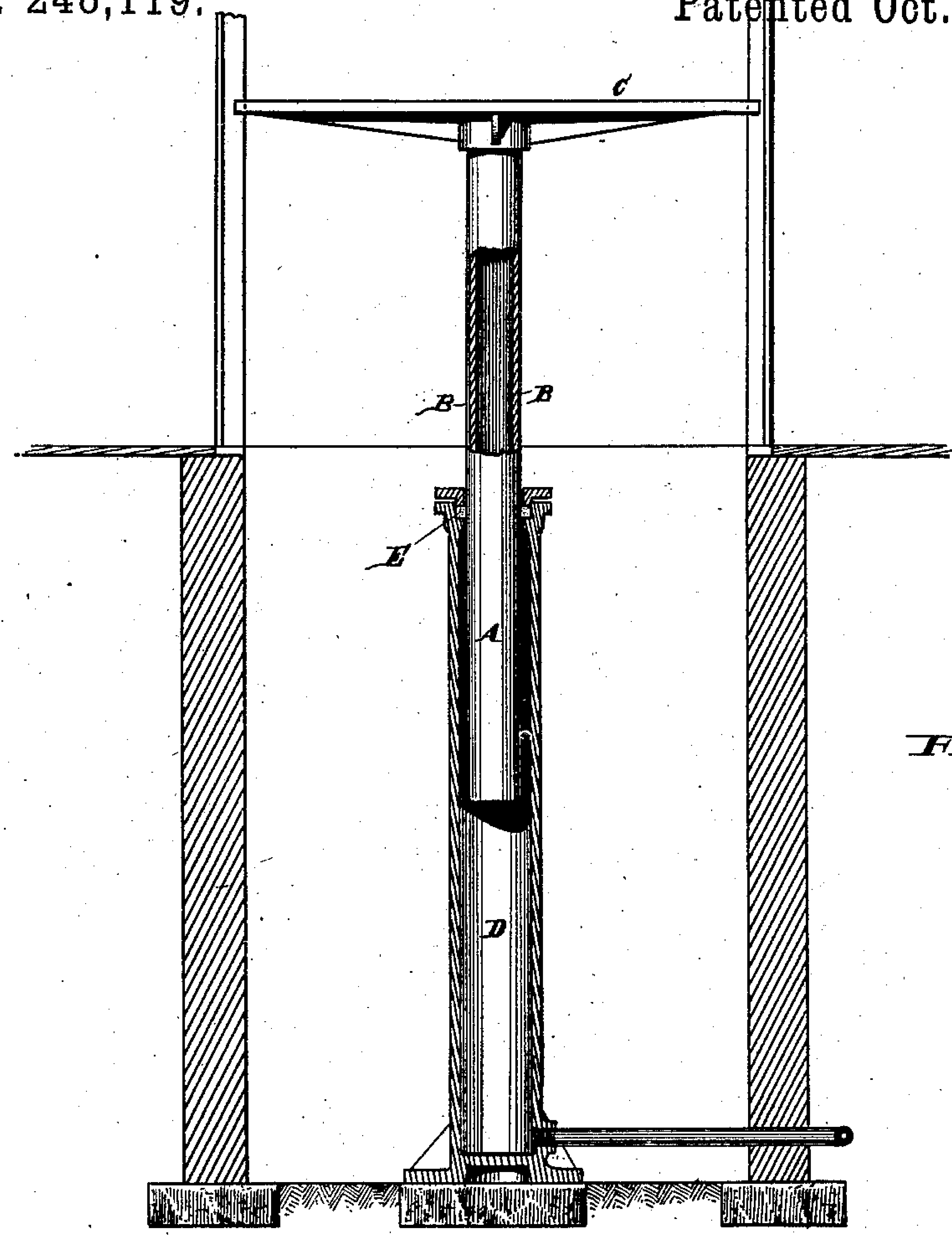

Fig. 1

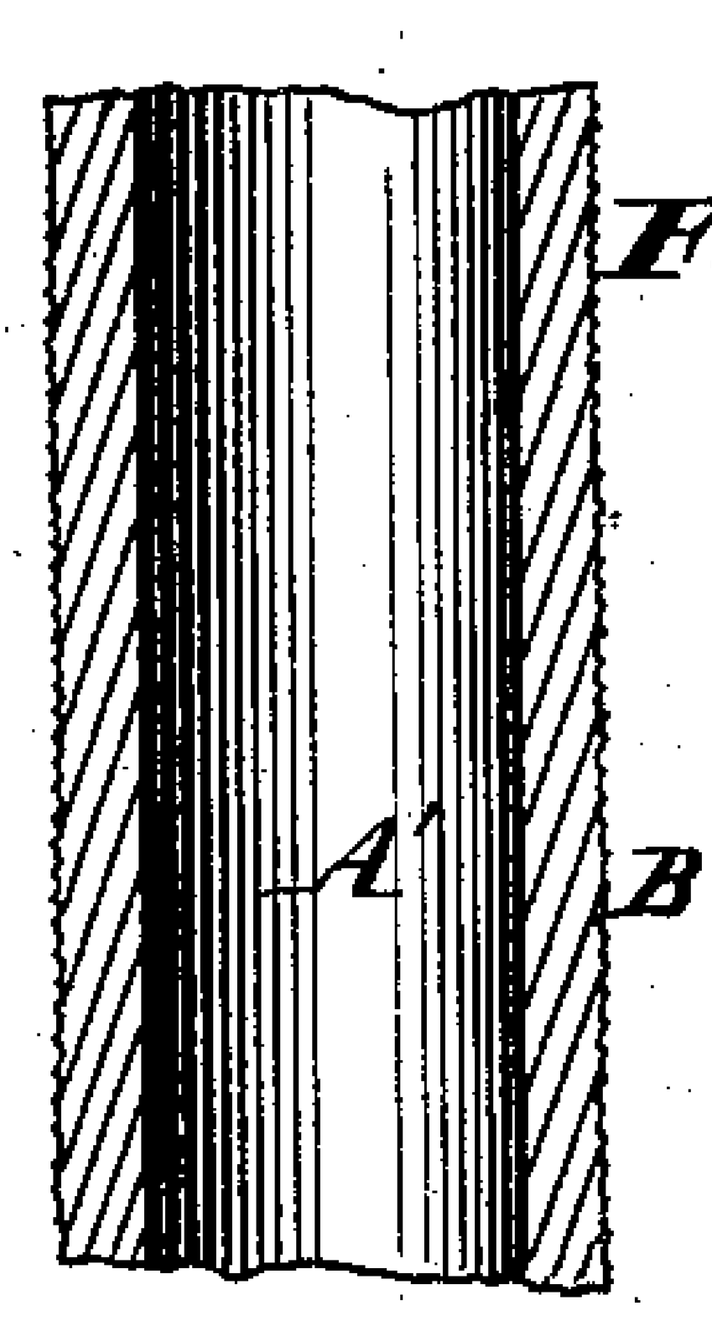

Fig. 4

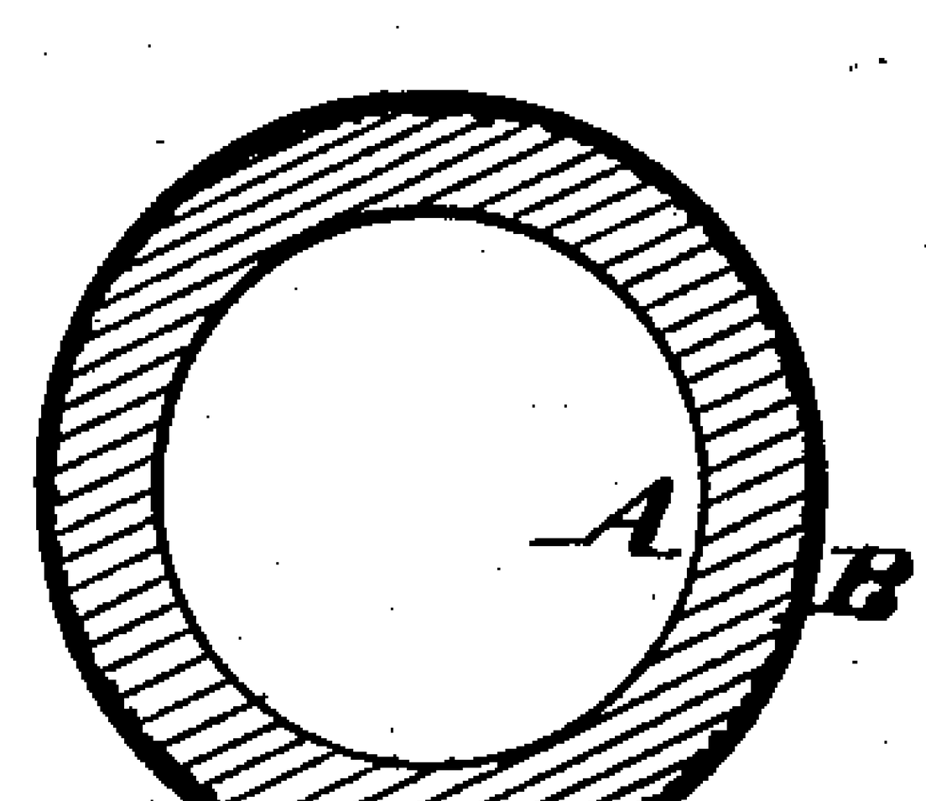

Fig. 2

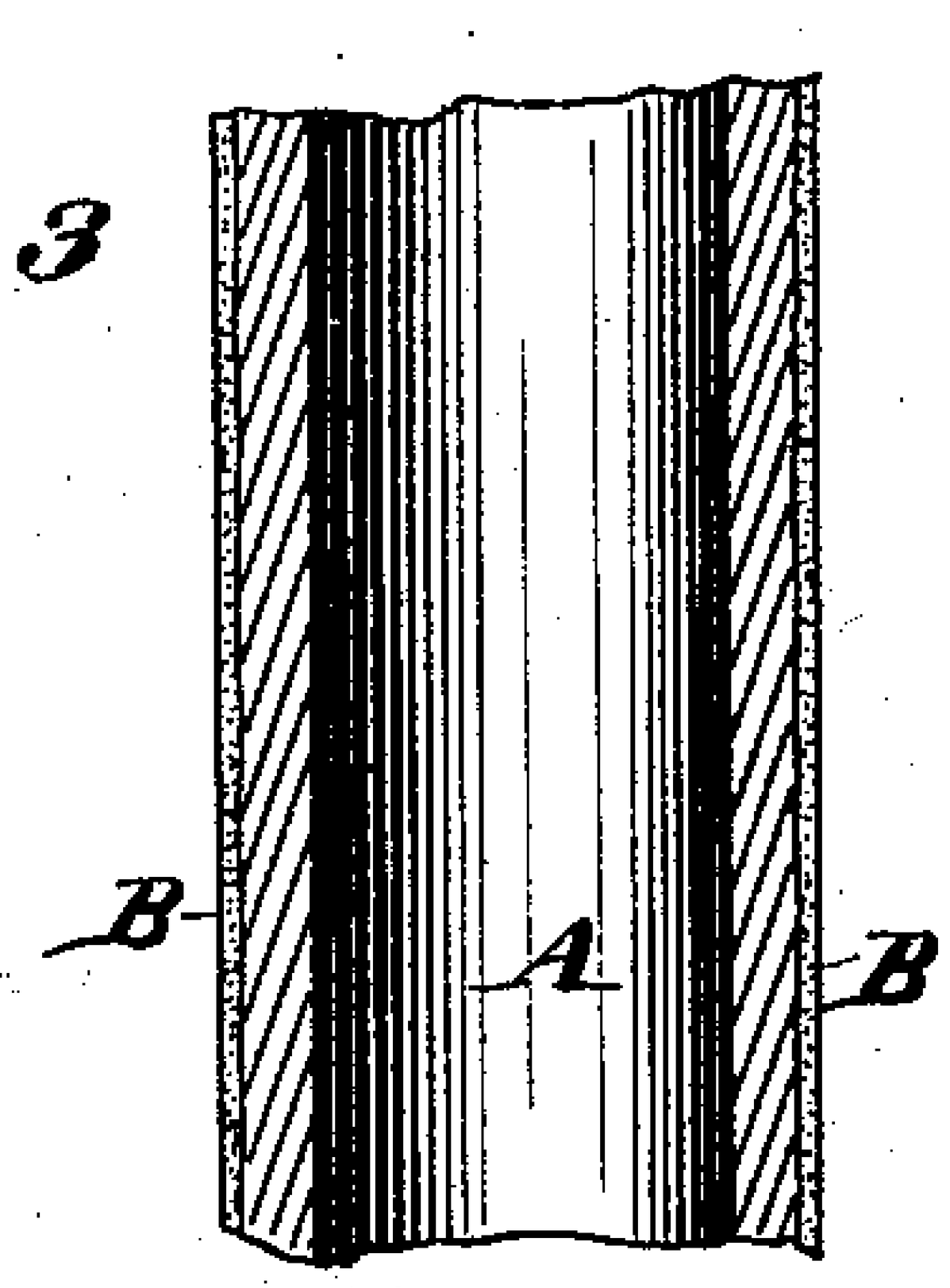

Fig. 3

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By his atty
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UNITED STATES PATENT OFFICE.

ELI THAYER, OF WORCESTER, MASSACHUSETTS.

PISTON AND PLUNGER FOR HYDRAULIC MACHINERY.

SPECIFICATION forming part of Letters Patent No. 248,119, dated October 11, 1881.

Application filed July 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, ELI THAYER, of the city and county of Worcester, in the State of Massachusetts, have invented an Improvement in Pistons and Plungers for Hydraulic Machinery, of which the following is a specification.

My invention relates to plungers or pistons for hydraulic machinery in general, but more particularly to the pistons or plungers adapted to elevators of the telescopic construction, and known as the "Thayer Elevator;" and my invention consists in coating the surface of "rough" pipes, tubes, plungers, or pistons with a cement which both protects the surface from rust caused by the deleterious influence of water and forms a smooth surface for the packing of the stuffing-box to work in contact with, to prevent leakage or cutting out of said packing.

Heretofore it has been customary to turn and true the pipes A′, pistons, or plungers on a lathe to smooth the exterior surface, for the purpose of making a liquid-tight joint at the packing or stuffing box; but practice has shown that turning the tubes or plungers is unsatisfactory, owing to the fact that the surface is made up of an infinite number of small spiral threads, B′, and minute projections, as shown in Fig. 4, which cut out the packing, rendering it impossible to make a liquid-tight piston or plunger joint unless the greatest care is exercised in polishing the surface. This makes the manufacture too expensive, particularly so in telescopic elevators.

The object of my invention is to overcome the above objections without in any way turning or truing up the pipe or plunger on a lathe by cutting its surface, to render said surface perfectly smooth, and at the same time prevent rusting of the iron.

In the drawings, Figure 1 is a sectional elevation of a telescopic elevator embodying in it my invention. Fig. 2 is a cross-section of the plunger, showing the cement coating. Fig. 3 is a sectional elevation of part of same, and Fig. 4 is a sectional elevation of part of a plunger when turned up, as heretofore constructed.

A is a plunger, which consists of an ordinary lap-welded tube in all its roughness, coated on its exterior surface with cement B. This plunger A works in a cylinder, D, provided at the top with a packing, E, which works against the smooth cemented surface B of the pipe or plunger A and insures a perfectly liquid-tight joint.

On the top of the plunger A is secured the platform C; or, if desired, several plungers may work one within the others, all of said plungers being coated with the cement B.

The cement I prefer is beeswax, or a mixture of beeswax and plumbago, or equivalent lubricating substance, which, when placed on the plunger, cools and hardens, and, while acting as a coating to fill up all the depressions and holes, at the same time prevents any rusting of the iron, due to its being immersed in water.

Although I have described this invention as it would be applied to telescopic elevators, it may be used in any hydraulic machinery—as, for instance, cranes, lifts, presses, &c.

In Fig. 4 the pipe or plunger A′ is shown with its surface covered with small spirals B′, due to turning.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Rough pipes, tubes, plungers, or pistons having their surface coated with a cement to fill up the depressions and holes and render the surface smooth and even and prevent rust, said cement consisting of beeswax incorporated with a lubricant, substantially as and for the purpose specified.

2. A rough unturned piston or plunger having its surface coated with a cement to fill up the depressions and holes and render the surface smooth and even and prevent rust, in combination with a cylinder in which said piston or plunger works and a packing working against the surface of the cement to form a liquid-tight joint, as and for the purpose specified.

3. A rough unturned piston or plunger having its surface coated with a cement to fill up the depressions and holes and render the surface smooth and even and prevent rust, said cement consisting of beeswax in combination with plumbago, as and for the purpose specified.

4. A plunger for hydraulic machinery, consisting of an unturned pipe or rod having its depressions and holes filled with beeswax, as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

ELI THAYER.

Witnesses:
R. M. HUNTER,
THOS. J. HUNT.