(No Model.)

S. A. ROUSE.

PUMP CYLINDER.

No. 451,073. Patented Apr. 28, 1891.

Fig. 1.

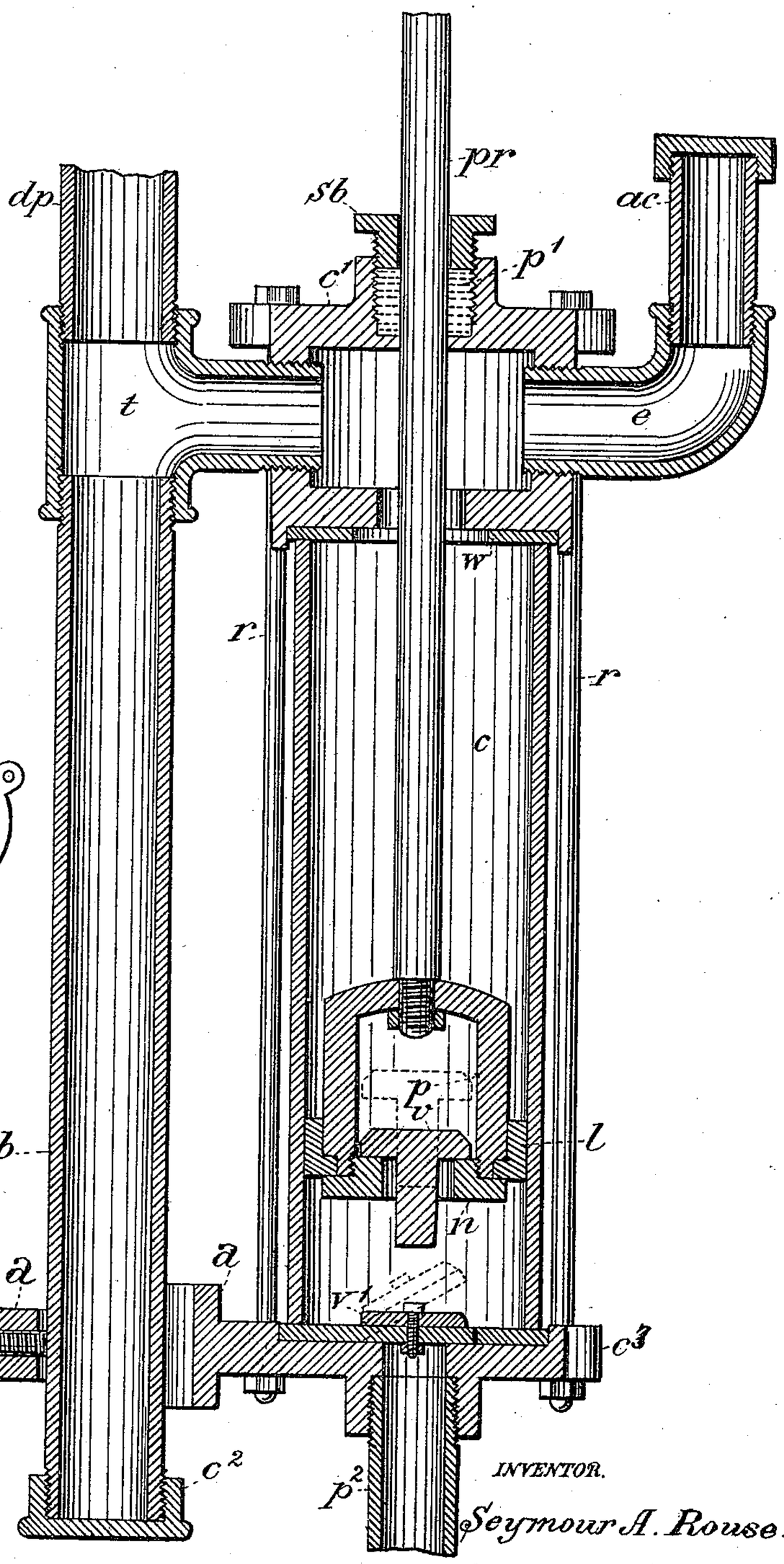
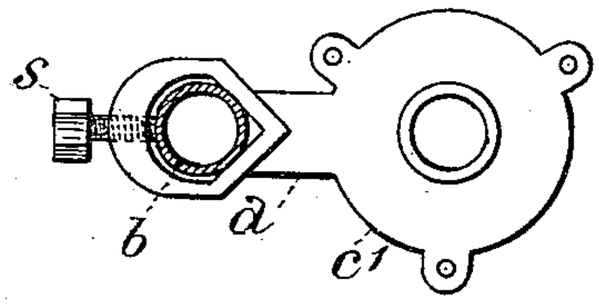


Fig. 2.



WITNESSES.

Gustav Bohn.

E B Griffith.

INVENTOR.

Seymour A. Rouse.

By C. F. Jacobs

Atty.

UNITED STATES PATENT OFFICE.

SEYMOUR A. ROUSE, OF INDIANAPOLIS, INDIANA.

PUMP-CYLINDER.

SPECIFICATION forming part of Letters Patent No. 451,073, dated April 28, 1891.

Application filed August 22, 1889. Serial No. 321,677. (No model.)

To all whom it may concern:

Be it known that I, SEYMOUR A. ROUSE, of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Pump-Cylinders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

My invention relates to the construction of pump-cylinders, and is principally intended for those known as "force-pumps," and will be understood from the following description.

In the drawings, Figure 1 is a vertical longitudinal section of my improved device. Fig. 2 is a bottom view of the lower cylinder-cap with its arm, showing the lower end of the brace-pipe.

In detail, *c* is the cylinder, which may be made of any convenient material, brass being preferred on account of its not being liable to rust or be affected by the acids of the water in as great a degree as iron.

pr is the plunger-rod, and *p* the plunger connected therewith, having an ordinary leather packing *l*, adapted to reciprocate in the cylinder, *v* being the valve of the plunger.

n is the nut which secures the valve in place and through which the valve-stem passes.

v' is the lower valve, which is made of a single piece of leather with a metal backing over the central part, the two parts being secured together by a bolt and nut, as shown.

ac is the air-chamber connected by the elbow *e* with the upper cap *c'* of the cylinder. This cap is made in the form shown in Fig. 1 and hollow in the center, having a threaded opening on one side to receive the elbow *e*, connecting it with the air-chamber, and a similar opening to admit the end of the T *t* on the opposite side. At the top is a stuffing-box *sb*, having a packing *p'*, through which the plunger-rod passes, the stuffing-box being threaded to screw into the top of the cylinder-cap. The lower cylinder-cap c^3, like the upper is preferably made of iron, it being cheaper and sufficiently strong. This cap has an extension or arm *a*, having an opening, circular on one side and squared on the opposite side, of a sufficient size to admit the brace-pipe *b*, and the outer end of the arm *a* is threaded to receive a set-screw *s*, which is intended to secure the brace-pipe in the opening of the arm. As this set-screw is tightened, it is obvious that the brace *b* will be forced more closely into the squared part of the opening in the arm, as shown in Fig. 2, and it will thus be prevented from turning around in such opening. The lower end of this brace-pipe is capped with a cap c^2, and its upper end is threaded and screws into the lower end of the T *t*. The discharge-pipe *dp* is screwed into the upper end of this T, and the upper and lower cylinder-caps are held together by three rods *r*, which stand in a triangular position to each other and pass through openings in such caps, as shown in Fig. 2.

In the drawings the air-chamber and discharge-pipe are shown as located upon opposite sides of the cylinder; but this arrangement is not an absolute one, as they may both be located on the same side of the cylinder, if convenience requires.

The brace *b* is shown in the drawings as consisting of a pipe; but it is not necessary for the purpose of bracing the parts that it be a pipe. It may be a solid rod of iron and it will perform its functions as well as a pipe; but I prefer to use a pipe for this purpose, for the reason that the brace is then lighter, while it is sufficiently strong for all practical purposes, and at the same time, being hollow, it will form a trap, so that if any solid or organic matter is brought up through the lower pipe p^2 into the cylinder and into the T gravity will operate to drop it down into the trap formed by the hollow of the brace *b*, and thus all the heavier parts of such matter will not be carried out of the discharge-pipe *dp*.

The principal object of the brace *b* is to steady the cylinder during the operation of the pump, for this cylinder being secured upon the pipe p^2, which extends some distance into the well, the length of this pipe is such that the oscillation or lateral movement thereof brings a great strain upon the joints formed between the pipe and the lower cylinder-cap and between the lower cylinder-cap and the cylinder itself at the point where the leather packing or valve is interposed, and the result is that leaks are constantly occurring in one or both of these joints, and in order to prevent this loosening of the joints at

this place I extend the lower cylinder-cap to one side in the form of an arm having an opening through it for the steadying-brace *b*, whose upper end is connected with the T, which is screwed into the upper cylinder-cap. It will thus be seen that by this construction the brace thus secured to the cylinder-caps operates powerfully to steady the cylinder in its bearings upon the lower or water pipe of the same, and the mechanism thus arranged will endure a much greater strain and lateral pressure without weakening or loosening the joints which connect the cylinder to the water-pipe than in those where no such braces are used. It is obvious that a similar brace may be connected upon the other side of the cylinder, and a similar extension to that shown at *a* could be made upon that side of the lower cylinder, and such brace could be connected at its upper end to a nipple or socket connected with the elbow *e*. This, however, would be a mere duplication of the parts herein shown and would constitute no departure from my invention, which consists in bracing the cylinder at one or both sides by means of pipes or rods in the manner shown and described.

What I claim as my invention, and desire to secure by Letters Patent, is the following, viz:

1. A cylinder for force-pumps, comprising a central body portion formed of metal, upper and lower caps secured thereto by means of suitable rods passing through them, the lower cylinder-cap provided with an arm having an opening circular in form upon one side and squared in the other, and a brace passing through such opening and extended up and connected to a projection or arm from the upper cylinder-cap, substantially as shown and described.

2. In a force-pump, a cylinder connected below to a supply-pipe and above at one side to an air-chamber and at the other to a discharge-pipe by suitable T's or elbows, and a hollow pipe connected below the discharge-pipe and secured in a projection extending from the lower cylinder-cap, such hollow pipe having its lower end closed by a cap, whereby any sediment that accumulates therein may be removed, all combined substantially as shown and described.

In witness whereof I have hereunto set my hand this 18th day of January, 1889.

SEYMOUR A. ROUSE.

Witnesses:
C. P. JACOBS,
E. B. GRIFFITH.