G. B. SMITH.

Apparatus for Preserving Wood.

No. 160,846. Patented March 16, 1875.

Fig. 1

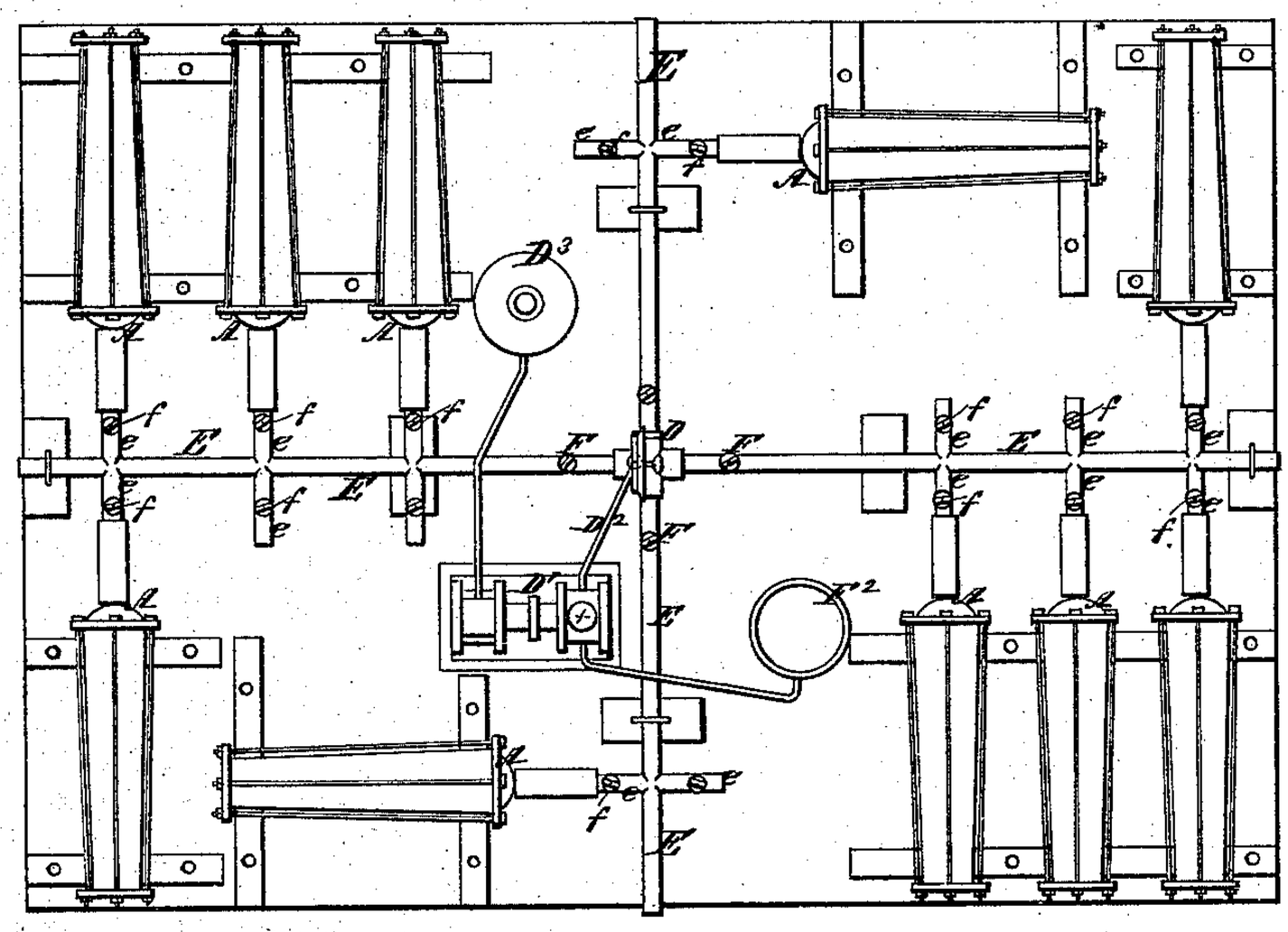
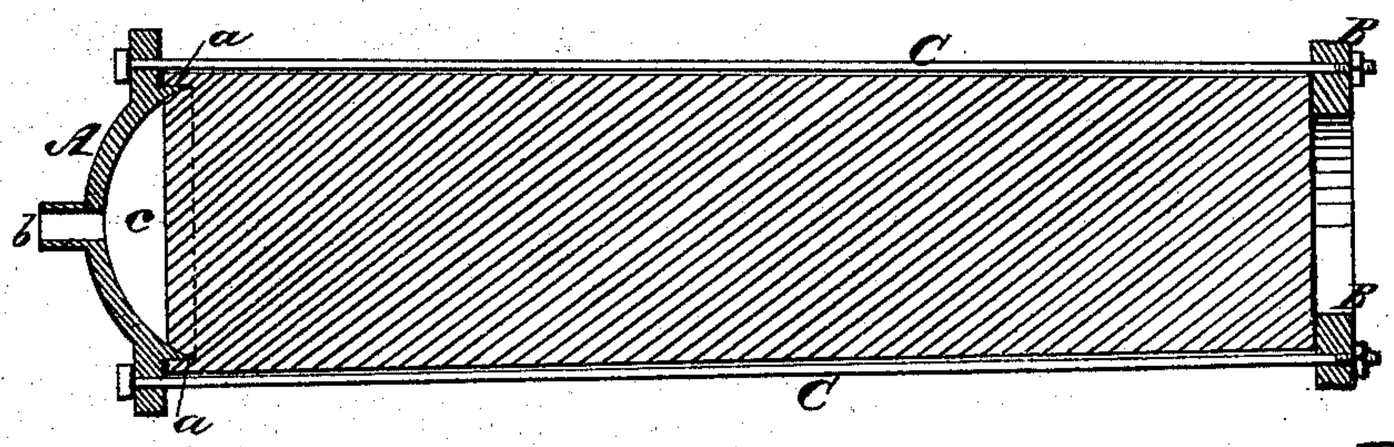


Fig. 2



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UNITED STATES PATENT OFFICE.

GEORGE B. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS FOR PRESERVING WOOD.

Specification forming part of Letters Patent No. **160,846**, dated March 16, 1875; application filed September 2, 1874.

To all whom it may concern:

Be it known that I, GEORGE B. SMITH, of the city and county of Philadelphia, State of Pennsylvania, have invented a new Apparatus for Preserving Wood; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan view, illustrating my invention as applied for treating a number of logs of lumber at one operation. Fig. 2 is a longitudinal section of the devices which are applied to the ends of a log of timber.

The nature of my invention consists in the combination and arrangement of the devices whereby a greater or less number of a connected train, or a single log of a connected train, or of a number of connected trains, can at will be impregnated with the preserving compound, forced against the end of the log or logs by hydraulic or other powerful pressure.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

A represents a metallic head with a circular flange, *a*, projecting from its inner face, and with a central passage, *b*, through it. This head is concavo-convex within the diameter of its flange, and the flange is beveled on its inner side, as represented. This head is adapted to fit upon the end of a log of timber, and when forced or driven into the end of the log, the wedging form of the flange makes an air-tight fit or joint. The concave form of the head prevents the head, within the diameter of the flange, from bearing against the end of the log, and thus a chamber, *c*, is secured between the head and the end of the log, for the composition, which is introduced through the passage *b*, to expand in, and thereby come in contact with the whole inclosed surface of the end of the log. This head is confined upon the log by means of an annular ring-plate, B, applied on the opposite end of the log, and draw-bolts C C, which extend from the head A to the plate B, and are fastened by nuts on one of their ends, as shown.

The plate B may be an exact duplicate of the head A, in cases where the wood to be preserved is of a very hard nature, and it is advantageous to apply an exhaust-pump at one end of the log, and a hydraulic press at the other end; but in most cases practice will prove that the hydraulic pressure is all that will be necessary to effect the injection of the preserving compound.

The head A and the plate B may be of any form and construction desired, so long as the result aimed at is accomplished by their use, that result being the injection into the wood of the preserving compound under hydraulic or other powerful pressure, by introducing it at the end of the log in a direction with its pores or fibers.

In the drawings I have shown a hydraulic apparatus, D, connected to pipes E E, with branches *e e*, which branches are connected by flexible tubes or stiff sleeves to a number of heads, A, as represented. The pipes E are provided with a cock, F, and each branch pipe has its own cock *f*. The apparatus D is provided with a gage by which the pressure is regulated and indicated.

With the apparatus D, the pressure upon the preserving compound may be concentrated wholly upon one, two, or more logs, or it may be diffused and caused to act upon the whole train of logs, as circumstances may require.

The preserving compound which I prefer to use is that known as Clark's solution, patented in 1869, which is composed of iron, zinc, and mercury in solution; but any other suitable compound may be employed.

The compound is contained in a tank, F^2, and is drawn through the pump D^1 and conducted by the pipe D^2 into the pipes E, the power for operating the pump being derived from the steam-boiler D^3, or any ordinary hand-pump.

The construction and arrangement of the hydraulic apparatus may be changed as locations and circumstances may require.

The wood to be treated is taken in its uncured or green condition, and thus is preserved before any change has taken place in its nature.

What I claim as new is—

The combination of the pipe E, having branches, and provided with cocks F and *e*,

the concave heads A A, applied upon one of the ends of the logs, and an engine or pump connected with a supply-tank, whereby the wood-preserving material may be applied at will to a train or parts of a train of logs, or to a single log, and the power concentrated on one log or diffused through a train or a number of trains of logs, as circumstances may require, substantially as and for the purpose set forth.

GEORGE B. SMITH.

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