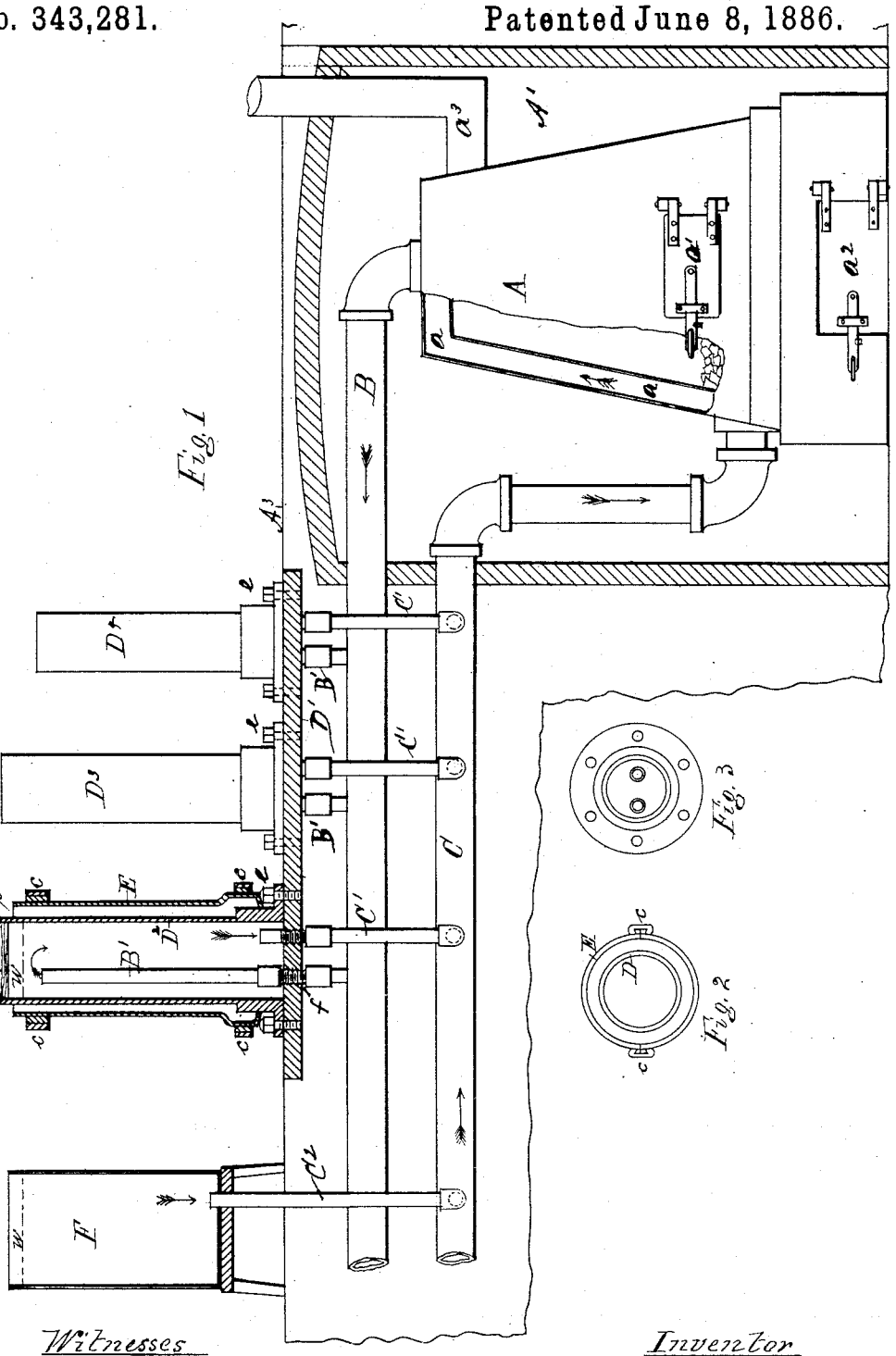
(No Model.)

J. SHARPE.

HARDENING WITHIN AND EARLY REMOVAL FROM THE MOLDS OF CEMENT PIPES, &c.

No. 343,281. Patented June 8, 1886.



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HARDENING WITHIN AND EARLY REMOVAL FROM THE MOLDS OF CEMENT PIPES, &c.

SPECIFICATION forming part of Letters Patent No. 343,281, dated June 8, 1886.

Application filed December 24, 1885. Serial No. 186,656. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH SHARPE, a citizen of the United States, residing at Little Falls, Passaic county, State of New Jersey, have invented a new and useful Improvement in the Method of and Apparatus for Facilitating the Hardening Within and Early Removal from the Molds of Cement Pipes or other similar Articles, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

Heretofore pipes and articles of cement have had to remain after being formed a considerable time in the mold preparatory to their safe removal therefrom, and particularly during the cold season, making it necessary to keep on hand a large number of molds to produce the same number of pipes as in the warm season.

The object of my invention is to facilitate the early removal of pipes and articles of cement from the mold in which they are formed. I attain this object by the devices illustrated in the drawings, which will be hereinafter fully explained.

Figure 1 shows the apparatus in elevation, in which figure three sizes of molds are shown, one of which molds, with the bed on which they rest, is shown in section. Fig. 2 is a plan of the mold, and Fig. 3 is a plan of the core.

A is a heater of any suitable construction, having the usual doors, a' a^2, and pipe a^3.

The heater, which is constructed as heaters of that class usually are, need not be further described herein.

To the heater A, which is arranged in the cellar A', I secure a pipe, C, and a pipe, B, as shown. The pipe C, which connects with the lower part of the heater, connects by means of a pipe, c^2, with a tank, F, at the bottom of said tank, and receives its water-supply therefrom, while the pipe B connects with the top of the heater and receives its hot-water supply from the chamber a of the heater. The pipes B and C are arranged one above the other, and run in line with the molds below the surface A^3, and connect, by means of pipes C' and B', with the interior of the inner case or core, D^2 D^3 D^4, in the hollow thereof. The pipes B' pass up in the hollow of the core nearly to the top of the same and tap in the top of the pipe B, while the pipes C' pass but a short distance upward in the core D^2, and connect below with pipe C in the side thereof. Both of the pipes B' and C' pass through the bed-plate D', and are suitably secured therein. The inner case or core of the mold, which forms the interior of the pipes, is secured to the cast-iron bed-plate D' by means of bolts e. Around the core D^2 is arranged a shell or box, E, which box is composed of two or more members having clamps c, by means of which clamps the different members of the box are clamped together, while the pipe is being formed in the space b of the mold in the usual way.

In practice the water passes from the tank F, through pipe C^2, into pipe C, and through said pipe C, as indicated by arrows, to the heater A, enters the heating-chamber a, where the water is heated. The heated water passes from the heating-chamber a through the pipe B, as indicated by arrows, enters pipe B', and is discharged from the top of said pipe B', as indicated by arrow, in the interior or hollow of the said core D^2, filling said core with heated water to the equilibrium w. The heated water, after the core D^2 has been filled therewith to the line w, enters the pipe C', as indicated by arrow, and passes down through said pipe and enters pipe C, where the water is conducted through the pipe last mentioned to the heating-chamber a, to be reheated and returned through the core and pipes in the manner stated. There is thus kept up in and through the case or core of the mold a constant circulation of hot or heated water, which heats evenly the entire core-surface around which the pipe is formed. The pipe, after being formed in the mold and subjected to the heat created on the core thereof by the heated water therein, may be safely removed from the mold in one-quarter of the time heretofore considered necessary for its removal with safety. The pipe, after having been formed in the space b, and having been quickly dried therein for its safe removal, is removed from the mold in the usual way, and is placed in the open air or a dry-house to be hardened for use.

Any practical number of molds may be employed at the same time and in the manner stated.

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

1. The herein-described method of facilitating the hardening within and early removal

from the molds of cement pipes or other similar articles by means of heat, of continuously circulating hot water conveyed from a suitable heating apparatus through an induction-pipe to near the top of the interior of the hollow core, and returned to the heater through eduction-pipe from the bottom of said hollow core, substantially as set forth.

2. The combination of the core D^2 and pipes B′ C′, arranged in said core, bed D′, for supporting and securing said core and pipes, shell E, having clamps *c*, pipe C, pipe B, pipe C^2, tank F, and means for heating the water, substantially as described.

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