

(No Model.)

D. H. STREEPER.

DEVICE FOR THAWING OUT FROZEN PIPES, &c.

No. 501,744.

Patented July 18, 1893.

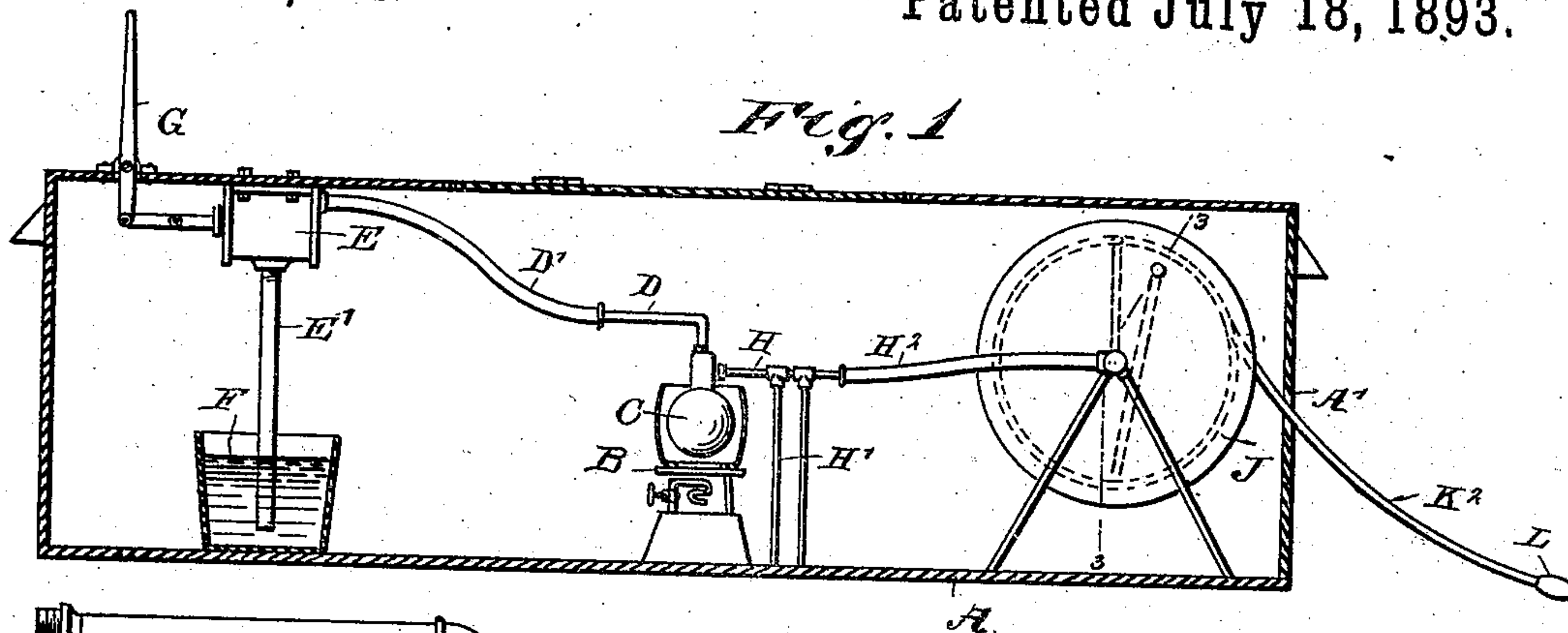


Fig. 2

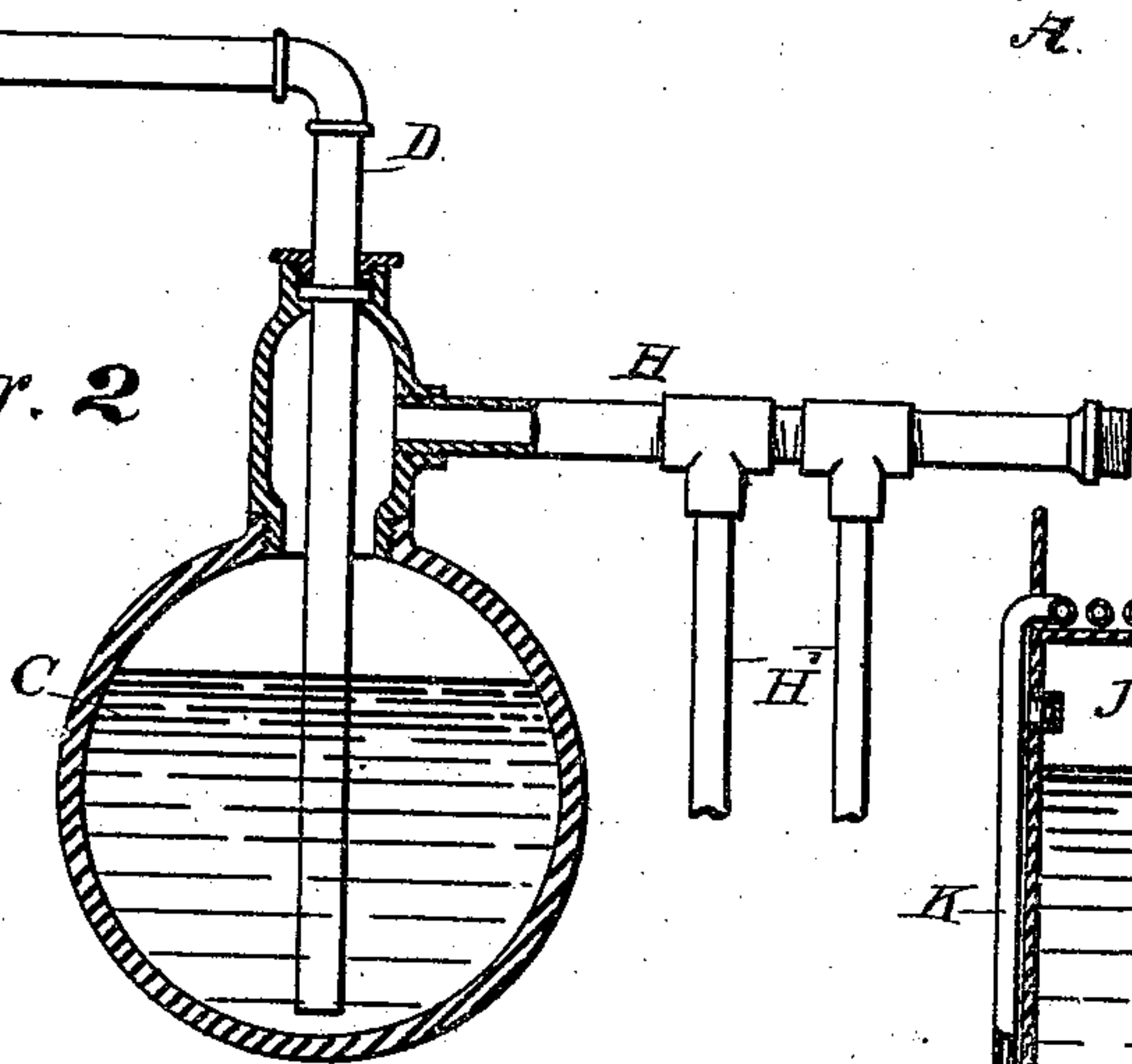


Fig. 3

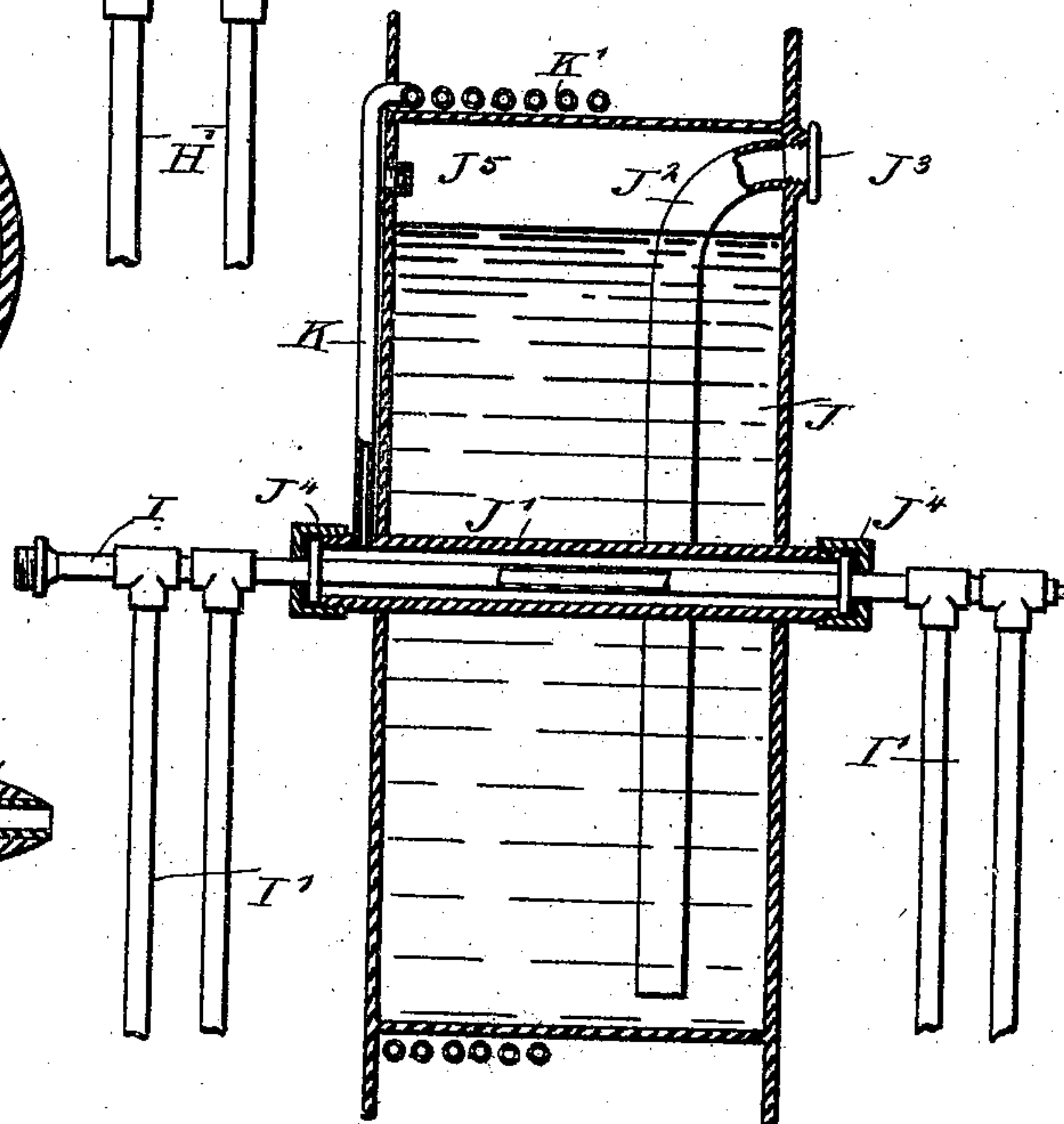


Fig. 4

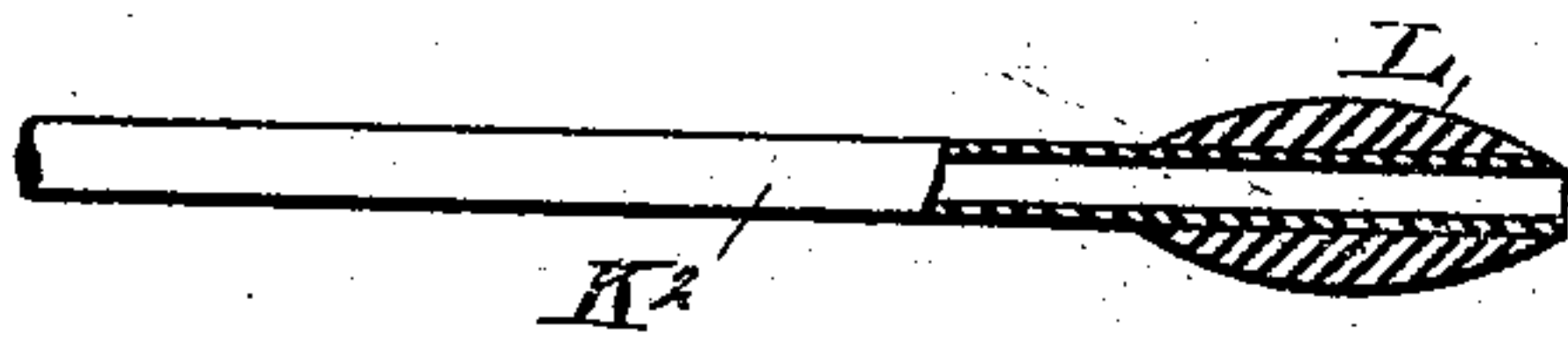


Fig. 5

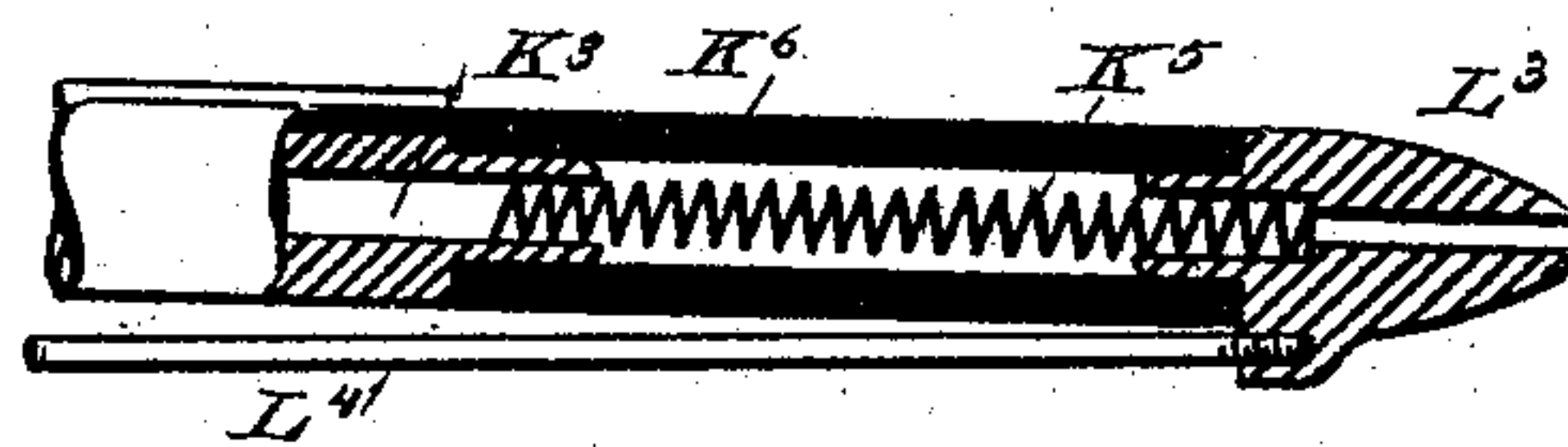
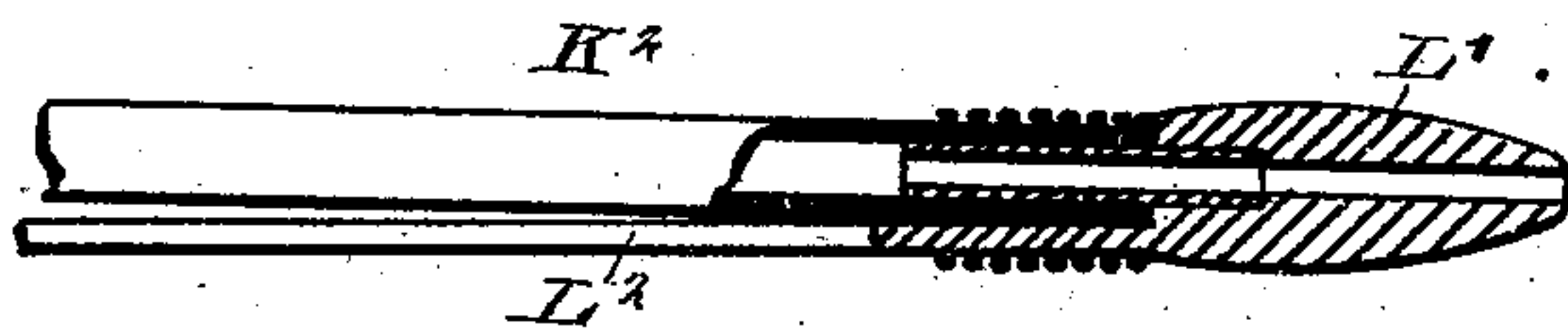


Fig. 6 INVENTOR
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WITNESSES:
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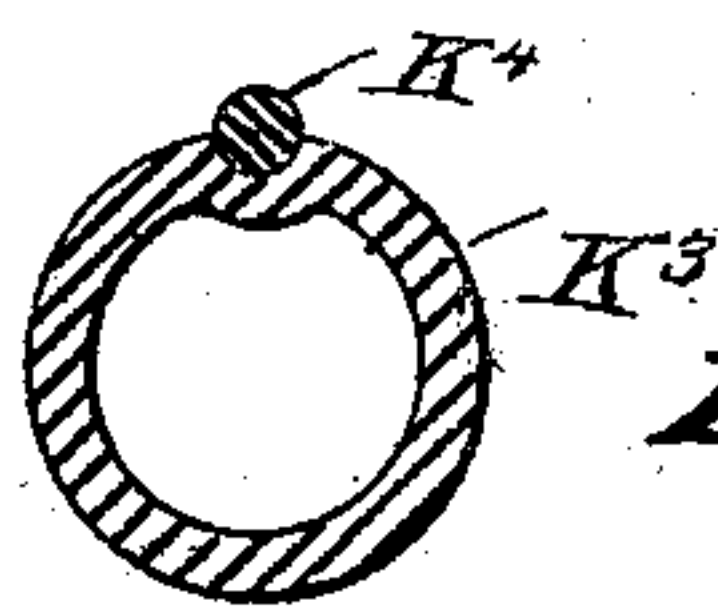


Fig. 7

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UNITED STATES PATENT OFFICE.

DANIEL H. STREEPER, OF NORRISTOWN, PENNSYLVANIA.

DEVICE FOR THAWING OUT FROZEN PIPES, &c.

SPECIFICATION forming part of Letters Patent No. 501,744, dated July 18, 1893.

Application filed March 11, 1893. Serial No. 465,559. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. STREEPER, of Norristown, in the county of Montgomery and State of Pennsylvania, have invented a new and Improved Device for Thawing Out Frozen Pipes, &c., of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved device for conveniently and rapidly thawing out frozen pipes, drains and the like.

The invention consists of a boiler connected with a pump for supplying the water to be heated in the said vessel, and an outlet pipe for the said vessel and through which hot water or steam from the said boiler is forced by the action of the said pump.

The invention also consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is an enlarged sectional side elevation of the water-heating vessel. Fig. 3 is an enlarged transverse section of the drum carrying the coil of pipe, the section being taken on the line 3—3 of Fig. 1. Fig. 4 is an enlarged sectional side elevation of the outer end of the lead pipe with pilot attached for insertion into the frozen pipe. Fig. 5 is a like view of a pilot and rod for forwarding hose in frozen pipe. Fig. 6 is a similar view of a flexible pilot to pass around curves in frozen pipes. Fig. 7 is an enlarged cross section of a lead pipe strengthened by a rod.

The improved device for thawing frozen pipes as illustrated in Figs. 1 to 7, inclusive, is arranged in a suitably-constructed box A containing a plumber's heating furnace B of any approved construction, and in which is held a boiler or vessel C containing the water to be heated by the heat from the furnace B. Into the boiler C leads a water supply pipe D, reaching with its lower end close to the bottom of the said boiler, as plainly illus-

trated in Fig. 2. The outer end of the pipe D is connected by a hose D' with a hand pump E of any approved construction and having its suction pipe E' reaching into a vessel F containing a supply of water. The handle G for actuating the pump is pivoted on the cover of the box A and extends with its free end outside of the box to be within convenient reach of the operator, to actuate the pump E so as to draw the water from the vessel F into the pump, and to force it out of the latter through the hose D' into the supply pipe D, which finally discharges into the boiler C near the bottom thereof.

From the upper closed end of the boiler C leads an outlet pipe H supported on suitable legs H' attached to or resting on the bottom of the box A, the said legs also conveniently supporting the boiler C within the pot of the furnace B. The outer end of the outlet pipe H is connected by a hose H² with one end of a pipe I which extends centrally through the hollow axle or hub J' of a drum J, the said pipe I being held on suitable legs I' arranged on opposite sides of the drum J and secured to or resting on the bottom of the box A so as to hold the reel J in the proper position for turning it, the pipe I being the axle. The drum J is made hollow and is filled with water passed through a filling tube J² into the drum from one side thereof, the outer end of the filling tube being closed by a suitable cap J³. An air vent J⁵ is also arranged in the drum J to permit the escape of air while filling the drum with water through tube J². In case the water in the drum gets cold it can readily be reheated by forcing steam through tube J² into the cold water. The ends of the hub J' are closed by suitable stuffing boxes J⁴ to render the joint between the pipe I and the hub J' water-tight. That part of the pipe I extending between the stuffing boxes within the hub J' is perforated to permit the water to pass into the said hollow hub and from the latter into a pipe K leading from one end of the hub J' alongside one face of the drum J to the rim thereof on which the pipe K is formed into a coil K' adapted to be unwound from the drum to be passed through an open-

ing A' in one end of the box A. The outer end K² of this pipe carries a pilot L for conveniently guiding the end of the pipe K into and through the frozen pipe to be thawed out.

5 I prefer to use a lead pipe K³ but I may employ a hose instead of the lead pipe, the end of the hose being attached by wire or other suitable means to the pilot as will be readily understood by reference to Fig. 5. In this
10 case I attach to the pilot L' a rod L² for forcing the pilot forward in the frozen pipe, the pilot then leading a flexible hose.

As illustrated in Fig. 6, I may mount the pilot L³ flexibly on the end of the pipe. For
15 this purpose, I solder or otherwise fasten to the end of the pipe K³, a spring K⁵ fastened with its forward end to the pilot L³, the connection between the pipe K³ and pilot L³ being by means of a short piece of rubber tubing K⁶.
20

A rod L⁴ is screwed into or otherwise removably attached to the pilot for moving the pilot forward in the pipe. This arrangement is specially of great service in case the pipe
25 is to pass around curves. The pilot L³ with the rod L⁴ is first inserted into the straight part of the frozen pipe and pushed forward as far as it will go and then the rod L⁴ is unscrewed and the pipe K² is pushed so that the
30 flexible hose K⁶ readily passes around the curve with the pilot in front.

In order to strengthen the end of the lead pipe K³, I prefer to solder a wire K⁴ to the outer surface thereof, as illustrated in Fig. 7.
35 This is necessary if extremely long lengths of pipe are required, as the small pipe could not readily be forwarded on account of kinks or bends forming in it.

The operation is as follows: The coil K' is
40 partly unreeled from the drum J, so that the pilot L can be run into the frozen pipe, and then the operator starts the furnace B and actuates the pump E, so that water from the supply vessel F is forced into the boiler C in
45 which the water is heated and steam generated and forced out through the pipe H on the further action of the pump E. The water in a heated condition or the steam generated passes from the pipe H through the hose H²
50 to the pipe I and discharges through the perforations therein into the hollow hub J', which thus becomes heated and heats the water contained in the drum J, so that the coil of pipe K', is heated. At the same time
55 hot water or steam entering the hub J' can pass from the latter through the pipe K into the coil of pipe K' and through the end thereof into the pilot L and into the frozen pipe into which the hot water or steam is thus dis-
60 charged, the hot water or steam melting the ice and thus thawing the pipe. As the thawing proceeds in the frozen pipe the coil K' can be further unreeled from the drum J and further pushed into the frozen pipe until the
65 latter is completely thawed out, it being un-

derstood that hot water or steam is passed through the pipe continuously in the manner above described by the operator actuating the pump E. In case the pipe worked on is filling with water the latter can be readily
70 pumped out by connecting the pipe H² with the suction pipe E' and then working the pump E. By the removal of the water from the pipe to be thawed the hot water or steam injected on the ice will be more effective
75 thereon. When the pipe has been thawed out, the operation ceases. The operator reels up the coil on the drum J and extinguishes the fire in the furnace B.

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

1. In an apparatus of the character described, a furnace, a spherical boiler within said furnace, a pump having its discharge
85 pipe extending down through the said boiler and discharging near the bottom thereof and an outlet pipe leading from the top of the boiler and through which the water is forced by said pump and a supply pipe for the pump,
90 substantially as set forth.

2. A portable thawing apparatus comprising a casing A, a pump mounted therein with its operating lever extending to the exterior, a plumber's furnace and boiler in the casing,
95 the discharge pipe leading from the pump to the boiler, a supply pipe and reservoir for the pump an outlet pipe leading from the upper end of the boiler and a reel in the casing having a tubular axis with which the said
100 outlet pipe is connected, and a flexible pipe wound on the reel and connected with its axis to conduct the water therefrom; the casing having an aperture through which the flexible pipe may be drawn, substantially as set
105 forth.

3. In a thawing apparatus the hollow reservoir drum provided with a filling aperture, a central tube extending through the drum and provided with stuffing boxes at its ends a per-
110 forated pipe extending through said tube and stuffing boxes and upon which the drum rotates, a pipe K leading from said central tube and piping K' wound on the reel and connected with outer end of pipe K, substantially
115 as set forth.

4. The combination with the hot water pipe K² to enter the pipe to be treated and having a suitable pilot on its forward end, of a flexible stiffening wire K⁴ secured longitudinally
120 along the exterior of the pipe, substantially as set forth.

5. The combination with the hot water pipe K² having a section of hose K⁶ at its forward end provided with a pilot L and an internal
125 spring K⁵ connecting the pilot and tube, substantially as set forth.

6. The combination with the flexible hot water pipe K² provided with a longitudinally extending flexible stiffening wire K⁴, and a
130

pilot L³, of the flexible push rod detachably connected at its forward end with the pilot, substantially as set forth.

5 7. A device of the class described, provided with a flexible pipe adapted to to be passed into the frozen pipe, a pilot arranged on the outer end of the said flexible pipe to pass over obstructions in the said frozen pipe, and

a flexible push rod removably connected with the said pilot, substantially as shown and described.

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Witnesses:

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