

(No Model.)

2 Sheets—Sheet 1.

H. B. FREY.

DEVICE FOR MAKING SLED ROADS.

No. 388,407.

Patented Aug. 28, 1888.

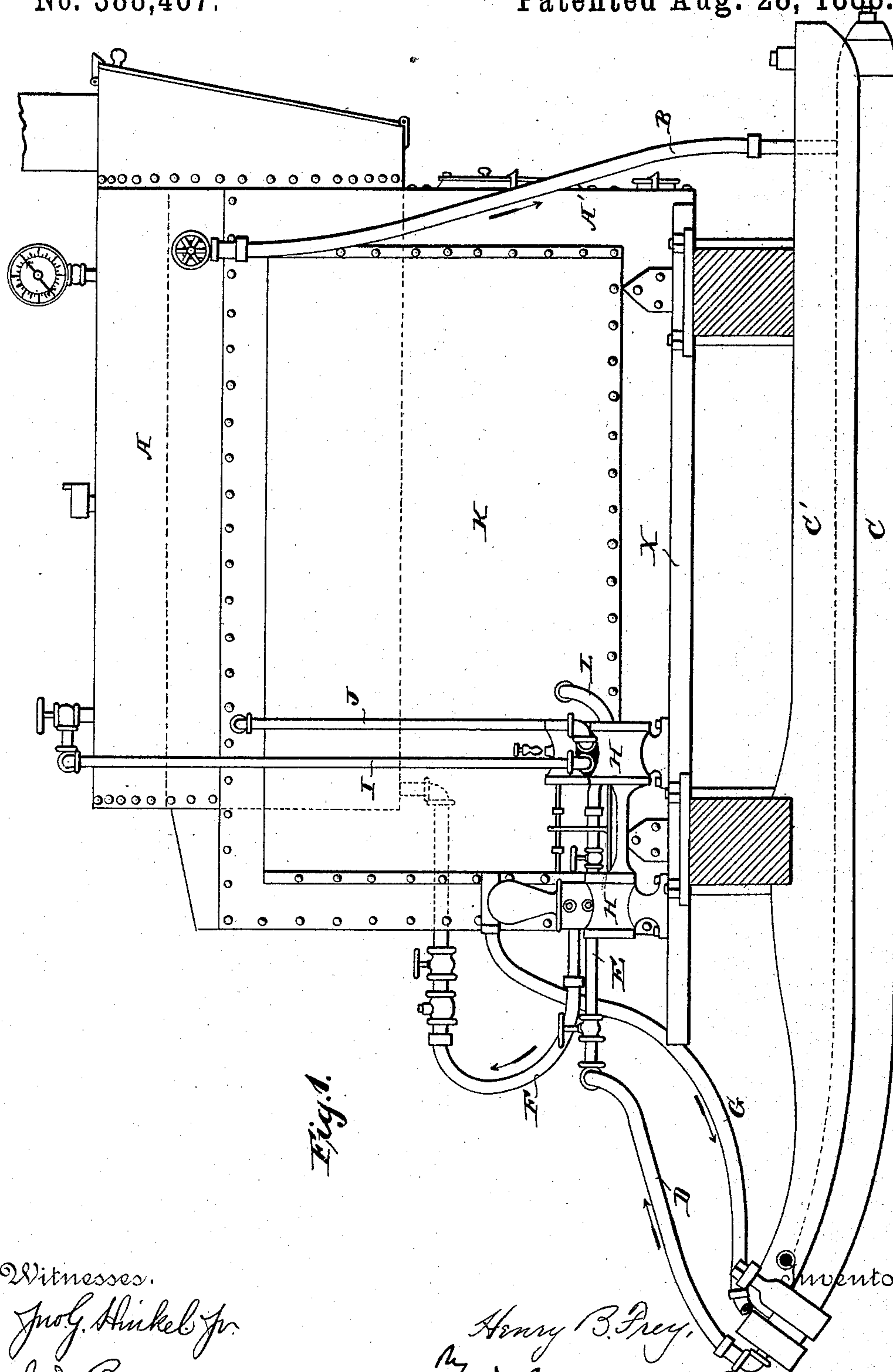


Fig. 1.

Witnesses.

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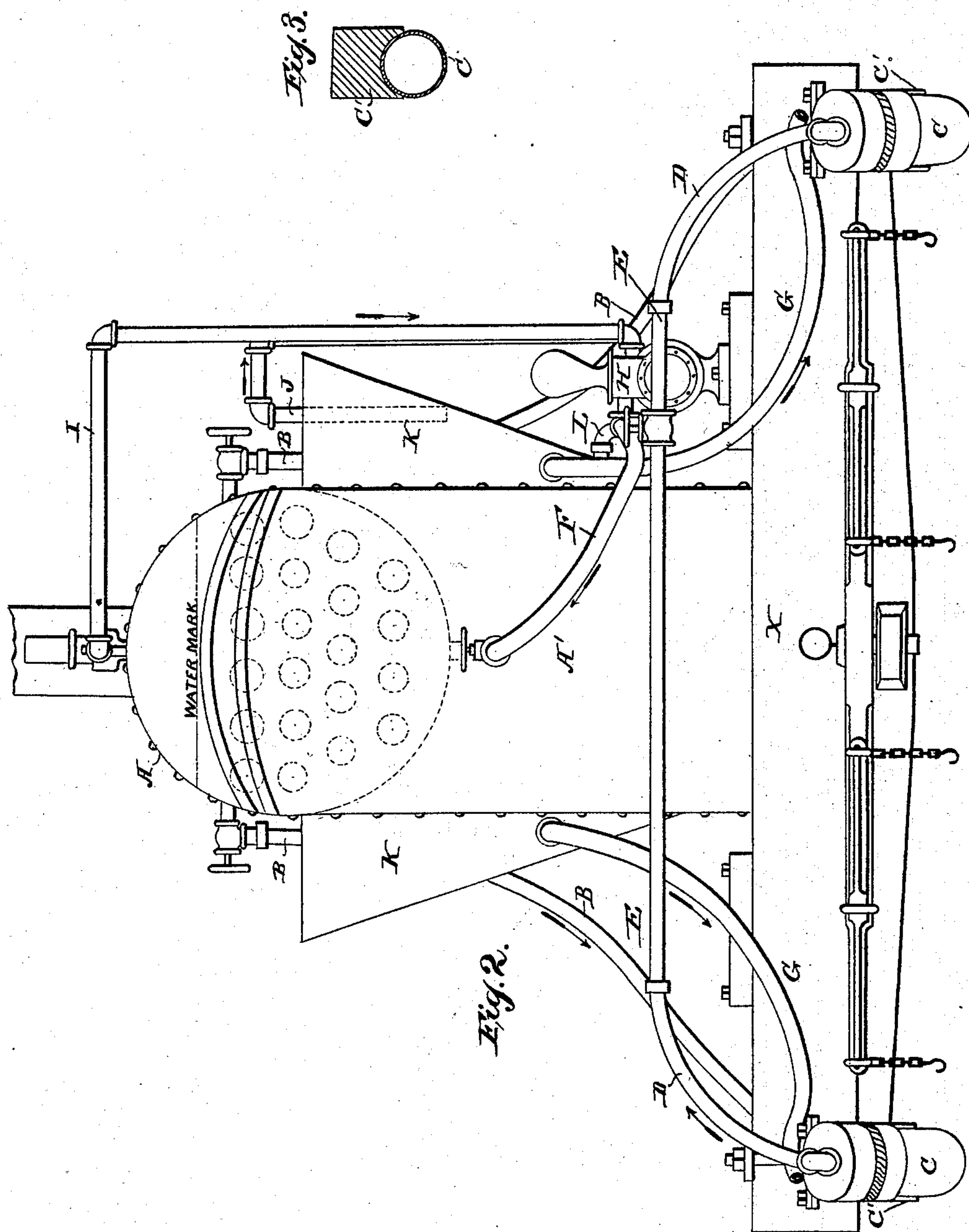
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Attorneys.

UNITED STATES PATENT OFFICE.

HENRY B. FREY, OF MINNEAPOLIS, MINNESOTA.

DEVICE FOR MAKING SLED-ROADS.

SPECIFICATION forming part of Letters Patent No. 388,407, dated August 28, 1888.

Application filed March 22, 1888. Serial No. 268,173. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. FREY, a citizen of the United States, a resident of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Devices for Making Sled-Roads, of which the following is a specification.

In the lumber regions of the West and Northwest, where the greater portion of the hauling is done during the winter season upon sleds, it has been customary to sprinkle the sled-roads with water to form a coating of ice thereon; but this is objectionable from the fact that in very cold weather the water penetrates the snow but a very short distance, especially after the road has become somewhat packed, so that the water, freezing only on the surface of the snow, forms but a comparatively thin crust, which often is not sufficiently strong to bear the weight of the loaded sleds, and hence the roads so iced are cut up.

My invention has for its object to improve the construction of such roads, whereby a solid compacted track will be provided for the runners of the sled; and to secure this object I employ the device hereinafter described, which, in general terms, consists of hollow runners connected at or near each end with a boiler or steam-generator, so as to maintain a circulation of hot water or steam through them, which runners as they are drawn over the track will soften and by weight of the device compact the snow. In connection with such runners I may employ the means to be described for keeping water upon the track, which, as the snow is softened by the heat, easily penetrates the snow, so that when it becomes frozen a mass of ice or closely-compacted snow of considerable depth is formed along the tracks of the sled-runners.

In the drawings, Figure 1 is a side view of the device embodying my invention. Fig. 2 is a front view of the same. Fig. 3 is a cross-sectional view of one of the runners.

The various parts of my invention are supported upon a sled, X, provided with hollow runners C, connected by circulating-pipes with the boiler A, supported upon the platform of the sled. This boiler may be of any desired form or construction, that which I

have chosen for illustration being of the return-flue class having a fire-box, A', and the circulating-pipes may so connect with the boiler as to deliver either hot water or steam to the runners, the former being preferred.

B B represent pipes, preferably flexible, connecting the boiler below the water-line with the runners, and D D represent pipes, also preferably flexible, connected with the opposite ends of the runners, and leading therefrom the water or steam which has been employed to heat the runners.

H represents a pump employed to maintain proper circulation through the pipes between the boiler and the runners. In the drawings I have shown it as arranged between the runner and boiler in the return-pipe, the pipes D being connected with the pump by the pipe E, through which the water is delivered in the pump, whence it passes through a pipe, F, into the boiler.

I represents a steam-pipe leading from the boiler to the pump and furnishing the steam by which the latter is driven, the exhaust-steam being carried off through a pipe, J, into a box or receptacle, K, adapted to contain snow, which, by the exhaust steam, is melted to supply water for the boiler and for wetting the track when desirable. I have shown two of these snow-receptacles, one on each side of the fire-box A', by which they are heated, so that the snow is rapidly melted. These receptacles converge toward their lower ends, so that the water may collect and be easily drawn off.

L represents a pipe leading from the lower portion of one of the receptacles to the pump, through which water is taken to supply the boiler. G G are other pipes, also leading from the lower portions of the receptacles, and delivering upon the track preferably directly in front of the runners or shoes C. The various pipes may be provided with cocks to regulate the flow in a manner easily understood without description.

I do not desire to be limited to the precise arrangement of the parts shown, as it will be readily understood that this may be changed to a considerable extent without departing from the spirit of my invention. For instance, the direction of circulation through the runners might be reversed, or the shape and arrange-

ment of the snow-receptacles might be changed, all of which will readily be suggested to one acquainted with the art.

I have found that a convenient form of runner may be produced by using a large piece of gas-pipe, say, about six inches in diameter, of the proper length, and bent at the end. This pipe, which forms the shoe of the runner, is supported by a block or bar, C', grooved upon its under face to receive the pipe, which is bolted thereto.

I am aware that it is not new in devices of a similar nature to mine to provide the sled with hollow runners, to which steam is delivered and from which it exhausts upon the track, and that it is not new to deliver water upon the track in front of such heated runners, and hence I do not claim such features as my invention.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The combination of the hollow runners, a boiler, and the pipes connecting the runners at or near each end with the boiler, whereby there is maintained a circulation through the boiler and runners, substantially as described.

2. In a device for making sled-roads, the combination of the hollow runners, a boiler, the circulating-pipes between the boiler and the runners, and a pump for maintaining circulation, substantially as described.

3. In a device for making sled-roads, the combination of the hollow runners, and the circulating-pipes connecting the runners and the boiler, which they enter below the water-level, substantially as described.

4. In a device for making sled-roads, the combination, with a sled and a boiler mounted thereon, of a receptacle upon the outside of the

boiler adapted to receive snow, which is melted therein, substantially as described.

5. In a device for making sled-roads, the combination, with a sled and a boiler mounted thereon having a fire-box, of the snow-receptacles converging toward their lower portions and supported upon the outside of the fire-box, substantially as described.

6. In a device for making sled-roads, the combination, with a sled having hollow runners and a boiler mounted thereon, of circulating-pipes between the boiler and runners, a pump to maintain the circulation in said pipes, a snow-receptacle in proximity to the boiler wherein the snow is melted, and a water-pipe, L, between the said receptacle and the pump, substantially as set forth.

7. In a device for making sled-roads, the combination, with a sled having hollow runners, and a boiler mounted thereon, of circulating-pipes between the boiler and the runners, a pump to maintain circulation in said pipes, a snow-receptacle, a steam-pipe, I, between the boiler and the pump, and an exhaust-pipe, J, delivering from the pump into the snow-receptacle, substantially as described.

8. In a device for making sled-roads, the herein described hollow runner, consisting of the pipe C, bent at one end, in combination with the block or bar C', grooved on its under face to receive the pipe C, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY B. FREY.

Witnesses:

CHAS. B. GEDNEY,
E. R. HOVENDEN.