(No Model.)

H. I. GRENNELL.

APPARATUS FOR THE WATER PACKING OF SNOW ROADS.

No. 245,814. Patented Aug. 16, 1881.

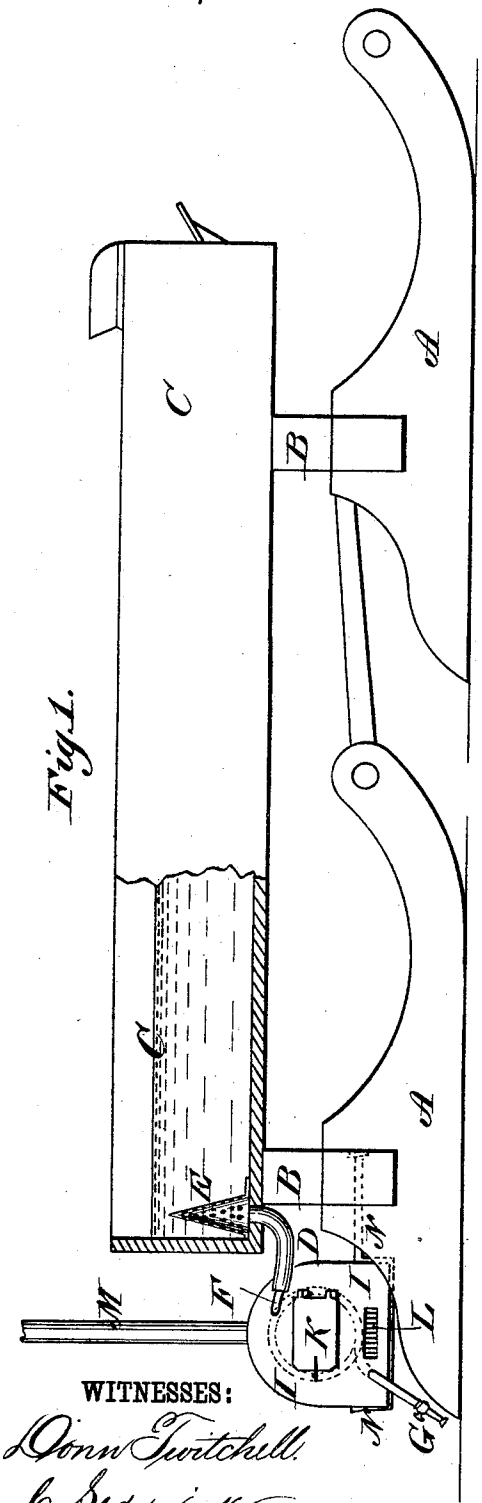

Fig. 1.

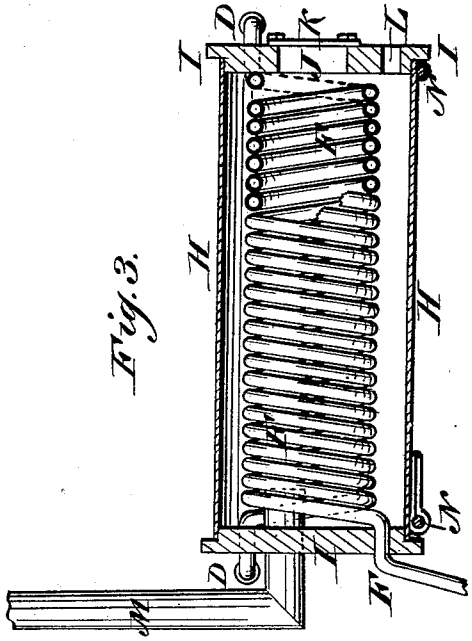

Fig. 3.

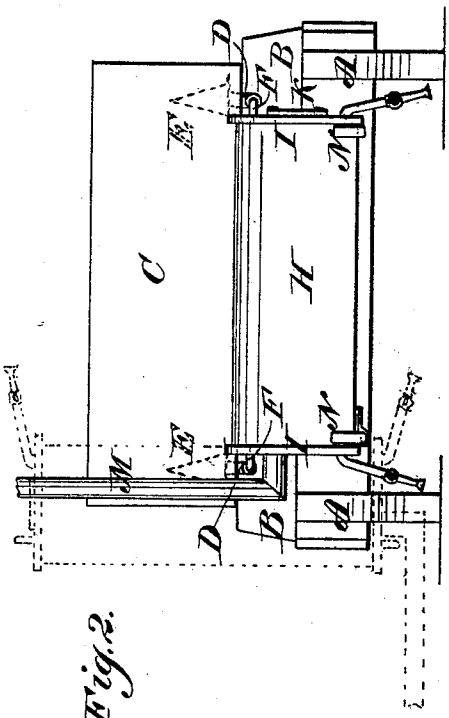

Fig. 2.

WITNESSES:

Donn Twitchell.

C. Sedgwick

INVENTOR:

H. I. Grennell

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY I. GRENNELL, OF MEDFORD, WISCONSIN.

APPARATUS FOR THE WATER-PACKING OF SNOW-ROADS.

SPECIFICATION forming part of Letters Patent No. 245,814, dated August 16, 1881.

Application filed June 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY I. GRENNELL, of Medford, in the county of Taylor and State of Wisconsin, have invented a new and Improved Apparatus for the Water-Packing of Snow-Roads, of which the following is a specification.

Figure 1 is a side elevation, partly in section, of my improvement. Fig. 2 is a rear elevation of the same. Fig. 3 is a sectional elevation of the water-heater.

Similar letters of reference indicate corresponding parts.

The object of this invention is to water-pack the snow in the runner-tracks of snow-roads, and thus form a solid pathway for sleighs.

The invention consists of a sleigh carrying a water tank and heater and suitable conducting and delivering pipes, whereby the water may be heated and the hot water delivered into the runner-track of snow-roads to pack and solidify the same, as hereinafter more fully set forth.

In the accompanying drawings, A represents an ordinary box or lumber sleigh, to the beams B of which is attached a water-tank, C, of suitable size.

In apertures in the rear part of the bottom of the water-tank C are secured the ends of two pipes, D, the upper ends of which are covered and protected from becoming clogged by conical or other shaped screens E. The rear ends of the pipes D are detachably connected by screw-couplings or other suitable means with pipes F, which are coiled in opposite directions and in alternate coils into cylindrical form, as shown in Fig. 3, and in dotted lines in Fig. 1. The other ends of the coiled pipes F project at the rear ends of the sleigh-runners, so as to discharge or sprinkle the water that passes through the said coiled pipes upon the runner-tracks. The discharge ends of the coiled pipes F are provided with stop-cocks G, so that the discharge of water can be controlled as desired. The coils of the pipes F are made of such a size as to receive the fuel, and thus serve as a fire box and grate for the fire. The coils of the pipes F are inclosed with a casing, H, of sheet-iron or other suitable material, to confine the fire and prevent the heat from being radiated from the coils of the said pipes. The ends of the casing H are attached to cast-iron heads I, through which the ends of the pipes F pass. In one of the heads I is formed an opening, J, closed by a door, K, for the insertion of the fuel, and with an opening, L, a little below the coils, to admit air to support combustion. In an aperture in the other head I is secured the end of the smoke-pipe M, which projects upward to such a height as will insure a proper draft.

The water-heating apparatus rests upon brackets or other supports N, attached to the rear part of the sleigh A, and is hinged at one end to one of the said supports N, as shown in Fig. 3, so that by disconnecting the pipes D E and removing the smoke-pipe M the heating apparatus can be turned up endwise, as indicated in dotted lines in Fig. 2, to allow any water left in the coiled pipes F to flow out, to prevent the said water from freezing in the pipes and injuring them or forming a sediment within them.

I am aware that the runner-tracks of snow-roads have been sprinkled with cold water; but this is objectionable from the fact that cold water freezes upon the surface of the snow before it has had time to penetrate the said snow, and thus forms a thin crust over the snow, which crust is broken up by the passage of the next sleigh, leaving the snow loose and unpacked.

With my improvement the heated water penetrates the snow deeply or to its bottom, so as to form a solid ice pathway for the horses and the sleigh-runners.

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

1. An apparatus for the water-packing of snow-roads, constructed substantially as herein shown and described, consisting of the sleigh A B, the water-tank C, the discharge-pipes D, the coiled pipes F, the casing H I, and the smoke-pipe M, as set forth.

2. In an apparatus for the water-packing of snow-roads, the combination, with the sleigh A B, of the water-tank C, having discharge-pipes D, the two pipes F, coiled into cylindri-

cal form, the casing H I, and the smoke-pipe M, substantially as herein shown and described, whereby water can be heated and discharged upon the runner-tracks of the road, as set forth.

3. In an apparatus for the water-packing of snow-roads, the water heater formed of two pipes coiled in alternate coils in opposite directions and into cylindrical form, inclosed by a casing, and provided with a smoke-pipe, substantially as herein shown and described, whereby the pipes that contain the water to be heated will form the fire box and grate, as set forth.

4. The method of water-packing snow-roads, substantially as herein shown and described, which consists in saturating the tracks with hot water, whereby the body of snow forming the tracks becomes solidified, as set forth.

HENRY I. GRENNELL.

Witnesses:
J. E. MARSH,
T. G. JEFFERS.