(No Model.)

I. BOYD & B. HARDESTY.

PORTABLE FOOT WARMER.

No. 525,252. Patented Aug. 28, 1894.

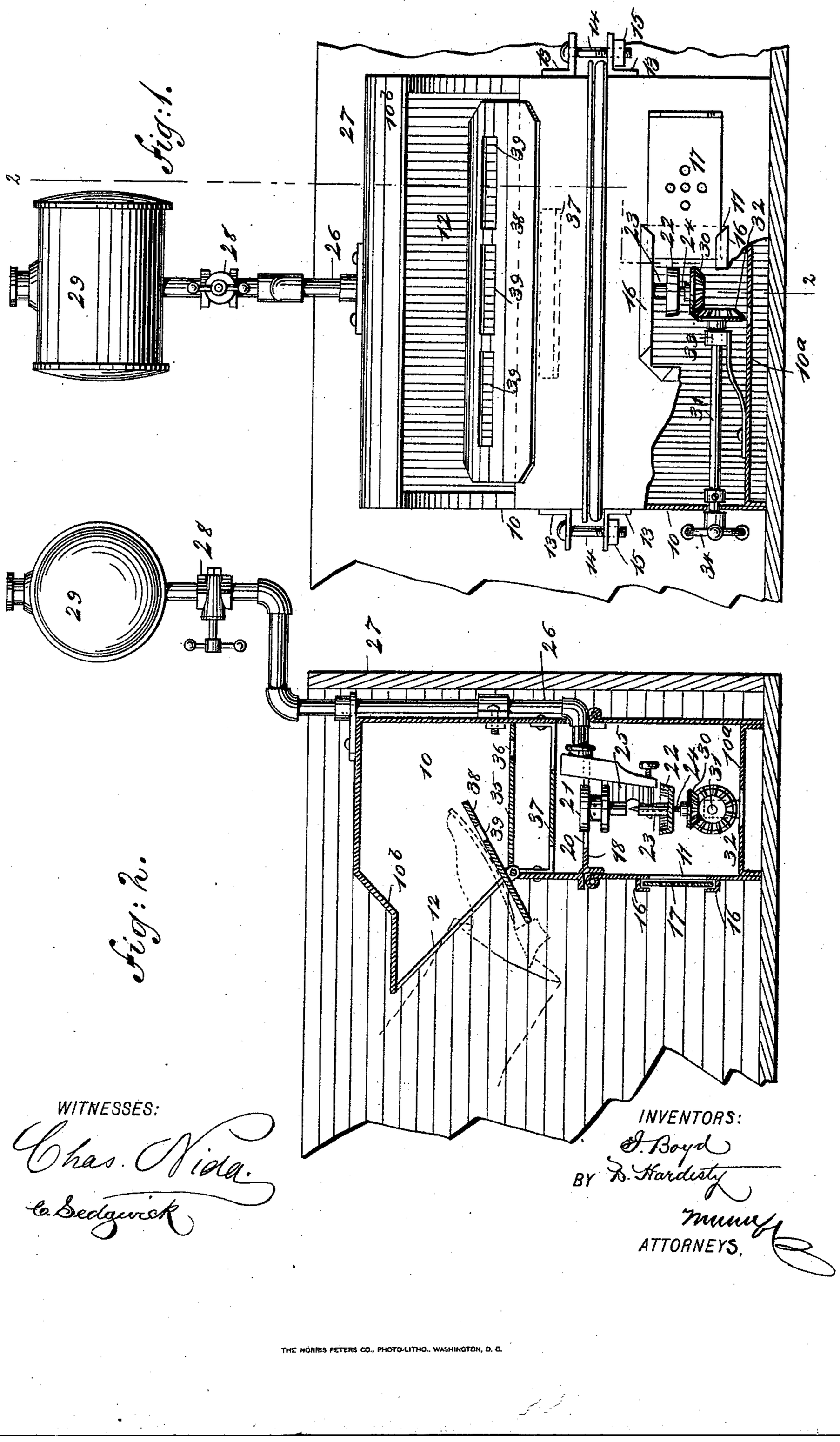

Fig: 1.

Fig: 2.

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PORTABLE FOOT-WARMER.

SPECIFICATION forming part of Letters Patent No. 525,252, dated August 28, 1894.

Application filed December 29, 1893. Serial No. 495,106. (No model.)

To all whom it may concern:

Be it known that we, ISHAM BOYD and BENJAMIN HARDESTY, both of Eminence, in the county of Henry and State of Kentucky, have invented a new and useful Improved Portable Foot-Warmer, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in foot-warmers of a class adapted for use in vehicles and other exposed places, the objects being, to provide a novel, simple, convenient and inexpensive portable foot-warming device, which is also adapted for cooking, or heating previously cooked food, either within a building, or in the open air.

To these ends, our invention consists in the construction and combination of parts, as is hereinafter described and claimed.

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

Figure 1 is a partly sectional front view of the improved foot-warmer, and a transverse sectional view of a vehicle body in part wherein the device is located; and Fig. 2 is a longitudinal sectional view of the improvement, and a longitudinal sectional view of the front portion of a vehicle body, on the line 2—2 in Fig. 1.

The improved foot-warmer comprises a light sheet metal case 10, that is substantially rectangular in form, and has two rectangular apertures 11, 12, formed in its front wall. Preferably the case 10, is divided into two sections to facilitate the introduction of parts, said sections being joined together on a horizontal line by the perforated ears 13, that project oppositely in pairs from the sides of the case sections and bolts 14, which engage the ears and have nuts 15, on their threaded ends that by adjustment serve to clamp the sections together, and as indicated in Fig. 2 the upper section slightly enters the lower section and has a lateral flange that rests on the top edge of the lower section. The aperture 11, is formed in the lower case section, at a point near the transverse center of its front wall, and along its upper and lower edges has the flanges 16, formed or secured, these being bent toward each other so as to produce grooves for the sliding introduction and movement of the rectangular door 17, that is perforated to afford air passages as shown in Fig. 1. The lower section of the case 10, is closed by a bottom wall 10^a.

The lower horizontal wall 18, of the upper case section, is apertured at a nearly central point as shown at 20, in Fig. 1, for the free introduction therein of the upper portion of the vapor burner body 21.

The vapor burner used to produce heat within the case 10, comprises a body 21, before mentioned, wherein the gaseous vapor is evolved, that escapes in a series of lateral jets through a number of fine perforations in the cylindrical wall of said body, between two spaced peripheral flanges, the upper flange serving to deflect the jets which impinge it, so that they will be spread over a greater area after they enter the upper section of the case 10. The lower portion of the vapor burner consists of a flash cap 22, and a feeding device for the vaporizing fluid used to produce heat. The device mentioned is in the form of a vertical valve shell 23, that projects from the center of the flash cup 22, toward the center of the burner body 21. The shell 23, is axially perforated and finely threaded therein to receive a cylindrical externally threaded needle valve 24, the conical upper end of which is adapted to graduate the dimensions of a small escape passage at the top of the valve shell, as is usual in this class of burners.

A firm connection is established between the burner body 21 and valve shell 23, by the hollow bracket arm 25, that is attached to each part named, and affords a passage for vaporizable fluid from a source of supply to the valve shell, said arm being upwardly extended to have a threaded engagement produced between it and the laterally bent lower end portion of the feed pipe 26, that is upwardly extended after passing out through a perforation in the rear wall of the upper section of the case 10, to which said feed pipe is secured by clamps.

On the upper end of the feed pipe 26, which is high enough to reach to the top of a vehicle body such as 27, a lateral projection is given to the pipe to locate its outer end in front of the dash-board or front end of the vehicle body, and on said outer end an up-

right extension piece of the feed pipe is attached, having a valve 28 introduced in it.

A fluid tank 29, is affixed upon the top of the feed pipe 26, which tank may be of any preferred form, its capacity being proportioned to the requirements of the warming device, so that it will contain sufficient fluid for supplying the burner for several hours' use.

For convenience in adjusting the needle valve 24, to regulate the action of the vapor burner, a bevel pinion 30 is secured on the lower end of said valve which projects below the flash-cup 22, and on the inner end of a horizontal shaft 31, that extends out through the side of the lower section of the case 10, a mating bevel pinion 32, is affixed which is in mesh with the pinion 30. The shaft 31 is loosely journaled in the side wall of the case 10, and near its inner end has a rotatable engagement with a spring-mounted journal box 33.

On the outer end of the shaft 31, a transverse handle or wheel 34, is secured, affording means for the convenient rotation of the shaft and consequent adjustment of the needle valve 24, to regulate the flow of fluid to the burner.

The front wall of the upper section of the case 10, which is apertured at 12 as before mentioned, has a hood-like projection 10^b of the top wall of the case and its sides, as shown in Fig. 2; and at the lower edge of the opening 12, a horizontal wall or diaphragm plate 35, is secured to the case, which plate is perforated in series at 36, for the free escape of heat from the lower part of the case.

Between the lower wall 18, of the upper section of the case 10, and the diaphragm plate 35, a deflector plate 37, is secured by flanges on it, to the front and rear walls of the case, and this plate having a sufficient area, lies above and near the top of the burner body 21, for the impinge of flame jets that are projected upwardly from the burner, the heat from said jets being thus diffused over the lower surface of the diaphragm plate 35, which in turn radiates heat within the case above said plate.

Along the lower front edge of the aperture 12, a foot-rest plate 38, is pivotally secured near its center of width, so that the foot-rest plate may be rocked to lie level on the plate 35, or be inclined by foot pressure as indicated in Fig. 2, slots or other perforations 39, being formed in the foot-rest plate near its inner edge.

If the device is to be used in a vehicle for warming the feet of the occupants, the case 10, is located near the front wall or dasher of the vehicle, which latter may be a wheeled conveyance, or a sleigh.

The lighting of the burner is effected by warming it with burning vapor fluid introduced within the flash-cup 22, in the usual way. Afterward the escape of vapor from the burner in ignited jets, serves to heat up the upper part of the case 10, so that the feet and lower limbs of the user of the device will be kept comfortably warm during a journey in cold weather.

It will be evident that aside from its preferred use as a foot warmer in a vehicle, the improvement may be utilized for keeping warm the hands and feet of a person sitting in a barn, or out of doors while performing work in exposed situations, it being specially available as a foot and hand warmer for farmers, dairymen, quarrymen and fishermen. It is also available as a convenient temporary stove either in-doors or outside as occasion may require, to cook a meal, or warm victuals for a lunch, and for numerous other uses that it is unnecessary to specify.

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

1. In a foot warmer, the combination with a case, apertured in front, a perforated diaphragm plate in said case and a rocking foot plate pivoted at the lower front edge of the aperture, of a heating device arranged below said perforated diaphragm plate, substantially as described.

2. In a foot warmer the combination with a case apertured at the front in two places, a door to cover the lower aperture, a perforated diaphragm plate in the upper part of the case, and a rocking foot plate pivoted at the lower front edge of the upper aperture and perforated near its inner edge of a heating device arranged to throw heat on the lower side of the diaphragm plate, substantially as described.

3. In a foot warmer, the combination with a case comprising two sections one above the other, the upper section having a wide aperture in its front, an aperture in the front of the lower section, a door for said lower aperture, a hood on the upper section above the upper aperture, a perforated diaphragm plate within the upper section and an apertured lower wall for said upper section, of a heating device located in said lower section, the upper portion of which extends into the apertured bottom wall of the upper section, a deflector plate in the upper section located between the bottom wall and the diaphragm plate, and a rocking foot plate above the diaphragm plate, the said foot plate being pivoted at the lower front edge of the upper aperture, substantially as described.

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