F. BEATTY.

SMOOTHING IRON.

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1,227,736. Patented May 29, 1917.

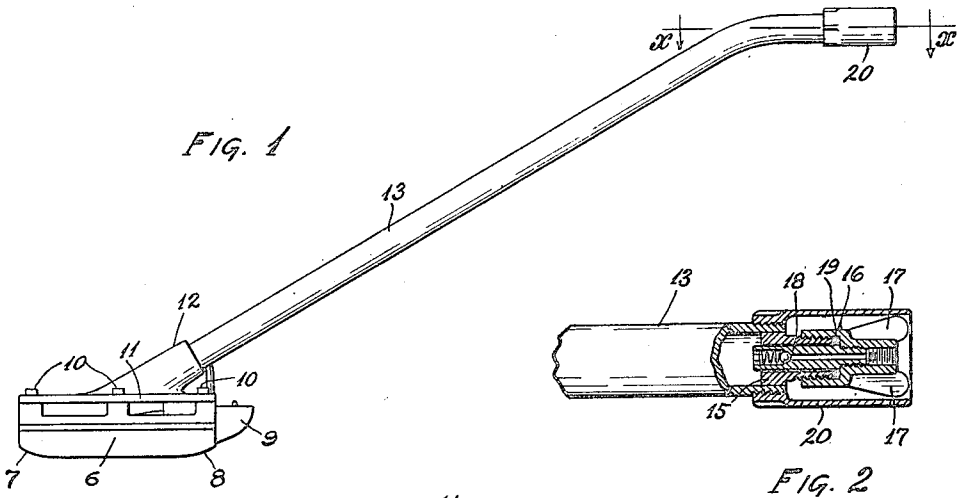


FIG. 1

FIG. 2

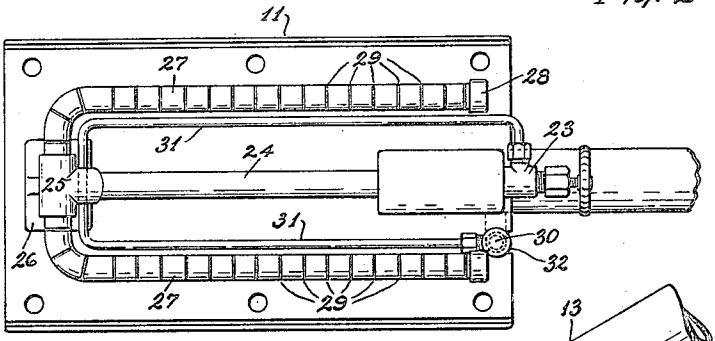


FIG. 3

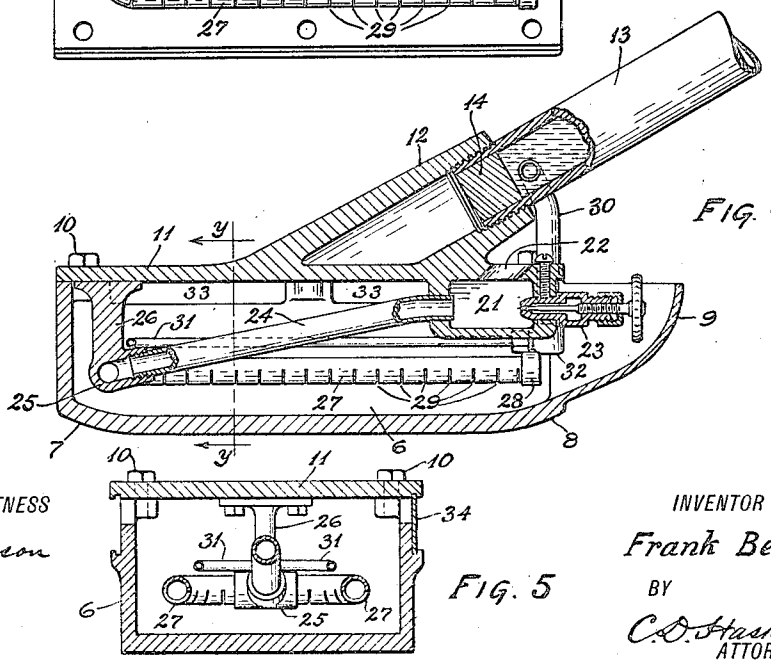


FIG. 4

FIG. 5

WITNESS

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SMOOTHING-IRON.

1,227,736. Specification of Letters Patent. Patented May 29, 1917.

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To all whom it may concern:

Be it known that I, FRANK BEATTY, citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented a certain new and useful Improvement in Smoothing-Irons, of which the following is a specification.

My invention relates to improvements in smoothing irons of that class which is employed in the operation of smoothing the asphaltum surface of street pavements, and the object of my invention is to provide a smoothing iron which shall embody a container for fluid fuel, and a fluid fuel burner together with devices for regulating the operation of said burner, whereby said smoothing iron may be maintained at such temperature as may be required to soften the asphaltum surface of a pavement during the well known operation of smoothing such surface.

I accomplish this object by devices illustrated in the accompanying drawings wherein Figure 1 is a view in side elevation of a smoothing iron embodying my invention; Fig. 2 is an enlarged view in horizontal section on broken line x, x of Fig. 1 showing minor parts of the same; Fig. 3 is an enlarged view of the under side of associated interior parts of the structure of Fig. 1, the inclosing box-like portion, whose bottom surface constitutes the ironing surface of said structure, being removed; Fig. 4 is an enlarged view in vertical mid-section of the structure of Fig. 1 with its handle broken away; and Fig. 5 is a view of the same on broken line y, y of Fig. 4.

Referring to the drawings, throughout which like reference numerals designate like parts, 6 is an inclosing case of oblong form, the opposite end portions 7 and 8 of whose bottom surface are curved upwardly to adapt such surface to serve as a smoothing iron, the rear end wall of said inclosing case 6 having a portion 9 which is curved upwardly and which extends rearwardly from its vertically disposed portions.

Removably secured to the top edges of the inclosing case 6, by means of screws 10, is a cover 11 to which are attached all of the operative parts of the structure as hereinafter described.

Integral with the top side of the cover 11 is an internally screw-threaded handle-socket 12 which is disposed to extend obliquely upward in a rearward direction and disposed within the screw-threaded portion of said handle-socket 12 is a screw-threaded end of a handle comprising a metal tube 13 that extends obliquely upwardly and rearwardly for a distance to adapt it to be conveniently manipulated; which tube 13 may serve as a container for fluid fuel.

That end of the tube 13 within the handle-socket 12 is tightly closed by a plug 14 while the other end thereof, as shown in Fig. 2, is provided with a bushing 15 disposed to fit tightly and be secured therein; said bushing 15 having an outwardly projecting portion that is provided with an external screw-thread.

Screwed on to the screw-threaded portion of said bushing 15 is a sleeve 16 that is provided with thumb-wings 17 whereby said sleeve 16 may be conveniently screwed on to and unscrewed from said bushing 15.

The sleeve 16 is provided with a concentrically disposed screw-threaded hole of smaller diameter than the internal diameter of the bushing 15 and within the inner end portion of said smaller screw-threaded hole is screwed the end of a check-valve 18, of well known form, while the outer end portion of said smaller screw-threaded hole is adapted to receive a screw-threaded nipple of a hose (not shown) that may be connected, at required times, to a source of compressed air.

Between the outer end surface of the bushing 15 and a shoulder formed in the sleeve 16 there is disposed a gasket 19 of flexible material, whereby may be sealed the joint between said sleeve and said bushing 15.

The sleeve 16 and its associated parts are surrounded by a projecting tube 20 which is screwed on to the adjacent end of the tube 13.

As thus arranged the tube 13 may serve as a container for fluid fuel, as mineral oil, gasolene and the like, which fluid fuel may be introduced into said tube 13 by removing the sleeve 16 with its attached check-valve 18 and after a sufficient quantity of fluid fuel is disposed within said tube 13 to partly fill it then the sleeve 16 may be screwed tightly into its place whereupon the nipple of a hose leading from a source of compressed air may be connected with the outer end of said sleeve 16 which compressed air may then force its way into the tube 13

through the check-valve 18, in an obvious manner, to fill the space above the fluid fuel within said tube 13 with highly compressed air which will be confined by the check-valve 18 when said nipple and hose is removed.

On the underside of the cover 11 in the rear portion thereof there is disposed to project downwardly into the upper portion of the space within the inclosing case 6, integral walls of a pocket 21 and extending through said cover 11 is a passageway 22 for air.

The rearward end of the cover 11 is adjacent to the vertical portion of the rear end wall of the inclosing case 6 whereby the upwardly curved and outwardly projecting portion 9 is uncovered, and fixed in the rearward wall of the pocket 21 to extend therethrough is a manually controllable needle-valve 23 which may be adjusted by inserting one's thumb and finger down into the uncovered opening formed by the outwardly projecting portion 9 of the rear wall of said inclosing case 6.

Disposed to extend through the forward end wall of said pocket 21 at a point directly opposite the outlet end of the needle-valve 23 is the end of a pipe 24 which extends forwardly to connect with a T fitting 25 which is secured by an integral bracket 26 to the forward end portion of the underside of the cover 11, and connected to each of the oppositely disposed other ends of said T fitting 25 is a burner tip, as burner tips 27, comprising a pipe which is bent to turn from the T fitting 25 to extend rearwardly and parallel with the side walls of the inclosing case 11, the rearward end of each of said burner tips 27 being closed with a cap, as caps 28, and each of said burner tips 27 is provided with a plurality of apertures, as apertures 29, through the underside of its wall, through which apertures 29 fluid fuel may be emitted to burn with a downwardly directed flame that may impinge against the bottom wall of the inclosing case 11 to heat such bottom wall.

Fluid fuel is conducted from the lower end portion of the tube 13 into the valve chamber of the needle-valve 23 by means of a conduit comprising a pipe 30 in connection with a smaller pipe 31, said pipe 30 being disposed to extend downwardly from the lower end portion of the tube 13 through the cover 11 into the space within the inclosing case 6 where it is connected by an elbow 32 with the smaller pipe 31 which extends forwardly to the front end portion of the space within the inclosing case 6, thence transversely thereof, thence rearwardly to the rearward end thereof, thence to connect with said valve chamber; in which position said pipe 31 will be subjected to the radiant heat of the flames of the burner tips 27 to heat the fuel fluid as it flows through said pipe 31 to the needle-valve 23.

The top edge portion of each of the opposite side walls of the inclosing case 6 is cut away between adjacent ones of the screws 10 to provide air passageways 33 through which air may enter the inclosing case 6 for purpose of combustion; and in order to regulate the flow of such air through said passageways 33 I have provided a slidably adjustable shutter, as shutter 34, removably disposed on each of the outer sides of the opposite side walls of said inclosing case 6, as more clearly indicated in Fig. 5.

The operation of my smoothing iron may be described as follows: The needle-valve 23, being closed, then the sleeve 16, with its attached check-valve 18, is removed and fluid fuel, as gasolene, is poured into the tube 13 until it is half or three quarters full; then said sleeve 16 with its check-valve 18 is replaced to screw tightly against the gasket 19; then the nipple of a hose leading from a supply of highly compressed air is screwed into the outer end of the sleeve 16 whereby compressed air may enter the tube 13 to fill the space above the fluid fuel therein with such highly compressed air after which the hose with its nipple is removed.

The tube 13 now being charged with fluid fuel under great pressure the needle-valve 23 is slightly opened to admit fluid fuel into the pocket 21 to rise therein until it flows through the pipe 24 into the burner tips 27 to be emitted therefrom through the apertures 29 to fall on to the bottom of the inclosing case 6 and thereupon the needle-valve 23 is closed and the fluid fuel in the bottom portion of said inclosing case 6 is ignited to cause its flame to heat the tube 31 and the associated parts of the structure and after such parts are heated by the burning of such fluid fuel then the needle-valve 23 is opened to admit a continuous flow of such fluid fuel into the pocket 21 in the form of a fine jet or spray which will be directed into the pipe 24 drawing with it air through the passageway 22 to mix therewith, which mixture will pass into the burner tips 27 to be emitted from the apertures 29 in the form of gas or vapor to form a flame that will be directed downwardly against the bottom of the inclosing case while the radiant heat of such flame will keep the tube 31 and its associated parts at such heat as will cause the fluid fuel therein to be emitted from the needle-valve 23 in the form of vapor.

After the inclosing case 6 is heated to a required degree then the tube 13, serving as a handle, may be manipulated to move the structure with the bottom surface of its inclosing case 6 in contact with the surface of an asphalt pavement to be smoothed.

Obviously, changes may be made in the forms, dimensions and arrangement of parts

of my invention without departing from the spirit thereof.

What I claim is:

1. A smoothing iron which embodies an inclosing case that is provided with a surface that is adapted to engage with a surface that is to be smoothed; a metal cover removably secured in a position to cover the top of said inclosing case; a pocket whose walls are integral with the under side of said cover and disposed to project downwardly into the space within said inclosing case; a passageway for air disposed to extend through said cover into said pocket; a burner tip secured to the under side of said cover; a pipe disposed to connect the interior of said pocket with said burner tip; a valve secured in a position to project its delivery end through a wall of said pocket; a hollow handle one end of which is attached to the top of said cover so that it may project obliquely upward therefrom, said handle being of tubular form and adapted to contain fluid fuel and air under pressure; a tube disposed to conduct fluid fuel from the interior of the lower portion of said handle into said valve; a bushing secured in the other end of said handle; and a check-valve removably secured in said bushing, the inlet end of said check-valve being adapted to be connected with a nipple of a hose through which compressed air may be forced to enter said handle through said check-valve.

2. A smoothing iron including a case, a cover removably secured in position on said case, a mixing chamber formed integral with the under side of said cover and adapted to project downwardly into the space within said case, an air conduit disposed to extend through said cover into said mixing chamber, a burner tip secured to the under side of said cover, a pipe extending between the mixing chamber and said burner tip, a needle valve carried by the mixing chamber, a hollow handle connected to said cover, said handle adapted to contain fluid fuel and compressed air, means forming communication between the handle and valve, and a check valve removably secured in the handle, the inlet end of said check valve being adapted to be connected with a nipple of a hose from which compressed air may be forced to enter said handle through said check valve.

In witness whereof, I, hereunto subscribe my name this 9th day of February A. D., 1916.

FRANK BEATTY.

Witnesses:
FRANK WARREN,
O. JOHNSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."