

Jan. 23, 1923.

1,443,036

I. PANZA.
FOOT SUPPORTER AND HEATER.
FILED AUG. 23, 1921.

2 SHEETS-SHEET 1

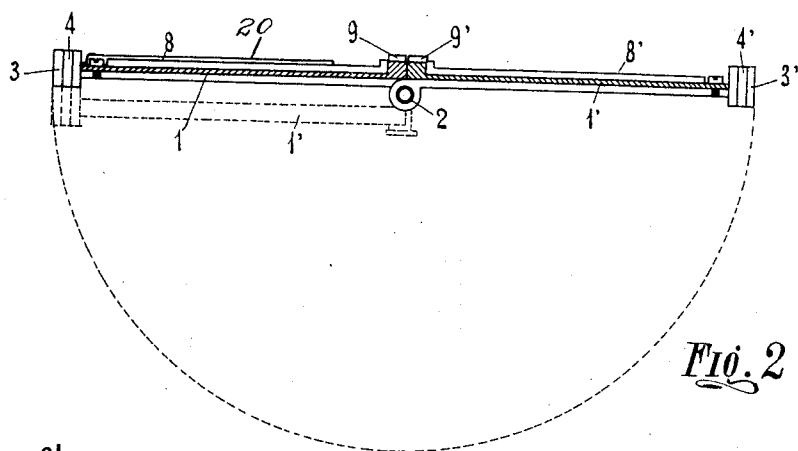


Fig. 2

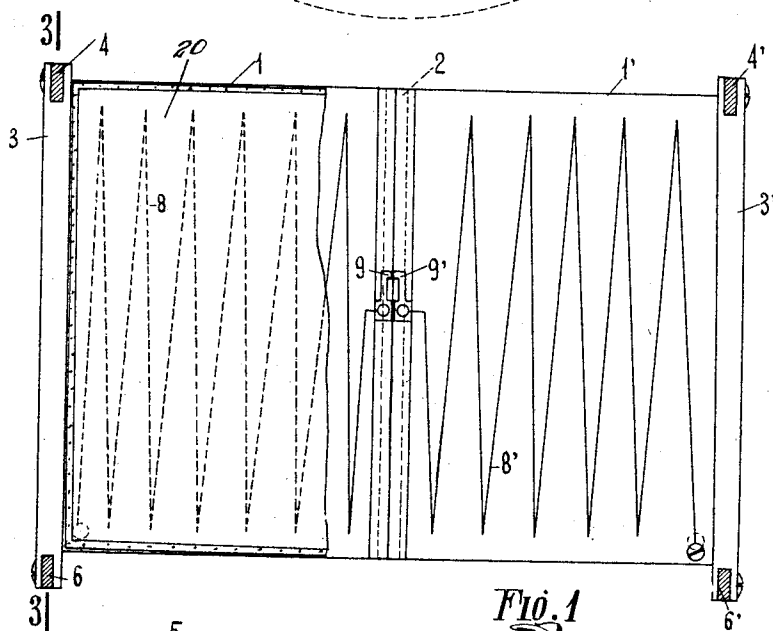


Fig. 1

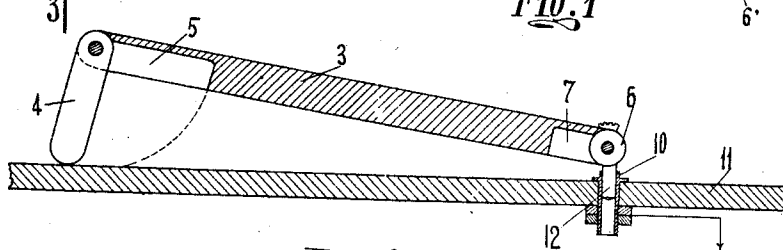


Fig. 3

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2 SHEETS-SHEET 2

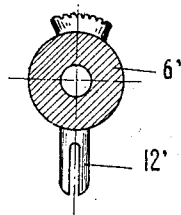


Fig. 5

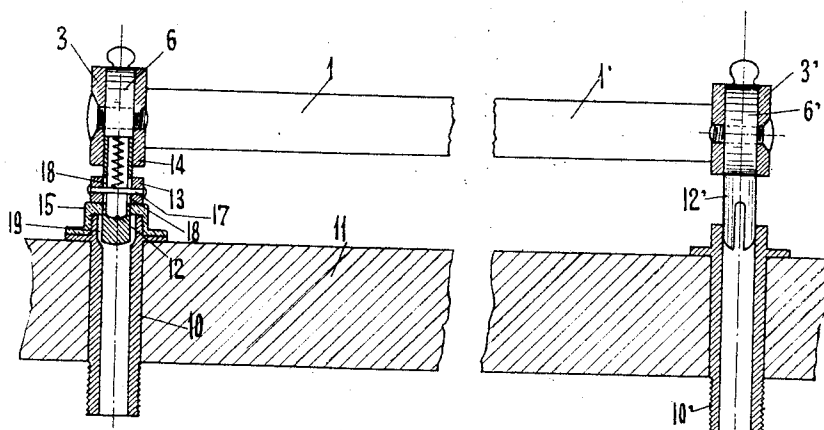


Fig. 4

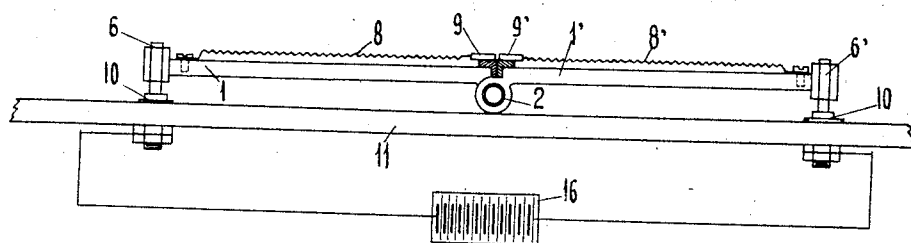


Fig. 6

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UNITED STATES PATENT OFFICE.

INNOCENTE PANZA, OF TURIN, ITALY.

FOOT SUPPORTER AND HEATER.

Application filed August 23, 1921. Serial No. 494,572.

To all whom it may concern:

Be it known that I, INNOCENTE PANZA, subject of the King of Italy, and resident of Turin, Italy, have invented certain new and useful Improvements in Foot Supporters and Heaters, of which the following is a specification.

The present invention relates to the foot supporters and heaters for use in vehicles, in which the heating is obtained by means of electric resistances, and has for its object a construction of said heaters comprising a folding frame which may be easily carried in and out of operative position.

This invention comprises also means for closing the electric circuit feeding said heating resistances when a traveller places his feet on the heater, and for cutting off the same circuit as soon as the foot pressure is removed from the heater, for the purpose of heating the apparatus only when this is required.

Other features and advantages of this invention appear from the following specification and appended claims.

The annexed drawings show by way of example an embodiment of foot heater and supporter according to this invention, and Figure 1 is a plan view of the device in open position; Figure 2 is the edge or side view; Figure 3 is a section, made on a line 3-3 of Figure 1, showing the device in position ready for use; Figure 4 shows at an enlarged scale the plugs for the insertion of the device in an electric circuit; Figure 5 is a fragmentary sectional view showing in detail one of said plugs, and Figure 6 shows a complete diagram of the circuit.

As shown by Figures 1, 2 and 3, the foot heater and supporter comprises two frame sections 1 and 1', preferably made of insulating material which are pivoted to each other along their adjacent sides by means of a pin or pivot 2, while each section is provided at the opposite side with a bar 3, 3' respectively.

At one end of each of said bars 3, 3' are pivoted supporters 4, 4' respectively, adapted to be swung into recess 5 provided in the ends of said bars 3, 3'; on the opposite ends of said bars are pivoted the heads 6, 6' which are provided with plugs 12, 12' adapted to enter the feeding sockets located on the vehicle floor as hereinafter described.

Each bar 3, 3' may be provided with a recess 7 near its end carrying said heads

6, 6' and plugs 12, 12' for the purpose of accommodating these parts when the heater is removed from the car and is folded out of operative position.

Each frame section 1, 1' carries a suitable electric resistance as 8, 8', each having one end connected to the respective head 6, 6' and the other end connected to contact pieces 9, 9' respectively. These contact pieces are secured on the adjacent edges of the frame sections 1, 1', and they contact with each other when the device is in open position, as shown by Figures 1, 2 and 6. Said frame sections are preferably wrapped with fabric, felt or the like to protect the resistances 8, 8', provisions being made for securing the contact of the pieces 9, 9'. Said fabric wrapper is shown by 20 in Figure 1, it being assumed to be partly broken off for leaving in view the underlying parts.

For using the device, the two frame sections 1, 1' are carried into alignment with each other as shown by Figures 1, 2 and 6; the contact pieces 9, 9' are thus in contact with each other and the circuit of the resistances 8, 8' is closed from one head 6 to the other one 6'. Then the supports 4 and the heads 6, 6' are carried in their positions shown by Figure 3 and the plugs 12, 12' are inserted into the sockets 10, 10' secured to the car floor 11 and connected to the terminals of a battery 16. The device is thus in operation.

When the heater is to be put out of operation, the operator removes the plugs 12, 12' from the sockets 10, 10', thus cutting off the battery circuit and leaving the device free from any connection with the car floor, and then he swings the supports 4, 4' into the recesses 5 and the heads 6, 6' into the recesses 7 and finally he folds the two frame sections by a rotation around the pivot 2, the entire device being thus carried to take a very reduced space.

This invention provides also an arrangement for avoiding the useless current consumption which could take place in case the heater would be forgotten in operative position with its plugs 12, 12' engaged in the sockets 10, 10'.

Said arrangement consists in the provision of an automatic switch which operates to close the circuit only when a pressure is exerted on the heater; therefore when the traveller has its feet on the heater, the resistance is connected to the battery circuit

and on the contrary said circuit and the current consumption are cut off as far as the traveller removes his feet from the heater.

In the annexed drawing the Figure 4 shows an embodiment of such an automatic switch. As shown in said figure, the plug 12 solid with the head 6 is hollow and encloses a spring 14 which abuts against said head 6 and against a pin 17 travelling through slots 18 provided in the walls of the plug 12; said pin 17 is solid with a ring 13 which is thereby free to slide along the plug 12.

The socket 10 has an enlarged mouth 19 having larger size than the registering end of the plug 12, and is covered by an insulating cap 15 having a central hole for the passage of the plug 12.

Assuming that the device has been opened and properly located as hereinbefore described with regard to the sockets 10, 10', when no pressure acts on the heater frame 1, 1', the position of the parts is that shown by Figure 4, that is the plug 12' is engaged and contacts with its associate socket 10', and the plug 12 is held removed from its socket 10 by the spring 14 which bears on the ring 13 bearing in turn on the insulating cap 15. The circuit is thus held open, but when a pressure, as the foot weight, acts on the frame 1, 1', the spring 14 is collapsed, the plug 12 is caused to enter the mouth 19 and to contact with the socket 10, and thus the circuit feeding the resistances 8, 8' is closed. When the pressure is removed from the frame 1, 1', the spring 14 acts to lift the plug 12 and the several parts are restored into the position of Figure 4.

The construction of the automatic switch may be modified in a large number of ways which are all within the ranges of this invention. Say the spring contact member may be mounted in one of the stationary sockets instead of in one of the plugs carried by the frame or an automatic or spring switch of any proper kind may be arranged on the frame section or on the car floor, or finally in the socket 10 for the purpose of closing the circuit feeding the heating resistances when the device is depressed and of cutting off said feeding circuit when the device is released.

What I claim as my invention and desire to secure by United States Letters Patent is:

1. A foot supporter and heater comprising a support, electric resistances on said support, and means for removably connecting said resistances with the terminals of a supply of current, these means comprising cooperating contact pieces connected with said resistances and supply of current respectively, and means for holding said pieces in open circuit position, the last named means being put out of operation to close

the circuit when a pressure is exerted on said support.

2. A foot supporter and heater comprising a support, electric resistances on said support and means for removably connecting said resistances with the terminals of a supply of current, these means comprising stationary pieces connected with said terminals, parts carried by said support and connected with said resistances, said pieces and parts removably engaging with each other, an extension on one of said parts adapted to engage one of said pieces, an insulating lining on this piece, a member mounted to slide on said extension and a spring between the extension carrying part and said sliding member to resiliently hold said part and member separate from each other and to allow their contact when the said support is depressed.

3. A foot supporter and heater comprising members connected to each other, electric resistances on said members and means for removably connecting the ends of said resistances to the terminals of a supply of current, these means including pieces connected with said terminals, parts carried by said members and connected to said resistances, said pieces and parts removably engaging with each other, an extension on one of said parts adapted to engage one of said pieces, an insulating lining on this piece, a member mounted to slide on said extension, and a spring between the extension carrying part and said sliding member.

4. A foot supporter and heater comprising sections pivoted to each other along their adjacent edges, electric resistances on each of said sections, means for connecting the ends of said resistances at said adjacent edges, and means for removably connecting the ends of said resistances to a supply of current, these means including parts which hold the resistance circuit closed when the heater is depressed and cut off said circuit when no pressure acts on the heater.

5. A foot supporter and heater comprising sections of insulating material pivoted to each other along their adjacent edges, electric resistances on each of said sections, means for connecting the ends of said resistances at said adjacent edges, and means for removably connecting the ends of said resistances to a supply of current, these means including parts which hold the resistance circuit closed when the heater is depressed and cut off said circuit when no pressure acts on the heater.

6. A foot supporter and heater comprising sections pivoted to each other along their adjacent edges, side bars at the opposite edges of said sections, supports pivoted to said side bars, electric resistances on each of said sections means for connecting the ends of said resistances at said ad-

jacent edges, and means pivoted to these side bars for removably connecting the ends of said resistances to a supply of current.

7. A foot supporter and heater comprising sections pivoted to each other along their adjacent edges, side bars at the opposite edges of said sections, supports pivoted to said side bars, electric resistances on each of said sections means for connecting the ends of said resistances at said ad-

jacent edges, and means pivoted to these side bars for removably connecting the ends of said resistances to a supply of current, these means including parts which hold the resistance circuit closed when the heater is depressed and cut off said circuit when no pressure acts on the heater.

Signed at Turin, Italy, this 3 day of August, A. D. 1921.

INNOCENTE PANZA.