Aug. 18, 1925. 1,550,524

I. EREMEEFF

HEATING DEVICE

Filed March 9, 1922 2 Sheets-Sheet 1

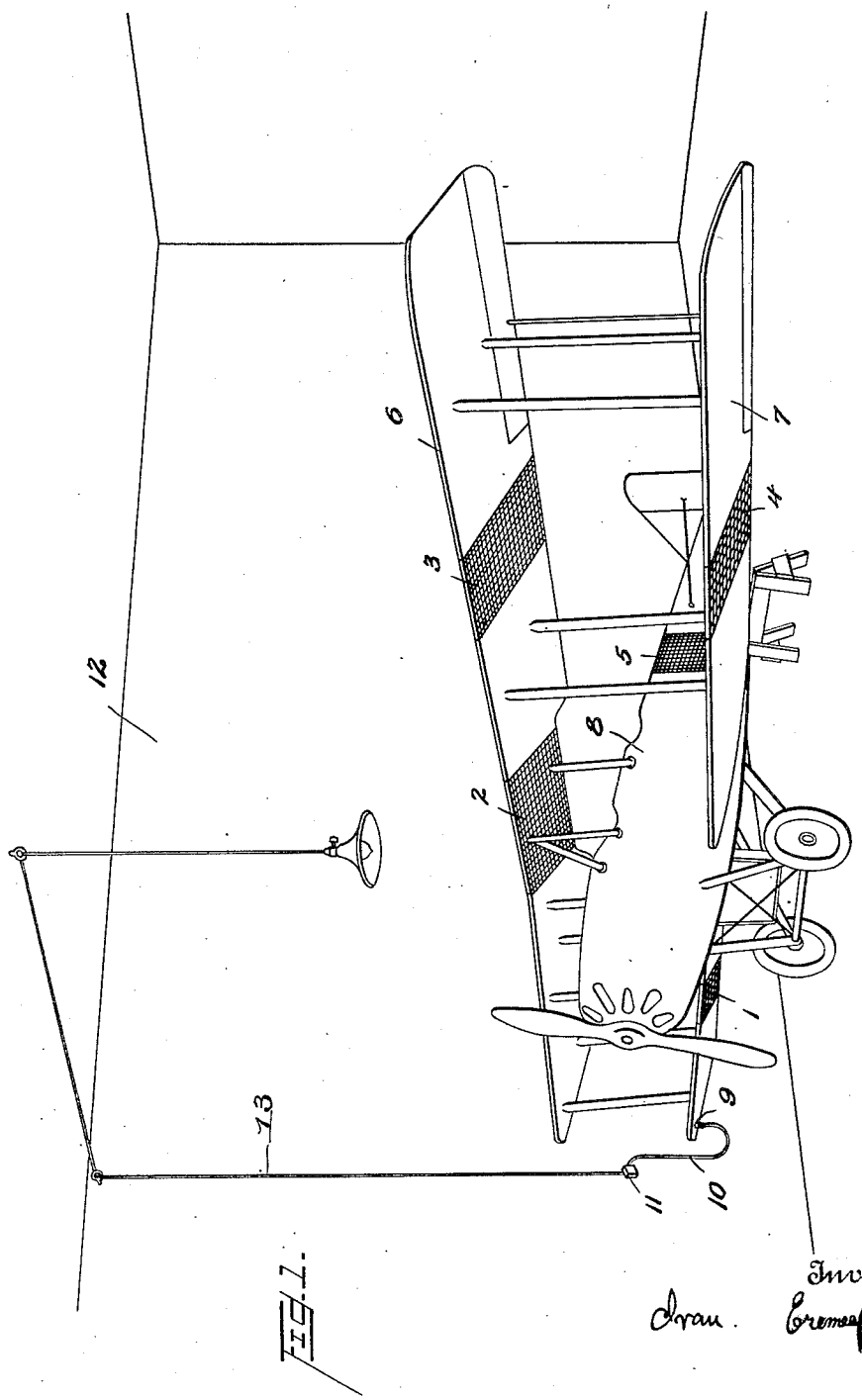


FIG. 1.

Inventor
Ivan. Eremeeff

By Robert H. Young Attorney

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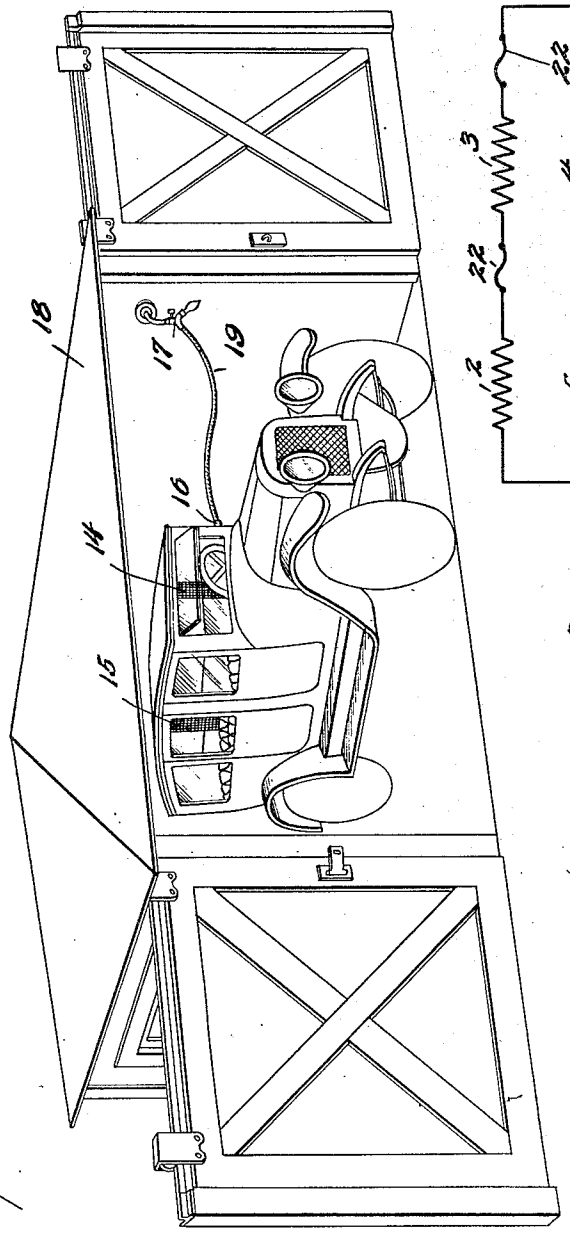


FIG. 2.

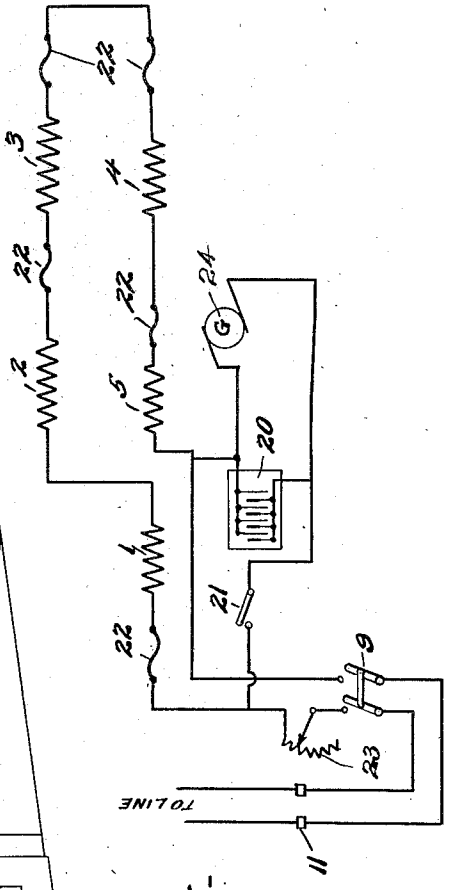


FIG. 3.

Inventor
Ivan Eremeeff

By Robert H. Young Attorney

Patented Aug. 18, 1925. 1,550,524

UNITED STATES PATENT OFFICE.

IVAN EREMEEFF, OF DAYTON, OHIO.

HEATING DEVICE.

Application filed March 9, 1922. Serial No. 542,436.

To all whom it may concern:

Be it known that I, IVAN EREMEEFF, a citizen of Russia, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Heating Devices, of which the following is a specification.

My invention relates to a means or system for maintaining airplanes, automobiles and the like at a substantially even, warm temperature when they are placed in unheated hangars or garages in cold weather and also during the motion or flight of the machine.

It is well known that an internal combustion engine is difficult to start after it has been subjected to and acquired a low temperature and that when the engine is started certain parts of its structure are immediately subjected to very high temperatures and the temperature of other parts is raised quite rapidly. These rapid changes in temperature produce stresses tending to weaken and disrupt the structure.

My invention also aims to heat the aerofoils and fuselage of an airplane and the body of an automobile to prevent deterioriation due to alternate freezing and thawing of moisture in and on these parts.

The invention is described in the following specification in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of an airplane and hangar having my invention applied thereto;

Figure 2 is a perspective view of an automobile and garage having my invention applied thereto; and

Figure 3 is a diagrammatic representation of the electrical connections.

Referring to Fig. 1, the numerals 1, 2, 3, 4, 5 designate resistance units, which are secured or applied to various parts of aerofoils 6 and 7 and also to the fuselage 8. These resistance units are preferably made of fine copper wire and so designed as to maintain a moderate temperature so that there is no danger of fire resulting from the use of the heating units. A plug 9 is carried at the tip of one of the aerofoils and a conductor 10 having suitable connectors at opposite ends is adapted to place the plug 9 into electrical communication with a plug 11 mounted on a wall of the hangar 12. The plug 11 is connected to the feed line 13 and the resistance units are preferably arranged in series and electrically connected to the plug 9. If desired the entire aerofoils may be covered with these electric heating units instead of arranging them at spaced intervals. In this case the resistance units are preferably embedded in the covering of the aerofoil.

In Fig. 2, the invention is illustrated as applied to an automobile of the sedan type. The resistance units 14, 15 are inserted as panels in the body of the vehicle and are connected in series to a plug 16 mounted near the front of the machine. This plug 16 is adapted to be connected to a socket of an ordinary lighting fixture 17, attached to the wall of a garage 18, by a conductor 19.

In case it is desired to utilize the heating elements when the automobile or airplane is in motion or flight we have shown in Fig. 3 connections whereby a suitable battery 20 carried in the car or fuselage may be electrically connected to the resistance units by closing a switch 21, the plug 9 having been disconnected when the machine was taken out of the garage or hangar.

The resistance units placed within or serving as a part of the covering of the aerofoils do not increase the wing resistance materially. When the machine is in a hangar or garage and it is desired to energize the heating units, the conductors 10 or 19 are connected to their respective plugs 9 and 16. The electrical resistance of the units will generate heat which will be conveyed to other parts of the structure. If it is desired to heat the aerofoils and fuselage during the flight the switch 21 may be closed and the heat generated by the resistance units will prevent the accumulation of ice or snow on the airplane. The same action is produced in the automobile by closing a like switch.

In order to prevent excessive heating, suitable fuses 22 or thermostatically controlled switches are placed adjacent to the heating coils so that variations in temperature above a certain maximum will result in the breaking of the circuit at these points. When thermostatically controlled switches are used a reduction from the maximum temperature will result in the automatic closing of them. A rheostat 23 or other

suitable device may be used for controlling the current supplied to the heating units. The battery 20 is charged by a generator 24 driven by the engine of the airplane or automobile.

It will be understood that the particular construction shown and described has been chosen for illustrative purposes merely and that the invention as defined by the claims hereunto appended, may be otherwise embodied and applied without departing from the spirit and scope thereof.

I claim:

1. A heating system for use in connection with motor propelled vehicles comprising, in combination, an electric circuit, electrical heating units forming part of the structure of the vehicle and arranged in series in said circuit, an exterior and an interior source of current, means for detachably connecting said exterior source of current to said heating units when the vehicle is at rest, and a switch for connecting said interior source of current to said heating units when the vehicle is in motion.

2. A heating system for use in connection with motor vehicles comprising, in combination, an electric circuit, spaced electrical heating units connected in series and arranged within the streamlines of the aerofoils and fuselage of the airplane, a source of current, and means for detachably connecting said source of current to the heating units.

3. A heating system for use in connection with motor vehicles comprising, in combination, an electric circuit, spaced electrical heating units connected in series and arranged within the streamlines of the aerofoils and fuselage of the airplane, a source of current and means for regulating the maximum temperature to be attained by said heating units.

In testimony whereof I affix my signature.

IVAN EREMEEFF.