

April 8, 1924.

M. W. SWANSON

ELECTRIC HEATER

Filed Aug. 18, 1921

1,489,719

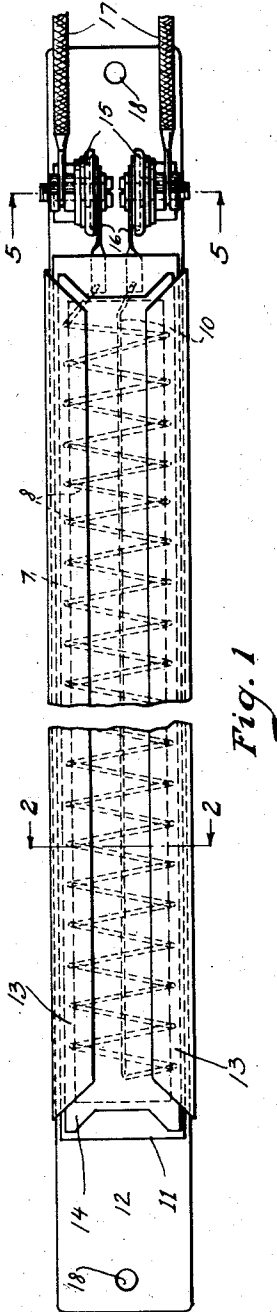


Fig. 1

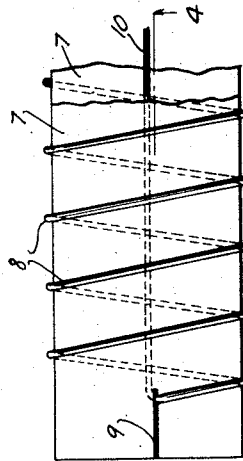


Fig. 3

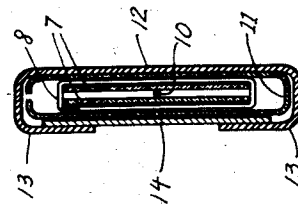


Fig. 2

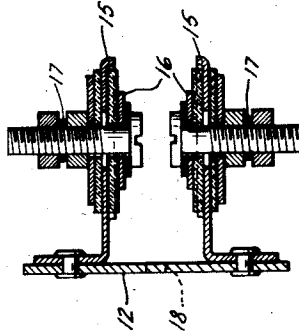


Fig. 5



Fig. 4

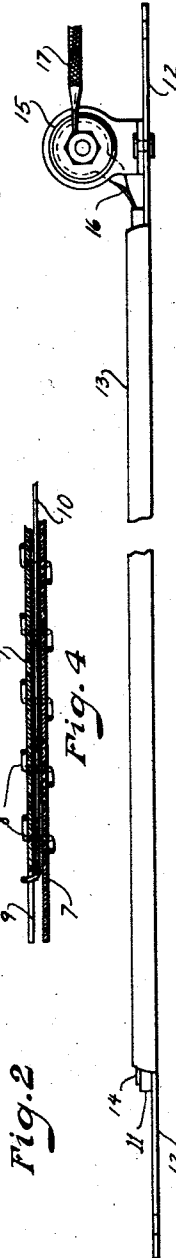


Fig. 6

Witnesses:

*Mrs. Schnellhardt*  
*B. G. Richards*

*Inventor*  
*Martin W. Swanson*  
*By Joshua R. H. Both*  
*His Attorney*

## UNITED STATES PATENT OFFICE.

MARTIN W. SWANSON, OF CHICAGO, ILLINOIS.

## ELECTRIC HEATER.

Application filed August 18, 1921. Serial No. 493,420.

To all whom it may concern:

Be it known that I, MARTIN W. SWANSON, a former subject of the King of Great Britain, who has forsworn his allegiance to said King and declared his intention of becoming a citizen of the United States, and is therefore not now a citizen or subject of any country, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Electric Heaters, of which the following is a specification.

My invention relates to improvements in electric heaters, and has for its object the provision of a simple and efficient construction of this character especially adapted for use in narrow or restricted places.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Fig. 1 is a partial plan view of an electric heater embodying the invention;

Fig. 2, an enlarged transverse section taken on line 2—2 of Fig. 1;

Fig. 3, an enlarged partial plan view of a heating member employed in the construction;

Fig. 4, a section taken on line 4—4 of Fig. 3;

Fig. 5, an enlarged section taken on line 5—5 of Fig. 1; and

Fig. 6, a side view corresponding with Fig. 1.

The preferred form of construction as illustrated in the drawings comprises two sheets or strips 7 of insulating and heat resisting material arranged adjacent each other and bound together by a resistance wire 8 coiled or wrapped around the same. One of the sheets 7 is provided at one end with a central slit 9 and one end 10 of the wire 8 is passed through said slit and brought back between the sheets 7 to a position adjacent the other end of said wire.

The heating member thus formed is enclosed and protected in another sheet 11 of insulating and heat resisting material folded thereover and is then enclosed in a sheet metal casing. This casing comprises a strip 12 of sheet metal having upwardly turned

side flanges 13 securing another strip 14 over the heating member as shown. Binding posts 15 are arranged at the same end and on the same side of strip 12, said binding posts being connected by clips 16 with the adjacent ends of the heating wire 8. The binding posts 15 are arranged to engage the usual feed wires 17 and whereby electric current is supplied to the wire 8. Suitable holes 18 are provided in the ends of the strip 12 for convenience in hanging up the same when not in use.

By this arrangement a very simple and compact electric heater is provided which is durable and efficient in use. By arranging the binding posts 15 at the same end and at the same side of the heater the other end and the main body of the heater may be inserted into very narrow and restricted openings or spaces such as the openings or spaces in a radiator of an automobile or the like.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of the construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

An electric heater comprising a casing consisting of opposed strips of metal, one of said strips having side flanges bent over the other; a heating member enclosed within said casing, said heating member comprising two adjacent sheets of insulating material and a heating element wrapped around said sheets, one end of said heating element being brought back between said sheets; binding posts secured to the same end and the same side of one of said metallic strips; and connections between said binding posts and the ends of said heating element, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARTIN W. SWANSON.

Witnesses:

FREDA C. APPLETON,  
JOSHUA R. H. POTTS.