

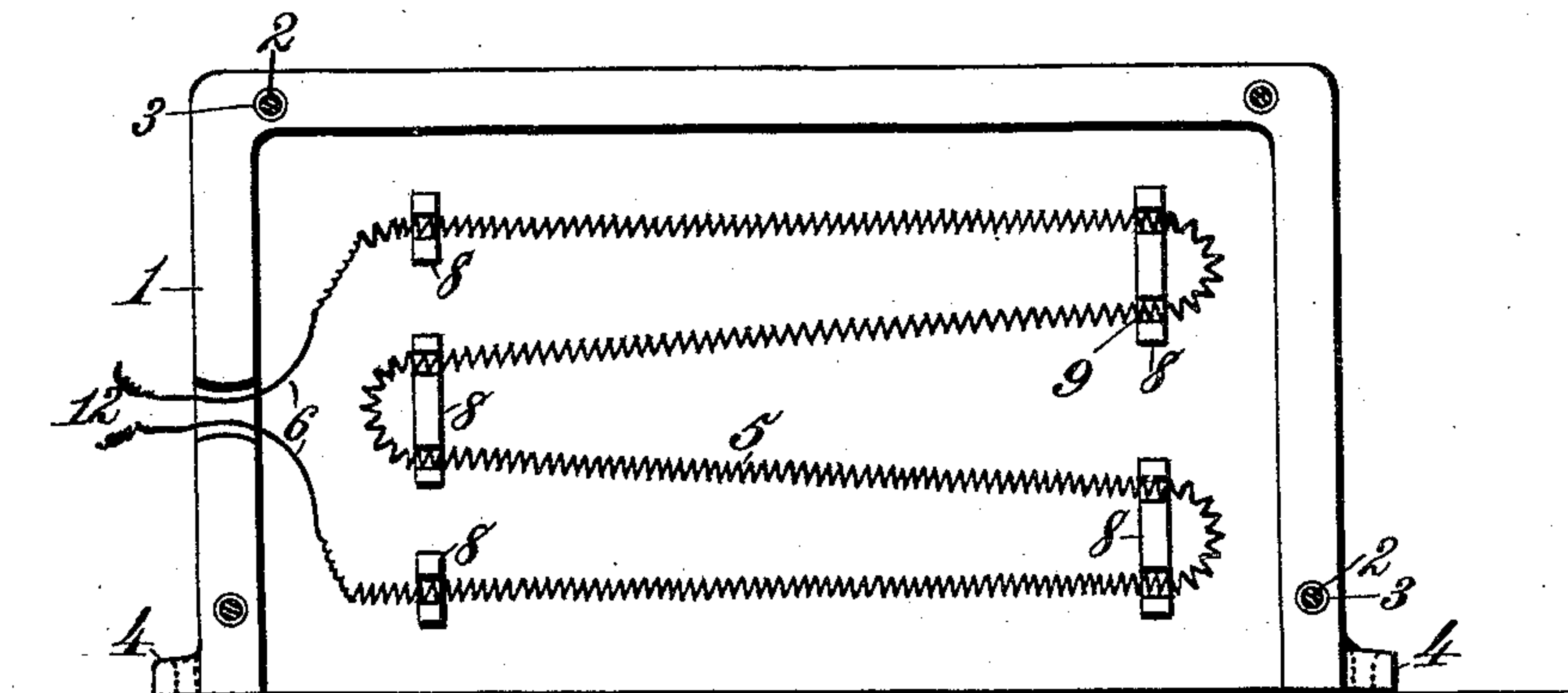
(No Model.)

C. H. NEWBURY.  
ELECTRIC HEATER.

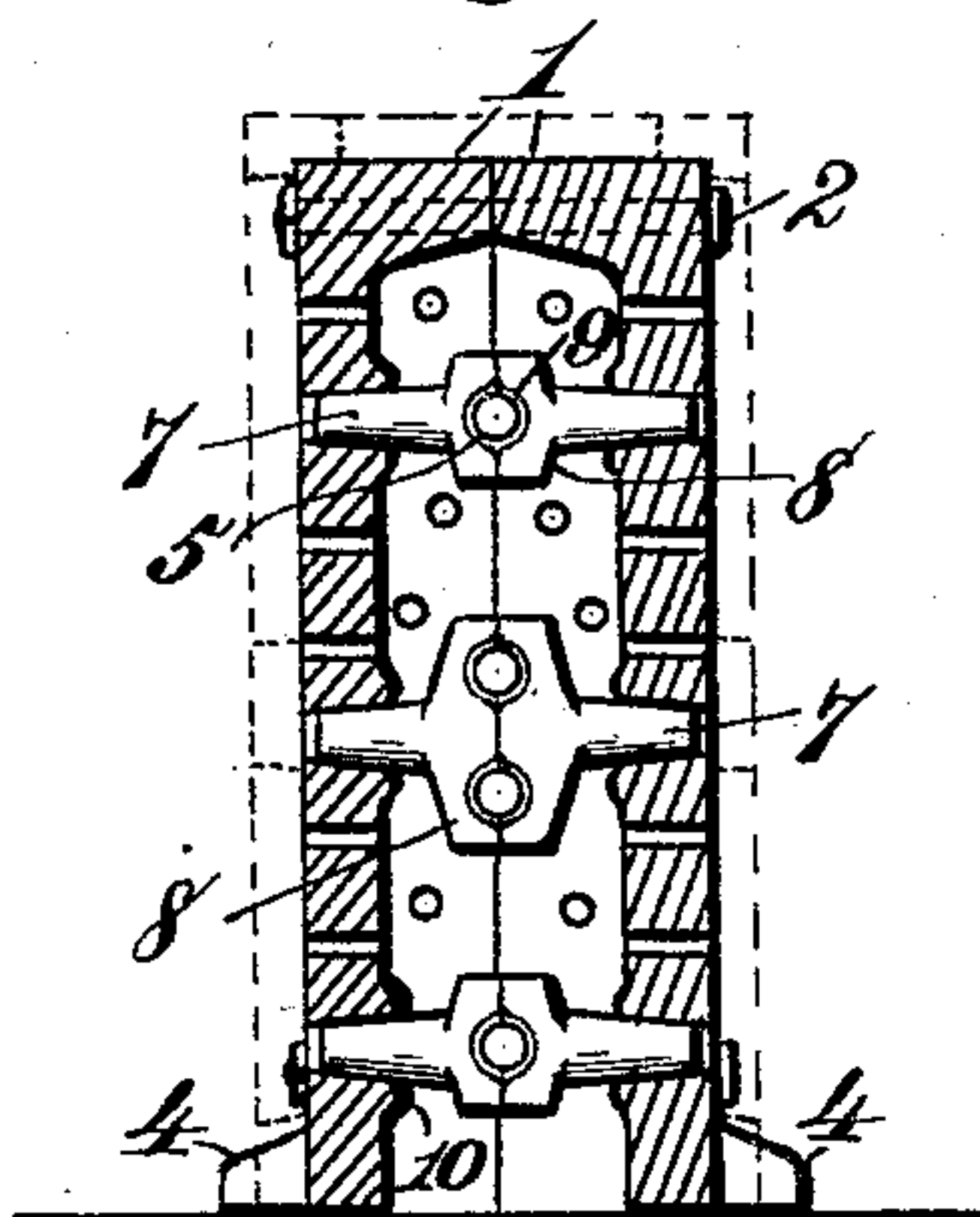
No. 524,646.

Patented Aug. 14, 1894.

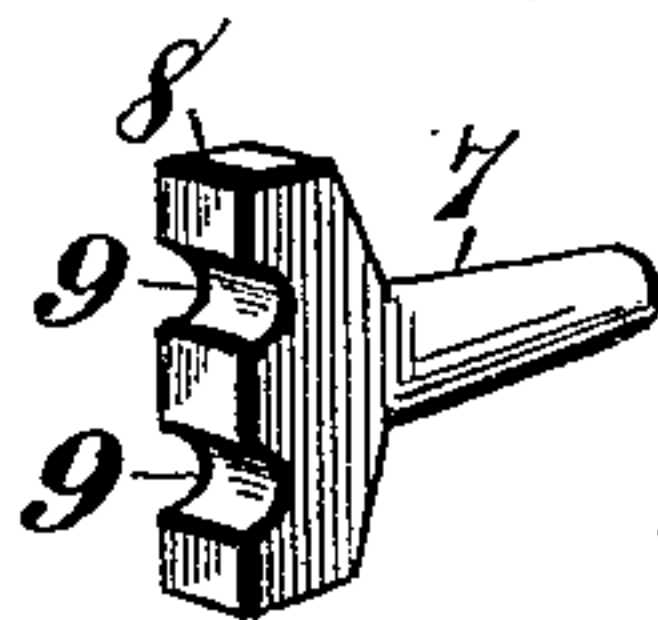
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses.*  
*Robert G. Pratt,*  
*Thos. A. Green*

*Inventor.*  
*Charles H. Newbury.*  
*By James L. Norris,*  
*Atty.*

# UNITED STATES PATENT OFFICE.

CHARLES H. NEWBURY, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-HALF  
TO JOHN J. BORUM, OF SAME PLACE.

## ELECTRIC HEATER.

SPECIFICATION forming part of Letters Patent No. 524,646, dated August 14, 1894.

Application filed April 19, 1894. Serial No. 508,150. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. NEWBURY, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented new and useful Improvements in Electric Heaters, of which the following is a specification.

My invention relates to electrical heating apparatus the purpose thereof being to provide a simple, novel and economical mechanism in, or by means of which, radiant heat may be generated by the incandescence of one or more filaments, or wires.

The special object of my present invention is to provide simple and novel means for supporting and insulating the incandescing filament, or wire, arranged within the casing of the heater, to simplify the construction and reduce the cost of the supporting devices, and to enable the wire to be positively secured thereby without twisting, or bending the same.

My invention consists, therefore, in the novel features of construction and new combinations of parts hereinafter fully described and then more particularly pointed out and defined in the claims.

For the purposes of the following description I will refer to the accompanying drawings, in which—

Figure 1 is a plan view showing one of the parts composing the shell, or casing, of the heater. Fig. 2 is a transverse section of the same. Fig. 3 is a detail view showing the construction of one of the glass plugs used in sustaining the incandescing wires, or filaments, within the casing.

The reference-numeral 1 in said drawings indicates the shell, or casing, of the heater, which is preferably formed in two parts, each constructed of any suitable material, such as metal, glass, or both combined, or wood, or vulcanized rubber, suitably lined. Each part is of greater length than width, and is concavo-convex, in cross section, its depth being comparatively shallow. The two parts are united with their concave faces adjacent, and are fastened together in any preferred manner, bolts or rivets being preferred, in order that access may be had to the interior. A convenient form of fastening is to employ tie-bolts 2, which are passed through openings 3.

Suitable perforations may also be provided for the admission of fastenings by which the casings may be secured in position, as, for example, beneath the seats.

When the casing is made of glass, a frame of iron, or other metal, is used in which the glass is supported, the latter being usually provided with openings, or perforations, which allow the heated air to escape from the interior of the casing. Should the latter be constructed of iron instead of glass, these perforations will be unnecessary. In either case, I prefer to leave the bottom of the casing open, in order that access may be had to the interior without taking the casing apart. When the heater is in use, the open side, or bottom, rests upon, or very near, the floor of the car, which practically closes the opening. Small foot-supports 4 are provided to sustain the casing, and to serve as fastenings for the same, each being provided with an opening to receive a screw which is driven into the wood of the floor, or other structure, on which the casing may be mounted.

Within the shell, or casing 1 is arranged a wire, or filament 5, of suitable material such as platinum, carbon, or other material offering such a degree of resistance to the passage of the current as to produce and maintain incandescence. This filament is preferably arranged in the form of a double loop within the casing, bearing a general resemblance to the letter U, the terminals 6 being led to a cut-off, switch, or safety-fuse, the precise construction of these parts forming no part of my invention. Within the casing are arranged plugs, for the support of the incandescing filament. These plugs consist of short, straight bars 7, having cross-heads 8, of suitable dimensions, provided with half-round notches, or seats 9, formed in the straight edges of the cross-heads. The ends of the bars 7 are inserted in apertures in the opposite parts of the casing, nipples, or shoulders 10, being provided in the interior to aid in supporting the plugs without play. The size of the latter is such that their edges in which the half-round notches 9 are formed coincide, substantially, with the abutting edges of the two parts of the casing. The plugs are mounted in both these parts and are arranged opposite each



other, so that when the two halves of the casing are united the notched edges of the plugs will be brought into juxtaposition and the half-round notches 9 in one plug register with those in the opposite plug, forming round, or nearly round, openings in which the wire or filament 5 is confined. When the casing is formed of glass, the plugs may be made of iron, or other metal, as they will be insulated by being mounted in the thick glass of the casing. When the latter is constructed, either wholly or in part, of iron, or other metal having conductivity, the plugs will be made of glass, and if preferred they may be of glass in all cases.

I have already stated that the parts composing the casing are concavo-convex, in cross-section, or substantially so, but they may be rectangular, if preferred.

The wires 12, which connect with the terminals of the filaments 5 are heavily insulated and arranged where none but the proper persons can have access to them. A switch of ordinary form is arranged at one end of the car where it can be readily operated to open or close the circuit, as required.

What I claim is—

1. A support for the incandescing filament of an electric heater, composed of two simi-

lar parts, each consisting of a bar having a cross-head the edge of which is provided with half round seats adapted to register with those in the other similar part to form substantially circular openings for said filaments, and perforated supports adapted to receive and hold said parts in juxtaposition, substantially as described.

2. A shell or casing for an electric heater formed in two similar parts, a double filament arranged between said parts, its terminals emerging at one end of the casing, glass plugs consisting of bars having cross-heads and arranged within the casings, the edges of the cross-heads being provided with half-round seats for the wire, and the plugs in one part of the casing being arranged opposite those in the other part, whereby the notched edges are brought into juxtaposition and the half-round notches caused to register and form round openings for the filament, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

CHARLES H. NEWBURY. [L. S.]

Witnesses:

J. W. PINCH,

H. W. ADAMS.