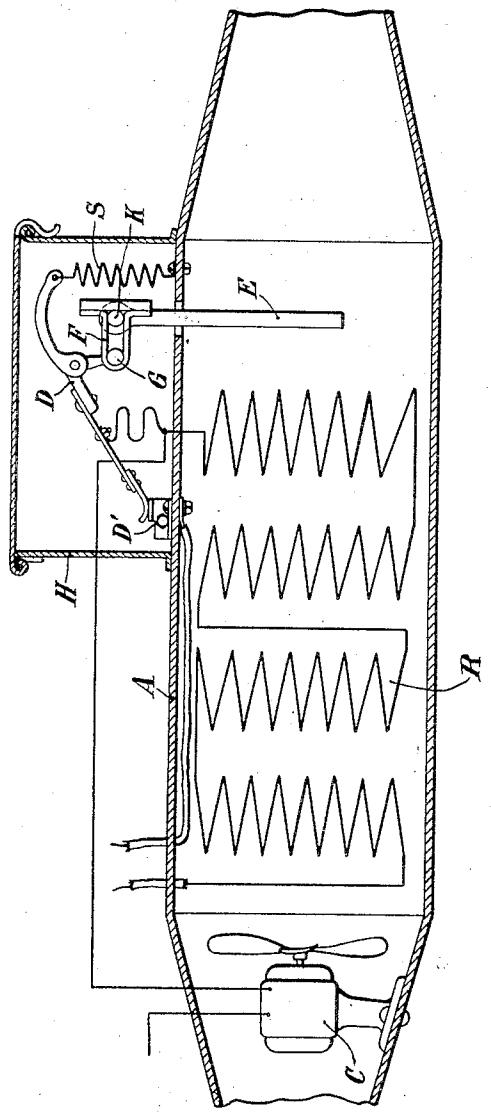
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OVERLOAD SWITCH FOR BLAST HEATERS

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OVERLOAD SWITCH FOR BLAST HEATERS

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5 Claims. (Cl. 200—142)

For a detailed description of the present form of my invention, reference may be had to the following specification and to the accompanying drawing forming a part thereof.

My device relates to a switch placed in the circuit of an electric heater and adapted to be opened automatically in the event of an excess of heat in the compartment containing the heater. While there have been devised various plans for accomplishing this object, they have usually been too complicated for practical service. It has been difficult in particular to have a device outside of the casing which contains the heater that will respond accurately to the heat conditions inside of said casing. So that it has been necessary to make an allowance in the setting of the cut off for that conditional difference. The setting thus becomes, to a degree, guesswork, and uncertain action has resulted. The cut off is further complicated by devices for causing it to re-set itself after it has once acted. My device has proved both accurate and simple.

In the accompanying drawing A represents a box or casing containing electric heaters, R, and C represents an electric blower that drives air through the casing, which air passes over the heaters R and emerges at the opposite end. In the event of a failure of the fan, it is evident that the heat, which would normally be carried off by the air blast, will remain in the casing and accumulate therein to a dangerous extent.

I place either in the casing A, or in a separate casing H, outside of casing A, as shown by dotted lines, a switch D in the heater circuit, provided with a spring S tensioned to open the switch. This switch D is normally held in position, against the tension of spring S, to close the heater circuit by contact with the terminal D^1. The switch is held in that position against the force of the spring by a fusible link F, encircling a stud K. The temperature of the link F is kept precisely the same as that existing in the casing A by means of a copper rod E extending from stud K to the heaters R. No guessing as to the setting of the switch is required, as has been the case heretofore. When that temperature exceeds a specified degree the fuse F will melt and free the switch lever D which is immediately actuated by the spring S to break the contact of said lever with D^1 and thereby open the heater circuit. The heater circuit then remains open until the fuse F is replaced after the abnormal condition that caused the excess temperature has been remedied. This device is extremely simple and effective.

What I claim as new and desire to secure by Letters Patent is:

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1. In an overload switch, supporting means, a switch blade pivotally supported thereby, a spring normally acting to move said blade, a member of thermally conductive material supported independently of the switch blade, a fusible member normally connecting the switch blade and one end of the thermally conductive member in such manner as to normally hold the switch blade against movement under the tension of said spring, said thermally conductive member being constructed and arranged to conduct heat to said link.

2. In an overload switch, a pivotally supported switch blade having its ends free, a spring connected with one of said free ends and tending to move the blade in one direction, a member of thermally conductive material supported independently of the switch blade and having a lug thereon, a lug extending from said switch blade, and a fusible member normally connecting said lugs in such manner as to hold the switch blade against movement under the tension of said spring, said thermally conductive member being constructed and arranged to directly conduct heat to said fusible member.

3. In an overload switch, a casing, a thermally conductive member having one end located within the casing and its other end projected through a wall of the casing to the exterior thereof, a switch blade pivotally supported within said casing, a spring engaging said switch blade and normally acting to move the blade in one direction, and a fusible member connecting the inner end of said thermally conductive member and the switch blade in such manner as to hold the blade against movement under the tension of said spring, said thermally conductive member being constructed and arranged to directly conduct heat to said link.

4. In an overload switch, a pivotally supported switch blade, a spring normally acting to move said blade in one direction, said spring being connected with one end of the blade, the other end of the blade being free, a member of thermally conductive material supported independently of the blade but adjacent thereto, and a fusible link connecting one end of said thermally conductive member to an intermediate portion of said blade in such manner as to normally hold the blade against movement under the tension of said spring, said thermally conductive member being

constructed and arranged to directly conduct heat to said link.

5. In an overload switch, a casing, a thermally conductive member having one end located within the casing and the other end projected through the wall of the casing to the exterior thereof, a lug carried by the inner end of said thermally conductive member, a switch blade pivotally mounted within said casing and also provided with a lug, a spring connected with one end of said switch blade in such manner as to normally tend to move the blade in one direction, and a fusible link connecting said lug in such manner as to normally hold the blade against movement under the tension of said spring, said thermally conductive member being constructed and arranged to conduct heat from the exterior of the casing to said fusible link.

WILLIAM W. KUNZ.