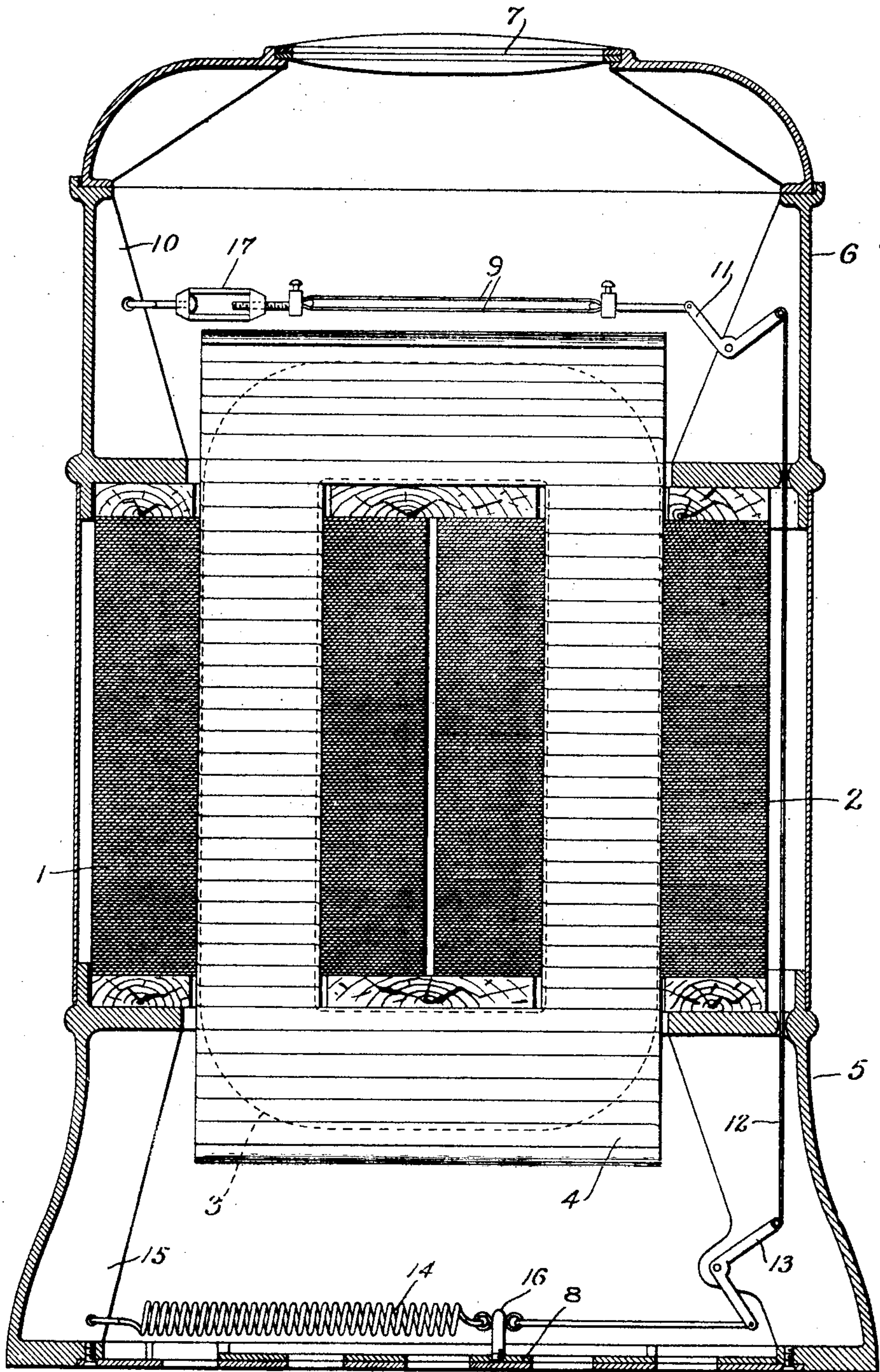


No. 797,868.

PATENTED AUG. 22, 1905.

E. W. RICE, JR.  
TRANSFORMER.

APPLICATION FILED APR. 4, 1904.



WITNESSES:

George A. Thornton,  
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INVENTOR:

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By Alvin S. Owen  
Att'y.

# UNITED STATES PATENT OFFICE.

EDWIN W. RICE, JR., OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## TRANSFORMER.

No. 797,868.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed April 4, 1904. Serial No. 201,531.

*To all whom it may concern:*

Be it known that I, EDWIN W. RICE, Jr., a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Transformers, of which the following is a specification.

My present invention relates to alternating-current transformers, and comprises means for minimizing injury to a transformer by fire produced either by overload, lightning discharges, or the like.

My invention is particularly applicable to transformers of the air-cooled type in which a circulation of air through the transformer is employed for the purpose of keeping the transformer cool. If such a transformer in any of its parts commences to take fire, the forced draft of air through the transformer greatly increases the danger of destruction by fire. To overcome this, I provide automatic means for shutting off the forced draft whenever the interior of the transformer becomes abnormally heated.

The features of novelty of my invention are pointed out with particularity in the appended claims. For a better understanding of the invention itself, however, reference is to be made to the following description, taken in connection with the accompanying drawing, which by way of illustration represents one of the numerous embodiments which my invention may assume in practice.

The drawing shows a well-known form of air-cooled transformer to which I have applied my invention. The core of the transformer is indicated by the two parts 1 and 2. The outline of the coils is indicated in the dotted lines at 3. The coils are surrounded by an insulating-casing 4, open at top and bottom in the ordinary manner. The parts of the transformer are inclosed in a casing consisting of a base 5 and a cap-piece or top 6, provided with an air-discharge opening at 7. The air-inlet through which air is forced into the transformer is controlled by a gridiron-valve 8. When the transformer is placed over an air-duct into which air is forced by a blower or other means, air enters through the openings in the valve 8 and passes up through the parts of the transformer. In case the inflammable parts of the transformer take fire the air-draft would naturally force the flames toward the upper portion of the transformer-

casing. I therefore provide in this region a device operative upon the occurrence of such flames or similar abnormal heating to close the gridiron-valve 8 and shut off the air-supply. Numerous different forms of devices for this purpose may be used, one of which I have represented in the drawing by way of illustration. This device consists of a destructible member 9, which when intact holds the gridiron-valve 8 open and when broken causes the valve to shut. The device may consist of a combustible cord or a plurality of small cords which are separate and easily inflammable and which combined are of considerable tensile strength. One end of the member 9 may be secured to a fixed part 10 of the transformer-casing and the other end to a bell-crank lever 11, one member of which is connected through a flexible rod or strap 12 to another bell-crank lever 13. The latter lever is similarly connected to a spring 14, secured at one end to a fixed portion 15 of the transformer-casing.

The valve 8 is connected by a pin 16 to one end of the spring 14 or to some part movable thereby. A turnbuckle 17 or some other adjusting device may be used, so that when the parts are in normal position, with the spring 14 extended or under tension, the gridiron-valve is in this open position. Upon the destruction of the member 9 the spring 14 instantly contracts and in so doing closes the valve 8 and shuts off the air-supply of the transformer.

I have referred to the destructible member 9 as formed of some combustible material. It is evident, however, that the member may consist of a plurality of strips or wires of some fusible substance, either of metal or of an organic compound. It is also evident that numerous other modifications in the embodiment of my invention may be made without departing from the spirit thereof, for which reason I do not wish to be limited to the details shown and described.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a fluid-cooled electric apparatus, the combination of a fluid-inlet, and means responsive to abnormal heat in the apparatus for closing such inlet.

2. The combination of a fluid-cooled electric apparatus, and means for interrupting the flow of fluid through the apparatus upon

the occurrence of an abnormal temperature in the apparatus.

3. In an air - cooled apparatus, a transformer, an air-inlet valve, a destructible device for holding said valve open, and means for closing said valve in response to the interruption of said device.

In witness whereof I have hereunto set my hand this 2d day of April, 1904.

EDWIN W. RICE, Jr.

Witnesses:

BENJAMIN B. HULL,  
HELEN ORFORD.