No. 777,148. PATENTED DEC. 13, 1904.

A. SCHWEITZER.

MAGNET COIL.

APPLICATION FILED AUG. 9, 1901. RENEWED MAY 18, 1904.

NO MODEL.

Fig. 1.

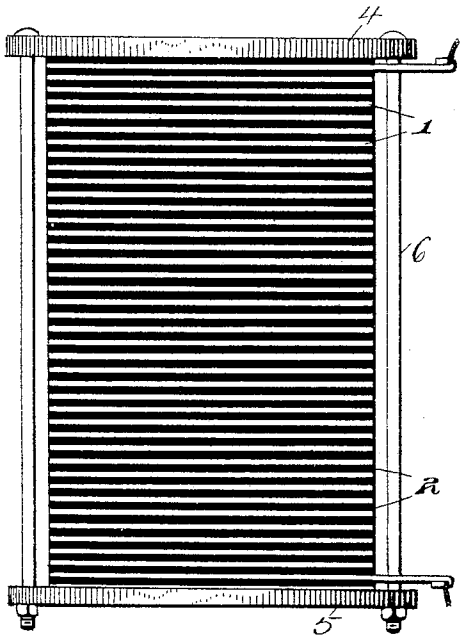


Fig. 2.

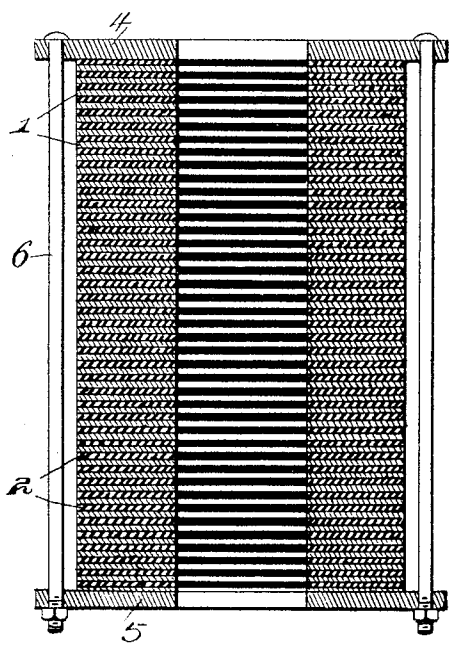


Fig. 3.

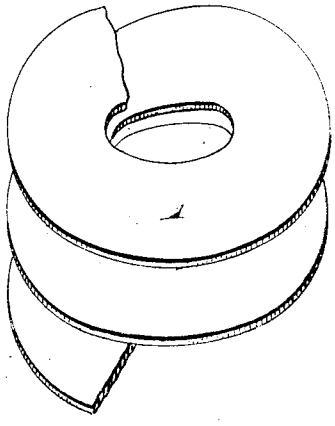
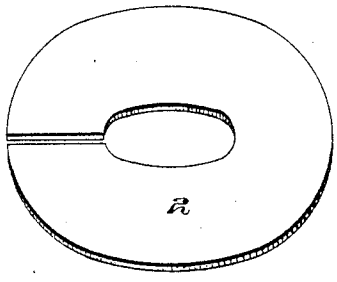


Fig. 4.



Witnesses:
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PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 777,148. Patented December 13, 1904.

UNITED STATES PATENT OFFICE.

ALBERT SCHWEITZER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE KEYSTONE ELECTRIC & MANUFACTURING CO., OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

MAGNET-COIL.

SPECIFICATION forming part of Letters Patent No. 777,148, dated December 13, 1904.

Application filed August 9, 1901. Renewed May 18, 1904. Serial No. 208,562. (No model.)

To all whom it may concern:

Be it known that I, ALBERT SCHWEITZER, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Magnet-Coils, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in electromagnet-coils, such as solenoids and other electromagnets.

The object of my invention is to provide a coil for these purposes which occupies a smaller space than coils as ordinarily wound and which nevertheless has a larger current-carrying capacity and produces less heat and offers less resistance proportionately.

Further objects of my invention are to produce a coil for these purposes which can be insulated in such a manner as to prevent the same from being burned out or short-circuited and which is extremely simple in construction, strong, durable, comparatively inexpensive to manufacture, and highly efficient in use.

With the above and other objects in view the invention consists in a coil having a spiral conductor composed of a flat strip wound edgewise to form a plurality of convolutions the flat faces of which lie in substantially parallel planes and are separated by disks of mica or other suitable insulating material slit in from one edge to the center and arranged between the several convolutions of the coil.

In the accompanying drawings, Figure 1 is a side elevation of an electric magnet in the form of a solenoid constructed according to my invention. Fig. 2 is a vertical sectional view thereof. Fig. 3 is a perspective view of a portion of the conductor, and Fig. 4 is a similar view of one of the insulating-disks.

The conductor of the coil is shown at 1 and comprises a flat piece or strip of metal, such as copper or other conductor of electricity. This strip is wound or coiled edgewise into spiral shape to form a coil the convolutions of which have flat faces which lie in substantially parallel planes. The coil thus formed has a much larger current-carrying capacity and offers less resistance and produces less heat and also occupies less space than does a coil as ordinarily constructed. The several convolutions of the coil are separated by disks of mica or other suitable insulating material 2, slit in from one edge toward the center, as shown in Fig. 4, and which are interposed between the several convolutions of the coil by slipping the slit in the disk over the convolution of the coil, so that said disks are held in place by their own resiliency.

Suitable means will be provided for holding the coil in shape, and I have shown for this purpose a top plate 4 and a bottom plate 5, between which the coil is arranged, said top and bottom plates being united by means of bolts or rods 6, arranged exteriorly of the coil. This securing means is very simple and can be readily applied or removed from the coil without disturbing the latter and without necessitating any special insulation.

The coil described may be either in the form of a solenoid, as shown, or it may be provided with a metallic core, as is common with ordinary electromagnets. The coil described is particularly applicable for use in arc-lamps; but it is also adapted for use wherever electromagnets of any other form are employed. The manner of insulating the coil prevents the same from burning out or short-circuiting in case of a current of high voltage coming on the line, and the form of conductor has a large current-carrying capacity, thus producing less resistance and heat and relieving the coil from a considerable amount of unnecessary heat.

Various changes may be made in the details of construction without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, an electromagnet comprising a spiral coil composed of a flat strip of conducting material wound edgewise to form a plurality of convolutions the flat faces of which lie in substantially parallel planes, and a series of flat pieces of insulating material slit from their edges toward

their centers and arranged between the convolutions of the coil with their slits embracing the convolutions.

2. As a new article of manufacture, an electromagnet comprising a spiral coil composed of a flat strip of conducting material wound edgewise to form a plurality of convolutions the flat faces of which lie in substantially parallel planes, and a series of annular disks of insulating material slit from their edges toward their centers and arranged between the convolutions of the coil with their slits embracing the convolutions.

3. As a new article of manufacture, an electromagnet comprising a spiral coil composed of a strip of insulating material wound to form a plurality of convolutions, and a series of mica disks slit from their edges toward their centers and arranged between the convolutions of the coil with their slits embracing the convolutions.

In testimony whereof I affix my signature in the presence of two witnesses.

ALBERT SCHWEITZER.

Witnesses:
JOHN NOLAND,
E. E. POTTER.