

No. 798,326.

PATENTED AUG. 29, 1905.

H. E. DUBOIS.  
FIELD COIL PROTECTOR.  
APPLICATION FILED DEC. 23, 1904.

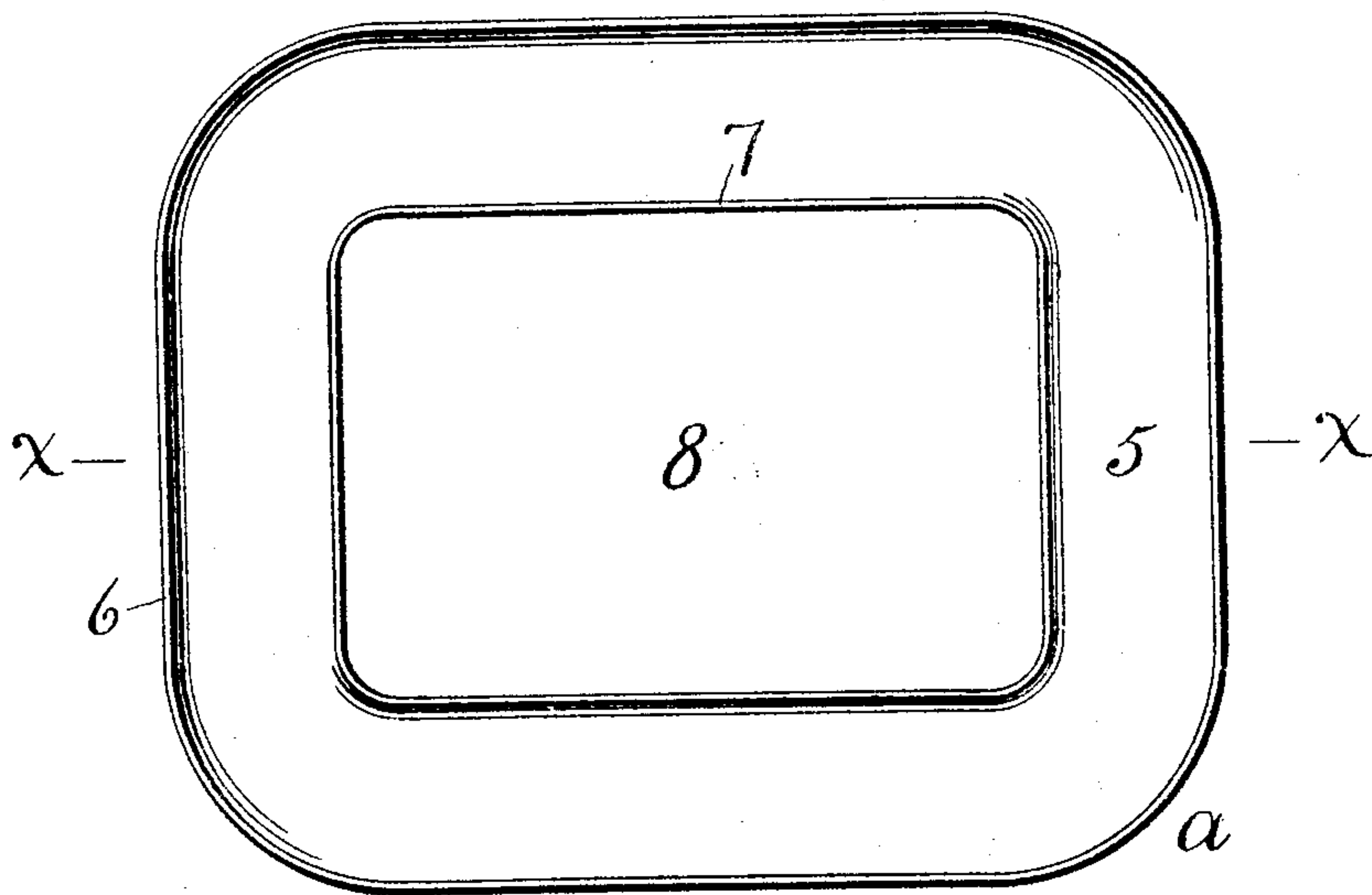


FIG. 1.

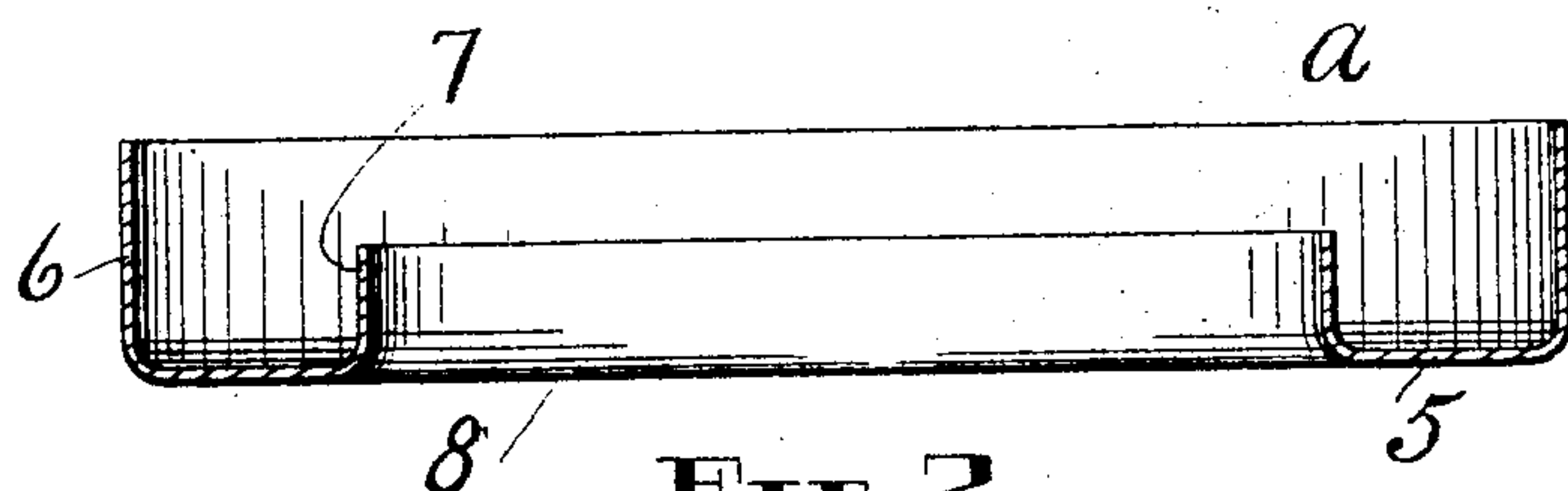


FIG. 2.

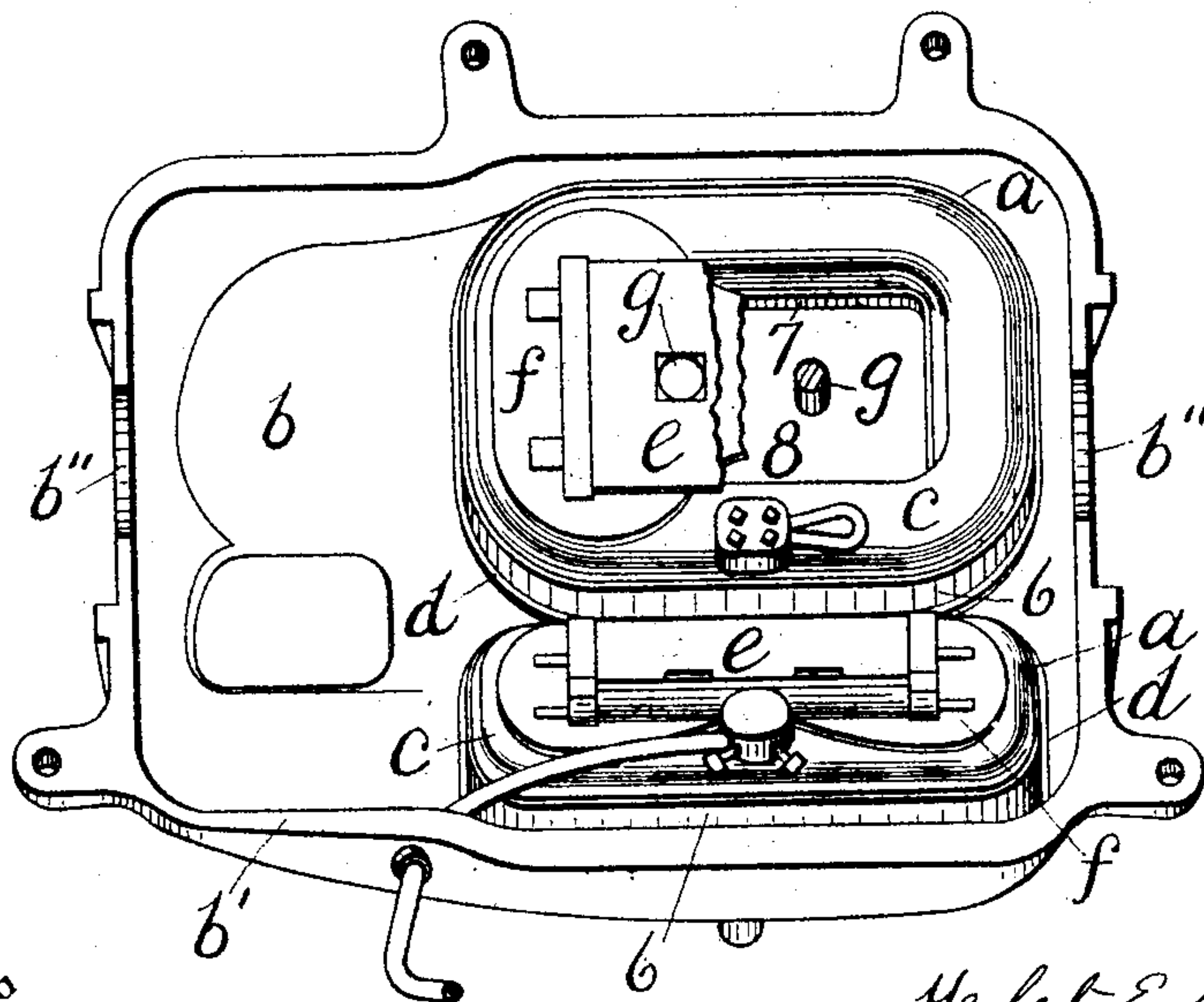


FIG. 3.

Witnesses

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# UNITED STATES PATENT OFFICE.

HERBERT E. DUBOIS, OF SPRINGFIELD, MASSACHUSETTS.

## FIELD-COIL PROTECTOR.

No. 798,326.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed December 23, 1904. Serial No. 238,169.

*To all whom it may concern:*

Be it known that I, HERBERT E. DUBOIS, a citizen of the United States of America, residing at Springfield, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Field-Coil Protector, of which the following is a specification.

My invention relates to improvements in protectors for field-coils, designed more particularly for use with street-car motors; and it consists of a certain peculiarly-constructed pan adapted to receive a field-coil, as hereinafter set forth; and the object of my invention is to provide simple, durable, and comparatively inexpensive means for protecting a lower field-coil from the water which invariably enters the magnet-frame and in the absence of such means keeps such field-coil wet all or nearly all of the time, thereby destroying the efficiency of the same in a comparatively short time.

Generally four field-coils are arranged in a magnet-frame made in two sections, upper and lower, two field-coils being in the upper section and two in the lower section. These sections are bolted together; but the front bolts are hinged in order that the lower section may be swung down conveniently, so as to permit inspection or repairs of the field and armature. It is only the field-coils in this lower section which are greatly affected by water, and it is to these that my invention is applied. The water enters between the abutting edges of the frame-sections and around the armature-shaft, runs down the sides of the lower section, and works under and around the field-coils therein, so that without my protector said field-coils, or parts of the same at least, stand in water much of the time. This water has a deleterious effect on the outer covering of the field-coils and in time destroys the same. My pan serves to thoroughly protect the lower field-coils and to prolong the life thereof.

In the drawings I show only the lower frame-section and contents, since my invention does not relate to the upper section.

I attain this object by the means illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my protector or pan; Fig. 2, a cross-section on lines *x x*, Fig. 1; and Fig. 3, an interior view of the lower section of a magnet-frame as it would appear when let down to give access to its contents.

Similar letters and figures refer to similar parts throughout the several views.

The protector or pan *a* consists of the bottom part 5, an exterior side wall 6, rising from the outer edge of and surrounding such bottom part, and an interior side wall 7, rising from the inner edge of the bottom part and surrounding an opening 8 in the pan. The pan may be made of any suitable material; but I prefer to use lead for this purpose. In the present case the inner wall 7 is not as high as the outer wall 6, owing to the particular construction of the field-coil and magnet used; but said wall 7 may be higher or lower, and so, too, may be the wall 6, according to the kind of electrical apparatus with which the pan is to be employed. The field-coil rests on the bottom 5 in the channel formed by the walls 6 and 7.

Referring to Fig. 3, a practical application of the pan will be seen. Here are shown a lower frame-section *b*, (over the edge *b'* and through the bearing-recesses *b'' b''* the water enters,) two field-coils *c* in the bottom of said section, the pans *a a* in which said field-coils are placed, insulator-plates *d d* between the bottom of the section and said pans, magnets or pole-pieces *e e*, and clamps *f f* between the field-coils and magnets. Bolts *g g*, passing upward through the bottom of the section *b*, through the insulator-plate *d*, through the opening 8 in the pan *a* and the corresponding opening in the field-coil *c*, and through the clamp *f* and the magnet *e*, securely hold each set of field-coil members in place. Portions of one of the magnets *e* and clamps *f* are broken off to show the interior of the associated field-coil. It will now be clearly seen that no water can get to the field-coils *c* unless it stands high enough in the section *b* to run over the edges of the walls 6 and 7 or spatters onto the field-coils above such edges, neither of which contingencies is liable to occur, because the amount of water in the section will not be sufficient to make it possible. Lower field-coils protected in this manner will last as long as if not longer than the upper field-coils, which are so situated as not to be reached by water.

I prefer to make the protector of lead, as hereinbefore noted, for the reason that that metal can be so easily bent to conform to any shape desired.

While I have shown the protector with substantially straight walls and bottom, it is to be



understood that either or all of these parts may be given other than straight outlines. Furthermore, the angular relation between the bottom and walls may be varied, right-angular formation being that shown. In short, the protector can be made to conform more or less closely to the adjacent or contiguous contour of whatever style of field-coil with which it is to be used.

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

1. The combination, with a field-frame provided with a pole-piece and a field-coil, of an independent pan surrounding the pole-piece  
15 and adapted to receive the field-coil, said pan being provided with walls rising around the outside and inside of the field-coil.

2. The combination, with a field-frame provided with a pole-piece and a field-coil, of an  
20 independent pan surrounding the pole-piece

and adapted to receive the field-coil, said pan being provided with walls rising around the outside and inside of the field-coil, the inside walls being of less height than the outside walls.

3. The combination, with a field-frame provided with a pole-piece and a field-coil, of an independent pan located at the base of the pole-piece and surrounding the same, said field-coil being removably seated in said pan,  
25 and the pan comprising a bottom portion, and side walls rising around portions of the outside and inside of the field-coil.

In testimony whereof I have signed my name to this specification in the presence of two sub-  
35 scribing witnesses.

HERBERT E. DUBOIS.

Witnesses:

F. A. CUTTER,  
J. M. STERNE.