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PATENTED NOV. 19, 1907.

A. FREIER.

PROCESS OF APPLYING A COATING OF ONE METAL TO THE SURFACE OF
ANOTHER METAL.

APPLICATION FILED MAY 13, 1907.

Fig. 1.

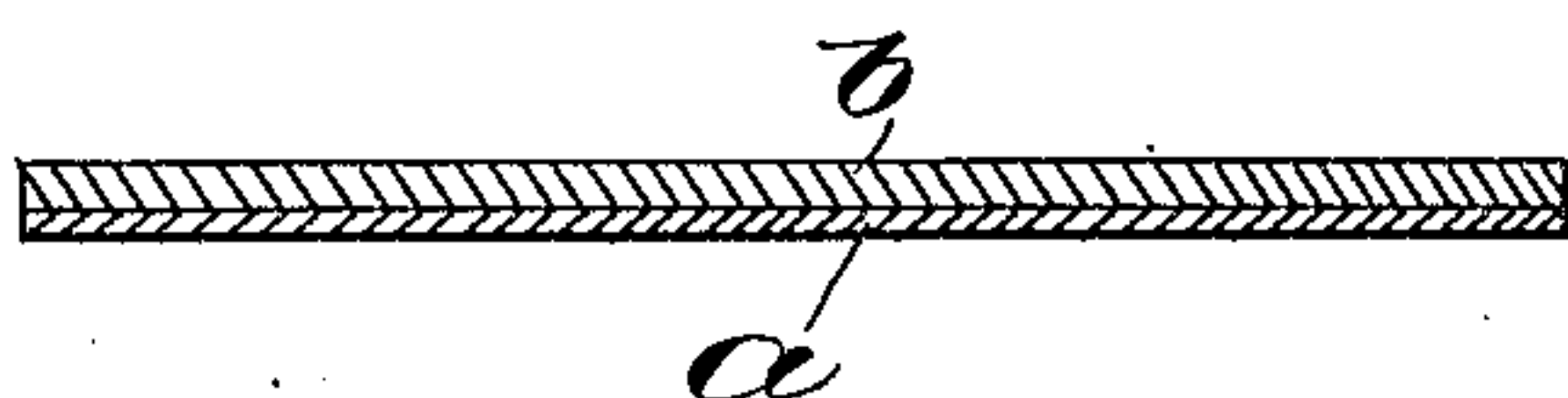


Fig. 2.

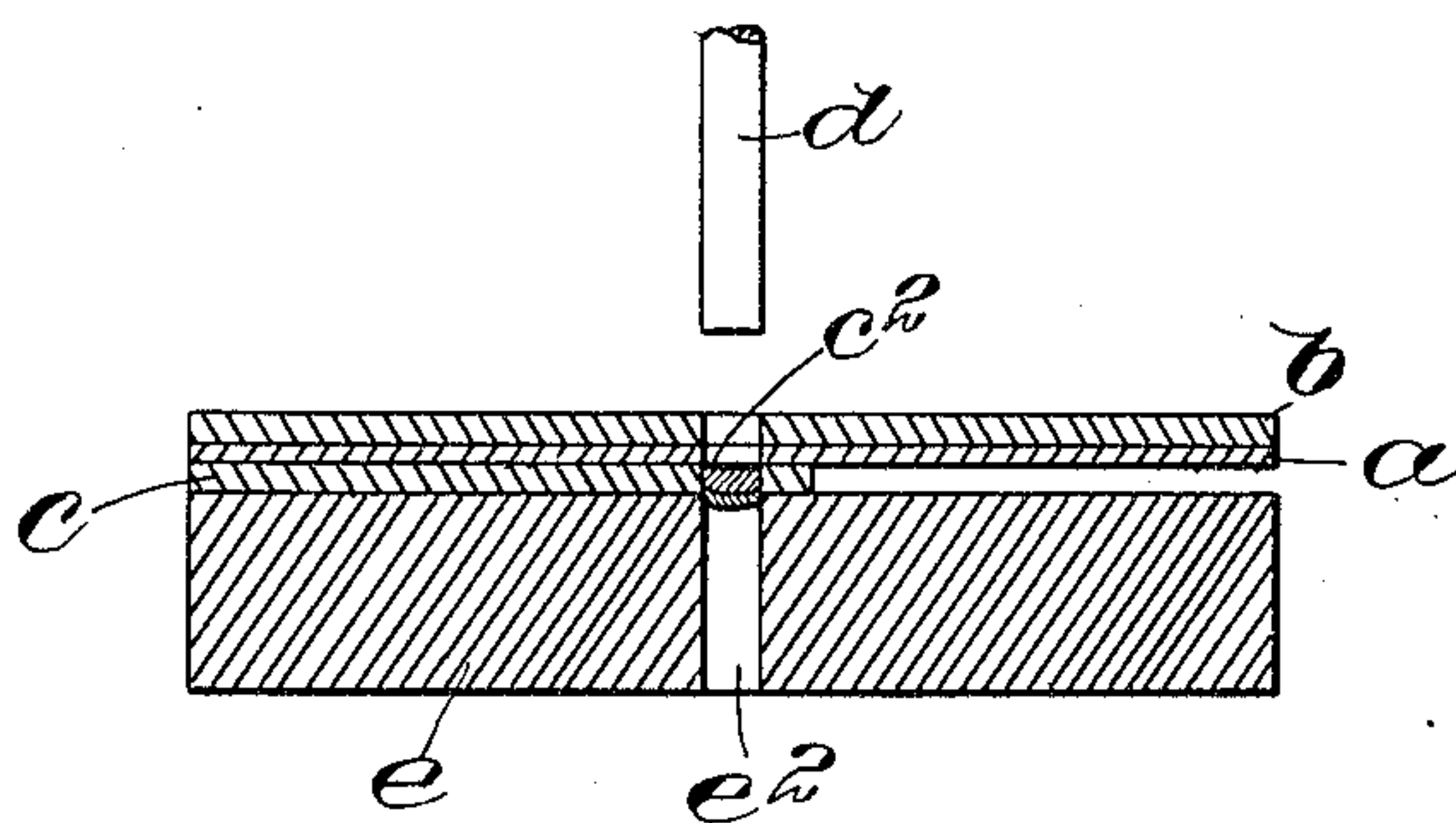
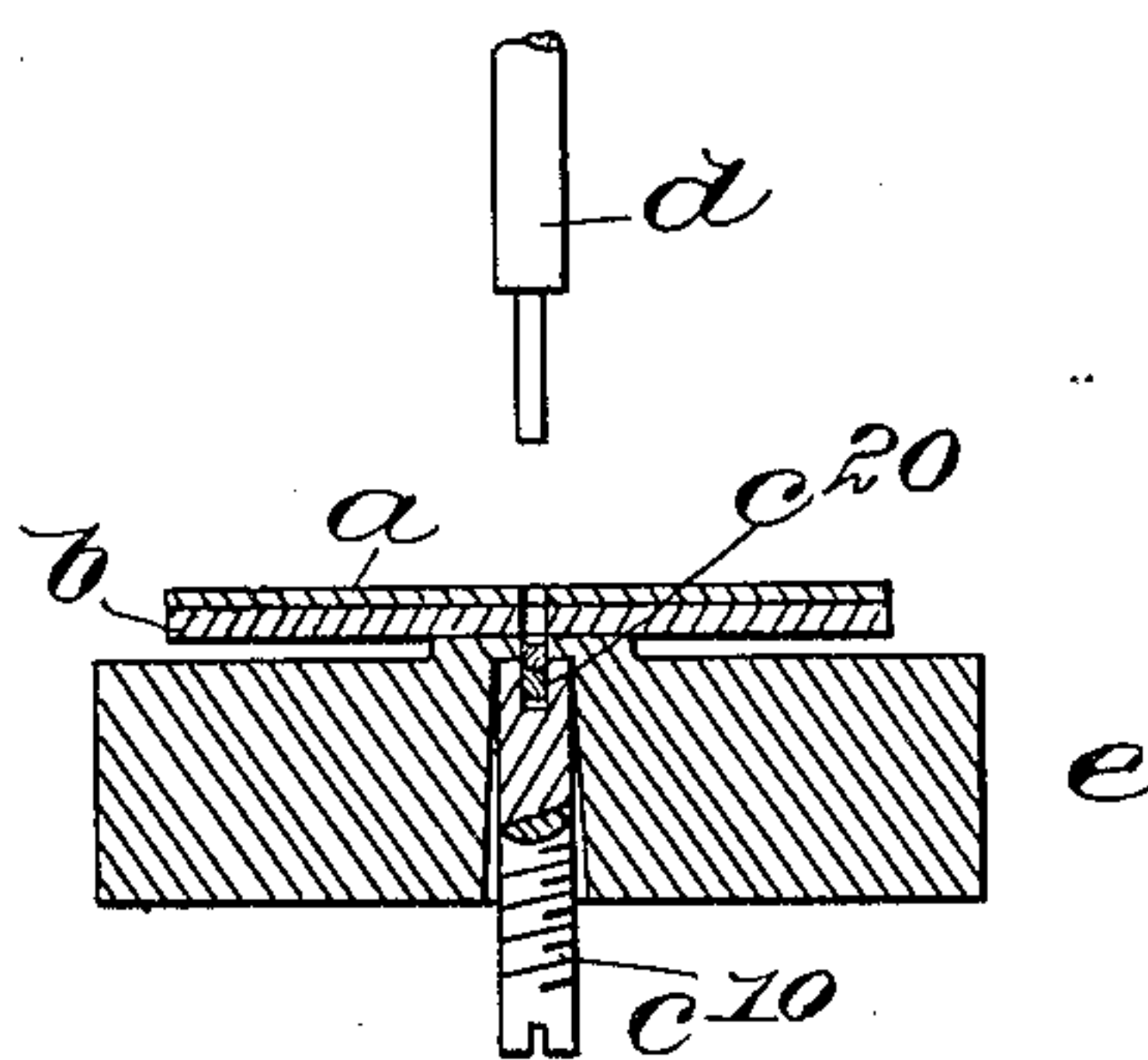


Fig. 3.



witnesses:

G. H. Williams.
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UNITED STATES PATENT OFFICE.

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PROCESS OF APPLYING A COATING OF ONE METAL TO THE SURFACE OF ANOTHER METAL.

No. 871,685.

Specification of Letters Patent.

Patented Nov. 19, 1907.

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To all whom it may concern:

Be it known that I, ANTON FREIER, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Processes of Applying a Coating of One Metal to the Surface of Another Metal, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to a process of applying a coating of one metal to the surface of another metal, and is especially adapted for applying a platinum coating to an electrical contact tip where it is necessary that the actual contact point should be of platinum, while it is desirable to use the minimum amount of that material on account of the cost. It is obvious, however, that the same process may be applied for analogous processes, wherever it is desired to apply a thin coating of one material to a portion of the surface of a member composed in the main of different material.

In carrying out the process, the metal which is to be used for the coating is applied in the form of a thin sheet to the surface of a similar sheet of other metal, the two being joined together in any suitable way, as by brazing. The second sheet of metal is utilized as a support for the coating sheet, and may possess different qualities; being, for example, harder or tougher, and in most instances less costly. In making platinum tips, for example, the platinum coating may be applied to a sheet of German silver which is relatively inexpensive and possessed of the necessary strength to afford a backing, the sheet of German silver being of any thickness which may be desired.

The article to which the metallic coating is to be applied, such, for example, as a metallic electric contact spring, is provided with an opening or recess, and the compound strip consisting of the two sheets of metal joined together, as above described, is placed over the opening and a piece is punched out, and, by the same operation, forced into the opening with a tight driving fit, so as to be frictionally held therein with the coated strip projecting slightly beyond the surface.

Figure 1 is a sectional view of a compound strip made up in accordance with the first

step of the process; Fig. 2 is a sectional view of the compound strip and the article to which the coating is applied, the same view showing the punch which has been operated to apply the coating; and Fig. 3 is a view similar to Fig. 2, showing a coating applied to an article differing in shape from that shown in Fig. 2.

In describing the invention, the process of applying a platinum tip portion to an electrical contact spring or other member will be specifically referred to, for convenience, with the understanding that the process is not in any way limited to any specific article of manufacture. With this understanding, what may be termed the compound strip illustrated in Fig. 1 may be described as consisting of a thin sheet of platinum *a* brazed, or otherwise joined, to the surface of a similar sheet of German silver *b*, the latter sheet being of sufficient thickness to afford the strength and size needed in frictionally supporting the platinum coating in the contact spring *c*. The compound strip shown in Fig. 1 is then placed in the position shown in Fig. 2, with relation to the contact spring *c* to which the tip is to be applied, the said strip *c* having been previously provided with a hole or opening *c*² to receive and retain a portion of the compound strip *a, b*.

In the construction illustrated in Fig. 2 in which the platinum tip consists of a protuberance from the surface of the contact spring *c*, the platinum surface is placed in contact with the surface of the spring *c*, and the punch *d*, in alinement with the opening *c*², is then operated to punch out a piece of the strip and force the same into and part-way through the opening *c*², so that the platinum surface projects just beyond the under surface of the spring *c*.

While the spring *c* is shown as supported upon a die *e*, the opening *e*² in the die *e* does not operate as part of the cutting portion of the punch, the opening *c*² in the contact spring *c* itself constituting the outer cutting edge. In this way, the piece which is cut from the strip and forced into the opening *c*² is jammed through the opening with a tight frictional fit, the platinum strip at the same time being drawn back around the edge, so that it is frictionally held within the opening, instead of being merely held in place by adherence to the material *b*. The platinum

tip, therefore, can be subjected to heat up to the melting point of the platinum without becoming disengaged from the spring *c*, unless the spring itself is melted so as to disengage the piece which has been inserted.

5 If the platinum coating is to be applied to the end of a contact pin, instead of to the surface of a spring, a piece of the strip is punched and forced into an opening at the
10 end of the pin, as indicated in Fig. 3, where the pin *c*¹⁰ is provided at the end with a platinum point. In this case, the pin *c*¹⁰ is provided with an opening *c*²⁰, the process being the same except that the German silver portion *b* is placed adjacent to the opening, and
15 a piece of the compound strip forced only far enough into the opening to cause a small part of the platinum to be held by the walls of the opening.

Claim.

The herein described process of applying a coating of one metal to the surface of another metal which consists in causing a sheet of the coated metal to adhere to a sheet of different metal and punching a piece out of the compound sheet thus formed, and at the same operation forcing the punched out piece into an opening formed in the piece of metal to be coated, substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

ANTON FREIER.

Witnesses:

HENRY J. LIVERMORE,
JAMES J. MALONEY.