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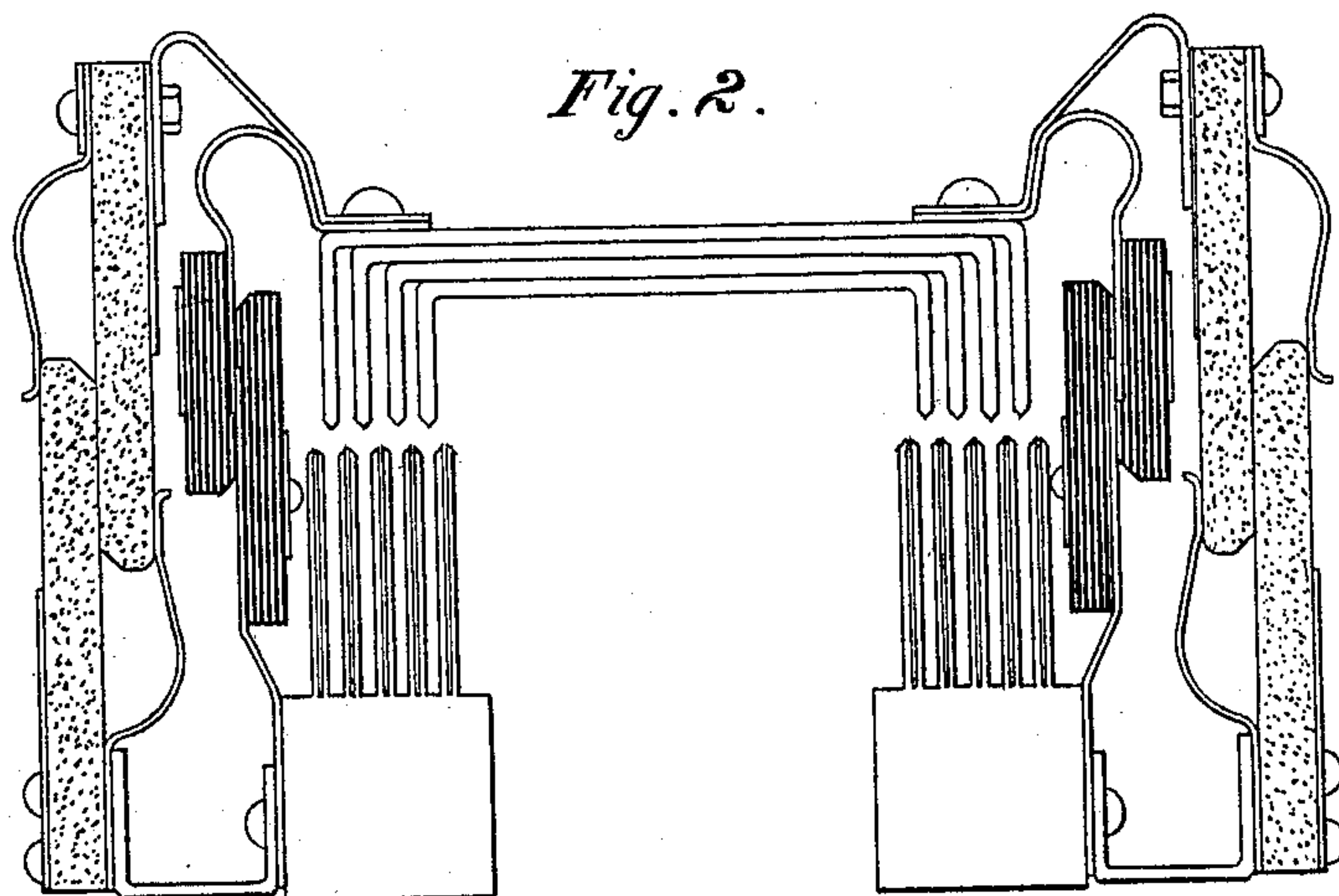
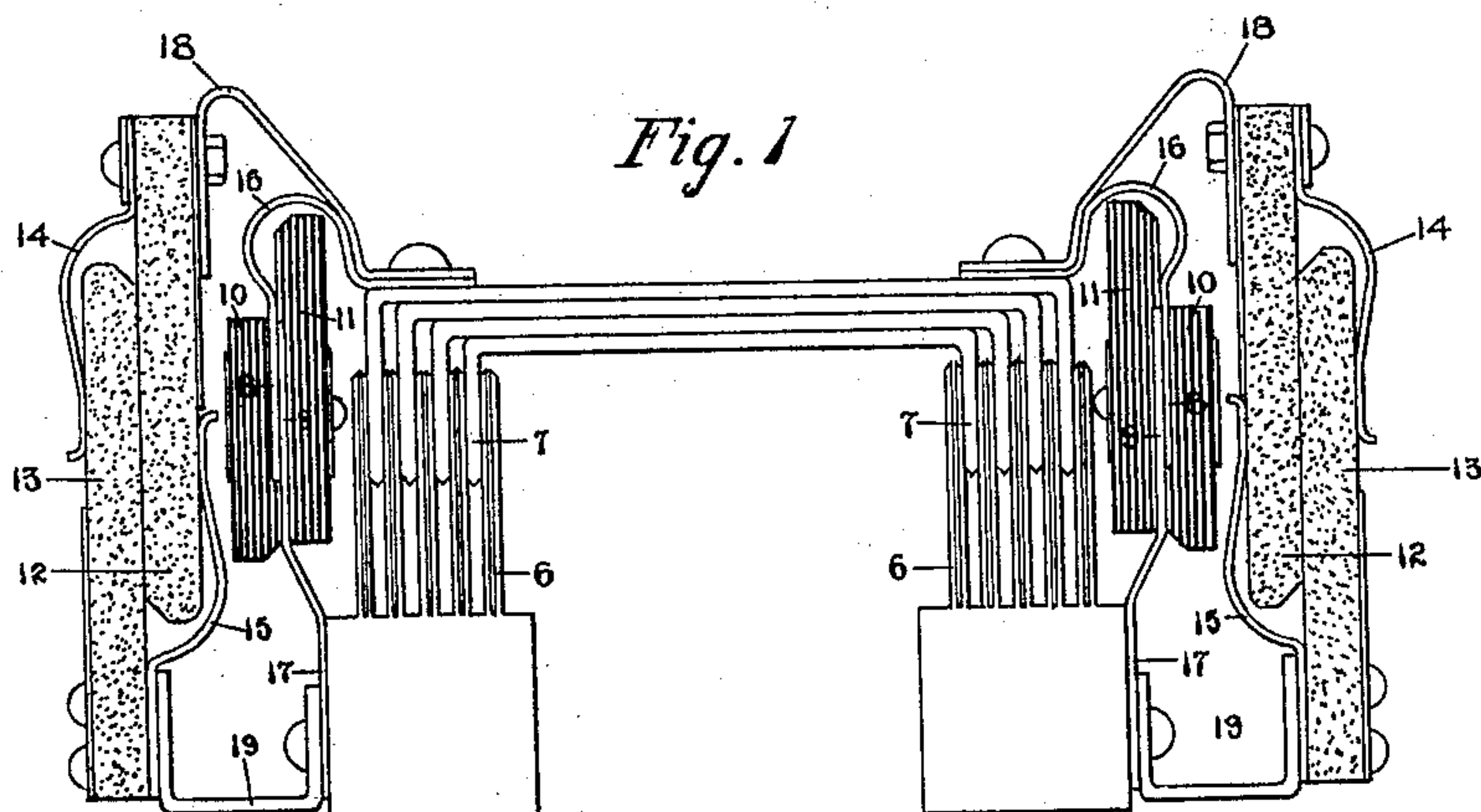
2 Sheets—Sheet 1.

W. M. SCOTT.

CONTACT IN SHUNT FOR CIRCUIT BREAKERS.

No. 592,497.

Patented Oct. 26, 1897.



WITNESSES

*Wm. Stone Adams*  
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BY

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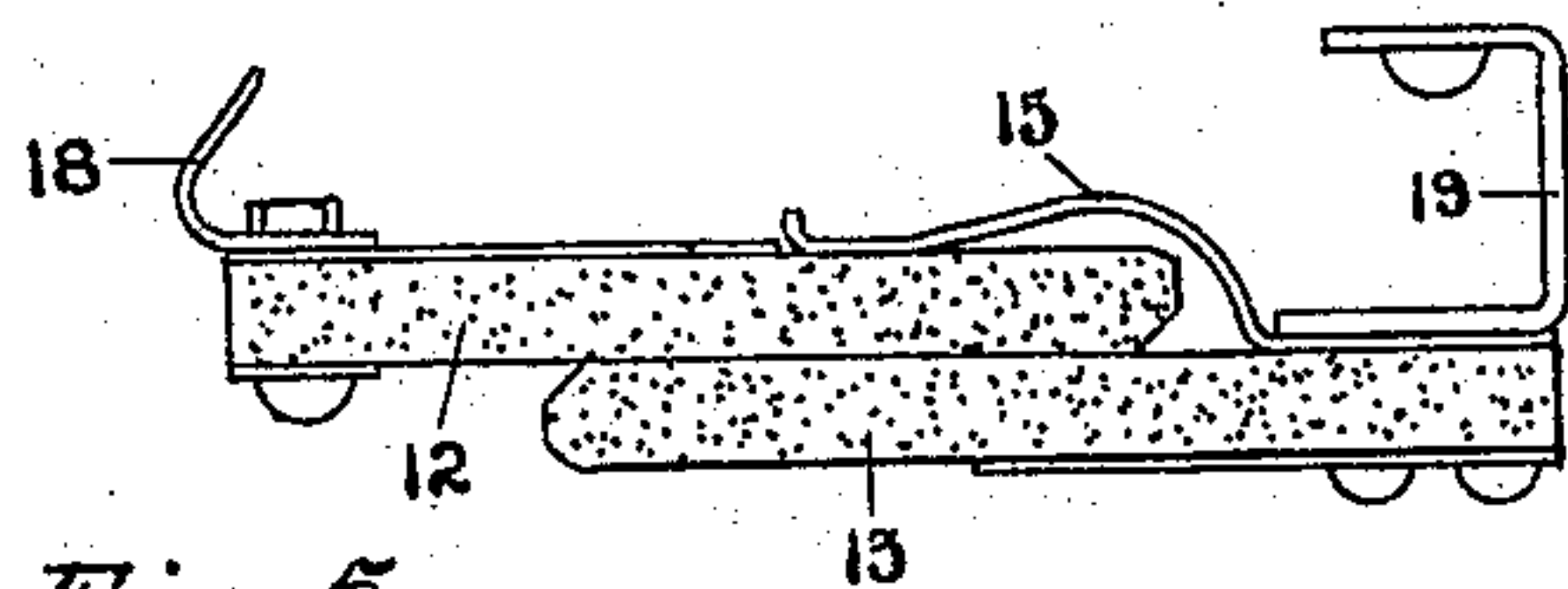
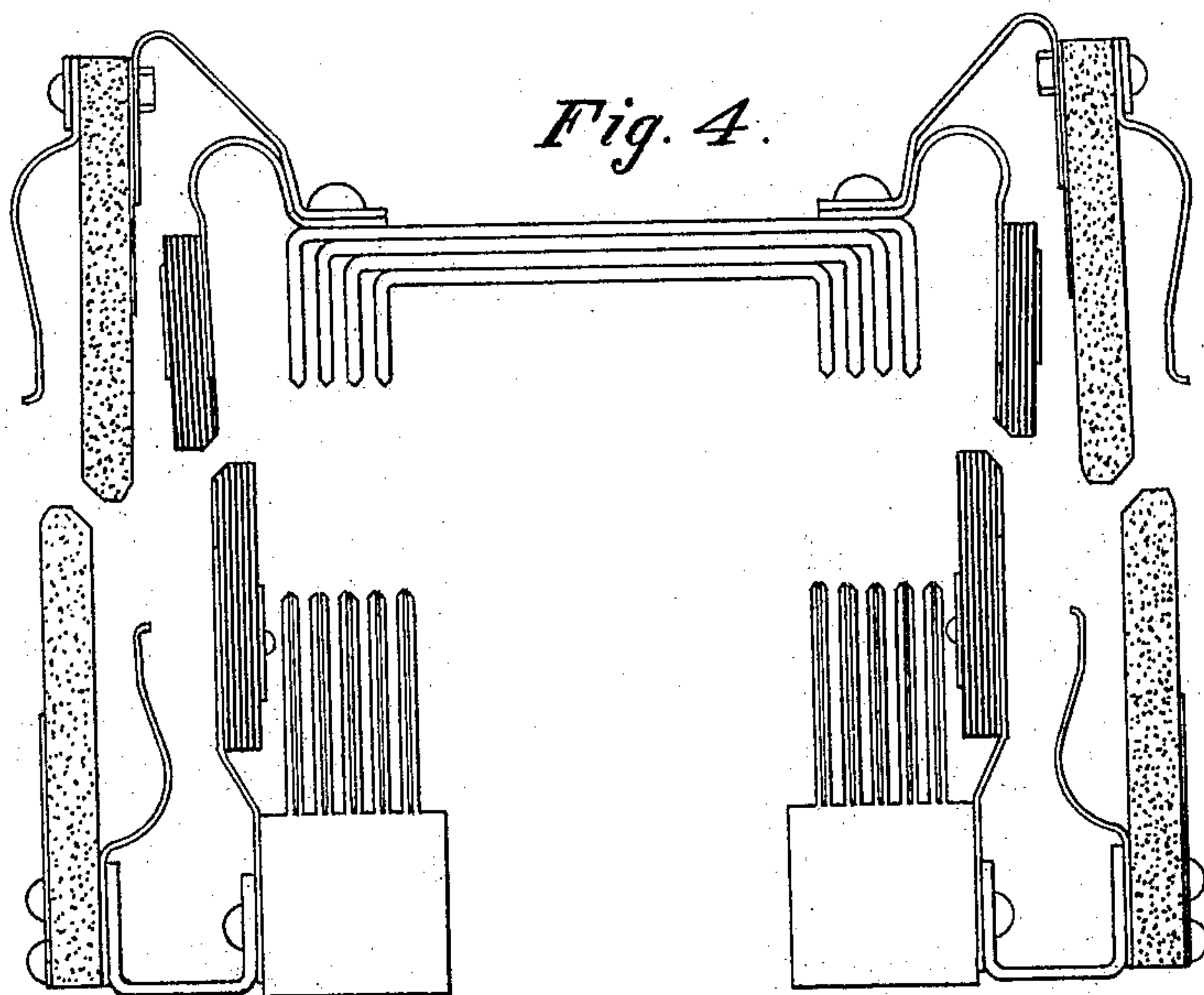
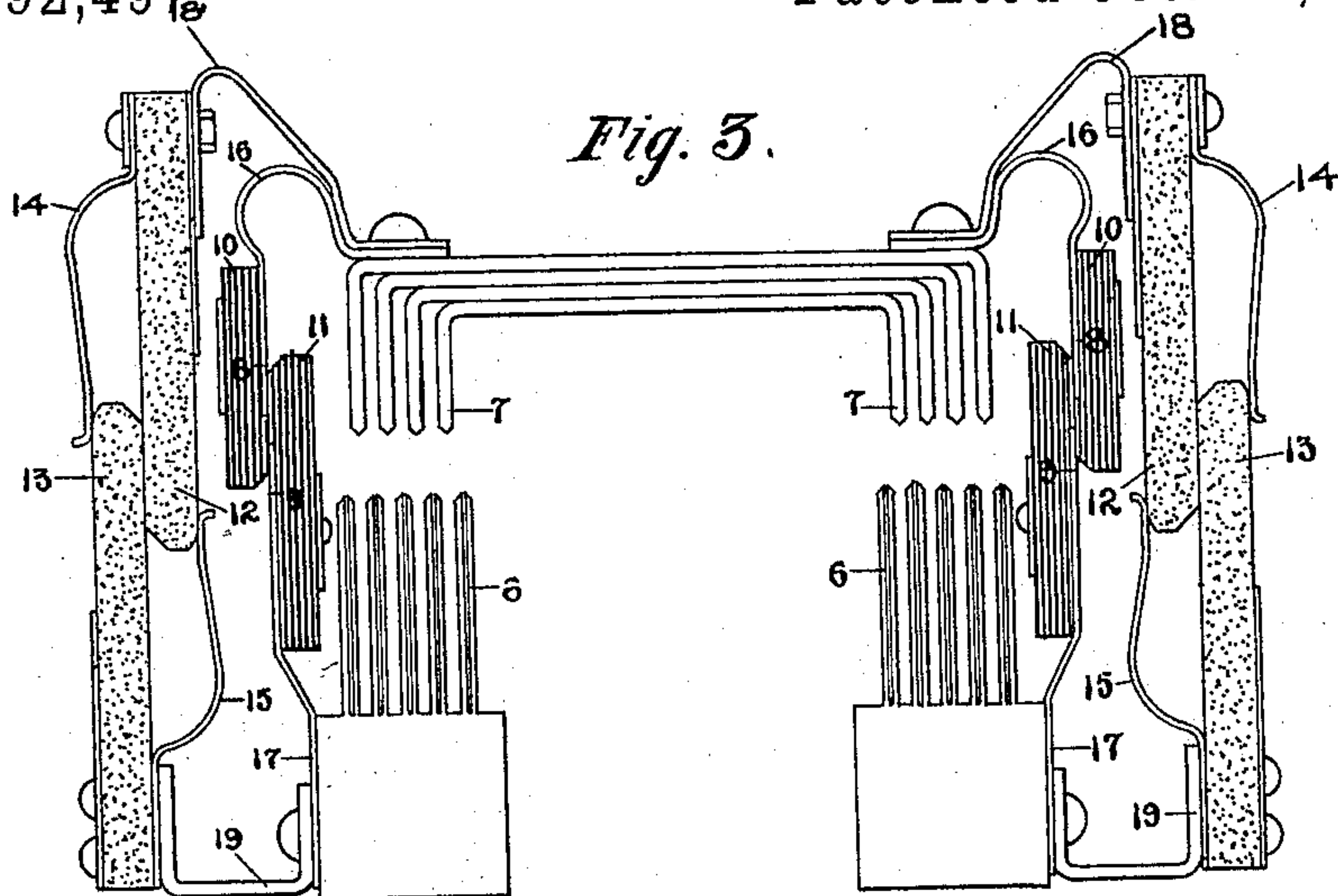
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# UNITED STATES PATENT OFFICE.

WILLIAM M. SCOTT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
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NEW JERSEY.

## CONTACT IN SHUNT FOR CIRCUIT-BREAKERS.

SPECIFICATION forming part of Letters Patent No. 592,497, dated October 26, 1897.

Application filed May 1, 1897. Serial No. 634,688. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. SCOTT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Contact in Shunt for Circuit-Breakers, of which the following is a specification.

My invention relates to improvements in circuit-breakers; and the object of my improvements is to afford a more efficient and durable means of carrying the current in shunt about the main contacts at the instant of their separation in order to prevent arcing at the said main contacts. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the contacts, showing all closed. Fig. 2 is a similar view showing the main contacts separated. Fig. 3 is a similar view showing the second set of contacts also separated. Fig. 4 is a similar view showing the third set of contacts also separated. Fig. 5 is a top view of a modification of the final contacts.

Carbon contacts in shunt for final separation have heretofore been the usual means employed to reduce arcing at the main contacts. They have not, however, in all cases been effectual to prevent such arcing because of their lack of sufficient conductivity to enable them to carry the entire current through the shunt. Metallic contacts in shunt have been used, either alone or intermediate between the main contacts and the final carbon contacts, to reduce these undesirable conditions; but these supplemental metallic contacts in shunt were liable to become injured by arcing in the same way that the main contacts are—that is, their surfaces were liable to become blistered and require constant attention to keep them in working order. My improvements aim to overcome these objections.

The supplemental metallic contacts 8 and 9 are seated in blocks 10 and 11, of vulcanite or other similar non-conducting infusible material, the contacting faces or surfaces being flush with the faces of the metallic contacts seated therein and continuing in the same

plane beyond the ends of the said metallic contacts. The effect of this is that at the instant of separation of these metallic contacts, which is after the separation of the main contacts 6 and 7, the non-conducting infusible faces of blocks 10 and 11 come together between the ends of the metallic faces and prevent arcing between the ends of the metallic contacts or at least instantly wipe out any slight arcing that may tend to take place at the moment of separation of the said metallic contacts.

I may further increase the efficiency of my device by the following arrangement of my final separating contacts of carbon or other similar conducting infusible material. As has already been said, the conductivity of contacts of such material is not in all cases sufficient to carry the entire current around the shunt-path or sufficient of it to prevent arcing at the other contacts. I supplement the carbon contact-pieces 12 and 13 by attaching to each respectively the spring-metal plates 14 and 15, so that when the switch is closed each plate will press against the opposite contacting carbon to which it is not attached, the result of which is to press the two carbons together and thereby to increase the efficiency of their contact, and by the additional metal to carbon contact also to increase the conductivity of this shunt-path. Another advantage of this arrangement is that the carbons contact with the metal plates upon opposite or different surfaces from that upon which they contact with each other, so that even in case the metal plates should become blistered, so as to scratch and injure the carbon surfaces with which they contact, the surfaces of the carbons which contact only with each other remain uninjured. The liability, however, of arcing between the plates and carbons is reduced to a minimum by the continuance of the carbon to carbon contact after the separation of the metal to carbon contact when the final separation of the last of the carbon contacts takes place.

I do not wish to be confined in the construction of my device to any specific form of carbon fingers nor exclusively to the substance carbon as the material composing the final



contact-piece, but I mean by the use of the terms "carbon" and "carbons" in the above specification and the following claims to indicate any suitable form of blocks, blades, fingers, or pieces composed of carbon or of any other suitable substance combining the qualities of conductivity and of infusibility, and I may modify the arrangement of my final separating contacts by using only one spring-metal plate with each pair of carbons, as shown in Fig. 5; nor do I wish to be confined to the use, in combination with the main contacts, of both the intermediate metallic contacts 8 and 9 and the carbon metal contacts, as I may in some cases prefer, in combination with the main contacts, to use either form of shunt-contact above described independently of the other.

Both the supplemental metallic contacts and the carbon contacts are mounted on yielding or spring arms 16, 17, 18, and 19, adapted to press the opposing contacts together to insure their close engagement until final separation.

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

1. In a circuit-breaker the combination with the main contacts of carbon contacts in shunt for final separation with metal plates yieldingly attached to said carbons adapted to overlap the opposite contacting carbons respectively and to contact with said carbons upon the other sides from that of the carbon to carbon contact.

2. In a circuit-breaker the combination with the main contacts of carbon contacts in shunt for final separation with metal plates yieldingly attached to said carbons, each carbon and the plate attached thereto adapted to form a jaw to receive the opposite contacting carbon and hold the same in close contact.

3. In a circuit-breaker the combination with the main contacts of carbon contacts in shunt for final separation with metal plates yieldingly attached to said carbons, each car-

bon and the plate attached thereto adapted to form a jaw to receive the opposite contacting carbon and hold the same in close contact, each carbon adapted to contact on one side only with the opposite contacting carbon and upon the other side with the metal plate attached to said opposing contacting carbon, the metal plates adapted to break contact with the carbons before the carbons break contact with each other.

4. In a circuit-breaker the combination with the main contacts of the supplemental metallic contacts in shunt, said metallic contacts seated in blocks of non-conducting infusible material, the contacting faces of which being flush with the contacting faces of the metallic contacts seated therein and continuing in the same planes respectively beyond the ends of the said metallic contacts, said supplemental metallic contacts arranged and adapted to separate after the separation of the main contacts and the faces of the non-conducting infusible blocks adapted to come together between the ends of the metallic contacts at the instant of their separation, and the carbon contacts in further shunt around the supplemental metallic contacts for final separation with metallic plates yieldingly attached to said carbons, each carbon and the metallic plate attached thereto adapted to form a jaw to receive the opposite contacting carbon and hold the same in close contact, each carbon adapted to contact on one side only with the opposite contacting carbon and upon the other side with the metallic plate attached to said opposing contacting carbon, the metallic plates adapted to break contact with the carbons after the separation of the supplemental metallic contacts and before the carbons break contact with each other.

WM. M. SCOTT.

Witnesses:

JNO. STOKES ADAMS,  
E. F. GRACE.