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S. M. KENERSON

1,777,755

ELECTRIC JACK

Filed Sept. 13, 1928

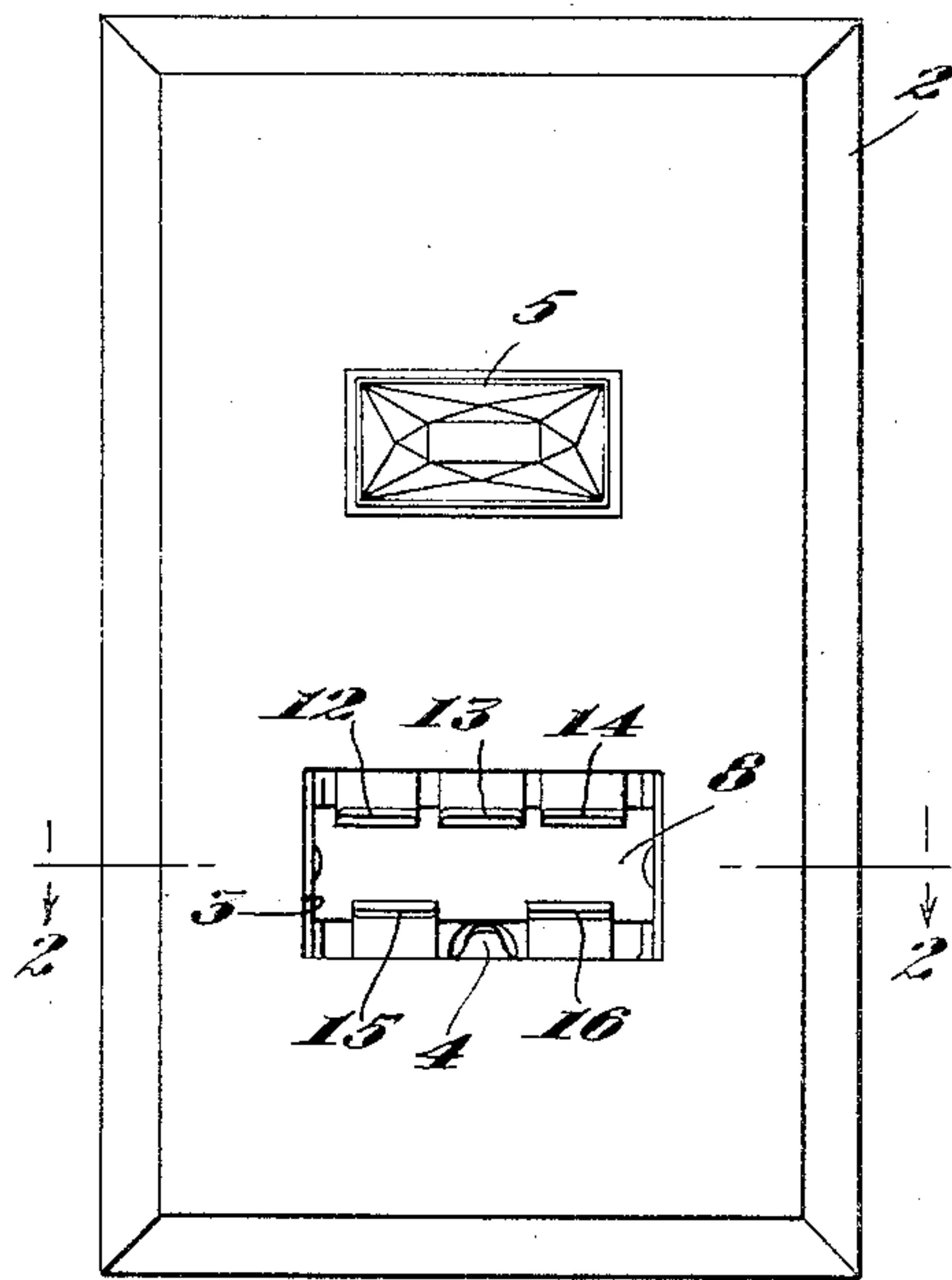


Fig. 1

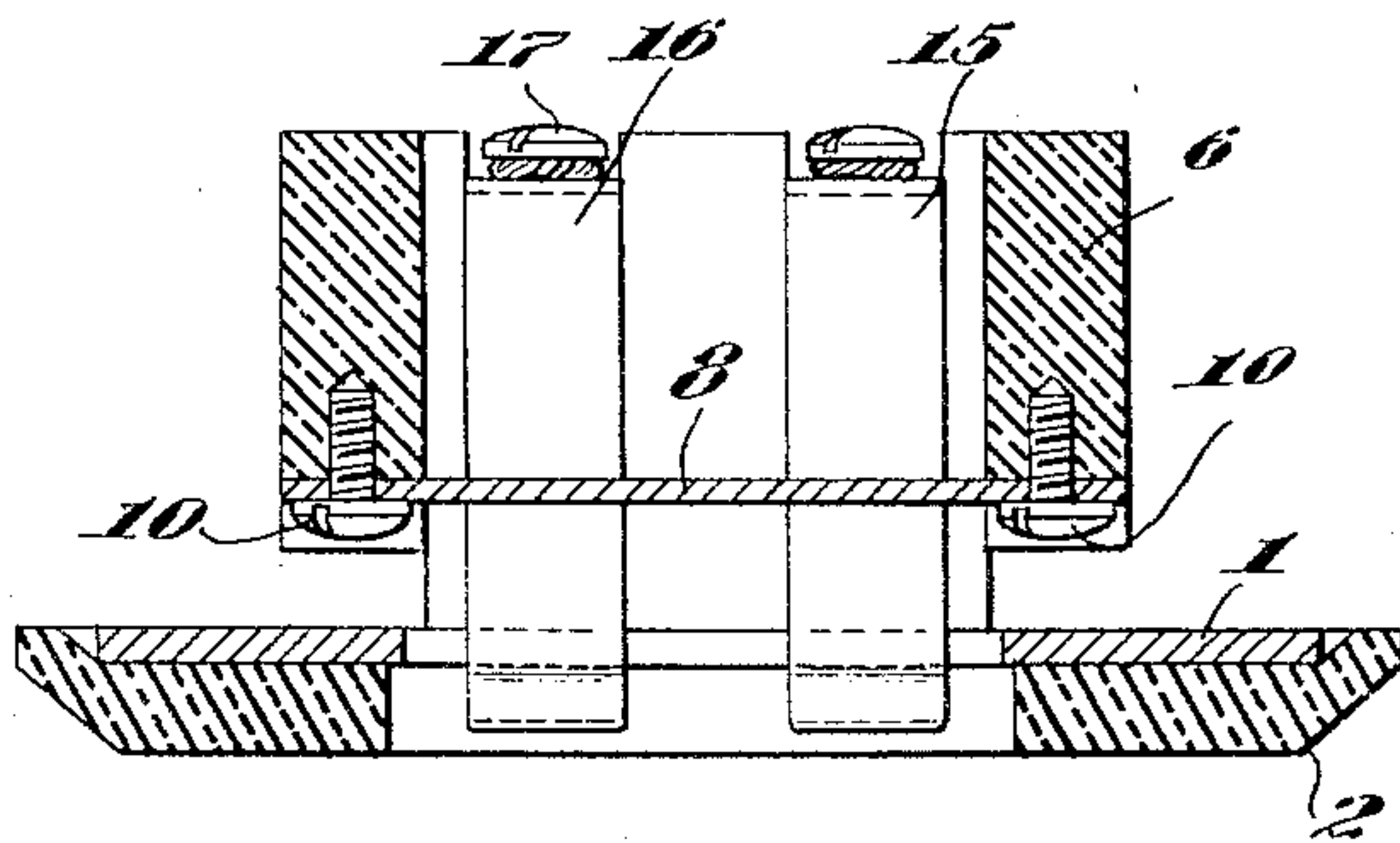


Fig. 2

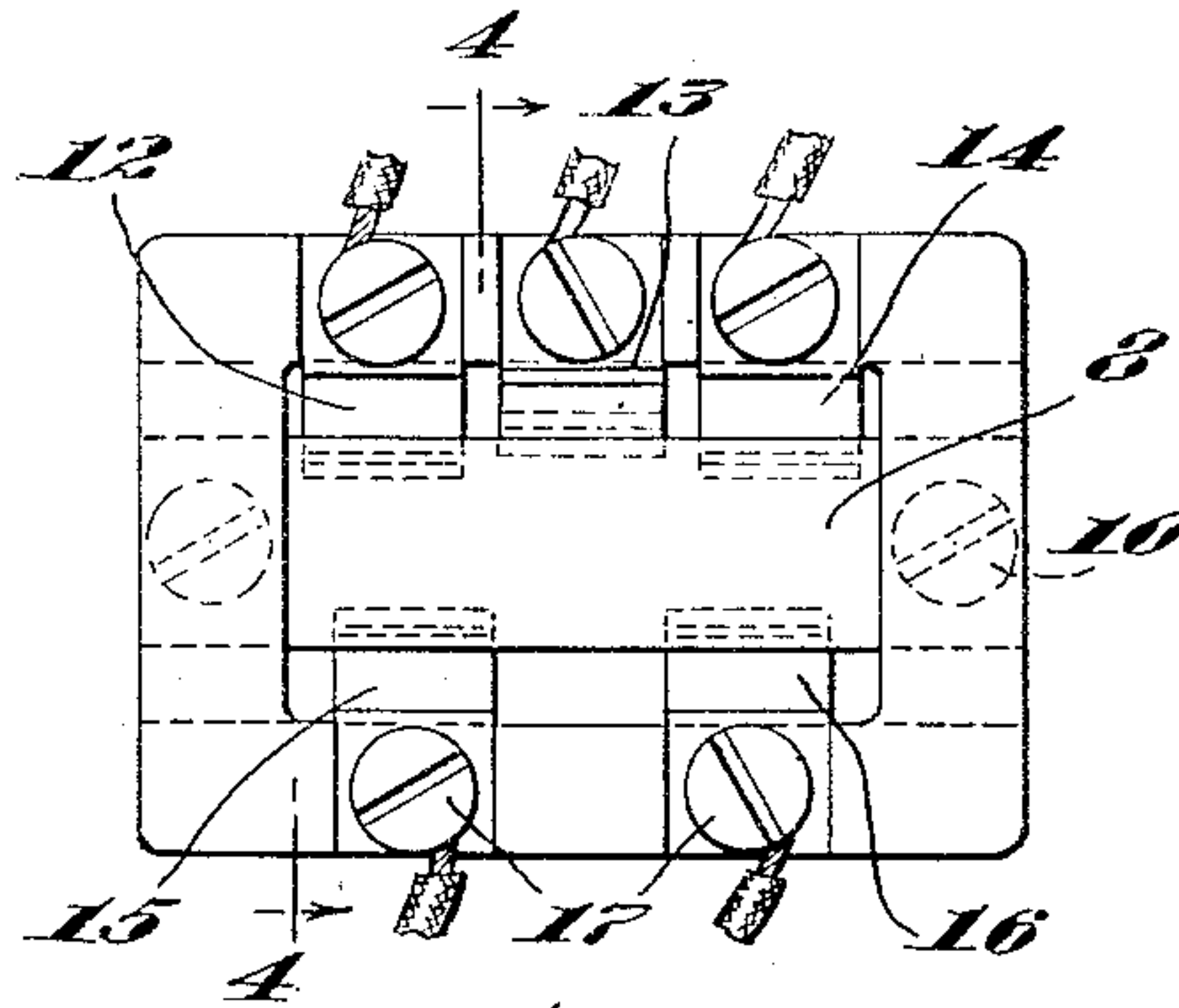


Fig. 3

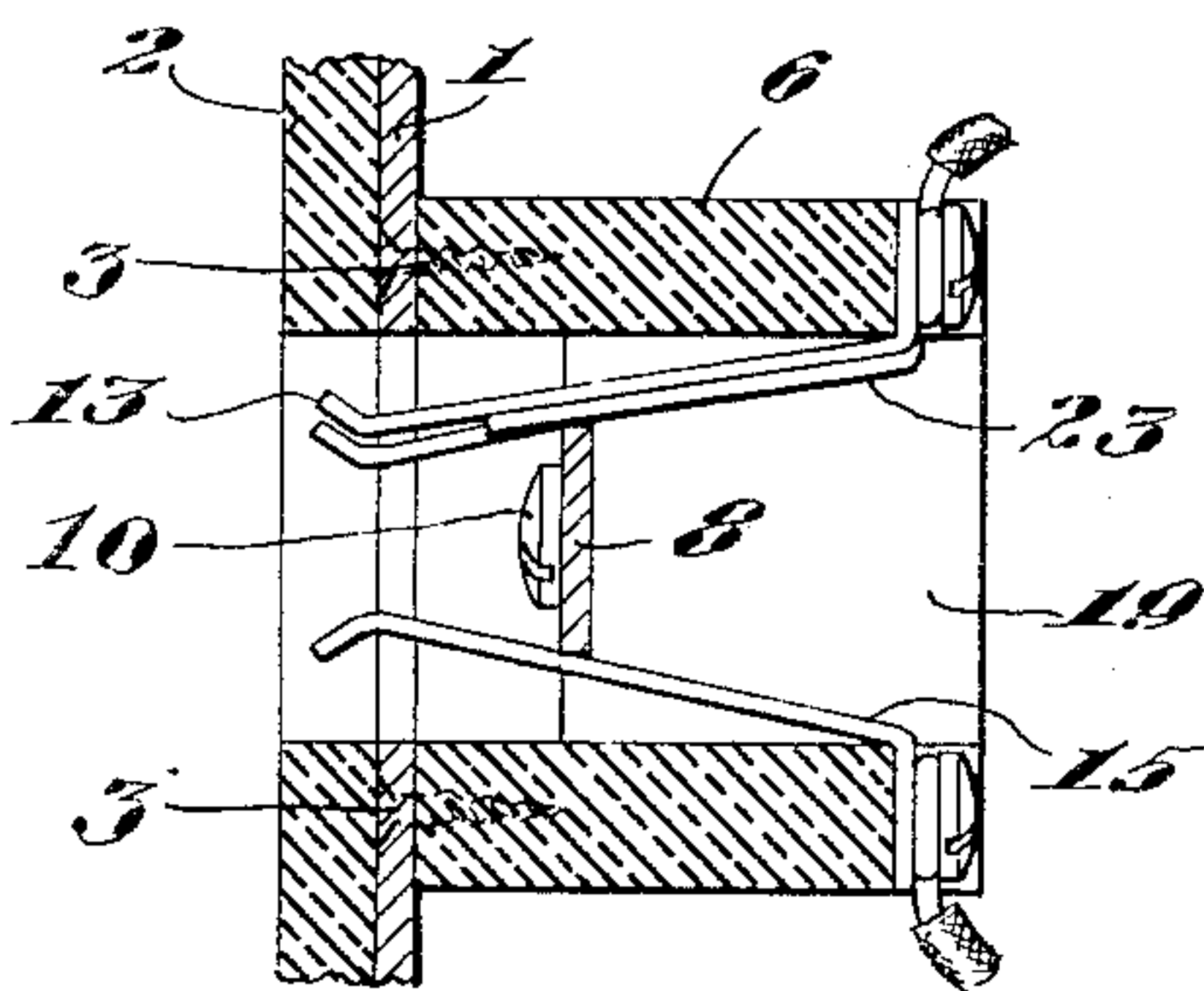


Fig. 4

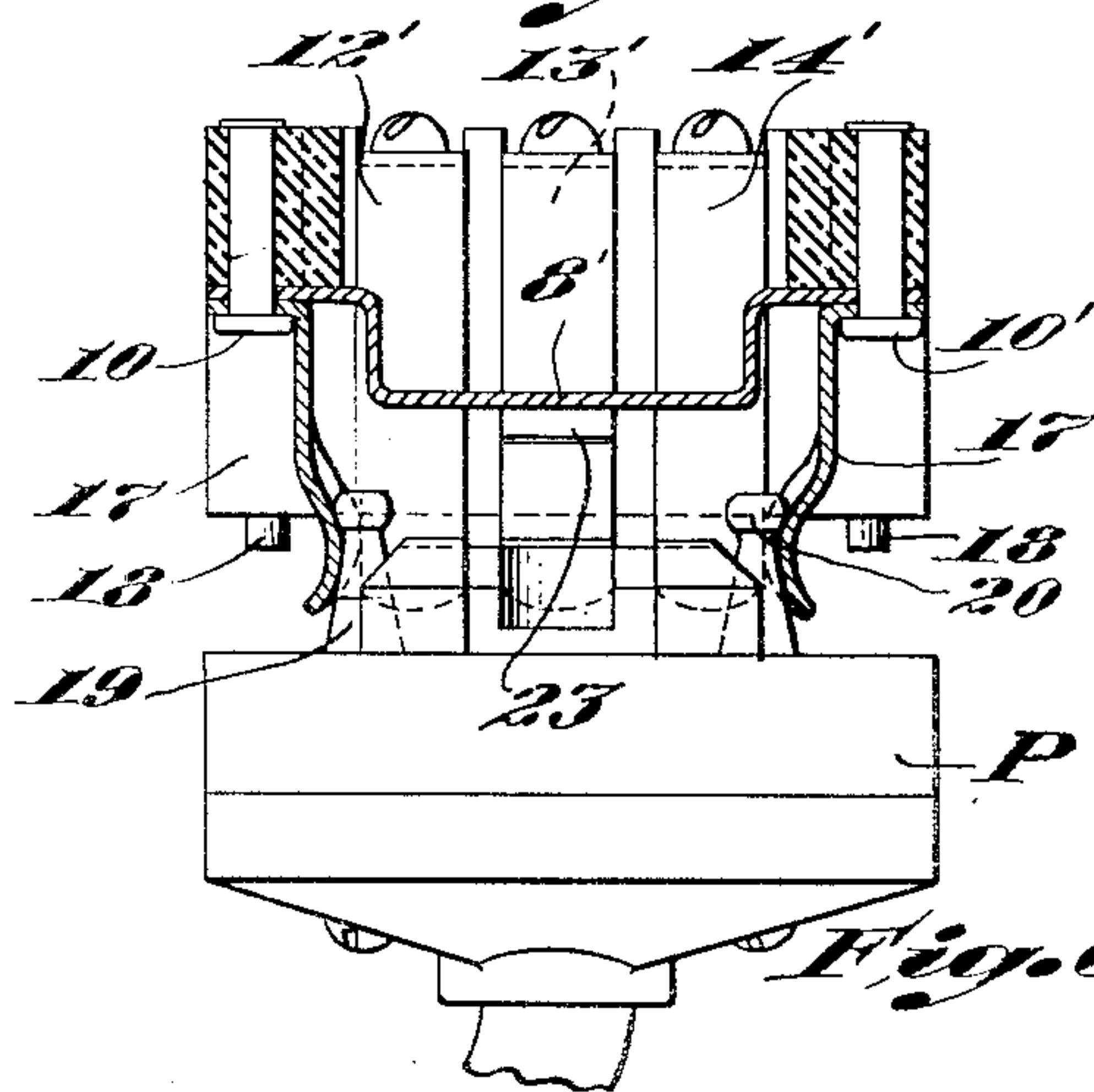


Fig. 5

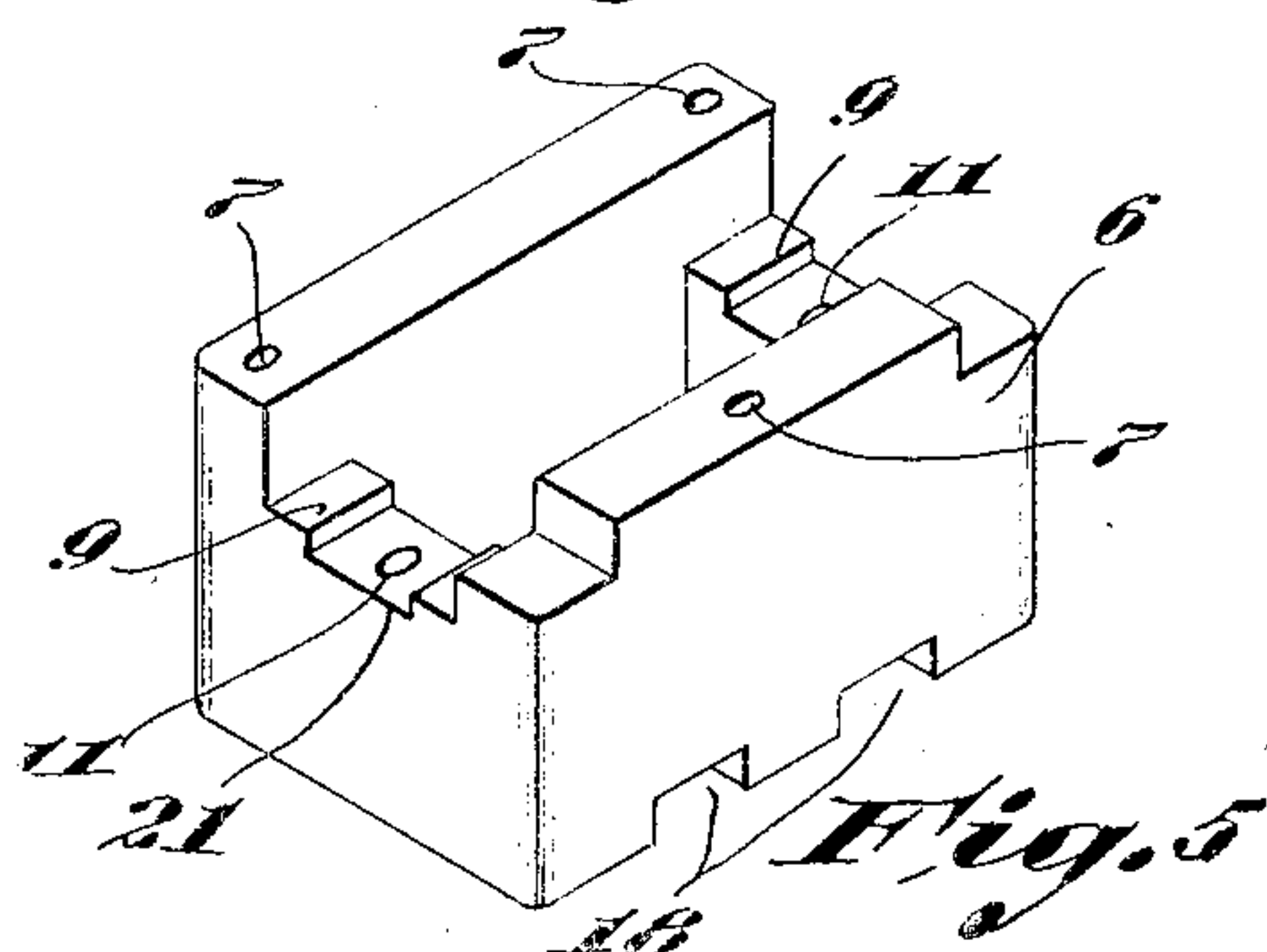


Fig. 6

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UNITED STATES PATENT OFFICE

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ELECTRIC JACK

Application filed September 13, 1928. Serial No. 305,810.

This invention relates to a jack particularly intended for use in a wall receptacle in hospital rooms for the purpose of attaching a switch whereby the patient may operate a number of signals to summon a nurse, although it will be understood that the jack is adapted to many other uses. Objects of the invention are to provide a jack which is simple and economical in construction, which is durable and reliable in use and which is generally superior to jacks as heretofore constructed. The characteristic features of the invention will be evident from the following description and claims and the illustrative embodiments shown in the accompanying drawings, in which

Fig. 1 is a front view of the wall receptacle containing the jack;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 is a rear elevation of the jack;

Fig. 4 is a section on line 4—4 of Fig. 3;

Fig. 5 is a perspective view of the insulation housing of the jack; and

Fig. 6 is a view similar to Fig. 2 of a modification, showing an inserted plug in elevation.

The particular embodiments of the invention chosen for the purpose of illustration are shown as applied to a wall receptacle comprising a front plate 1 and a cover plate 2 detachably mounted on the front plate 1 by any suitable means. The cover plate 2 has an opening 3 for the insertion of a plug into the jack behind the plate, with a projection 4 adapted to enter a recess in one side of the plug when the plug is inserted in the proper position but obstructing the plug when reversed. The bull's-eye 5 is arranged to be illuminated from the back when the patient closes the signal circuits by means of the switch connected with the jack shown below the bull's-eye.

The embodiment of the subject matter of the present invention illustrated in Figs. 1 to 5 comprises a rectangular housing 6 of insulation material having screw openings 7 on its front face (Fig. 5) for attachment to the front plate 1 by means of screws 3 extending through the front plate into these openings, a conducting bar 8 mounted in re-

cesses 9 in the front of the housing 6 by means of screws 10 extending into threaded openings 11 in the housing, and five spring fingers 12, 13, 14, 15 and 16 mounted by means of screws 17 in recesses 18 in the rear of the housing 6, three of the contacts being mounted along one side of the box (12, 13 and 14) and two of the contacts (15 and 16) along the other side. As shown in Fig. 4, the contacts 12 to 16 inclusive extend obliquely through the central opening 19 of the block 6 and bear against the bar 8 so as to connect all the terminals together through the bar when the cooperating plug is withdrawn. A preferred type of plug for use with this jack is disclosed and claimed in copending application Serial No. 305,809 filed on even date herewith.

From the foregoing it will be understood that when the plug is inserted it wedges between the flared forward ends of the contact terminals 12 to 16 inclusive, which are thereby forced outwardly away from the bar 8 so that the terminals are not electrically interconnected but, on the contrary, each terminal contacts with the corresponding terminal on the plug; and that when the plug is withdrawn the terminals spring inwardly against the bar 8, thereby interconnecting the circuits through the bar 8 and operating the signal circuits; thus accidental displacement of the plug from the jack will automatically summon assistance so that the patient will not be cut off from assistance by accidentally pulling the plug out of the jack.

As shown in Figs. 2 and 4, a piece of insulation 23 may be interposed between one or more of the contact fingers and the bar 8 to prevent certain fingers from making contact with the bar. For example, in the case of a hospital signal system where one contact controls a buzzer circuit and the other contacts control light circuits, it may be desirable to close the light circuits without closing the buzzer circuit when the plug is accidentally withdrawn, in which case the insulation strip 23 may be used with the contact individual to the buzzer circuit. As shown in the figures, the insulation may be in the form of a band whose width is approximately equal to that

of the contact finger; and it may conveniently be held at one end by the same screw which holds the contact finger.

The modification shown in Fig. 6 is similar to the embodiment shown in Figs. 1 to 5 and corresponding parts are correspondingly designated. However, the bar 8' is bent toward the mouth of the jack in the middle and additional spring pieces 17 are provided at the ends. These pieces are L-shaped and fit into the recesses 21 (Fig. 4) over the ends of the bar 8' so that rotation around the single fastener 10' is prevented. The pieces 17 are preferably formed of strip elastic material such as steel and the free ends are shaped to snap over the ends 20 of the holding lugs 19 of the plug P, frictionally to hold the plug in the jack, the ends of the springs 17 also preferably being curved transversely on an arc somewhat larger than the circumference of the heads 20. Thus the plug is securely held in the jack at both ends but in such manner that a strong pull on the plug or cord, whether in line with the jack or at an oblique angle, will detach the plug from the jack.

I claim:

1. An electrical jack comprising a housing having an opening at the front for the insertion of a plug, a conducting piece in the opening beyond the end of an inserted plug, and a plurality of spring fingers mounted around the opening and pressing inwardly against said conducting piece electrically to interconnect the fingers together, the fingers inclining inwardly from front to rear between their forward ends and said conducting piece in the path of the plug and said ends being spaced apart by the conducting piece so as to be flexed away from said conducting piece when the plug is inserted.

2. An electrical jack comprising a housing having an opening for the insertion of a plug, a conducting bar extending across said opening beyond the end of an inserted plug, and spring fingers mounted on the housing and pressing inwardly against opposite edges of the bar electrically to interconnect the fingers together, the fingers flaring toward the mouth of the opening in the path of the plug and the ends of the fingers being spaced apart by said bar so as to be flexed away from said bar when the plug is inserted.

3. An electrical jack comprising a rectangular housing having an opening extending therein from the front to receive a plug, spring fingers mounted at the rear of opposite sides of the housing and inclining inwardly toward the front, a bar mounted at opposite ends of the housing and extending across said opening between said fingers, the ends of the fingers being spaced apart by said bar.

4. An electrical jack comprising an insu-

lation housing having a rectangular opening extending therethrough from front to rear, the end walls of the housing being recessed at the front, a bar mounted in said recesses, the side walls of the housing being recessed at the rear, and spring fingers mounted in the latter recesses and yieldingly engaging opposite sides of said bar, the forward ends of said fingers being flared and being spaced by said bar.

5. An electrical jack comprising an insulation housing having a rectangular opening extending therethrough from front to rear, the end walls of the housing being recessed at the front, a conducting bar mounted in said recesses, the side walls of the housing being recessed at the rear, spring fingers mounted in the latter recesses and yieldingly engaging opposite sides of said bar, the forward ends of said fingers being flared, and a piece of insulation interposed between one of said fingers and said bar.

Signed by me at Boston, Massachusetts, this fifth day of September, 1928.

STANLEY M. KENERSON.