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C. J. FOT

2,659,766

INSULATOR MOUNTING

Filed May 23, 1950

Fig. 1

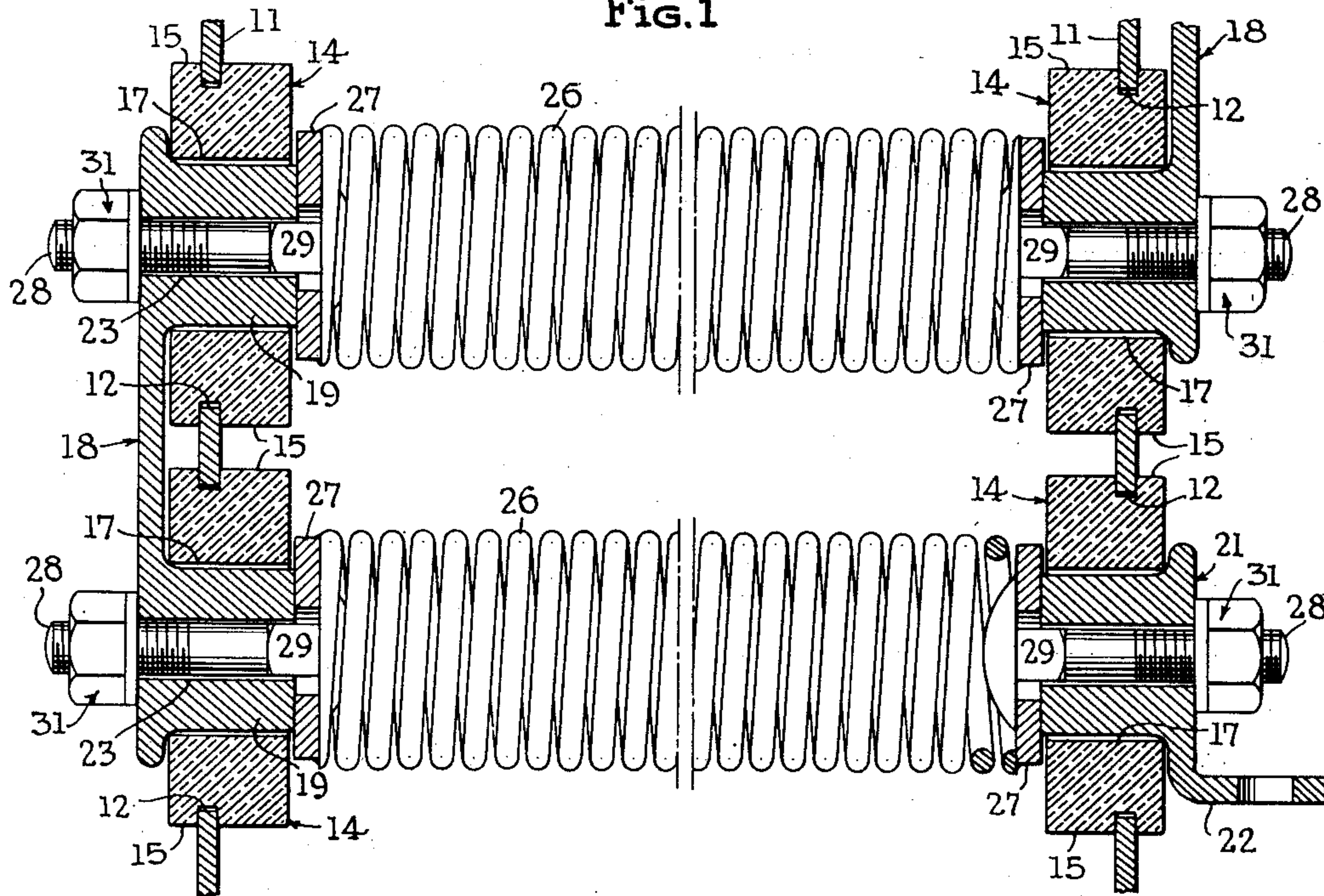


Fig. 2

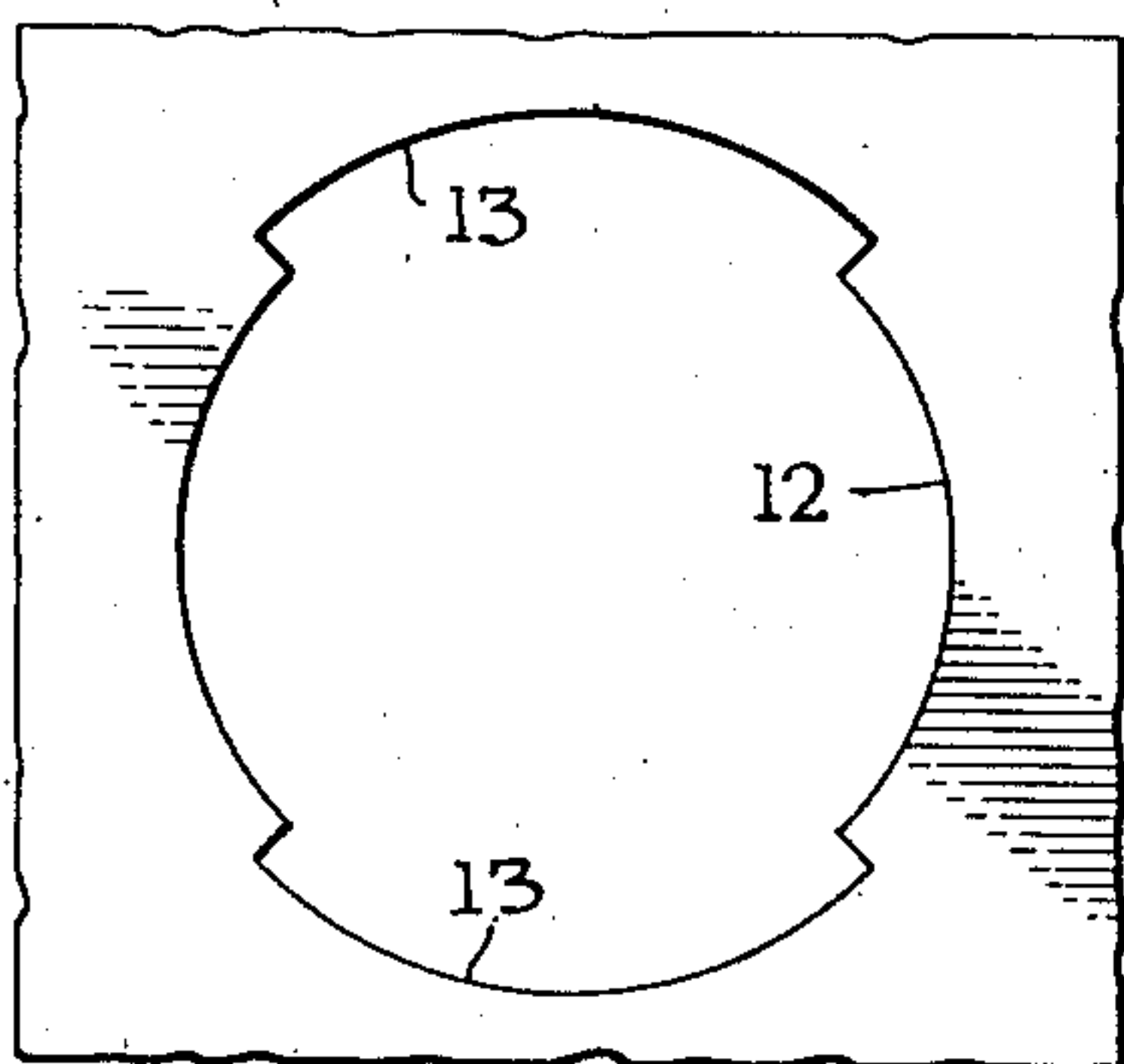


Fig. 3

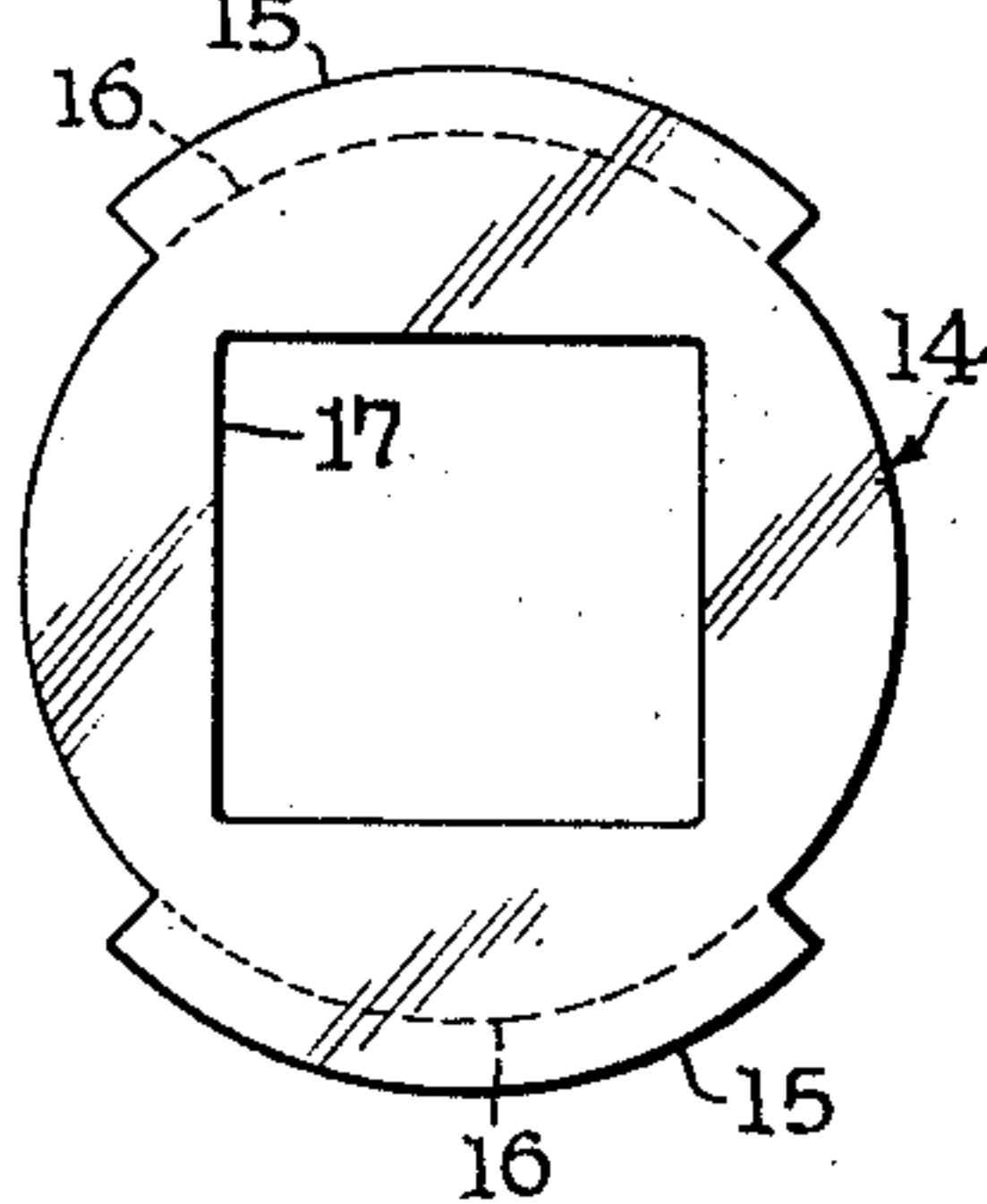


Fig. 4

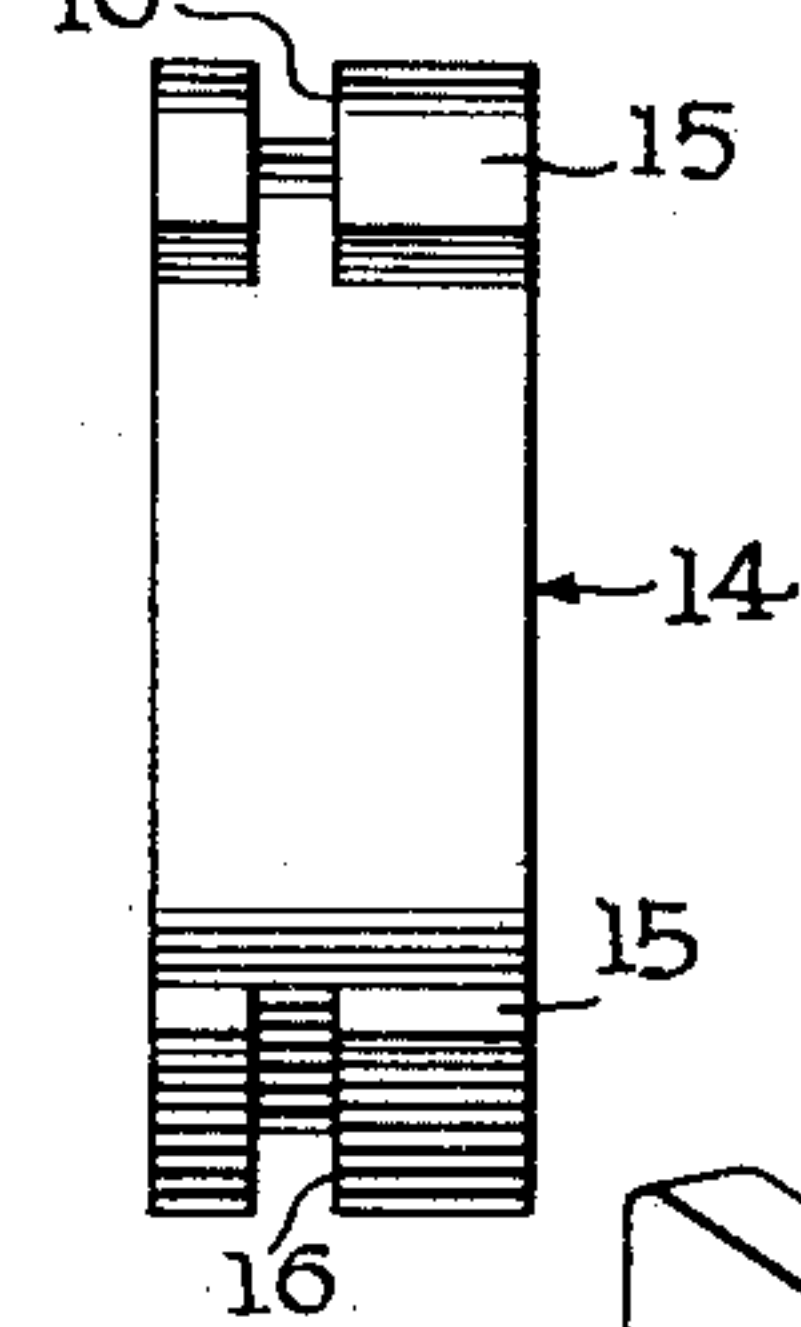


Fig. 5

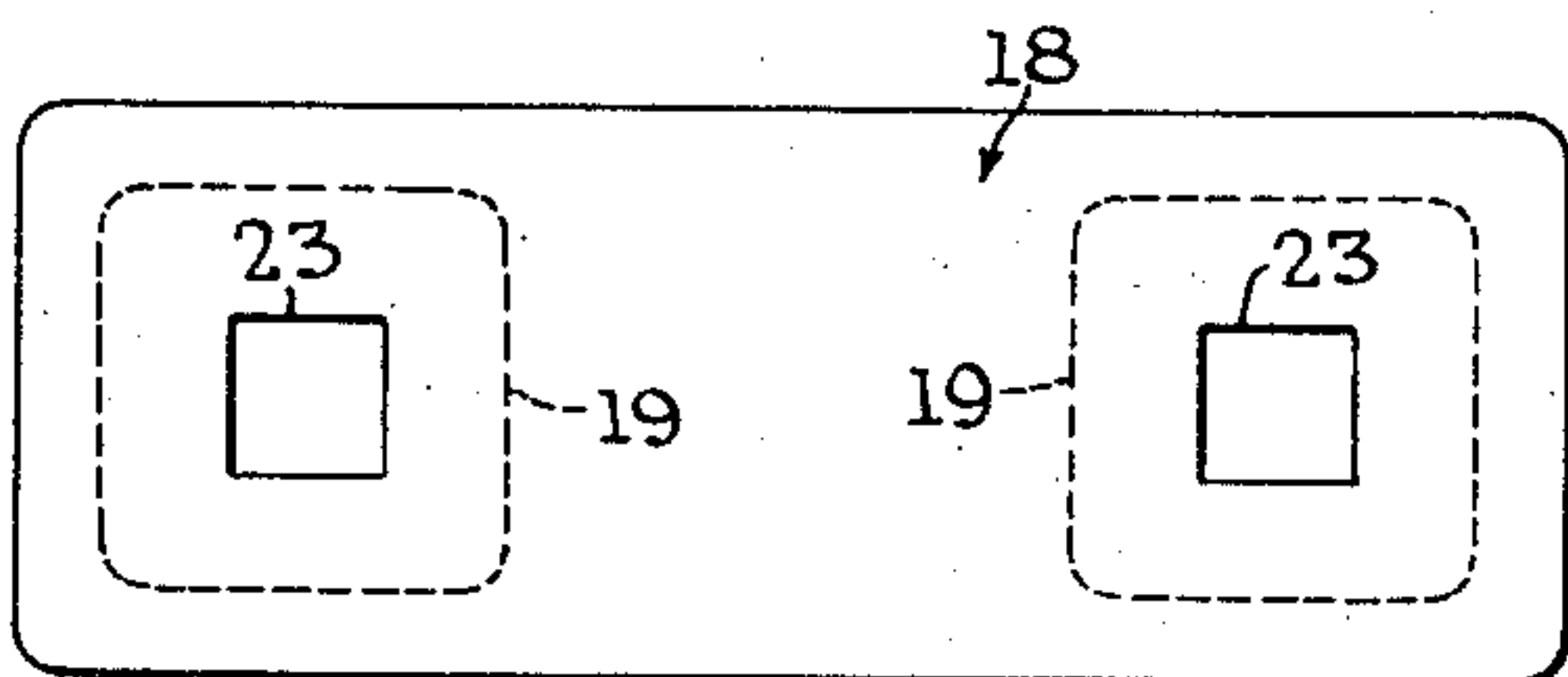


Fig. 7

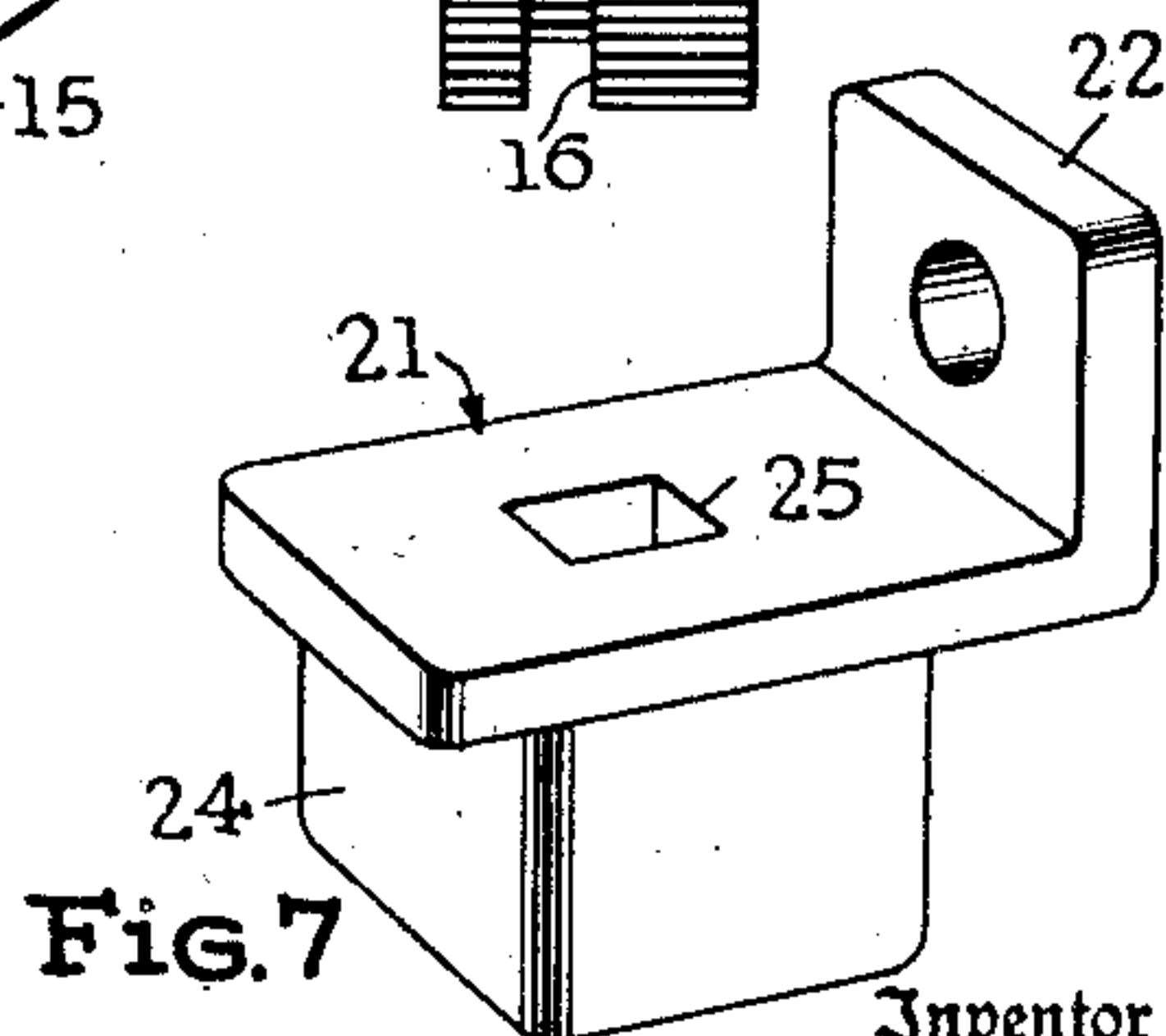
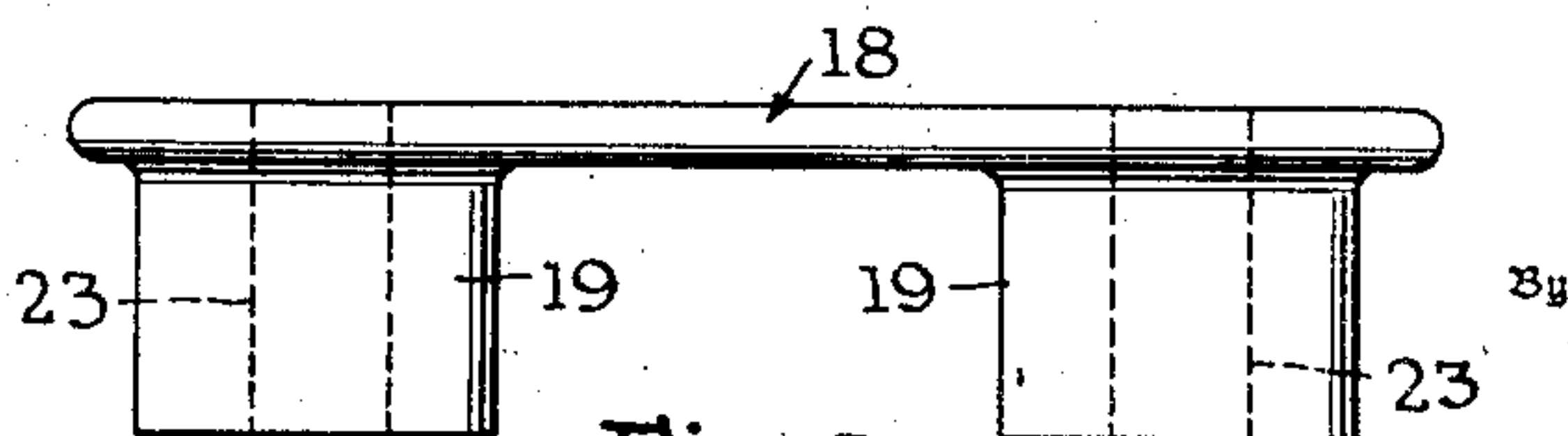


Fig. 6



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UNITED STATES PATENT OFFICE

2,659,766

INSULATOR MOUNTING

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2 Claims. (Cl. 174—153)

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This invention relates to an improved type of insulating structure for use in electrical devices.

It has been the practice in the past to make resistor units having end plates made of a pressed fiber insulating material. It has been found that these end plates do not stand up satisfactorily in service.

There is a need for a simple construction permitting the use of metal end plates in such resistor units. It is imperative that the insulators associated with the metal end plates be reliably secured in place. It is also desirable that the individual resistance elements be easily replaceable in the resistor unit.

According to the present invention, the end plates are formed from metal plates having a plurality of punched openings which receive insulators of a simple form. These insulators, preferably of a ceramic material, are supported in these openings and are retained against removal by a novel locking means.

Fig. 1 is a fragmentary, sectional view of a resistor unit embodying the invention.

Fig. 2 is a fragmentary view of an end plate showing the preferred form of the insulator receiving opening.

Fig. 3 is a face view of one of the bushing type insulators embodying the invention.

Fig. 4 is a side view of that insulator.

Fig. 5 is a face view of a terminal clip used in conjunction with the invention.

Fig. 6 is a side view of that terminal clip.

Fig. 7 is a perspective view of a modified type of terminal clip.

The resistor unit has end plates 11 which are provided with punched openings 12. As shown in Fig. 2 the margin of these openings 12 is provided with slots 13. The bushing type insulators 14 are provided on their outer peripheries with projecting lugs 15. A circumferential channel 16 is formed in these lugs. The axial opening 17 through the insulator 14 has a square cross-section.

The terminal clip 18 shown in Figs. 5 and 6 is provided with two projecting bosses 19 which have a square section. The bosses 19 are dimensioned to fit the openings 17 thus preventing rotation between these parts when assembled. The bosses 19 are provided with openings 23 which are preferably square in cross-section. The second form of terminal clip 21 has an upturned connecting flange 22. This clip 21 is provided with a single square boss 24 having an opening 25.

Disposed between alined openings 12 in the

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end plates 11 are coil resistance elements 26. The ends of these elements 26 have flat washers 27 welded thereto. Extending outwardly through the washers 27 are carriage bolts 28 having the conventional square shank portions 29. These bolts 27 pass through the openings 23, or 25 in the terminal clips and are secured by the nut and washer as generally indicated at 31.

Insulators 14 are axially inserted into adjoining openings 12 in one end plate (the left end plate as seen in Fig. 1) with the lugs 15 and slots 13 alined. When the channel 16 is alined with the plate 11, the insulators 14 are turned 90° whereby portions of the plate 11 are retained in the channel 16. The terminal clip 18 is then put in place with the bosses 19 extending in the openings 17 in adjoining insulators 14.

The engaging surfaces of the bosses 19 and the openings 17 need not be square. Any non-circular connection whereby the insulators are securely held against rotation will suffice. After the insulators are in place in the plate 11, resistance elements 26 are inserted through the corresponding openings in the opposite end plate 11 and bolted to the terminal clip 18. The square shank 29 of the carriage bolt provides a convenient method of holding the bolt against rotation during this operation.

The length of the bosses 19 is such that the insulators 14 are not subjected to compression. With the resistance elements 26 thus secured at one end, insulators 14 are put in place in the other end plate 11 and locked. Terminal clips of either type may be associated with the resistance elements 26 at this end. A modified type terminal clip 21 is shown secured to the lower resistance element 26 in Fig. 1. This element 26 is securely held against rotation by the square shank 29 of the carriage bolt which engages the opening 23 in the terminal clip 18. Therefore, when the terminal clip 21 is bolted in place the insulator 14 will be held against rotation and unlocking.

While the preferred embodiment has been described in considerable detail, it will be apparent that the basic concept of using a non-rotating conductor to secure an insulator in its locked position could be used in a variety of structures. No limitation to these details is implied.

I claim:

1. In an electrical device the combination of an apertured supporting plate, a rigid insulator supported in an aperture in said plate, the periphery of the insulator and the margin of said aperture being formed with inter-engaging

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lugs and slots of the bayonet lock type so arranged that the insulator may be inserted axially and thereafter locked in place against axial withdrawal by a predetermined partial rotation of the insulator about its axis, said insulator having a non-circular aperture therein; a conductor member having a portion shaped to fit said non-circular aperture and engaged therein to inhibit relative rotation of the conductor member and the insulator; and means serving to hold said conductor member against rotation, and thus inhibiting rotation of said insulator.

2. In an electrical device the combination of a supporting plate having at least two spaced similar apertures; two insulators supported in said spaced apertures, the periphery of each insulator and the margin of the aperture engaged thereby being formed with inter-engaging lugs and slots of the bayonet lock type so arranged that each insulator may be inserted axially in the corresponding aperture and then may be locked in place by a predetermined partial rota-

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tion about its axis, each insulator having a non-circular aperture therein; and a conductor member having two portions spaced apart so as to enter the non-circular apertures in respective insulators after the insulators are in place, the entering portions of the conductor being non-circular so as to engage the insulators and prevent rotation of each.

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