

No. 896,838.

PATENTED AUG. 25, 1908.

C. J. KLEIN.

ELECTRICAL APPARATUS.

APPLICATION FILED NOV. 27, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

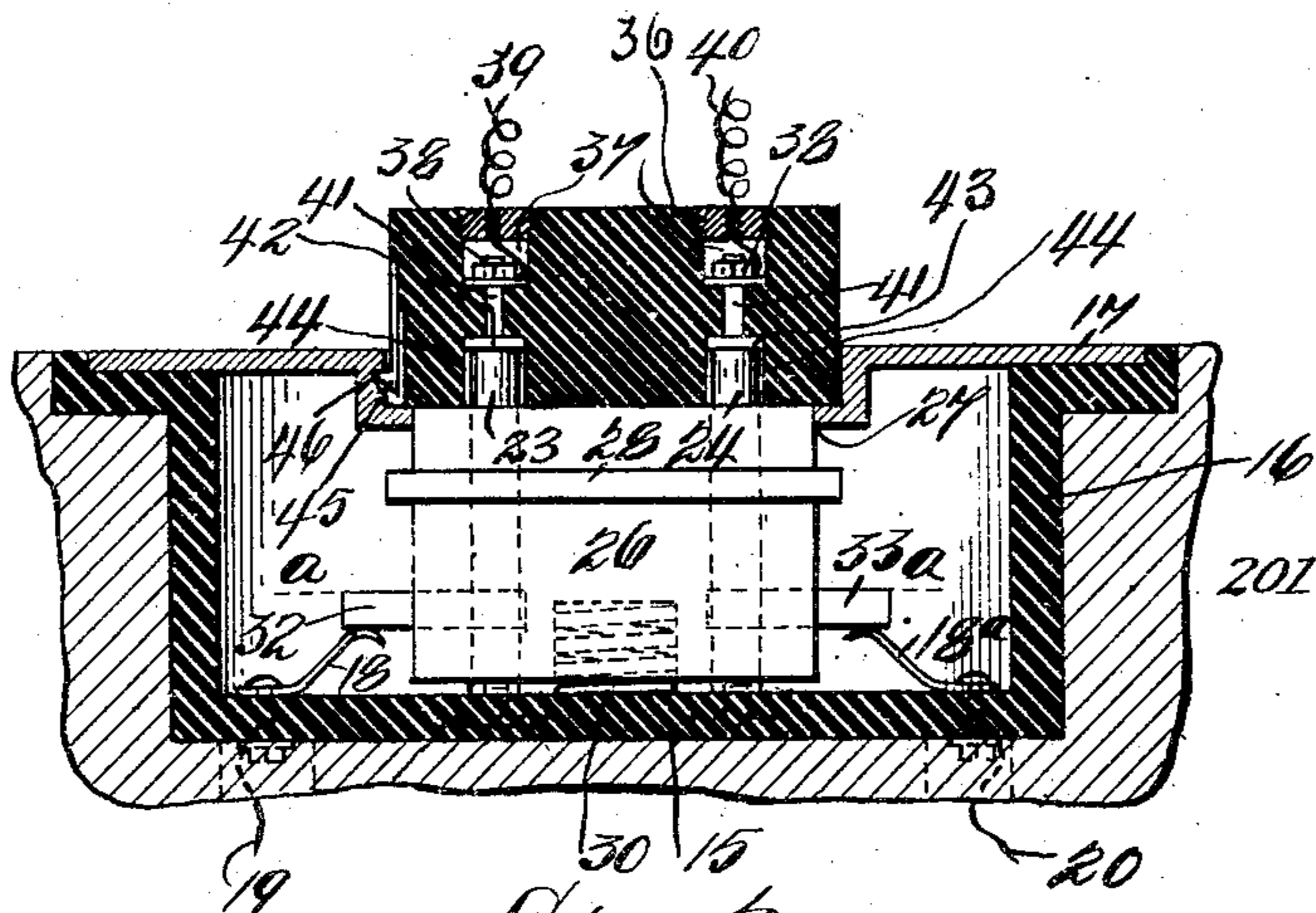
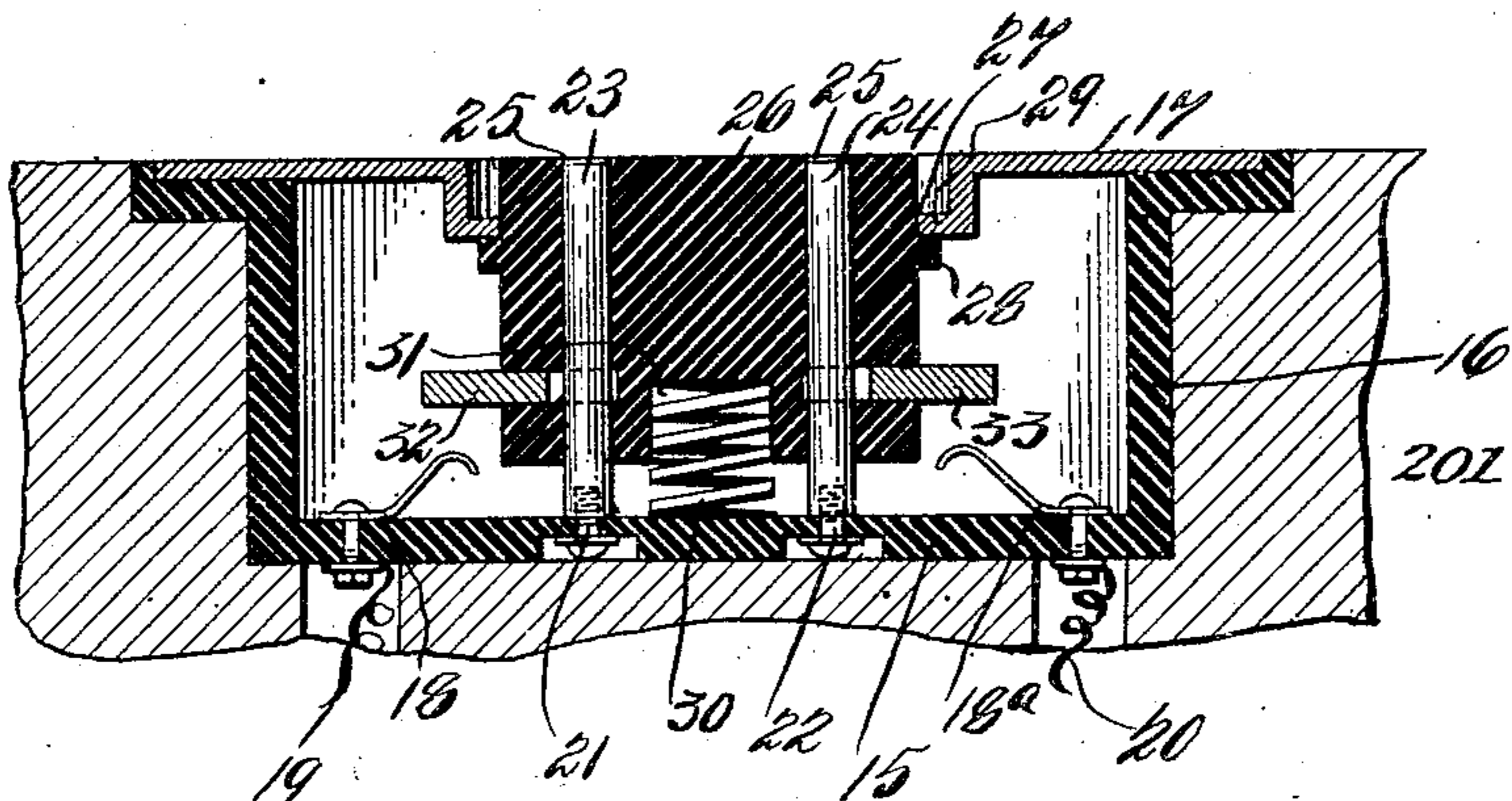
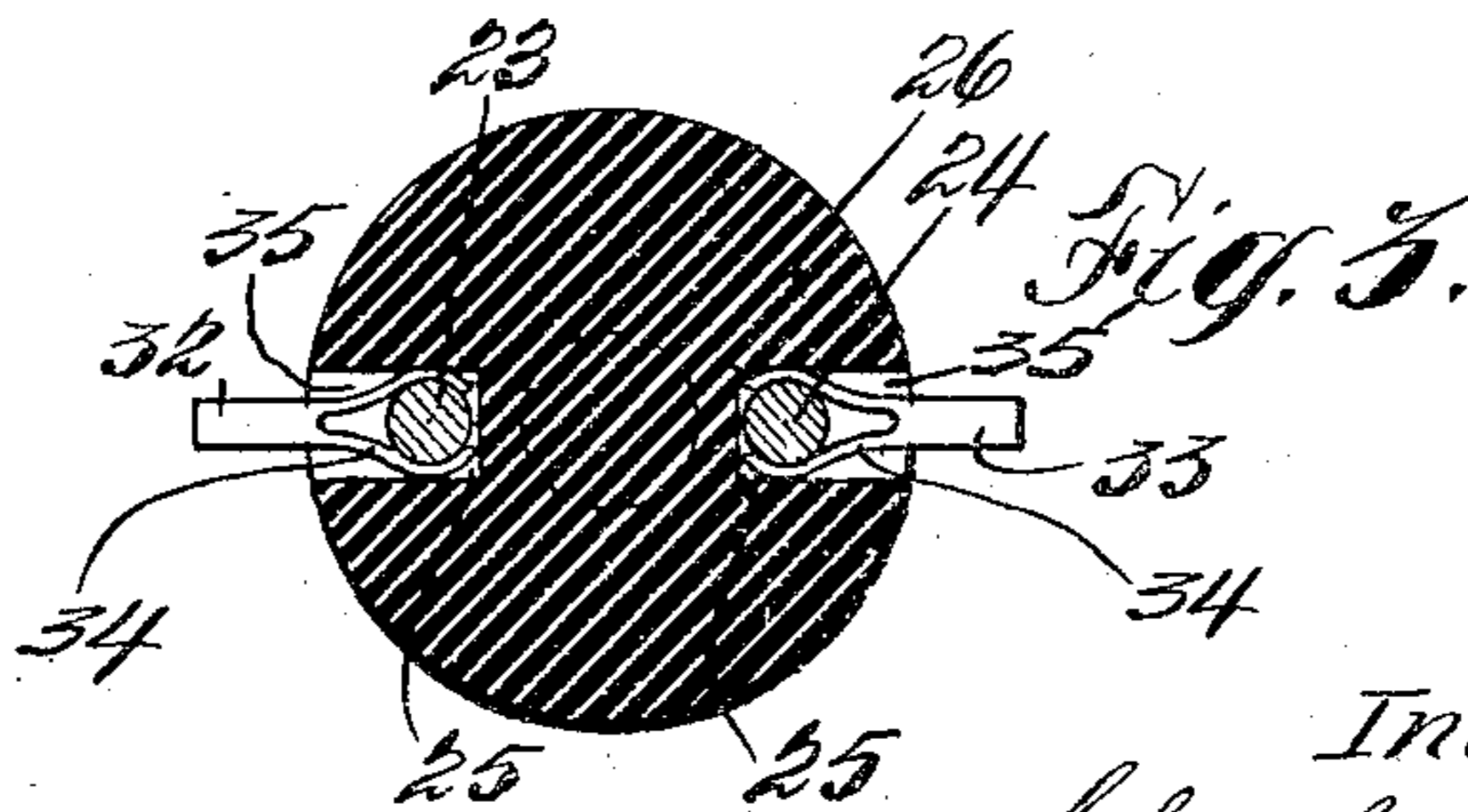


Fig. 2.



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2. SHEETS—SHEET 2.



Fig. 5.



Fig. 4.



Fig. 7.

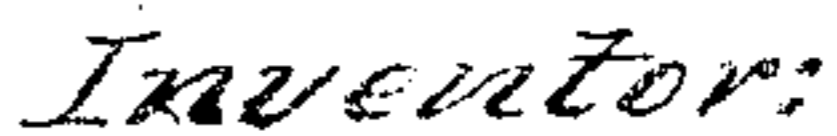
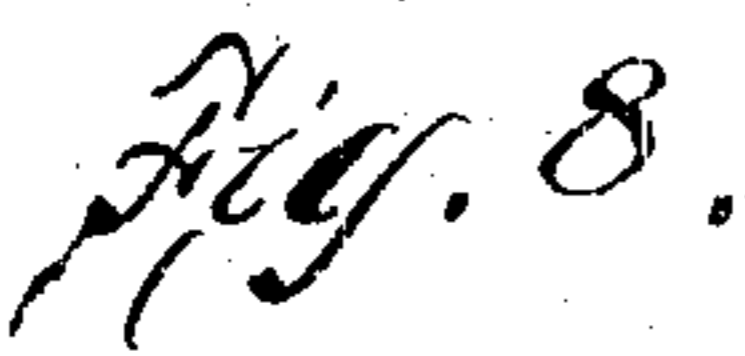


Fig. 6.

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UNITED STATES PATENT OFFICE.

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ELECTRICAL APPARATUS.

No. 896,838.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed November 27, 1906. Serial No 345,403.

To all whom it may concern:

Be it known that I, CHARLES J. KLEIN, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Electrical Apparatus, of which the following is a specification.

This invention relates to electrical apparatus, and more particularly to electric switches or cut-outs.

In wiring buildings, it is customary to place the box or receptacle, which is the fixed part of the switch, at suitable predetermined places or intervals in the floor, wall or ceiling and in position at all times to cooperate with a contact carrying device or plug which carries wires leading to the consuming device.

In the accompanying drawings showing illustrative embodiments of this invention, in which the same numeral refers to the similar parts in the several figures, Figure 1 is a longitudinal vertical sectional view of my box or receptacle showing the insulating closing block in its outward or extended position protecting the ends of the stationary circuit members. Fig. 2 is a longitudinal vertical sectional view similar to Fig. 1 showing the insulating block 26 depressed and the plug or contact carrying device in operative position. Fig. 3 is a horizontal section on line *a-a* of Fig. 2. Fig. 4 is a longitudinal vertical section of a modification. Fig. 5 is a plan view of the structure shown in Fig. 4. Fig. 6 is a view similar to Fig. 4, the block being shown in side elevation, showing the contact carrying member partly in vertical section and in operative position in the box or receptacle. Fig. 7 is a longitudinal vertical section of the plug or contact carrying member used in this form of my invention, and Fig. 8 is a bottom plan view of the same.

In the illustrative embodiments of this invention 201 is a wall, floor, ceiling or any other support in which I mount my box or receptacle preferably formed of insulating material and consisting of a bottom 15 and side walls 16. On the bottom 15, Fig. 1, in any suitable manner, as by screws 21 and 22, I mount posts or circuit members 23 and 24, their lower ends being internally screw-threaded to receive the ends of the screws 21 and 22 respectively. Upon these posts or circuit members 23 and 24 I slidably mount an insulating closing block 26 of porcelain or

any other suitable insulating substance provided with openings 25, 25, for the reception of the posts or circuit members and in the bottom formed with a depression or socket 31 for the reception of a spring 30, one end of which is mounted in the socket 31 and the other end bears upon the bottom 15 of the box. This spring 30 normally forces the insulating block 26 outward to the position shown in Fig. 1, such outward movement of the block being guided through the opening 27 in the face plate, into which the block 26 and posts or circuit members 23 and 24 extend, by the downwardly and inwardly turned flange 29 of the face plate 17.

Upon the block I form any suitable stop to co-act with the inwardly turned flange 29 of the face plate. This stop I preferably, though not necessarily, form as a bead 28 upon the block, which contacting with the inwardly turned flange 29 serves to limit the outward movement of the insulating block 26 under the action of the spring 30.

The stop or bead 28 is so positioned on the block 26 that the block, in connection with the face plate always closes the interior of the box or receptacle in whatever position it may be. Even in the extreme depressed position shown in Fig. 2, the interior of the box is absolutely closed, preventing dirt or foreign matter of any description from getting into it; such foreign matter would not only foul the box but would tend to create a short-circuit within it. This closing of the interior of the box at all times also prevents tampering with the inclosed contacts. Within the block I also arrange radial sockets 35, 35, preferably one hundred and eighty degrees apart within which I mount sliding contacts 32, 33, one of their ends 34 being bifurcated to receive the posts or circuit members 23, 24, Fig. 3. These contacts slide on the posts 23, 24 and move with the block 26; when the block is in its retracted position, as shown in Fig. 2, they contact respectively with fixed contacts 18, 18^a connected respectively with line wires 19 and 20.

The block 26 is operated by means of a plug or contact carrying device 36, Fig. 2, made to fit the depression in the face plate 17. The contact carrying device may be made of porcelain or any other insulating material and is provided with chambers or pockets 37 within which are secured the ends of the service wires 39, 40, which are con-

connected to the contacts 41, 41 by means of binding nuts 38, 38. The lower ends of these contacts 41 are enlarged as at 42, 43 and seated in recesses or chambers 44, 44 which are adapted to receive the ends of the posts or circuit members 23 and 24, Fig. 2.

To hold the plug or contact carrying member to the box or receptacle, against the outward thrust of the spring 30, I may use any suitable locking means. Such means may consist of a spring catch 45 mounted in a recess on the side of the plug 36 and detachably engaging with a notch 46 in the face plate 17, Fig. 2. The catch is readily disengaged from the face plate, when it is desired to remove the plug or contact carrying device, by simply pressing the catch 45 inward until it escapes the notch 46 when the plug can readily be withdrawn. While I have described this form of lock, it is to be understood that any other form may be used without departing from my invention.

Instead of having my insulating block round I may have it oblong and also use a different form of stop to limit the outward movement of the block, as well as use a different form of sliding contacts, always, however, keeping the interior of the box closed in whatever position the insulating block may be.

In Fig. 4 I may use a face plate 17 having merely a depending flange 159, which in this form of my invention is oblong to surround a similar oblong opening 154 in the face plate 17. The flange 159 serves partly as a cover, to keep the interior of the box or receptacle closed at all times, and partly as a guide or support to the insulating block 153. The insulating block 153 is also guided in its movement by another guide which as shown is a screw 156 screwing into the bottom 15 of the box or receptacle, and upon which I preferably mount a resilient member, such as a coiled spring 158, one end resting upon the bottom of the box and the other upon the bottom of the block 153. This spring normally forces the block outward which movement is limited by the head 155 of the screw 156. The insulating block in this form is also provided with two openings 152, 152 within which are mounted sliding electrical contacts 160, 160 mounted to slide upon posts or circuit members 149, 150, the screw-threaded portions 147 and 148 screwing into or being otherwise secured in the bottom 15 of the box or receptacle. Upon each of the circuit members I mount any suitable yielding means, such as coil springs 161, 161, having one end resting upon the interior of the box and the other end resting in a hollow chamber 162 of the sliding contact. These springs 161 force the contacts outward until such outward movement is stopped by the heads 151.

Inward movement of the sliding contacts

160, 160, against the action of the respective springs 161, will cause these members to contact with the contacts 143 and 144, connected respectively with the service wires 145 and 146; thereby causing the current to flow through the circuit members 149 and 150. To make the insulating block 153 present a neater appearance I may mount a plate 202, upon it securing it by cement or any other suitable means to the block.

The contact carrying member 163 which takes the current from these circuit members is shaped to snugly fit the opening 154 in the face plate, which as shown is oblong, though it is to be understood that the configuration of this opening in the face plate is immaterial. I provide the body of the member 163 with three openings 164, 164 and 171; the opening 171 receives the end of the screw 156, as shown in Fig. 6 when the block 153 is depressed; the other openings 164 and 164 have mounted within them spring contacts 165 and 166 which connect respectively with wires 167 and 168, and into these openings 164 extend the circuit members 149 and 150, Fig. 6, when the contact carrying member is applied to the box or receptacle. The openings 164 are of less diameter than the sliding contacts 160 so that the contacts 160 are forced inward by the contact carrying member 163, against the action of their springs 161, 161, until they contact with the contacts 143 and 144, the current then passing from the service wires through the sliding contacts 160, 160, circuit members 149, 150, contacts 165, 166 to the wires 167 and 168. To hold the contact carrying member 163 to the box or receptacle I may use some locking means, such as a spring catch 169 cooperating with a notch 170 in the depending flange 159 of the face plate 17, Fig. 6.

It will be seen that in whatever position the insulating block may be, either in the extreme outward position shown in Fig. 4 or the extreme inward position shown in Fig. 6, the interior of the box or receptacle which is preferably formed of insulating material is always closed. It will also be noted that the contacts carried by the contact carrying member are located in the body of the member and thoroughly protected from damage or injury of any kind. Furthermore in my device the contact carrying member can be applied to the box or receptacle with a rough adjustment, requiring no accurate fitting of the parts. The two parts can be accurately seated by simply roughly moving the contact carrying member across the face of the box or receptacle with an inward pressure, the parts seating as soon as the contact carrying device registers with the insulating block.

Having thus described this invention in connection with illustrative embodiments thereof, to the details of which I do not de-

sire to be limited, what is claimed as new and what it is desired to secure by Letters Patent is set forth in the appended claims:

1. In a device of the class described, a box, 5 a face plate therefor having an aperture surrounded by a depending flange, fixed circuit members extending above the bottom of the aperture of the face plate, a block mounted 10 on the circuit members and guided by the flange of the face plate, electrical contact devices in the box, means for normally pressing the block outward and means for limiting such outward movement of the block.

2. In a device of the class described, a box, 15 circuit members mounted therein, a face plate for said box having an aperture through which the circuit members extend and a downwardly and inwardly extending flange, a block mounted on the circuit members, 20 having a bead to cooperate with the inwardly turned portion of the flange to limit the outward movement of the block, electrical contact devices in the box and means for normally pressing the bead of the block 25 into contact with the inwardly turned flange of the face plate.

3. In a device of the class described, a box, a face plate therefor having an aperture and a downwardly and inwardly extending flange, 30 a block adapted to be guided by the flange of the face plate, circuit members fastened to the box upon which the block is adapted to be moved, movable contacting devices carried by the block and adapted to have sliding 35 electrical connection with the circuit member, a fixed contact member to cooperate with the movable contact member carried by the block, a bead upon the block, adapted to 40 cooperate with the inturned flange of the face plate to limit the outward movement of the block and means for normally causing the block to close the aperture of the face plate.

4. In a device of the class described, a box, a face plate therefor having an aperture and 45 a downwardly and inwardly extending flange, a block adapted to be guided by the flange of the face plate, circuit members fastened to the box upon which the block is adapted to be moved, movable contacting devices carried by the block and adapted to have sliding 50 electrical connection with the circuit member, a fixed contact member to cooperate

with the movable contact member carried by the block, a bead upon the block adapted to cooperate with the inturned flange of the face 55 plate to limit the outward movement of the block and means for normally causing the block to close the aperture of the face plate, the contact carrying device having recesses to cooperate with the circuit members 60 mounted in the box, and contacts completely housed within the recesses of the contact carrying device so as to protect them from injury.

5. In a device of the class described, a box, 65 a face plate therefor having an aperture and a downwardly and inwardly extending flange, a block adapted to be guided by the flange of the face plate, circuit members fastened to the box upon which the block is adapted to 70 be moved, electrical contact devices in the box, a bead upon the block adapted to cooperate with the inturned flange of the face plate to limit the outward movement of the block, means for normally causing the block 75 to close the aperture of the face plate, the contact carrying device having recesses to cooperate with the circuit members mounted in the box, contacts completely housed within the recesses of the contact carrying device 80 so as to protect them from injury, and means for temporarily locking the contact carrying device to the face plate.

6. In a box of the class described, a face plate therefor having a depression and an 85 opening therein, contacts in the box, closure means cooperating with the face plate to always close the box, said contacts having their ends extending out of the closed box.

7. In a device of the class described a box, 90 a face plate closing the box and having an apertured depression, circuit carrying members having their ends extending above the bottom of this depression and means for always closing the aperture in the face plate of 95 the box.

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

CHARLES JULIUS KLEIN.

Witnesses:

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PERCY L. ELIAS.