

No. 819,206.

PATENTED MAY 1, 1906.

F. H. CHEYNE.
COMBINED FUSE AND SWITCH.
APPLICATION FILED JAN. 12, 1905.

Fig. 1.

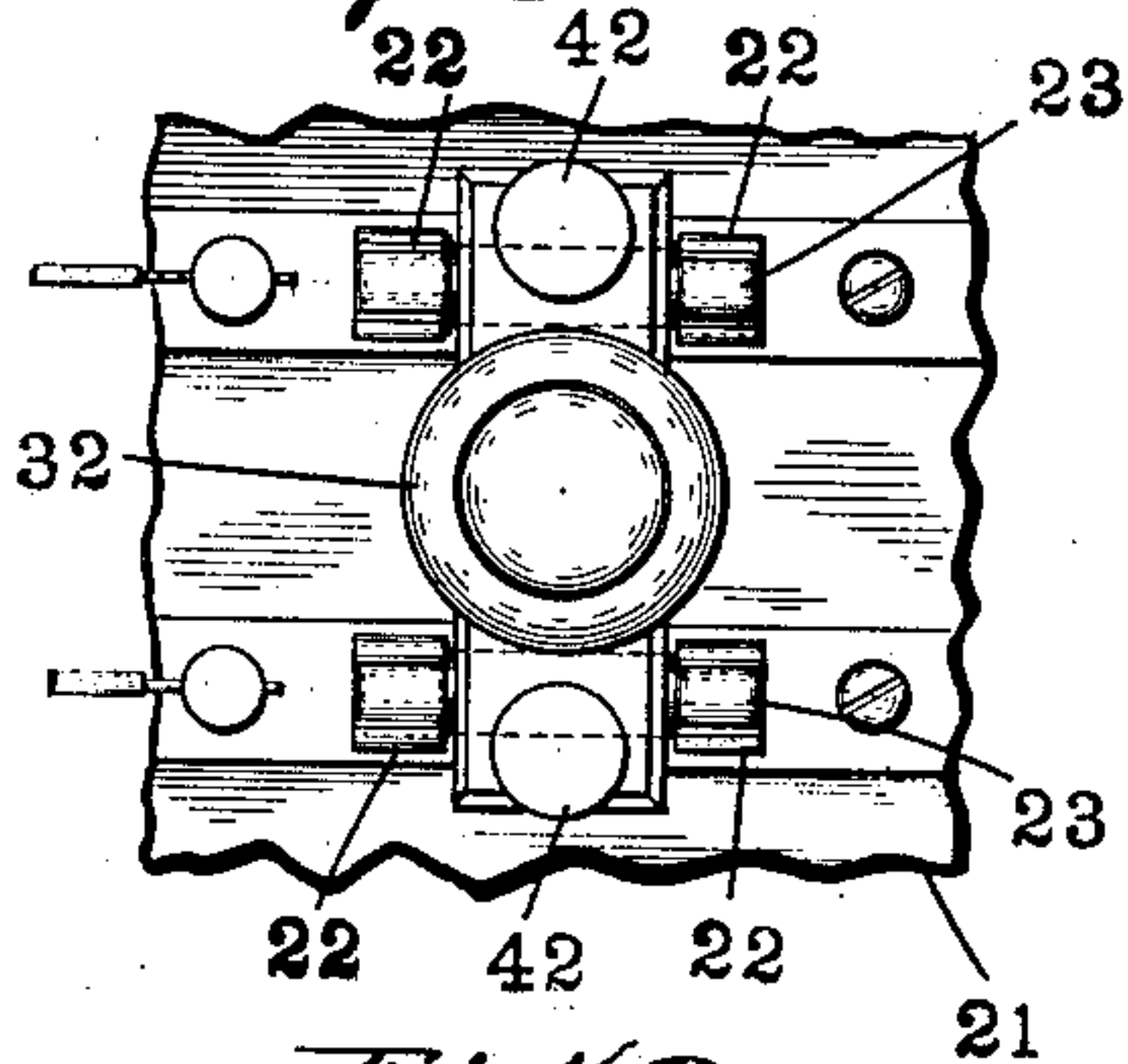


Fig. 2.

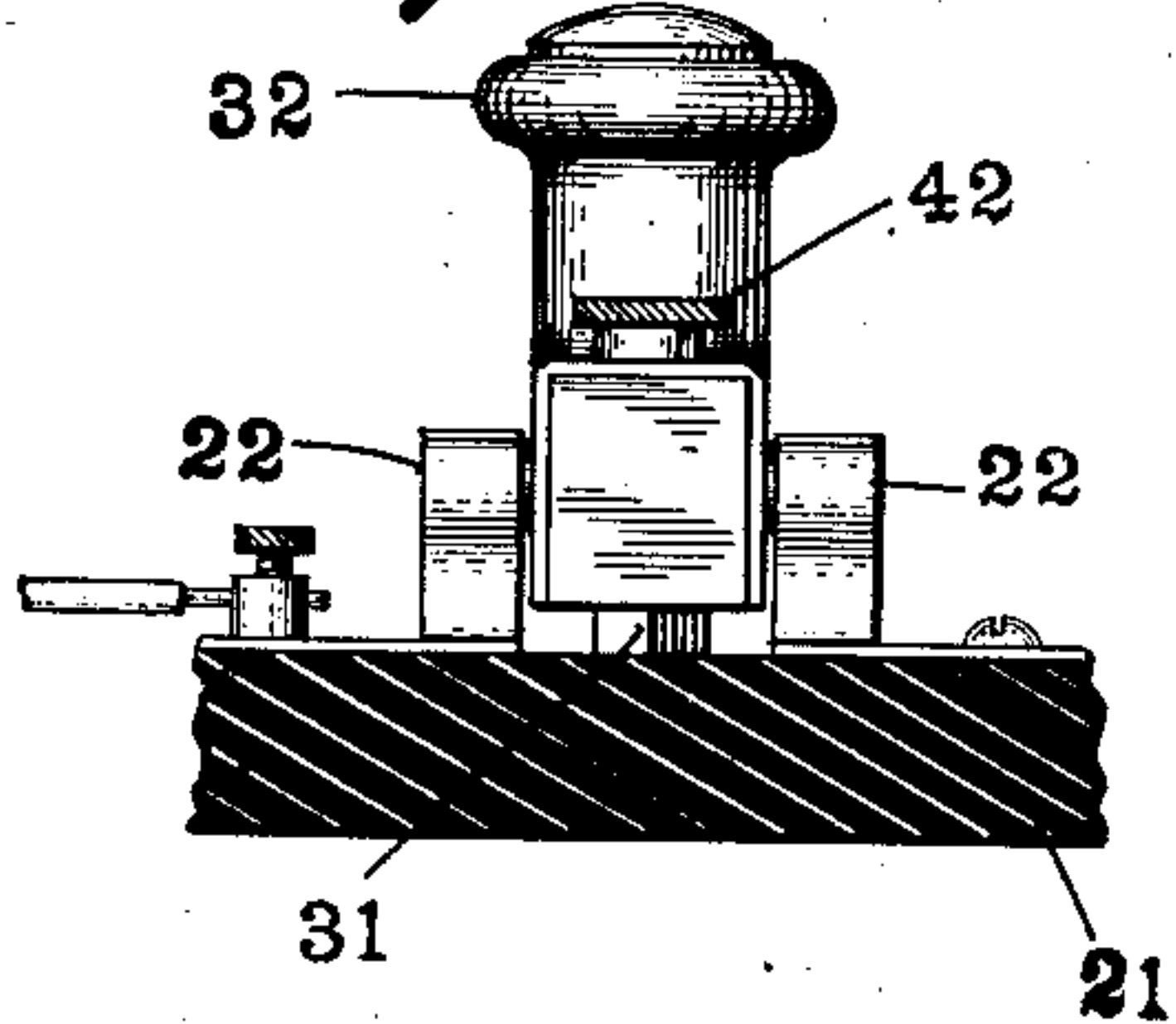


Fig. 3.

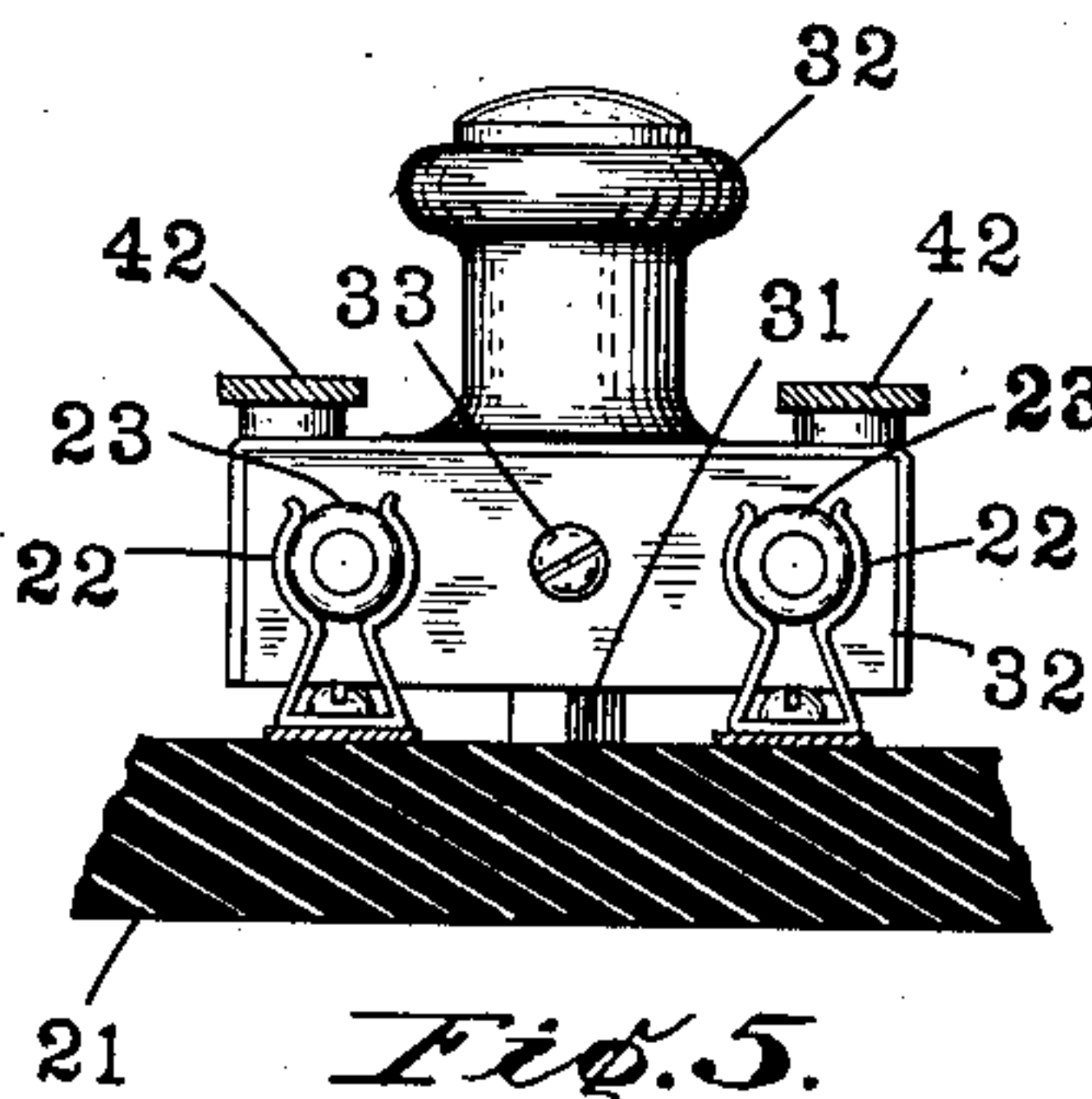


Fig. 4.

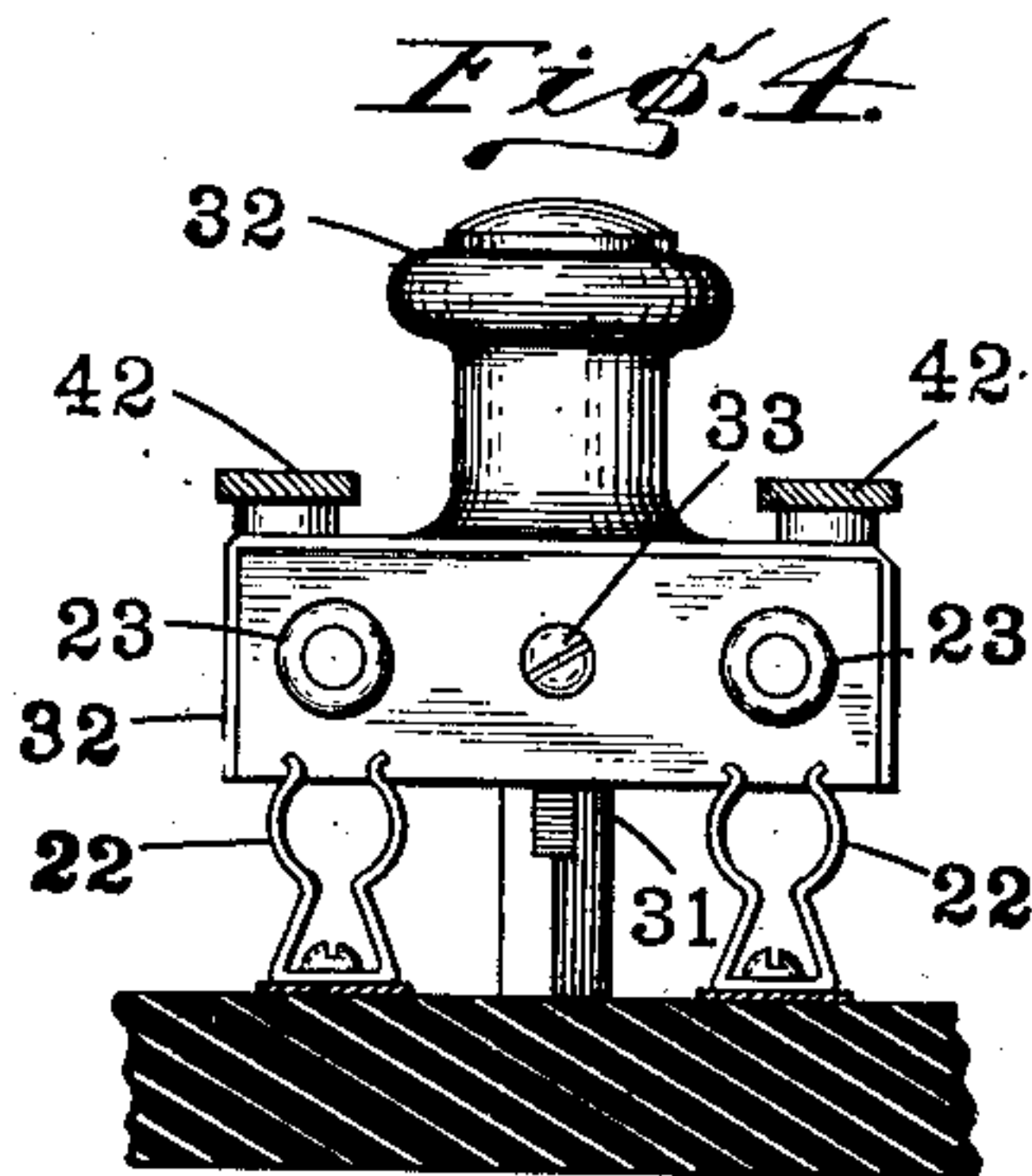


Fig. 5.

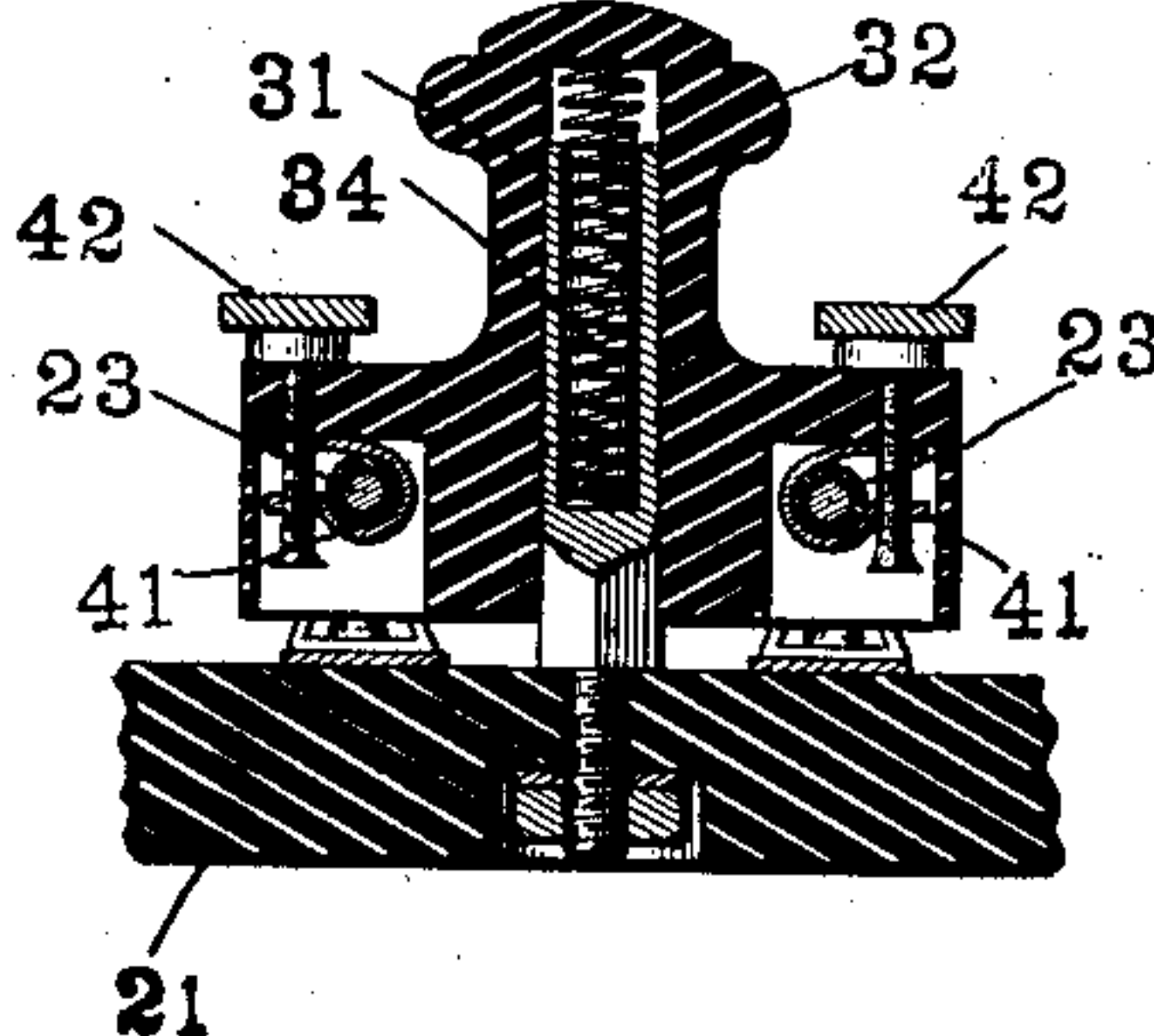


Fig. 6.

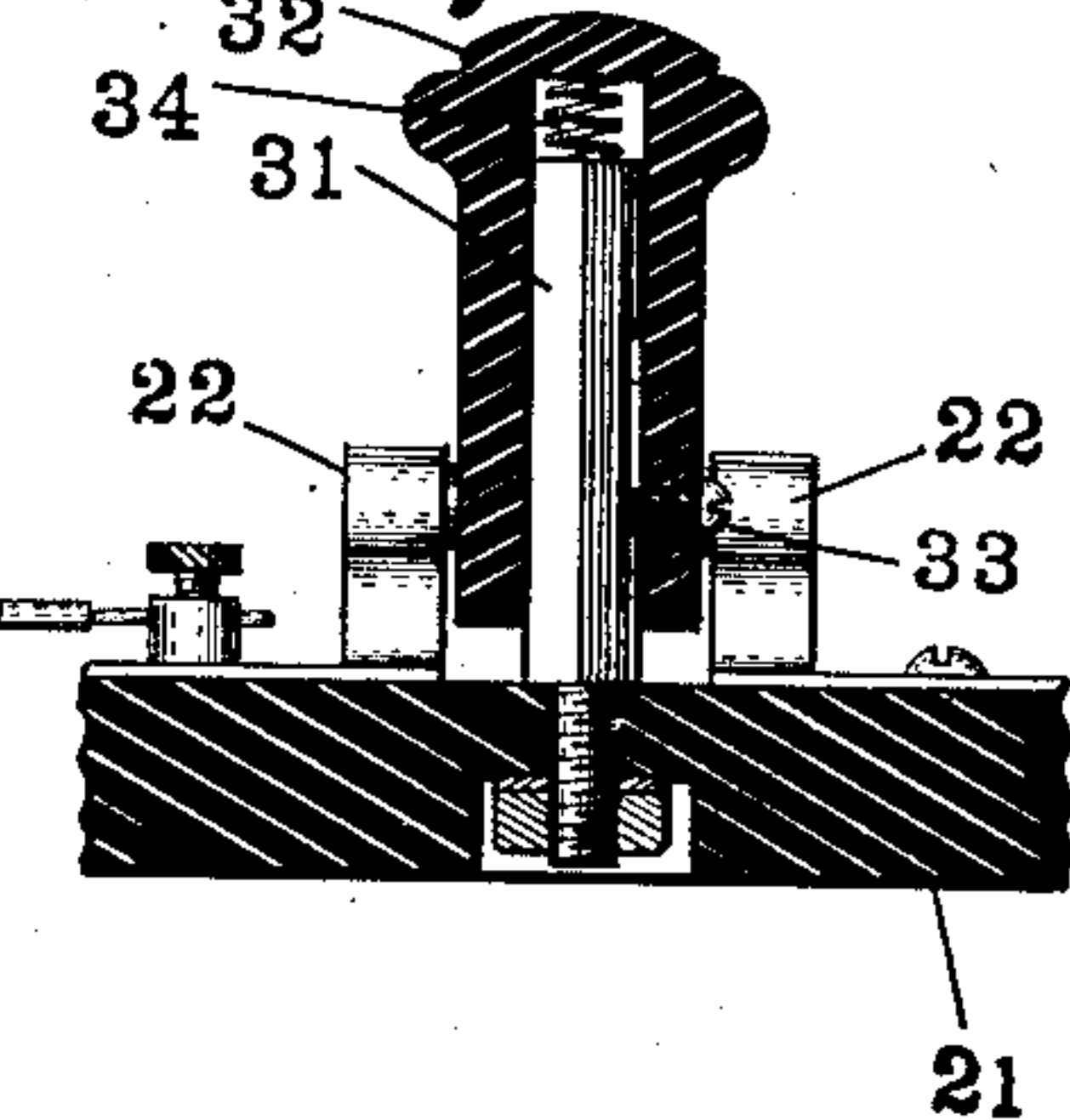


Fig. 7.

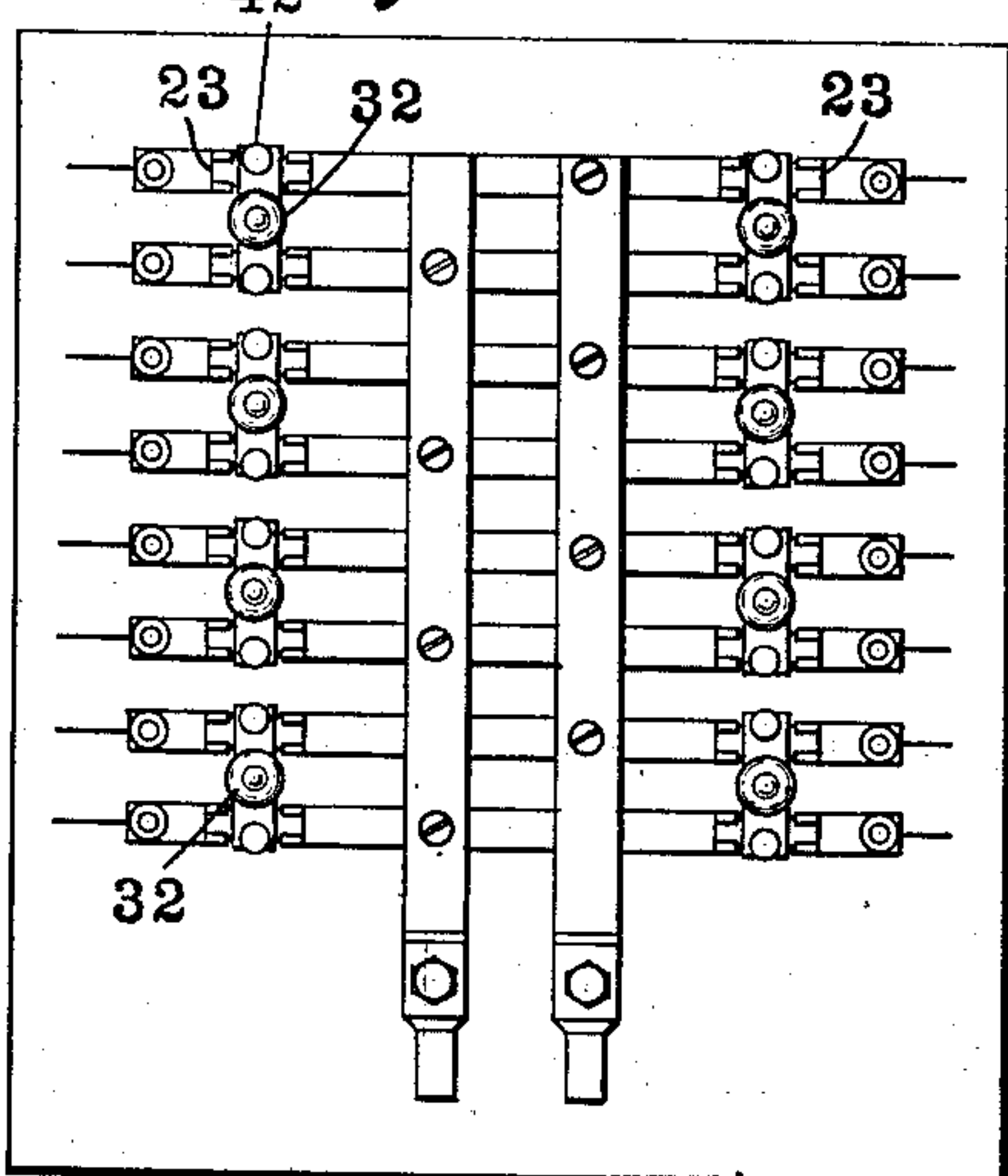
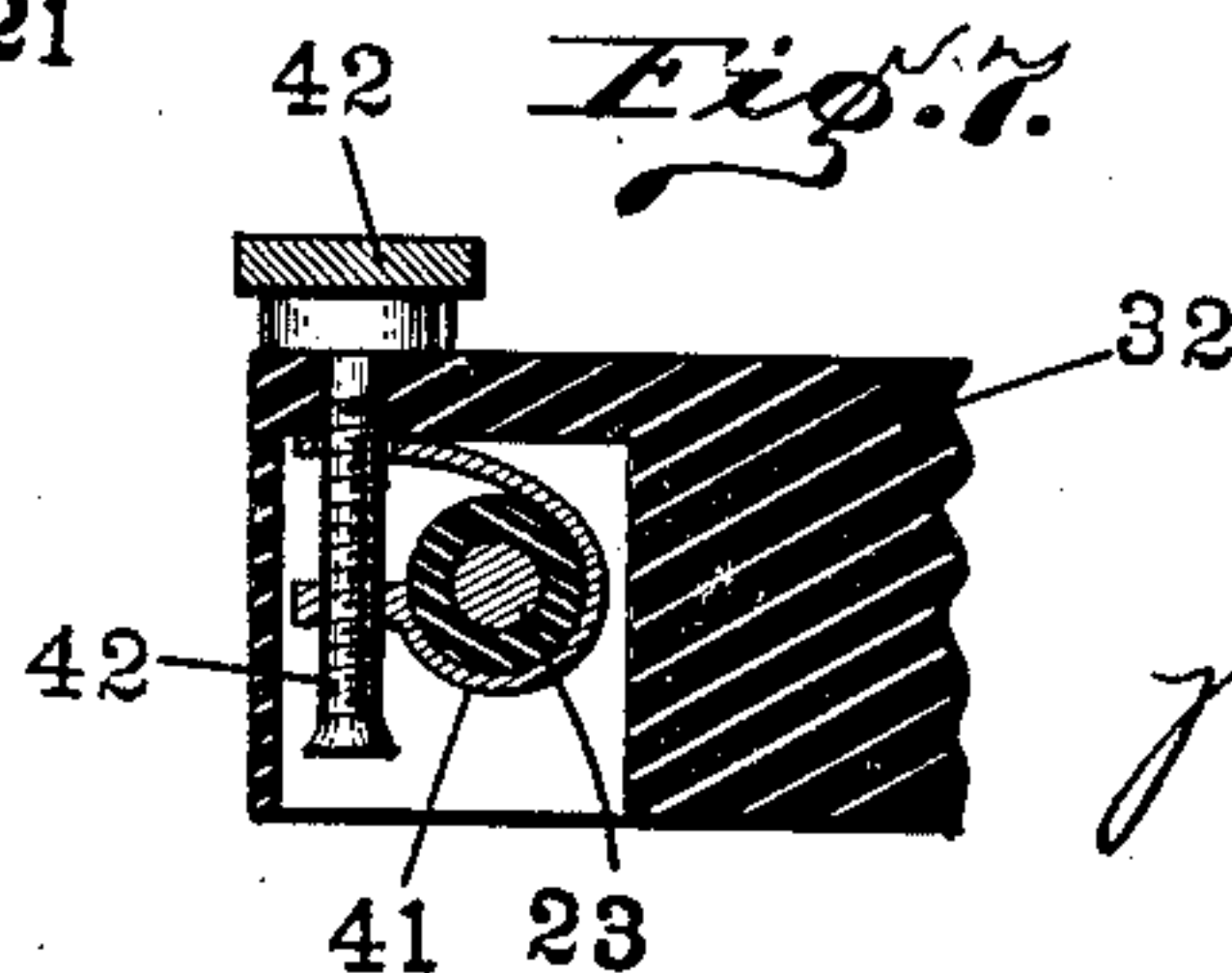


Fig. 8.



Witnesses
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FREDERICK H. CHEYNE, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO GORDON E. VARNEY, OF INDIANAPOLIS, INDIANA.

COMBINED FUSE AND SWITCH.

No. 819,206.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed January 12, 1905. Serial No. 240,733.

To all whom it may concern:

Be it known that I, FREDERICK H. CHEYNE, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Combined Fuses and Switches, of which the following is a specification.

In the installation of electrical systems what are called "panel-boards," embodying an assemblage of fuses and switches, are commonly employed.

It is the object of my invention to dispense with the ordinary switches in such situations altogether and to so mount and carry the fuses that, when desired, they will serve the purpose of switches, and in a superior manner.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a top or plan view of a combined fuse and switch embodying my said invention; Fig. 2, a side elevation of the same; Fig. 3, an end elevation thereof; Fig. 4, a view similar to Fig. 3, but with the switch open; Fig. 5, a transverse vertical central sectional view; Fig. 6, a longitudinal vertical central sectional view; Fig. 7, a detail sectional view similar to a portion of Fig. 5, but on an enlarged scale; Fig. 8, a diagrammatic view illustrating a panel-board equipped with apparatus embodying my invention.

The base 21 is the ordinary base upon which the electrical parts are mounted. Upon this are shown the ordinary spring-contacts 22, which are adapted to receive the ends of a well-known variety of commercial fuse-plugs 23. These fuse-plugs are of that variety which have insulated central portions and exposed metallic end portions which engage with the contacts, this being a variety which is favored by skilled electrical engineers and is commonly used in the better class of electrical construction.

At a central point between two of these fuses and the necessary four contacts therefor I place a support 31, and upon this I mount a combined fuse holder and handle 32 in such a manner that it is capable of reciprocal motion thereon. As best shown in Fig. 6, I limit this movement, and this may be conveniently done by forming a recess in the side of the support 31 with which the

point of a stop-screw 33 will engage. I also provide a means for keeping the holder and handle carrying the plugs in its raised position, after it has been raised and said plugs thus disengaged from the contacts. The means which I have shown for accomplishing this consists of a spring 34, which is mounted in a longitudinal perforation in the support 31 and which is interposed between facing surfaces of said support and of the combined holder and handle, all as best shown in Fig. 5.

The combined holder and handle carrying the plugs can be removed entirely from the support by simply loosening the retaining-screw 33 until it is withdrawn from the recess in the support 31 and then pulling the combined handle and holder entirely off of said support. The fuse-plugs can then be placed between the contacts in the ordinary manner, and the structure will become an ordinary panel-board of the variety sometimes used, which has no switches. Thus by the employment of my invention I am able to make my panel-boards all alike and furnish them either with or without switches, as may be called for, without any variation in the construction of the board itself. This reduces the cost of providing switches to merely the cost of the combined fuse holders and handles, or, as they may be briefly termed, "holder-handles."

It is desirable to secure the fuse-plugs in these holder-handles so that they will not move out endwise, although leaving them capable of some slight lateral movement in order that they may accommodate themselves nicely to the desired positions in the contacts. I therefore form mortises in the holder portion of this device, surrounding the holes within which the fuse-plugs are placed, and place within said mortises frictional clamping-rings 41, which are operated by the screws 42. These clamping-rings are made of spring material and are formed so as to normally surround the fuse quite loosely. Each ring at one end bears against the inner surface at the bottom of the mortise, and at that point has a hole through which the screw passes. It passes thence around the opening for the fuse-plug and at the other end has a screw-threaded perforation with which the screw engages. Therefore by simply tightening up the screw this friction ring or clamp is drawn closely

into contact with the surface of the fuse-plug at a central point, where it is provided with insulating-covering, and thus holds it from being displaced. The lower end of the screw should be enlarged or swelled somewhat after being put in, so as to prevent the parts from being disassembled and lost after being put together. This device as a switch is considerably more substantial than the ordinary knife-blade switch. It also insures a double break in the circuit instead of a single break, as both ends of the fuse-plug are pulled out from between the contacts at once. It also insures a very quick break, thus avoiding destruction of the parts by arcs, which is one of the objectional things liable to occur when the break is made slowly. On account of the spring which holds the holder-handle up when the switch is open it is necessary to push the parts full home in closing the switch before they will stay engaged, which insures that there shall be no heating or burning of the switch because of imperfect contact.

Another very considerable advantage resulting from the use of my improved combined fuse and switch is that the use of these specially-prepared fuse-plugs is compulsory with it. It frequently happens after electrical systems are installed that fuses when burned out are replaced by pieces of wire or common fusible metal, and this is strongly

condemned by underwriters, whose rules require the use of the regular standard fuse-plugs, such as are embodied in this construction. It is of course impossible to use ordinary fuse-wire as any part of a switch, on account of its form and character, and therefore the possibility of this violation of fire-insurance rules is effectively prevented by the use of my invention.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, in a combined fuse and switch, of suitable contacts, suitable fuse-plugs, a holder-handle in which said plugs are mounted, a support for said holder-handle, movement-limiting devices whereby the movement of the holder-handle relative to its support is limited, and a spring by which the holder-handle is held to the extreme position permitted by said movement-limiting device, and, disengagement between the plugs and contacts thus maintained after being effected until engagement is forcibly re-established.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 7th day of January, A. D. 1905.

FREDERICK H. CHEYNE. [L. s.]

Witnesses:

CHESTER BRADFORD,
JAMES A. WALSH.