

No. 803,895.

PATENTED NOV. 7, 1905.

B. M. GRAYBILL.
KNIFE SWITCH.

APPLICATION FILED MAR. 11, 1905.

Fig. 1

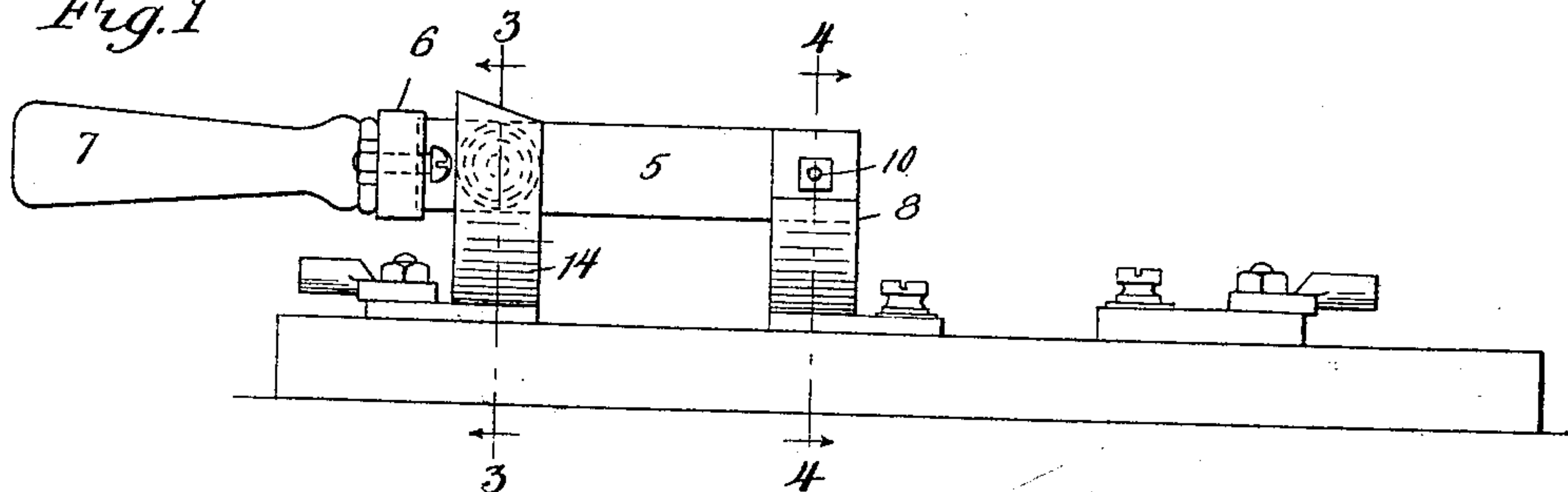


Fig. 2

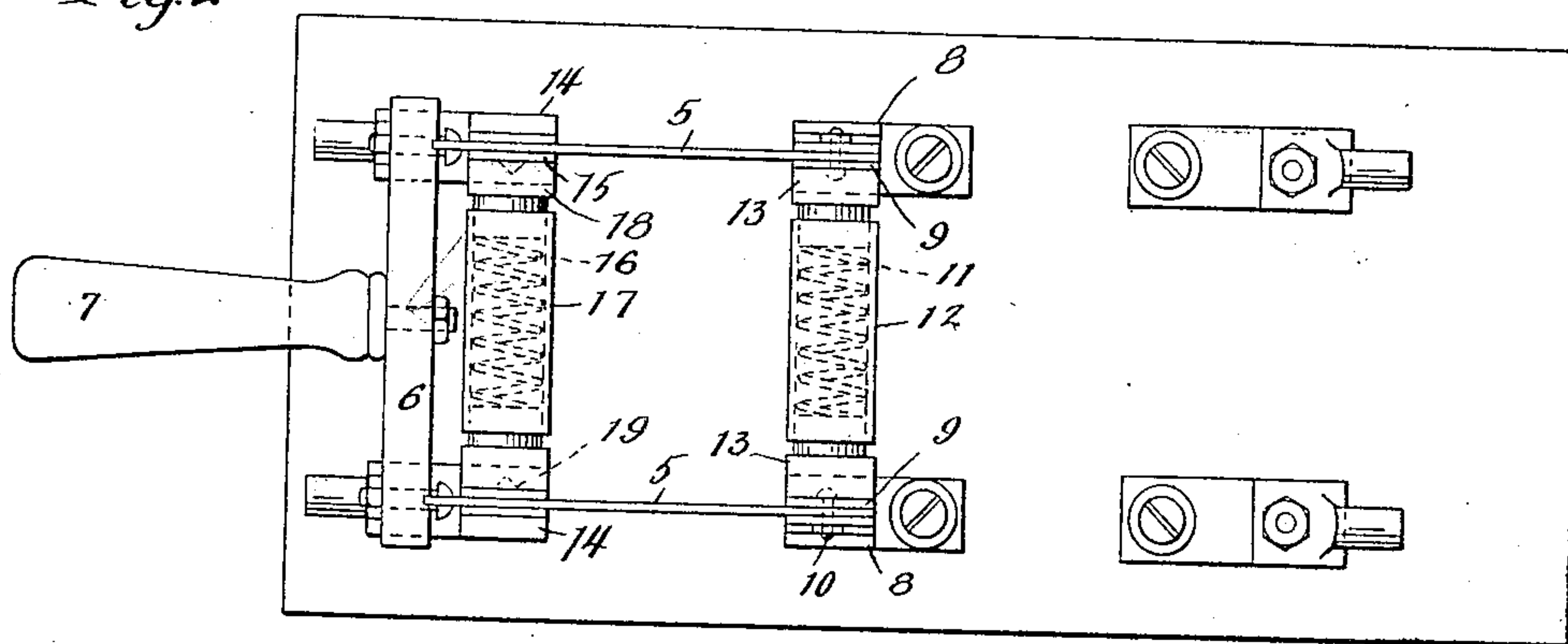


Fig. 3

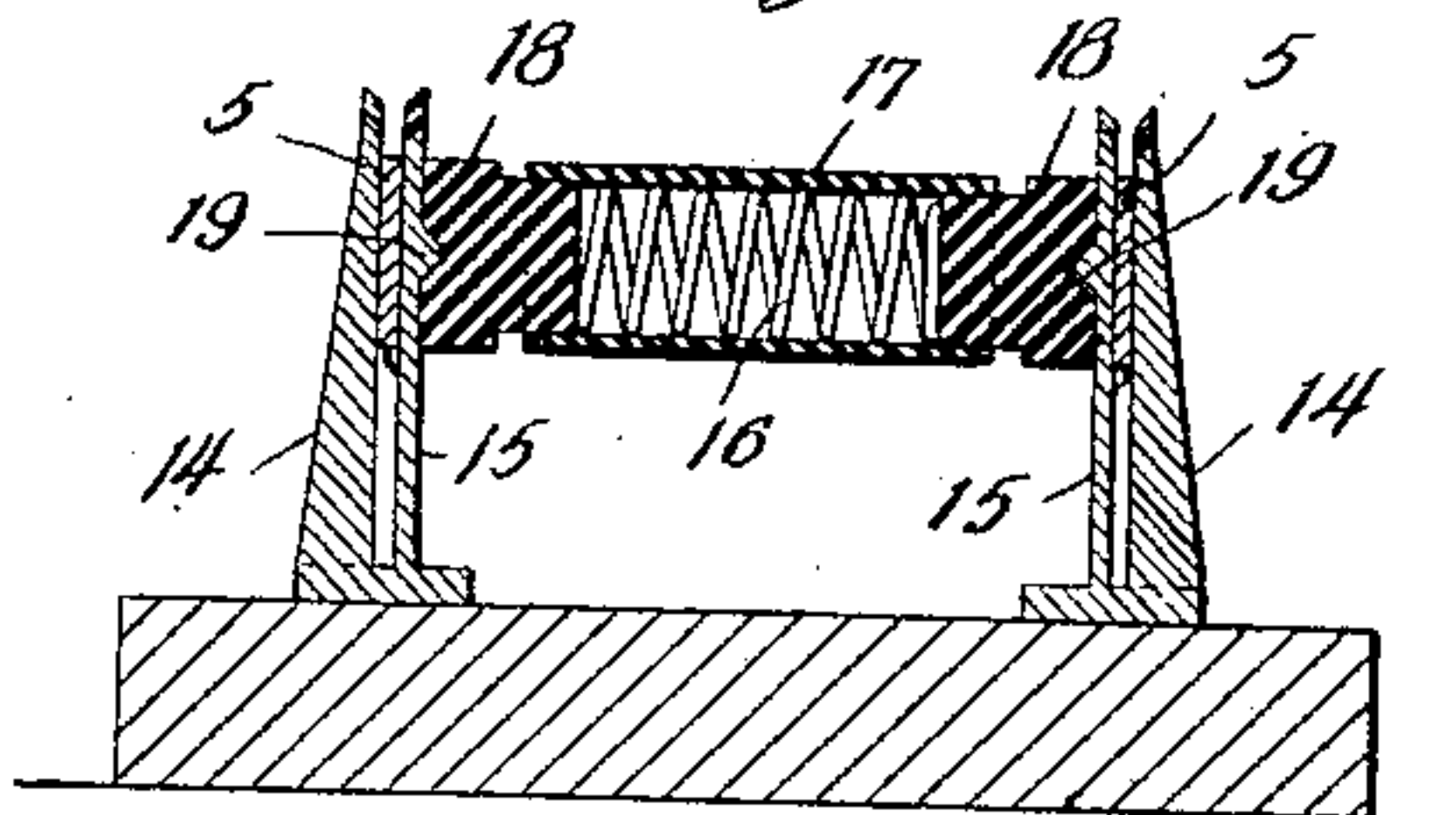
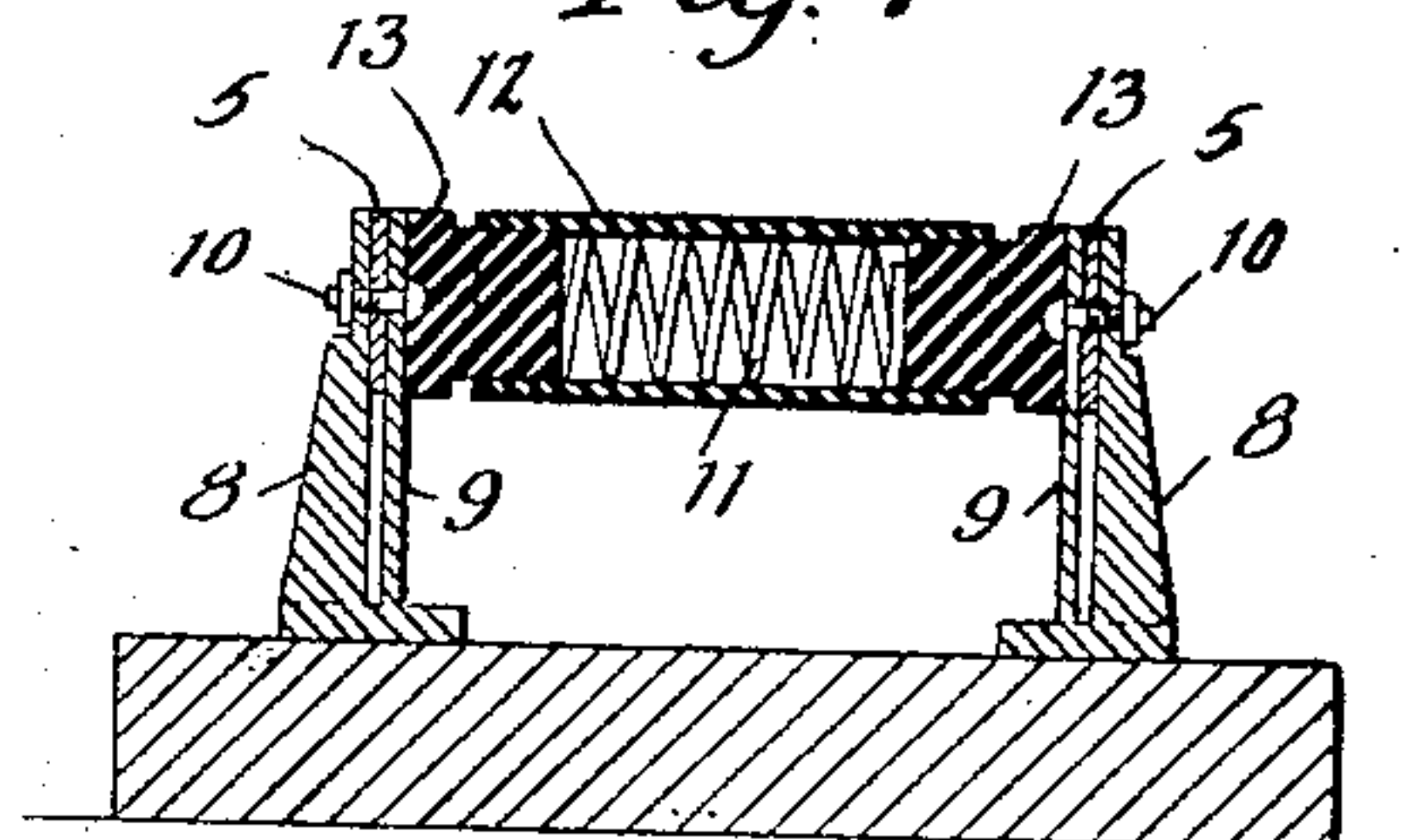


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE

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KNIFE-SWITCH.

No. 803,895.

Specification of Letters Patent.

Patented Nov. 7, 1905.

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To all whom it may concern:

Be it known that I, BIRD M. GRAYBILL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Knife-Switches, of which the following is a specification.

This invention relates to the construction of what are known as "knife-switches," and more especially to the construction of the jaws and hinges embodied therein.

The object of the invention has been to provide a construction permitting a more perfect contact between the knife and the jaws and between the knife and the hinging devices than has been obtained heretofore.

The invention consists in the novel combinations of parts and devices and novel constructions of parts and devices hereinafter explained, and illustrated in the accompanying drawings, forming a part of this specification.

In said drawings, Figure 1 is a side elevation of the switch. Fig. 2 is a plan view thereof; and Figs. 3 and 4 are sections on the lines 3 3 and 4 4, respectively, of Fig. 1.

Referring to the drawings, 5 5 are the knives connected in the usual manner by the insulating-head 6 and carrying the handle 7. The hinging devices consist of rigid standards 8 upon the outside of the knives and spring-blades 9 on the inside of the knives, the standard and blade of each hinge being united by a bolt 10, which also forms the pivot of the hinge and which pass not only through the standard 8 and blade 9, but also through the knife, as plainly shown in the drawings. Instead of relying upon the bolt and a spring-washer to maintain contact between the supports and the knife, as has been customary heretofore, I dispense with the washer and place a spring 11 between the blades of the two hinges—a spring which acts upon both blades and keeps them in close and uniform contact with the knives and also keeps the knives in contact with the standards 8. This spring is shown at 11, and to support it in position I inclose it in an insulating-tube 12, which is in turn supported upon insulating-blocks 13, one at each end. These blocks are notched out to receive the heads of the pivot-bolts 10. The blocks or plugs 13 need no other fastening, as they are held in position by pressure of the spring and by the notch engagement with the pivot-bolts. The blocks may have freedom to

move longitudinally in the tube, according as the spring is allowed to expand or is forced to contract.

The jaws with which the knives come in contact when the switch is put in action have heretofore been usually formed of upstanding spring-blades similar to the blades 9 upon both sides of the knives, the contact with the knives being obtained through their own spring action. With this construction the contact is not perfect and is usually limited to a portion of the opposing surfaces. Instead of this construction I now form the outer side of each jaw of a rigid standard 14 similar to the standard 8, employed in the hinges, and the inner side or blade 15 I make of flat spring metal and obtain the necessary clamping action by which contact is obtained by the standards and blades of both jaws with the knives through a spring 16, similar to the spring 11 of the hinges and arranged between the jaws. This spring is inclosed in like manner in an insulating-tube 17, mounted upon the ends of the insulating blocks or plugs 18.

The blocks 18 are notched out at their ends to receive projections 19, formed on the sides of the blades 15 which are presented to the blocks. The blocks 18 are permitted to move in the tube, retracting when the knives are inserted in the jaws and expanding when the knives are withdrawn. The spring 16 acts directly and squarely against the blades in the plane of the knives, and thus maintains contact between the knives and the jaws in all parts of their opposite surfaces, and the spring 11 acts in a similar manner at the hinges.

The springs may be made of any strength desired, and as they are inclosed they cannot get out of order or out of place.

I claim—

1. In a knife-switch, jaws for making contact with the knives, each composed of an outer rigid standard and an inner spring-blade, in combination with an insulated coiled spring pressing outwardly against the blades of both jaws.

2. In a knife-switch, hinges each composed of an outer rigid standard, an inner spring-blade, and a uniting-pivot, and an insulated coiled spring pressing outwardly against the blades of both hinges.

3. In a knife-switch, jaws and hinges each having rigid members and yielding inner members, an outwardly-acting coiled spring

between the jaws and an outwardly-acting coiled spring between the hinges.

4. In a knife-switch, the combination with the yielding members of the jaws for making
5 the contacts with the knives, of a coiled spring, an insulated tube and insulating-blocks, supported between the yielding mem-

bers and the blocks being pressed against such members by the spring.

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Witnesses:

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