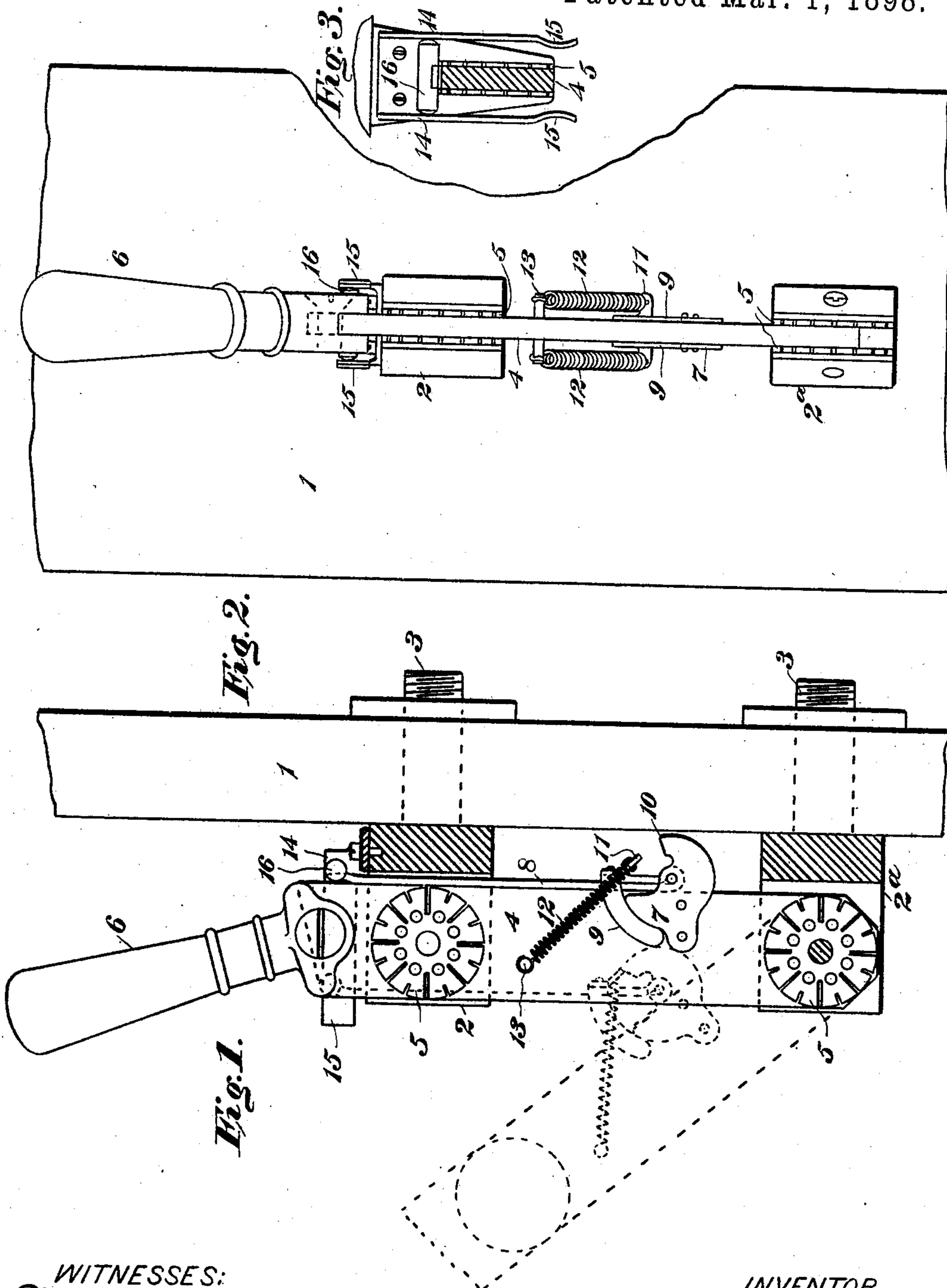


(No Model.)

H. P. DAVIS.
QUICK BREAK SWITCH.

No. 599,929.

Patented Mar. 1, 1898.



WITNESSES:

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HARRY P. DAVIS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE
WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, OF
PENNSYLVANIA.

QUICK-BREAK SWITCH.

SPECIFICATION forming part of Letters Patent No. 599,929, dated March 1, 1898.

Application filed July 22, 1897. Serial No. 645,491. (No model.)

To all whom it may concern:

Be it known that I, HARRY P. DAVIS, a citizen of the United States, residing in Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Quick-Break Switches, of which the following is a specification.

My invention relates to switches for electric circuits, and particularly to devices of this general class which are known as "quick-break" switches.

The object of my invention is to provide a switch which shall have a large current-carrying capacity in proportion to the dimensions of the device and which shall be simple and inexpensive in construction and certain in operation.

In the accompanying drawings, Figure 1 is a view, partially in side elevation and partially in section, of a switch constructed in accordance with my invention; and Fig. 2 is a front elevation of the same. Fig. 3 is a detail view, partially in plan and partially in section.

The details of construction are as follows:

1 is the usual switchboard-base, of marble or other insulating material, and 2 and 2^a are stationary jaw-terminals mounted upon the base 1 and having terminal studs 3, extending through such base to the rear.

4 is the switch-blade, provided with two pairs of spring-washers 5. These washers are preferably provided with radial slits extending inward some distance from their edges and are riveted to the sides of the blade, so as to be slightly concave or dish-shaped. One pair are located permanently in the jaw-terminal 2^a, the blade-pivot passing through their centers. The other pair of washers are fastened to opposite faces of the blade or near the other end in the same manner and in such a position as to engage with the inner faces of the jaw-terminal 2 when the switch is closed.

The jaw-terminal 2 has electrically connected to it, and preferably mechanically also, two spring-arms 14, which project substantially parallel to each other and somewhat beyond the outer ends of the jaw-terminal. The outer ends of these spring-arms are curved inward toward each other, as clearly shown in Fig. 3 at 15, or they may be otherwise pro-

vided with projections which are nearer together than the inner sides of the main portions of the arms.

The blade is provided at the end last referred to with the usual handle 6. At a suitable point intermediate the two pairs of washers and preferably somewhat nearer the pivoted end are riveted supporting and guiding plates 7. A tongue 8 is pivoted at one end between the plates 7 and extends along the inner edge of the blade 4 and substantially in contact therewith when the switch is closed. This blade 8 is provided with two curved strips 9, which extend outward and fit against the two faces of the blade 4. Their inner edges also fit against the correspondingly-curved outer edges of the plates 7, the curvature of both these engaging edges of the parts 7 and 9 being that of an arc of a circle struck from the pivot of the tongue 8 as a center. The plates 7 are also provided with projections 10, which constitute stops, as will appear from the description of the operation of the device. The inner ends of the guide strips or pieces 9 are provided with a laterally-extending bar 11, to the ends of which are connected the inner ends of coiled springs 12, the outer ends of these springs being fastened to a pin 13, extending through the blade 4.

The free end of the tongue 8 is provided with a laterally-projecting head 16, the ends of which are normally in contact, or substantially so, with the inner faces of the arms 14.

The structure of the spring-tongue and of the coöperating supplemental contact piece or pieces may be varied materially from what is shown without departing from the invention. For example, either or both of these devices may be designed to yield with reference to the other in order that a quick break of the circuit may be effected.

The operation of the switch is as follows: When the switch-blade is moved outward by means of its handle 6, the tongue 8 will follow the movement of the blade more or less closely, depending upon the degree of frictional contact between the ends of the head 16 and the inner faces 14 until such head comes in contact with the inwardly-projecting portions 15, when its movement will be stopped until the blade reaches the position indicated

in broken lines in Fig. 1, when the bar 11 will come into contact with the stops 10, the head 16 being thus caused to force the projections 15 away from each other. As soon as it has passed these projections the springs 12 will draw the tongue 8 quickly into its normal position in contact, or substantially so, with the edge of the blade 4. Inasmuch as the head 16 remains in contact with the plates 14 until the washers 3 have become entirely separated from the corresponding jaw-terminal, the current will be shunted through the tongue and the plates 14 and quickly interrupted when those parts are separated. Particularly good contact is effected between the tongue 8 and the blade 4 by means of the curved arms 9, and the main contacts of the switch also provide large carrying capacity by reason of the split spring-washers, which yield sufficiently to make an intimate engagement between their outer faces and the inner faces of the jaw-terminals.

While I have illustrated and described specific details of construction, I desire to be understood that these details may be varied to a considerable degree without departing from the spirit and scope of the invention.

I claim as my invention—

1. A quick-break switch for electric circuits comprising two stationary jaw-terminals and an auxiliary jaw-terminal having laterally-yielding, resilient sides, in combination with a blade provided with a tongue having a head at its free end for engagement with the auxiliary jaw-terminal.

2. A quick-break switch comprising a pair of stationary jaw-terminals and a pair of spring plates or strips the space between which is contracted at or near their outer ends, in combination with a blade having a tongue extending along its inner edge and provided with a head at its free end which engages with the inner faces of the spring plates or strips.

3. A quick-break switch comprising a pair of stationary jaw-terminals and a pair of spring-plates electrically connected with one of said terminals and projecting inwardly toward each other at or near their free ends in combination with a blade, a pivoted tongue

extending along the inner edge of said blade and having a head at its free end for engagement with the inner faces of the spring-plates, a spring connecting said blade and said tongue and a combined support, contact-maker and stop, the members of which are rigidly connected to said blade and said tongue respectively.

4. A quick-break switch comprising a pair of stationary jaw-terminals and an auxiliary spring-terminal electrically connected with one of said jaw-terminals, in combination with a blade, a tongue connected at one end to said blade and having a head at its other end engaging with said spring-terminal and a spring connection between said blade and said tongue.

5. A quick-break switch comprising a pair of stationary jaw-terminals one of which is provided with a pair of spring contact plates or strips, in combination with a blade, a tongue pivotally attached to the lower edge of said blade and having a head engaging with the inner faces of said plates or strips and arms engaging the faces of said blade, and springs between said tongue and said blade.

6. A quick-break switch comprising a pair of stationary jaw-terminals and an auxiliary spring-terminal electrically connected with one of said jaw-terminals, in combination with a blade provided with spring-washers riveted to its sides, a tongue connected at one end to said blade and having a head at its other end engaging with said spring-terminal and a spring connection between said blade and said tongue.

7. A quick-break switch for electric circuits comprising two stationary jaw-terminals and an auxiliary jaw-terminal having laterally-yielding, resilient sides, in combination with a blade provided with spring-washers for engagement with the main jaws, and a tongue having a head at its free end for engagement with the auxiliary jaw-terminal.

In testimony whereof I have hereunto subscribed my name this 20th day of July, A. D. 1897.

HARRY P. DAVIS.

Witnesses:

WESLEY G. CARR,
H. C. TENER.