No. 875,978. PATENTED JAN. 7, 1908.

F. G. BAUM.

ELECTRIC SWITCH.

APPLICATION FILED OCT. 24, 1905.

2 SHEETS—SHEET 1.

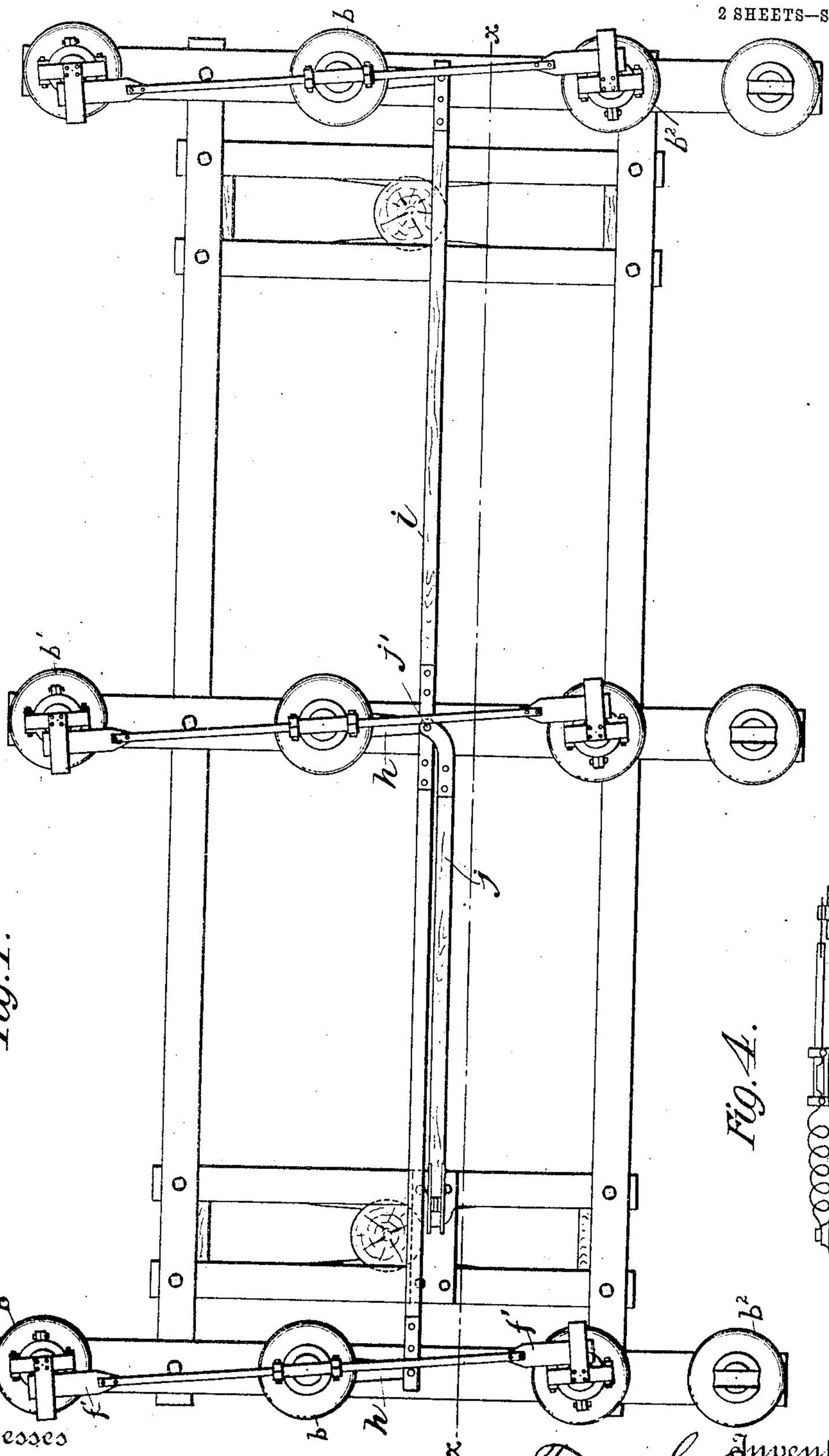

Fig. 1.

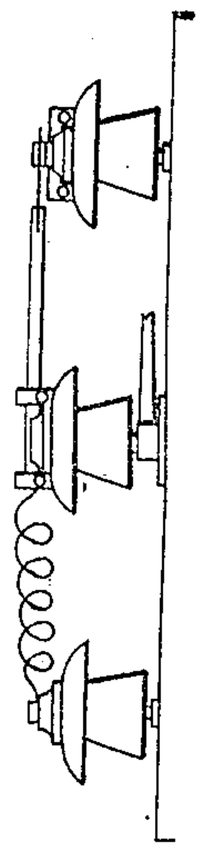

Fig. 4.

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2 SHEETS—SHEET 2.

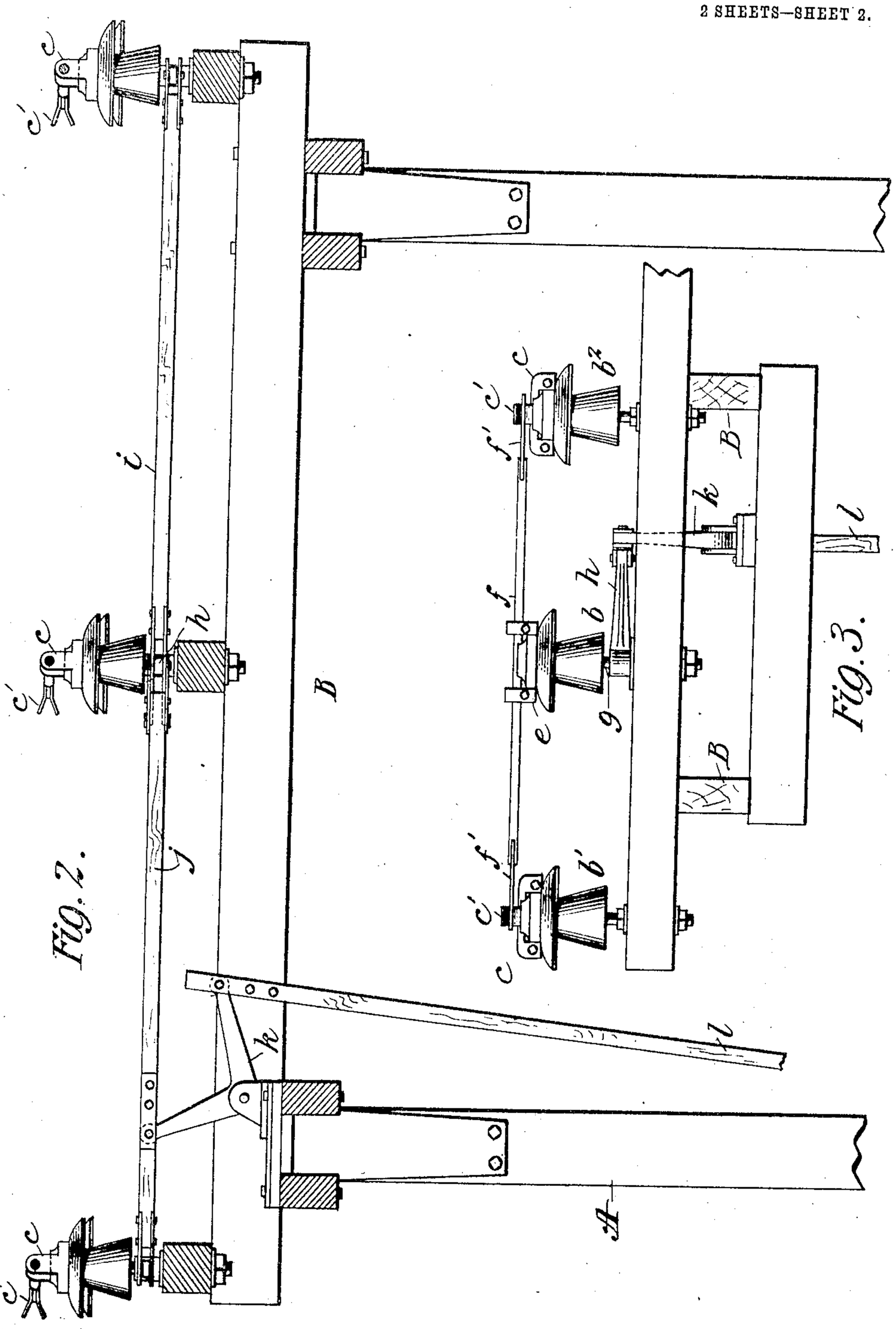

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

FRANK GEORGE BAUM, OF SAN FRANCISCO, CALIFORNIA.

ELECTRIC SWITCH.

No. 875,978. Specification of Letters Patent. Patented Jan. 7, 1908.

Application filed October 24, 1905. Serial No. 284,183.

To all whom it may concern:

Be it known that I, FRANK G. BAUM, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Electric Switches, of which the following is a full, clear, and exact description.

This invention relates to electric switches, and has special reference to switches adapted for out-door use on high potential circuits.

The switch comprising the invention is intended to be inserted directly in the line wires at any point on a pole line and is ordinarily to be located at the top of the pole and operated by means of a rod or other device extending downward within reach from the ground. In the very high voltage systems it is desirable that the switches be constructed to open each line at two or more points, preferably by means of a horizontal swinging switch element which normally forms a part of the line circuit. Such an element must always be insulated to the same extent as the conductors and the switch must be strong and durable to withstand the action of the weather and any rough handling that operatives or workmen may subject it to.

My improved switch will be described in detail in connection with the accompanying drawings, wherein

Figure 1 is a plan of the structure at the top of a pole or poles supporting three high voltage conductors; Fig. 2 is a section of the structure shown in Fig. 1 taken along line x—x thereof; Fig. 3 is an end view of the said structure omitting the auxiliary supporting insulator, and Fig. 4 illustrates a modification.

While the drawings illustrate a three-unit switch, it will be understood that the principle of the invention is fully embodied in a single switch unit.

A and B respectively indicate the upright and horizontal members of a supporting structure or frame, upon which the high voltage conductors are carried. On this structure are mounted three rows of insulators, one adapted for each of three conductors. Each row of insulators comprises three insulators forming part of my improved switch, and a fourth being an ordinary insulator used for supporting the conductor before it reaches the first switch insulator. The three insulators comprised in the switch are indicated by b, b' and b^2. The terminal insulators b' and b^2 have metallic clamps c suitably secured to their upper surfaces and sustaining a pair of diverging clips c' arranged with their openings directed, in the one case to the right and in the other case, to the left. The middle insulator b also carries a metallic clamp e to which is secured a conducting switch arm f extending in opposite directions to each of the terminal insulators and there fitted with blades or plates f' adapted to engage with the clips c'. The insulators b' and b^2 are rigidly supported on the framework, but the insulator b is mounted to rotate with its pin g, and for this purpose it is provided with a crank arm h, by moving which it will be seen that the arm f will be swung in a horizontal plane either to bring the blades f' into engagement with the clips c', or to sever this engagement. By constructing the switch in this manner the space between the terminal insulators may be as great as desired, and although the current passes through the switch arm f when the switch is closed, it is as effectually insulated by the middle insulator upon which it is supported, as are the metal parts of the circuit attached to the terminal insulators b' and b^2. The oscillating insulator may be moved in any desired way. Any suitable connections may be made with the crank arm h whereby the switch may be operated with perfect safety, whether it be located at the top of the pole or in any other place.

When a number of the switch units are mounted upon a single structure, I prefer to provide means for actuating them all simultaneously, and the drawing illustrates a mechanism for operating the three switch units in this manner. This mechanism consists of a connecting member or bar i pivotally attached to each of the crank arms h. A thrust rod j takes hold of the connecting bar at some point j', and leads to one arm of a bell crank k suitably supported and pivoted on the frame. To the other end of the bell crank is connected an operating rod l leading downward within reach of the operator. By pulling or pushing this operating rod it will be seen that all three of the middle insulators of the switches will be rotated or oscillated at the same time, and thus the three lines simultaneously opened or closed.

It will be seen that a switch of this character can be constructed as heavy and strong as may be necessary to withstand the ele-

ments, and as the insulators are of the standard variety a certain economy in construction is derived. If only a single break in the conducting path is desired, one-half the switch arm may be omitted and a flexible conductor substituted therefor, as seen in Fig. 4.

What I claim, is:—

An electric switch for high tension circuits, comprising a frame having upright and horizontal members, three rows of insulators mounted thereon, each row having two fixed insulators and an intermediate swivel insulator, arms carried by said swivel insulators and having portions forming blades at their extremities, metallic clamps on the adjacent fixed insulators and having diverging clips arranged with their openings directed oppositely, and in the path of the blades of said arms, crank arms extending from the swivel insulators, a connecting member or bar joining the crank arms, a thrust bar connected to said connecting bar, a bell crank connected to said thrust rod, and an operating rod connected to the other arm of the bell crank.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

FRANK GEORGE BAUM.

Witnesses:
W. A. HEATHCOTE.
J. T. PETERS.