

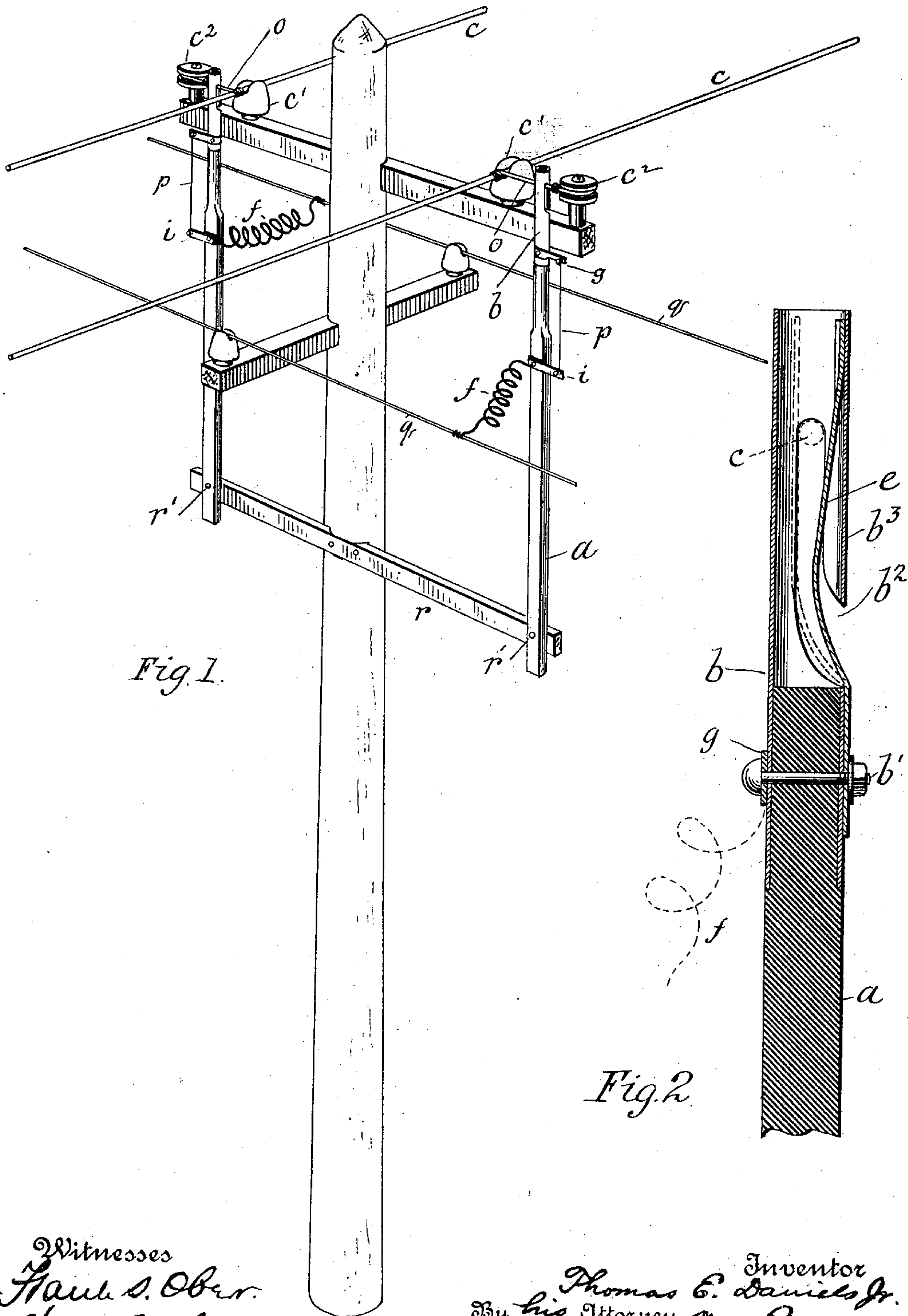
No. 736,502.

PATENTED AUG. 18, 1903.

T. E. DANIELS, JR.
CIRCUIT BREAKER.

APPLICATION FILED JAN. 2, 1903.

NO MODEL



Witnesses
Paul S. Ober.
Halo M. Chapin

Inventor
Thomas E. Daniels Jr.
By his Attorney *W. R. Raubman*

UNITED STATES PATENT OFFICE.

THOMAS E. DANIELS, JR., OF PROVO, UTAH.

CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 736,502, dated August 18, 1903.

Application filed January 2, 1903. Serial No. 137,427. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. DANIELS, JR., a citizen of the United States, residing at Provo, in the county of Utah and State of Utah, have invented certain new and useful Improvements in Circuit-Breakers, of which the following is a full, clear, and exact description.

This invention relates to manually-operated circuit-breakers, the object being to provide a simple and cheap form of apparatus which can be used for either inside or outside service and by means of which a circuit can be tapped at any point to temporarily or permanently obtain current therefrom for supplying translating devices.

The device is especially adapted for tapping high-tension lines to supply transformers, &c.; and it consists, in general and essentially, of a handle of insulating material more or less elongated and provided at one end with a metallic hook of peculiar construction adapted to engage with the main line-wire in a manner to suspend the handle therefrom and provided with a flexible or other conductor, including a fuse when desirable, and having one end in electrical connection with said hook and the other free and adapted to be connected with the branch circuit. When operating on complete metallic circuits, two or more of these devices will be used, one for each side of the circuit; but they are entirely independent of each other, so that one at a time can be adjusted to or from the wire, and thus avoid the excessive arcing or surging of the current which usually occurs when a double-pole switch breaks on both sides simultaneously.

My invention is adapted for a variety of uses in connection with electric circuits and has been applied more generally by me in connection with high-tension lines; but the device being merely a handle with a hook on the end of it it is obvious that it can be temporarily suspended on the main wire or wires at any point where desired and that it is especially adapted for temporary service.

My improved device will be described in detail with reference to the accompanying drawings, in which—

Figure 1 is a perspective view showing main line-wires supported upon a pole and con-

nected to branch wires through the improved circuit-breaker, and Fig. 2 is a detail of the upper end of the circuit-breaker in section.

Referring to the drawings by letter, the circuit-breaker consists of a handle *a*, which will be made of insulating material, such as hard rubber or wood, and of a length determined by such considerations as the necessity for reaching and the amount of insulation necessary by reason of the voltage of the circuit upon which the device is to be used. At one extremity of the handle is fitted a metallic head *b*, consisting of a tubular extension secured by means of a cross-pin *b'* or otherwise and having a slot *b²* cut into one side and upward lengthwise a short distance to form a hook, the tongue of which is indicated by *b³*. Thus when a stretched wire is directed into the slot the handle can be suspended therefrom. As a means for maintaining good electrical contact between the metallic head *b* and the wire (indicated by *c*) when the latter is engaged by the hook I apply a strap-spring *e* to the hook, securing it at one end by means of the pin *b'* or in any other convenient manner and extending its free end upward through the slot *b²* in such position that the spring must be deflected when the wire enters the hook and be held under tension against the wire to maintain intimate contact therewith. For the purpose of connecting this hook with a branch circuit I preferably attach a short length of flexible conductor to the metallic head, such conductor being indicated at *f* in Fig. 2; but this conductor need not be considered a portion of the device. It will also be found desirable under certain conditions to insert a fusible conductor between the metallic head and the branch circuit, and for this purpose I provide two laterally-projecting arms *g* and *i*, one of which is secured directly to the metallic head or hook and the other to the insulating-handle at a suitable distance from the first, depending upon the isolation required by the voltage of the line, and stretched between the outer extremities of these arms I fix a fusible conductor *p*. The flexible conductor *f* for connection to the branch circuit is then applied to the insulated arm *i*, as seen in Fig. 1.

The operation is as follows: In order to

connect the device with a bare wire of an electric circuit, it is simply necessary to hook it over the wire, allowing it to hang therefrom and connecting a wire of the branch
5 circuit with the metallic head by means of the flexible conductor *f*. I prefer, however, especially on high-tension lines, to provide special points for applying the hook. These are illustrated in Fig. 1, where it will be seen
10 that the main line-wires *c c* are supported on insulators *c' c'*, secured to the cross-arms of a pole. Adjacent to each insulator, but separated therefrom a few inches, is a second insulator *c²*, and a short stiff wire *o* extends
15 between the two insulators and forms a spur from the main wire, as seen. The hook of the circuit-breaker is adapted to be caught over this spur, thus avoiding disturbance or injury to the main conductor. The branch
20 circuit-wires, supported, as usual, on the same pole, are indicated at *q q* and are connected, respectively, with the arms *i i* or directly with the metallic head of the circuit-breaker. For outside service, where it is desired to
25 prevent the circuit-breaker from being swayed by the wind or otherwise disarranged, the lower end of the handle may be temporarily connected with a cross-piece *r* by means of a pin *r'*, or it may be otherwise supported.

When the device is used out of doors and 30 is subject to moisture and ice, an extra extension-handle may be used to grip the handle *a*.

With a pair of these devices applied at the junction between the main and branch con- 35 ductors a circuit can be made and broken by the simple operation of hooking and unhooking the described device, and as each side of the circuit can be broken separately the arcing which ordinarily occurs is lessened and 40 the reaction on the line, which occurs more especially in multiphase systems, is avoided.

Having described my invention, I claim—

The combination of a line-wire, a spur lead- 45 ing therefrom, a branch wire and a circuit-breaker consisting of a handle of insulating material carrying a metallic hook engaging said spur and a conductor leading from said hook to the branch wire, substantially as de- 50 scribed.

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

THOMAS E. DANIELS, JR.

Witnesses:

H. S. TANNER,
BARLOW FERGUSON.