

No. 636,081.

Patented Oct. 31, 1899.

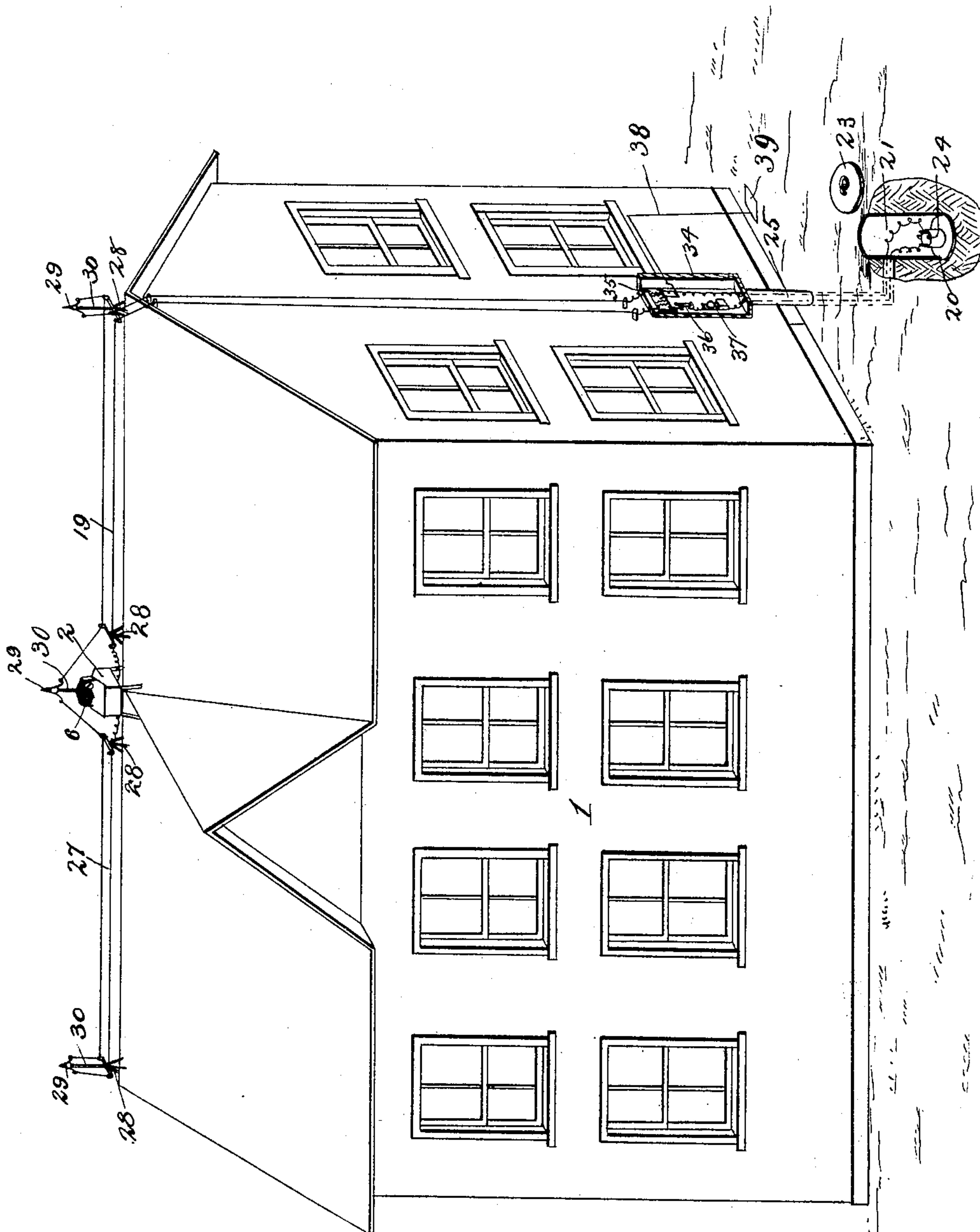
H. J. STUART & D. D. WOODMAN.

LIGHTNING ROD.

(No Model.)

(Application filed May 25, 1899.)

2 Sheets—Sheet 1.



WITNESSES:

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Fig. 2.

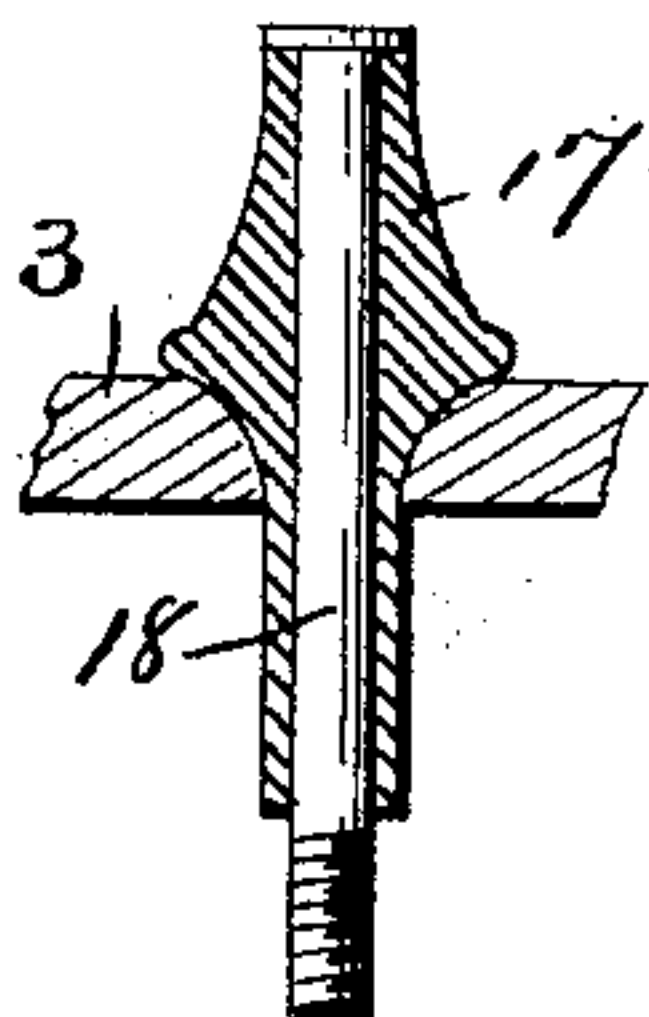
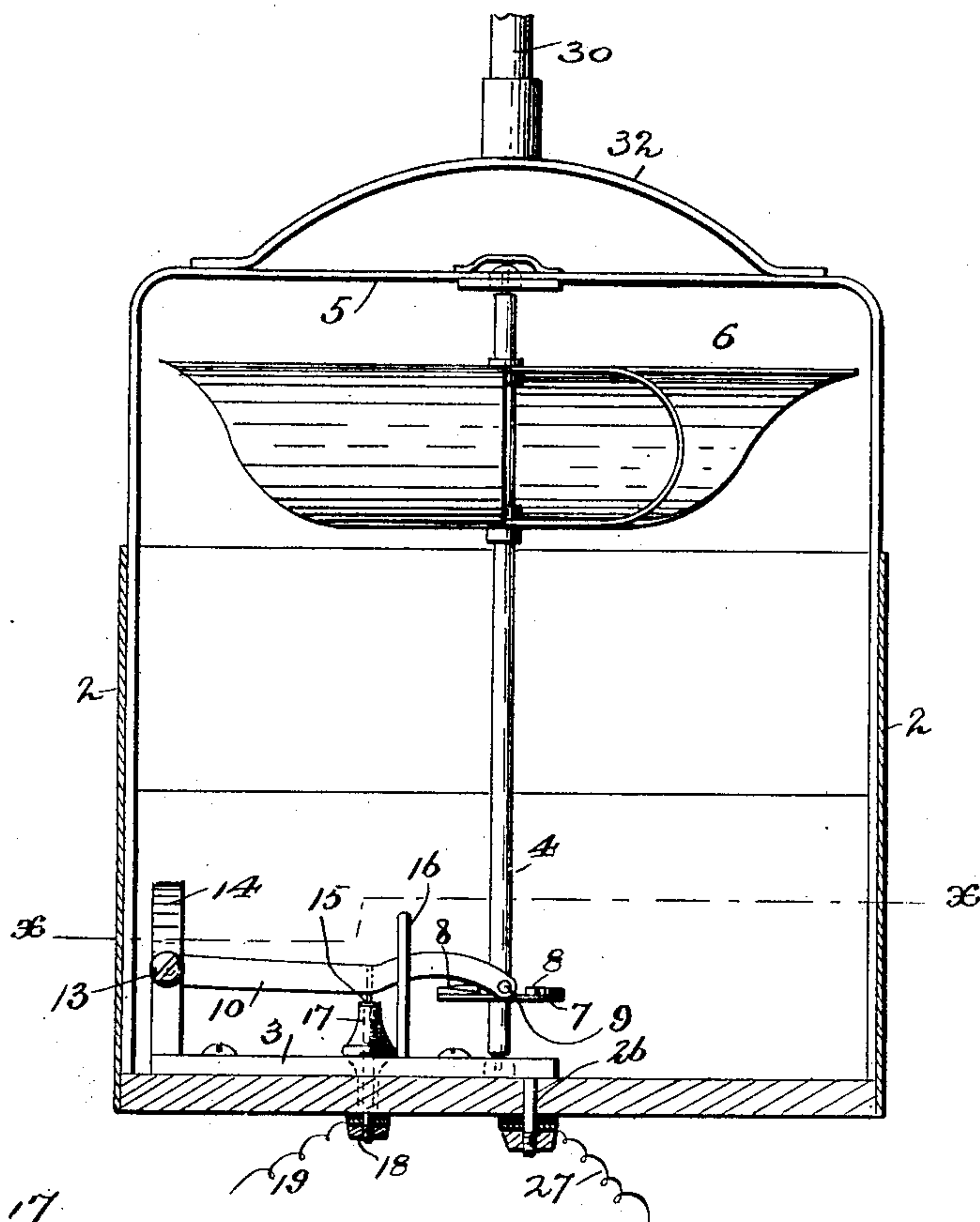


Fig. 4.

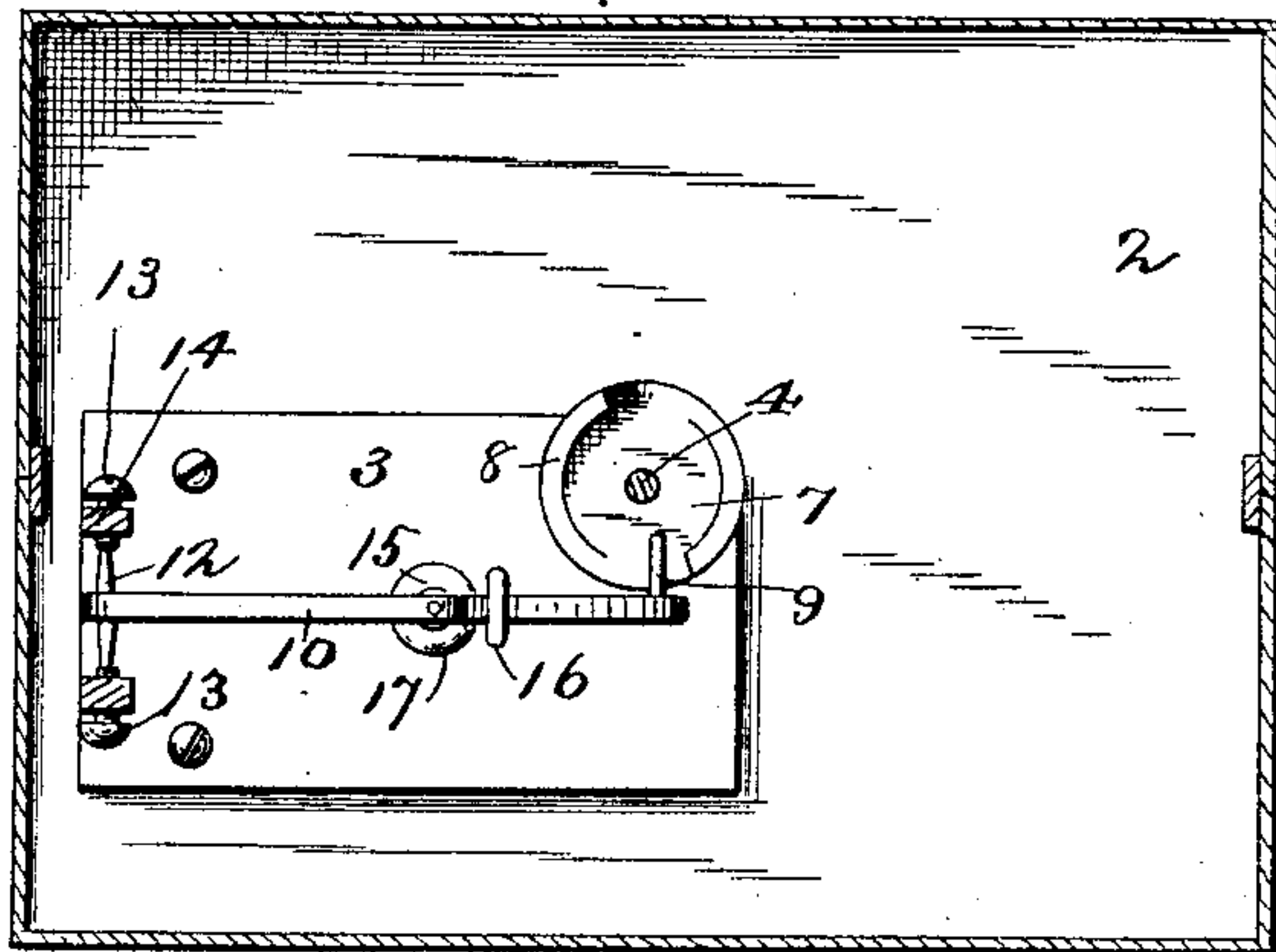


Fig. 3.

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UNITED STATES PATENT OFFICE.

HARRY J. STUART AND DAVID D. WOODMAN, OF SWAIN, NEW YORK.

LIGHTNING-ROD.

SPECIFICATION forming part of Letters Patent No. 636,081, dated October 31, 1899.

Application filed May 25, 1899. Serial No. 718,191. (No model.)

To all whom it may concern:

Be it known that we, HARRY J. STUART and DAVID D. WOODMAN, citizens of the United States, residing at Swain, in the county of Allegany and State of New York, have invented new and useful Improvements in Lightning Rods or Conductors, of which the following is a specification.

Our invention relates to lightning rods or conductors; and its object is to provide means whereby an electric current is made to pass therethrough, which is alternately made and broken, thus rendering the rod or conductor more sensitive to the effects of lightning.

It is also an object to provide an improved circuit-breaker which is operated by wind-power, so as to make and break the circuit and cause an intermittent current to pass through the rod or conductor.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view showing a portion of a house or other building provided with our improvements. Fig. 2 is a longitudinal section, on an enlarged scale, of mechanism for making and breaking the circuit. Fig. 3 is a horizontal section on the line xx , Fig. 2. Fig. 4 is a detail view of the plug.

In the said drawings the reference-numeral 1 designates a house or other building. Located on the roof of the building is a casing or housing 2, made of any suitable material and secured to said roof in any manner found convenient or desirable. Located in this casing or housing is a copper or other conducting plate 3, which is secured to the bottom thereof. Stepped in an insulated bearing near the inner end of said plate is a vertical shaft 4, the upper end of which extends through the upper end of the casing or housing and is journaled in an insulated bearing of a bracket 5. Secured to this shaft outside the casing or housing is a wind-wheel 6, of any suitable construction, by which said shaft is rotated. Secured to said shaft near the lower end is a wheel 7, formed on the upper side, near the edge thereof, with two cams or inclined planes 8. These cams are adapted to be engaged by a lateral pin 9 near the inner end of a lever 10, of copper or other conduct-

ing material, the rear end of which is pivoted on a conducting-rod 12, secured by means of set-screws 13 to an arch 14 of conducting material, secured to the plate 3.

The numeral 15 designates a contact-pin secured to the under side of the lever and which is adapted to make and break the circuit, as hereinafter described.

The numeral 16 designates a guide-arch for the lever.

The numeral 17 designates a plug of rubber or other insulating material passing through the said plate 3, and located in a vertical hole therein is a pin 18 of conducting material. The ends of this pin project beyond the ends of said plug and the upper end is adapted to be contacted by the contact-pin 15, secured to the lever. The lower end of this pin 18 is connected with a conductor 19, which passes along the roof of the house or building and is connected with the positive pole of a battery 20, sunk in the ground and located in a copper or other metal receptacle 21, provided with a cover 23. The battery is provided with an eye or eyes 24 to receive a hooked rod by which it may be removed from the receptacle for charging or other purposes. The lower part of this conductor 19 is inclosed within a non-conducting or insulated pipe 25.

The numeral 26 designates a binding-post connected with the plate 3, to which is connected a conductor 27, which is carried along the roof and is connected with glass or other insulators secured to the brackets 28, fixed to the roof. The said conductor is then extended upwardly and connected with a copper cap 29, which is carried by the upper end of a post 30, secured to one of said brackets. Said conductor is then extended downwardly and then horizontally inward to the bracket 28 near the housing or casing and then upwardly to another copper cap 29, carried by another post 30, secured to a bracket 32, secured to the bracket 5. From this post the conductor is carried to another bracket 28 and from thence to a similar bracket at the opposite end of the roof and is then extended upwardly and connected with another cap 29, carried by another post 30, and thence downwardly to said last-mentioned bracket, and from thence is carried to and connected with

the negative pole of the battery. The number of the said posts 30 and caps 29 may be varied, if desired, and more or less be employed. When only one is used, we prefer to
 5 secure it to the casing or housing. Suitable insulators are employed wherever found necessary.

Located outside of the house or building is a box 34, in which is located a lightning-ar-
 10 rester 35 of any ordinary or suitable construction, below which is located a switch 36 for cutting out the circuit when not desired, as in clear weather, thus preventing waste of electricity from the battery. A bell 37 is also
 15 located in said box and electrically connected with the battery, by means of which it can be ascertained whether or not the battery is working. Said lightning-arrester, switch,
 20 and bell may be of any suitable construction, and as they in themselves form no part of our invention and are well known to those skilled in the art to which the invention pertains a detailed description and illustration are not necessary.

25 The numeral 38 designates the ground-wire from the lightning-arrester, the lower end of which is connected with a ground-plate 39.

The operation is as follows: The battery is charged and the switch operated to close the
 30 circuit. The shaft 4 will now be rotated by the wind-wheel 6 and through the medium of the wheel 7, cams or inclined planes 8, and pin 9 the lever 10 will be alternately raised and lowered, so as to bring the contact-pin
 35 15 in contact with pin 18 and causing an intermittent current of electricity to be passed through the conductors and caps carried by the posts 30. The circuit will be as follows:
 40 from positive pole of the battery to conductor 19, bell 37, switch 36, lightning-arrester 35, then to pin 18, contact-pin 15, lever 10, rod 12, arch 14, plate 3, binding-post 26, conductor 27, and caps 29, and then through lightning-arrester back to battery.

45 From the above it will be seen that an intermittent current of electricity will be passed through the conductors and caps, rendering the latter more sensitive, whereby lightning will be more readily attracted than if the
 50 wires and caps were not charged. In case the caps are struck by lightning, the latter will be carried to the ground by the lightning-arrester, and thus burning out of the switch and bell will be prevented.

55 Having thus fully described our invention, what we claim is—

1. The combination with a lightning rod or conductor and the battery, of the automatic circuit-breaker in electrical connection there-
 60 with whereby an electric current is intermittently passed through said rod or conductor, substantially as described.

2. The combination with the lightning rod or conductor and the battery, of the circuit-breaker operated by wind-power whereby an
 65 intermittent current of electricity is caused to be passed through said rod or conductor, substantially as described.

3. The combination with the lightning rod or conductor connected therewith and the bat-
 70 tery, of the housing or casing, the conducting-plate located therein, the insulated vertical shaft, the cam-wheel secured thereto, the lever having a pin adapted to engage with said cam-wheel and provided with a contact-
 75 pin, the arch and pivot-pin in electrical connection with said plate, the insulated pin passing through said plate with which said contact-pin is adapted to contact, the binding-post, the conductor connected therewith,
 80 and electrically connected with the said rod or conductor and the battery, and means for rotating said shaft, substantially as described.

4. The combination with the lightning rod or conductor and the battery, of the casing or
 85 housing, the conducting-plate located therein, the insulated vertical shaft provided with a wind-wheel at its upper end, the cam-wheel, the lever having a pin adapted to engage with said cam-wheel and provided with
 90 a contact-pin, the arch, the pivot-pin connected therewith, the insulated pin passing through said conducting-plate, the conductor connected therewith and with the battery, the binding-post, the conductor connected there-
 95 with and with the lightning rod or conductor and the battery, substantially as described.

5. The combination with the lightning rod or conductor and the battery, of the casing or housing, a conducting-plate located there-
 100 in, the vertical insulated shaft having a wind-wheel at the upper end, the cam-wheel near the lower end, the lever having a pin adapted to engage with said cam-wheel and provided with a contact-pin, the arch connected with
 105 said conducting-plate, the pivot-pin, the insulated pin passing through said conducting-plate, the conductor connected therewith and with the battery, the binding-post, the conductor connected therewith and with the light-
 110 ning rod or conductor and the battery, and the lightning-arrester switch and bell in circuit with said rod and battery, substantially as described.

In testimony whereof we have hereunto set
 115 our hands in presence of two subscribing witnesses.

HARRY J. STUART.
 DAVID D. WOODMAN.

Witnesses:

F. J. NELSON,
 C. W. STEVENS.