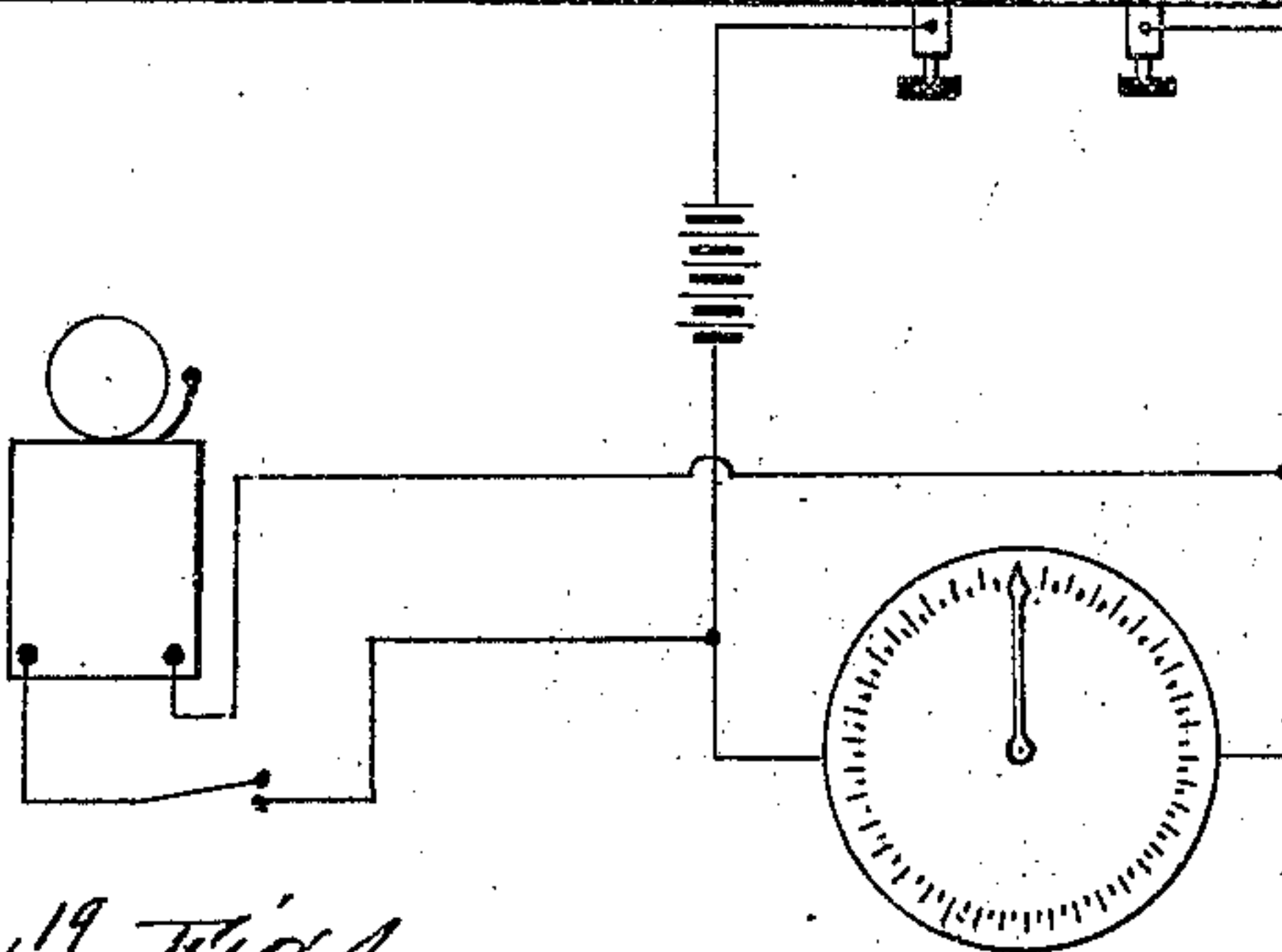
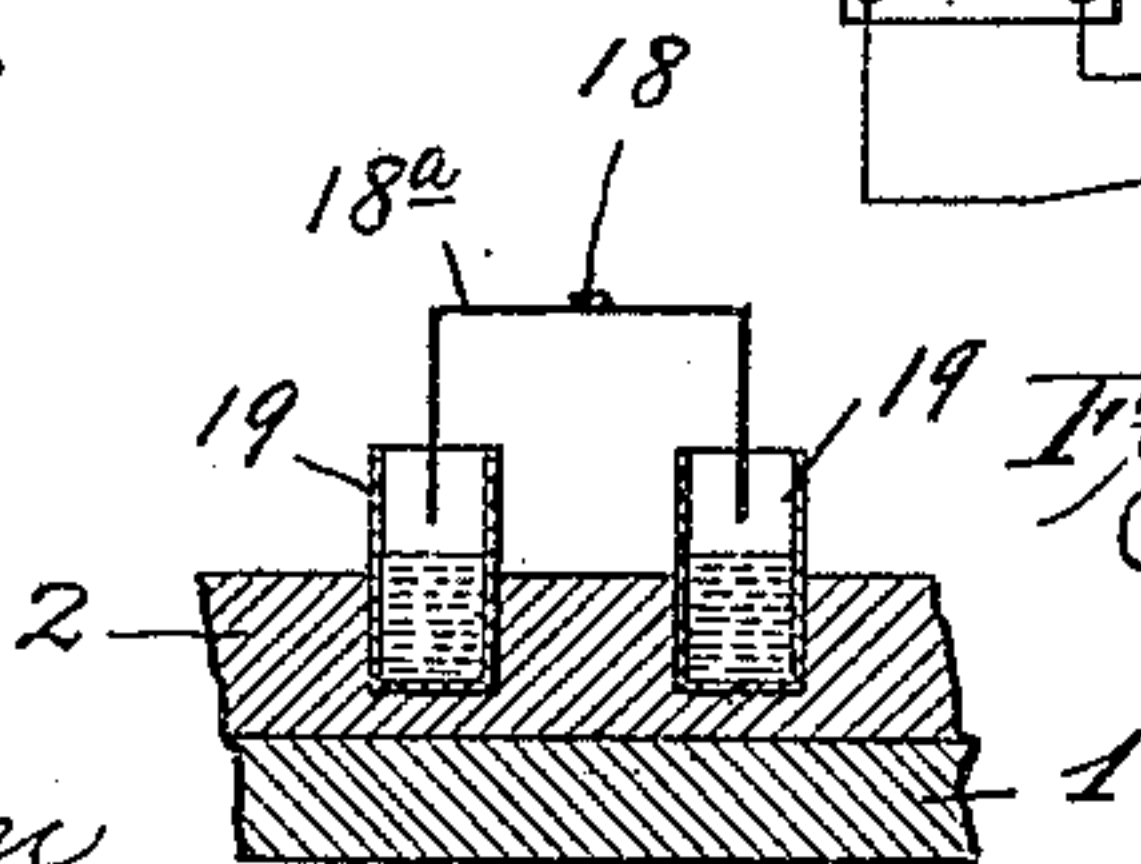
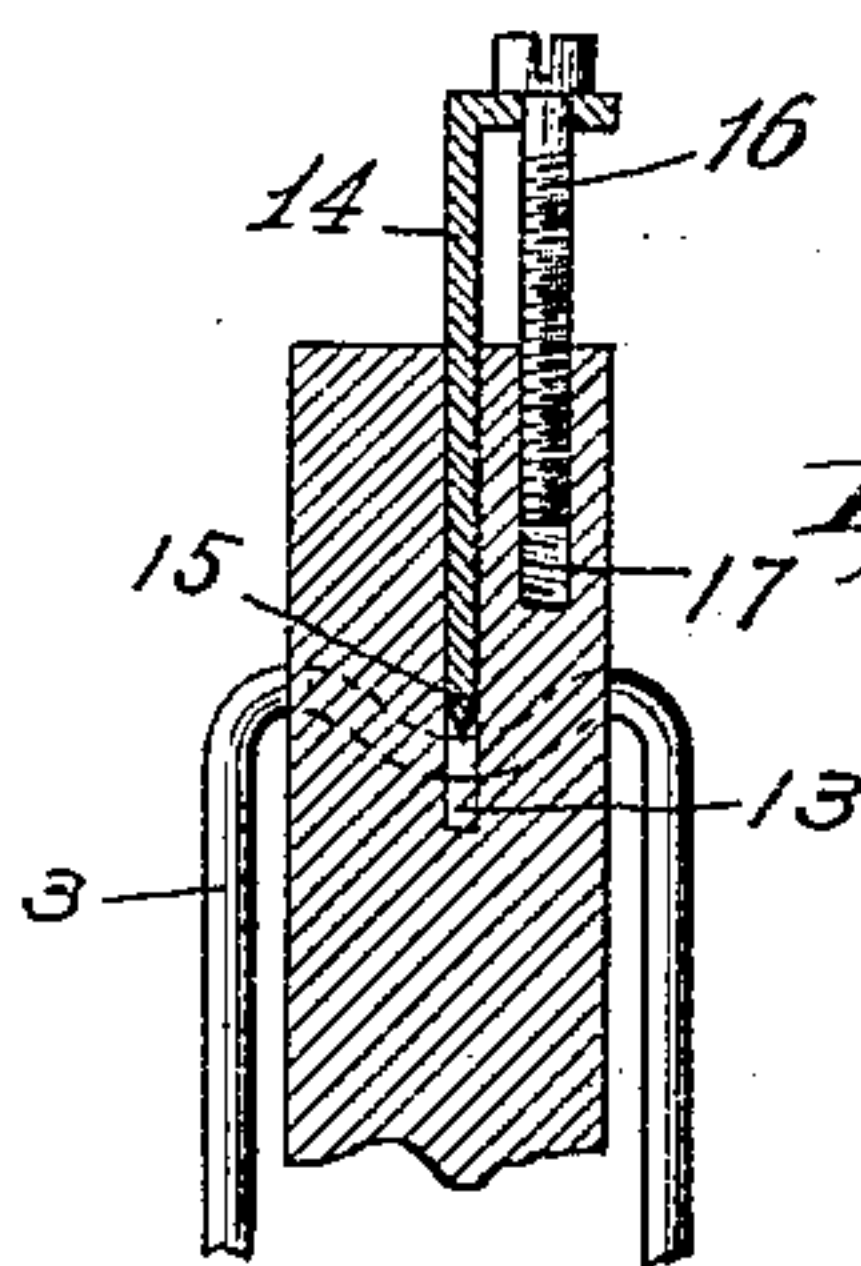
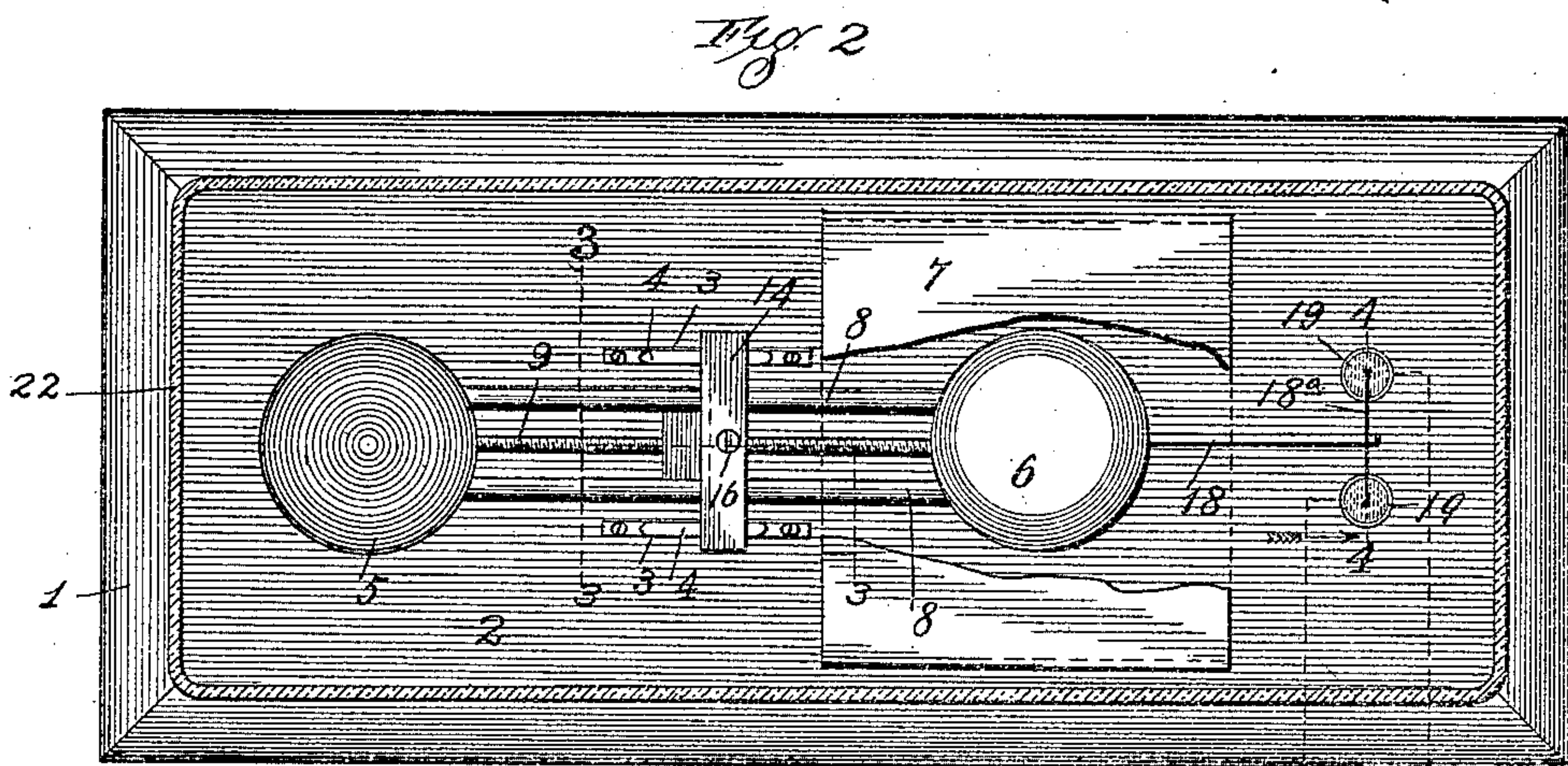
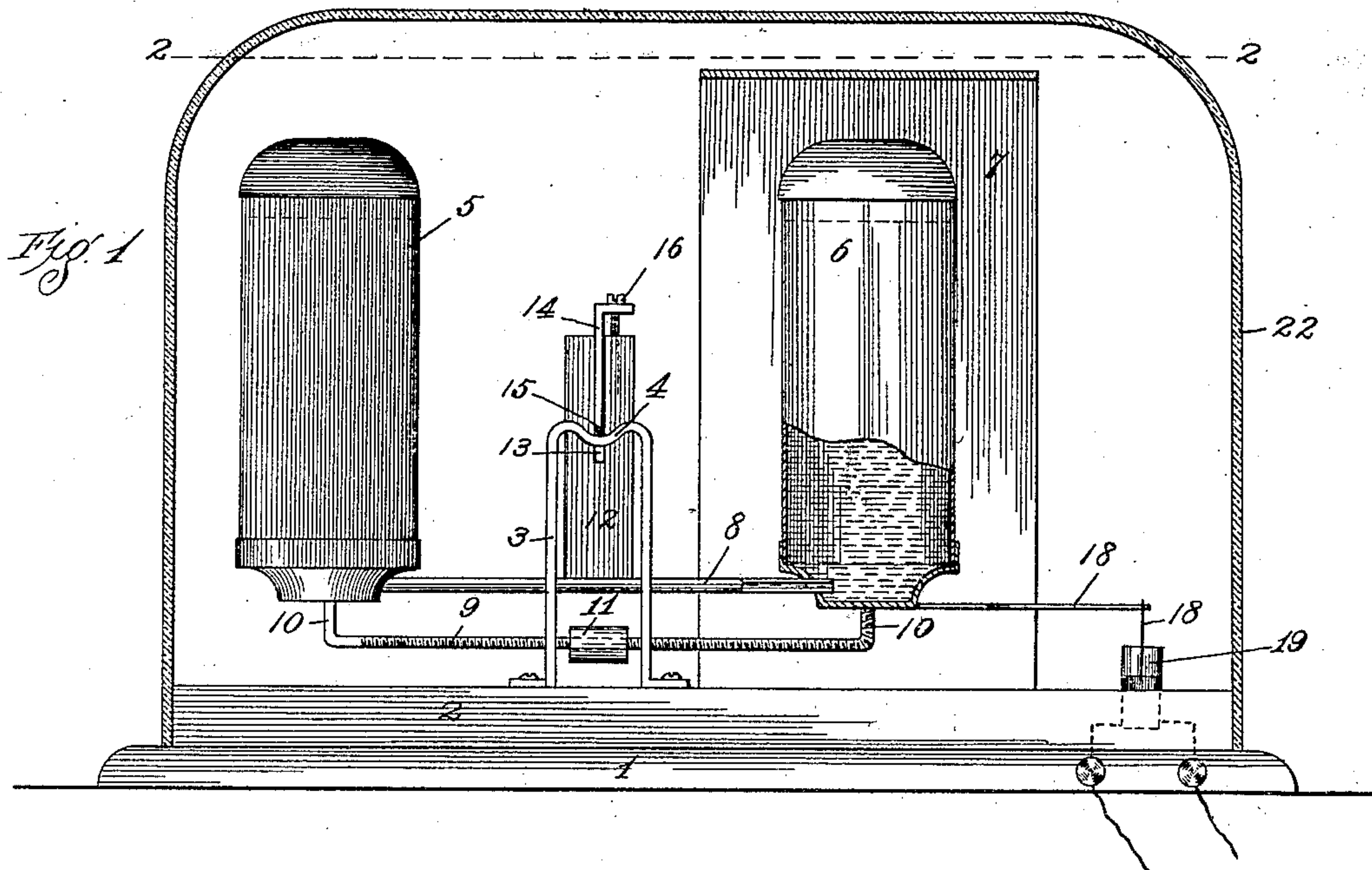


(No Model.)

L. HUNT & F. W. DUENCKEL.  
ELECTRIC SUNSHINE ANNUNCIATOR.

No. 551,284.

Patented Dec. 10, 1895.



Attest  
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# UNITED STATES PATENT OFFICE.

LEONARD HUNT AND FREDERICK W. DUENCKEL, OF ST. LOUIS, MISSOURI.

## ELECTRIC SUNSHINE-ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 551,284, dated December 10, 1895.

Application filed May 20, 1895. Serial No. 550,029. (No model.)

*To all whom it may concern:*

Be it known that we, LEONARD HUNT and FREDERICK W. DUENCKEL, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Electric Sunshine-Annunciators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to an electric sunshine-annunciator, the object of our invention being to provide means for automatically announcing the number of times and the length of time that the sun shines.

A further object of our invention is to provide means whereby an electrical connection is made with the recording apparatus whenever the sun shines upon the annunciator.

Our invention consists in certain novel features of construction and arrangement of parts hereinafter specified and claimed.

In the drawings, Figure 1 is a longitudinal sectional view of our improved annunciator. Fig. 2 is a horizontal sectional view on the indicated line 2 2 of Fig. 1, and showing also the electrical connections to the recording-instrument. Fig. 3 is a vertical sectional view taken approximately on the indicated line 3 3 of Fig. 2. Fig. 4 is a cross-sectional view taken approximately on the indicated line 4 4 of Fig. 2.

Referring by numerals to the accompanying drawings, 1 indicates a rectangular base, the same being constructed of either wood or metal and provided with the raised portion 2. Rigidly mounted upon the upper side of this base, and lying parallel with each other, are a pair of bearing-frames 3, the same being constructed with concaved upper ends 4.

5 and 6 indicate air-tight bulbs, the same being identical in size and form and constructed of any suitable material—such as glass, metal, &c. It is essential that the exterior of the bulb 5 be blackened, while the bulb 6 is of light color and partially covered by a suitable shade, such as 7. Connecting the lower ends of the bulbs 5 and 6 are two horizontal tubes 8, the same communicating with the interior of the bulbs. A rod or wire 9 is by means of its upturned ends 10 secured rigidly to the under sides of the bulbs

5 and 6. This rod 9 is screw-threaded and provided with an adjusting-weight 11.

Fixed to the horizontal tubes 8, and in their longitudinal centers, is an upright block 12, the same being provided with a vertical slot 13, in which is adapted to slide a vertical plate 14, the same being constructed with a knife-edge 15 that rests upon the concaved upper sides of the bearing-frames 3. The upper end of this plate 14 is bent at right angles to the body portion thereof, and passing through the center of said bent portion is a screw 16 that engages in a screw-threaded bore 17 that is vertically arranged in the upper end of the block 12.

Extending horizontally from the under side of the bulb 6 is an arm 18, on the end of which is fixed a wire, the same being of inverted-U shape and constructed of platinum or other suitable metal. The ends of this platinum wire 18<sup>a</sup> are normally located in a pair of cups 19, of glass or analogous material, and partially filled with mercury, in which the wires 20 of the recording-instrument terminate.

The bulbs and contiguous mechanism hereinbefore described are protected by a glass case, such as 22.

The bulbs are partially filled with liquid of any kind that will not corrode the material of which the bulbs are formed, and which will always retain its fluidity. By reason of the horizontal tubes 8 the liquid is free to flow from one bulb into the other.

The working and operation of the device are as follows: By manipulating the screw 16 the height of the center of gravity is changed, thereby causing the apparatus to be more or less sensitive or susceptible to movement, as desired. By manipulating the weight 11 upon the screw-threaded rod 9 the bulbs can be exactly balanced. Upon being exposed the blackened bulb 5 will absorb a certain amount of heat from the sun's rays. The air within this exposed bulb 5 will necessarily become heated and expand, and with said expansion force a small quantity of the liquid through the horizontal tubes 8 into the bulb 6, the same being protected from the sun's rays by the shade 7. As said liquid passes into the bulb 6 the balance between said bulbs will



be disturbed, said bulb 6 lowered and the platinum wire 18<sup>a</sup> dipped into the mercury within the cups 19, thereby forming an electrical connection through the recording apparatus. As the sun's rays are cut off from the blackened bulb 5 said bulb will cool and the former position of the bulb be restored and the electrical connection cut off.

Thus it will be seen how we have constructed  
10 an electric sunshine-annunciator that possesses superior advantages in point of simplicity, durability, and general efficiency.

What we claim is—

1. An electric sunshine annunciator, comprising a suitable base, a pair of uprights mounted upon said base, a pair of balanced bulbs one on each side of said uprights, tubes connecting the lower ends of said bulbs, a screw-threaded rod fixed to and extending  
20 from one bulb to the other, a weight adapted to move upon said screw-threaded rod, an arm extending horizontally from one of the bulbs, an inverted U-shaped metallic wire carried by said arm, and cups adapted to  
25 contain mercury located directly beneath said metallic wire, with which the wires from the recording apparatus terminate.

2. An electric sunshine annunciator, com-

prising a suitable base, a pair of bulbs partially filled with liquid balanced upon said base, tubes connecting the lower ends of said bulbs, a shade for one of said bulbs, an arm extending horizontally from one of said bulbs, a metallic wire carried by said arm, cups partially filled with mercury and located directly  
35 beneath the ends of said wire, said cups being connected with the wires from the recording apparatus.

3. An electric sunshine annunciator, comprising a pair of balanced bulbs partially filled with liquid, tubes connecting the lower ends of said bulbs, a block fixed to the longitudinal center of said tubes, a screw mounted in the upper end of said block, a knife-edged plate carried by said screw and passing  
40 through a slot in the upper end of said block, and uprights upon which said knife-edged plate engages.

In testimony whereof we affix our signatures in presence of two witnesses.

LEONARD HUNT.

FREDERICK W. DUENCKEL.

Witnesses:

P. SHORE,

JOHN C. HIGDON.