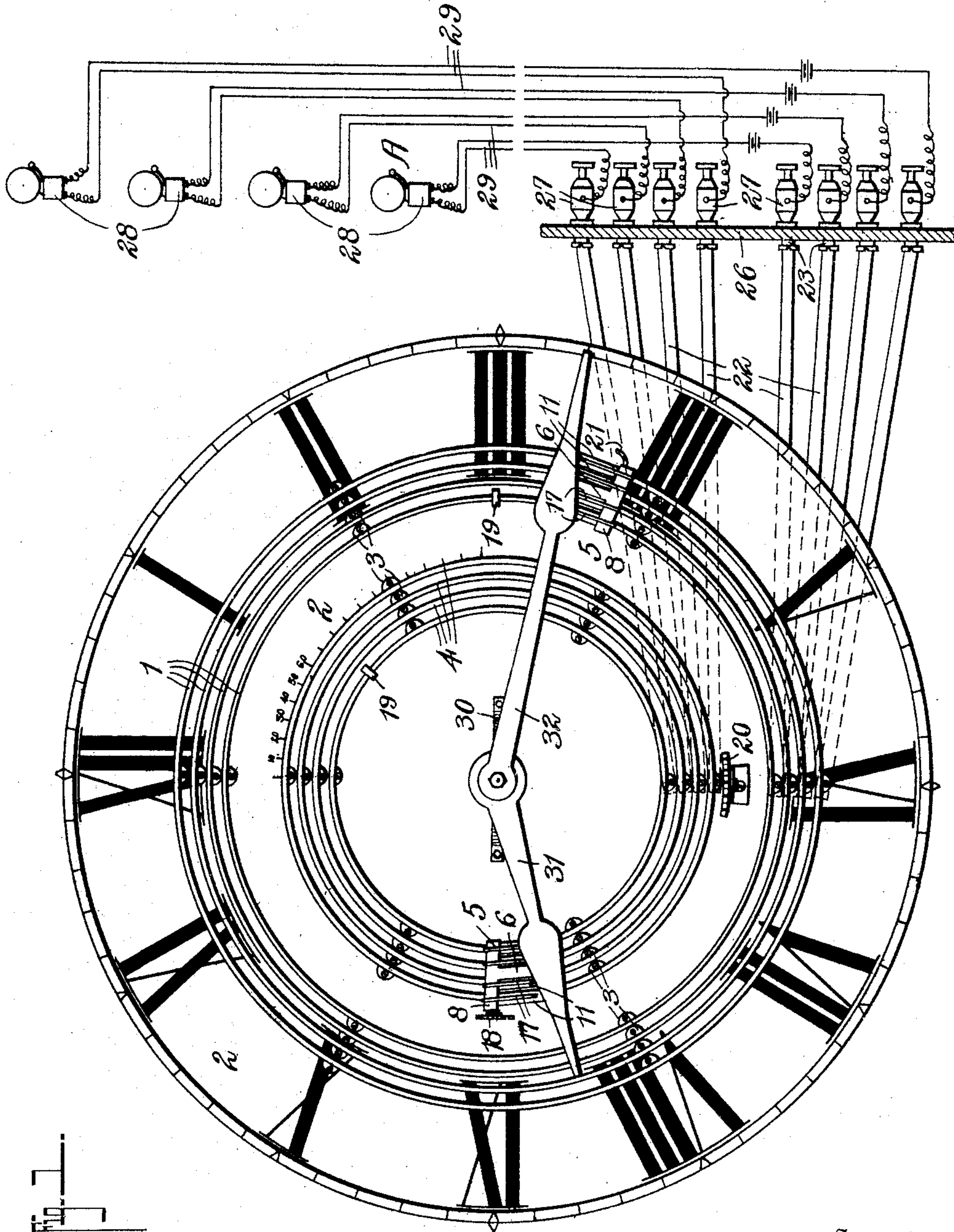


O. P. RAGAN.  
 SIGNAL ATTACHMENT FOR CLOCKS.  
 APPLICATION FILED MAR. 16, 1910.

976,214.

Patented Nov. 22, 1910.

2 SHEETS—SHEET 1.



Witnesses

Philip H. Burch  
 E. B. McBeth

Inventor  
 O. P. Ragan,

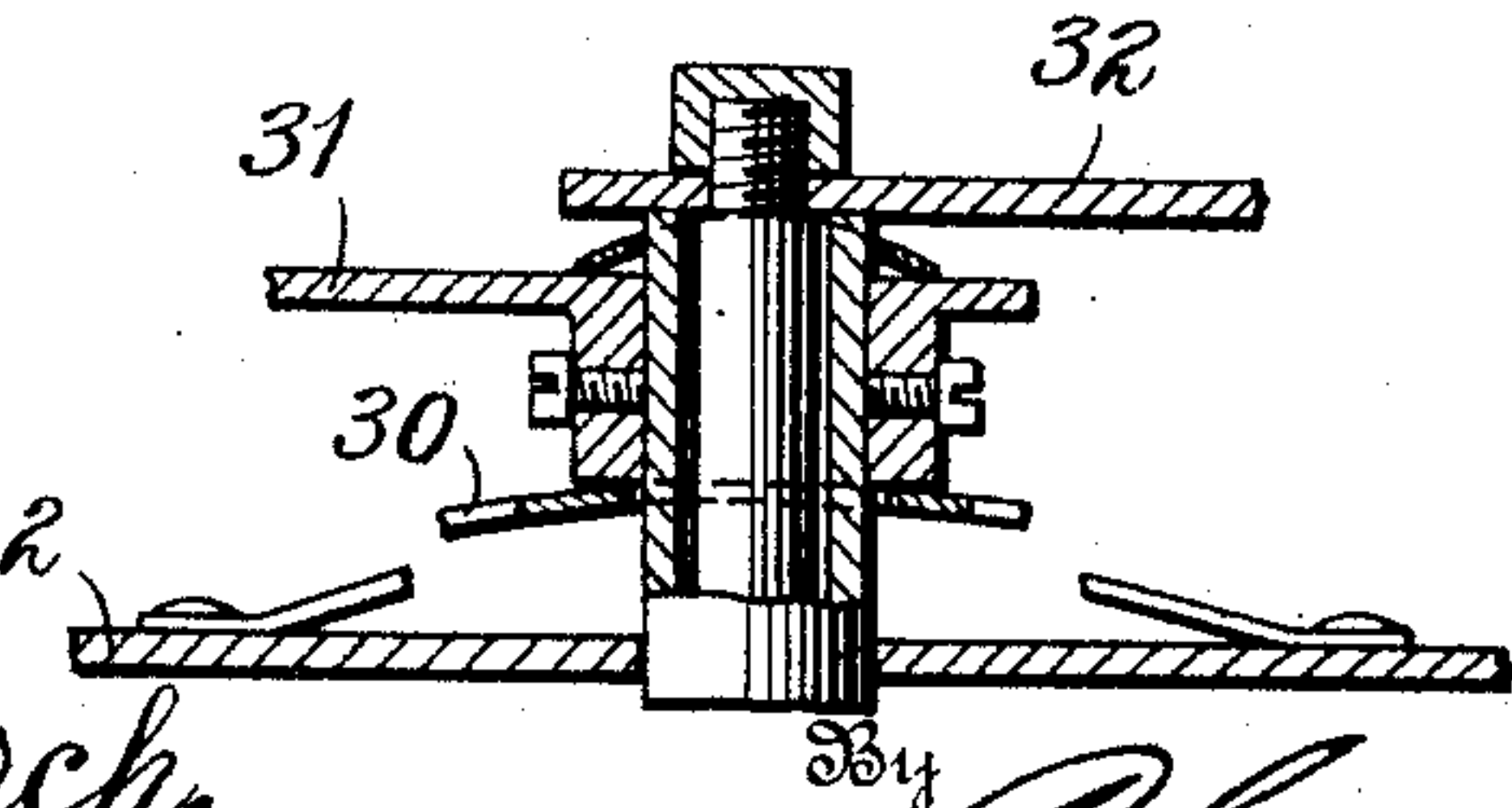
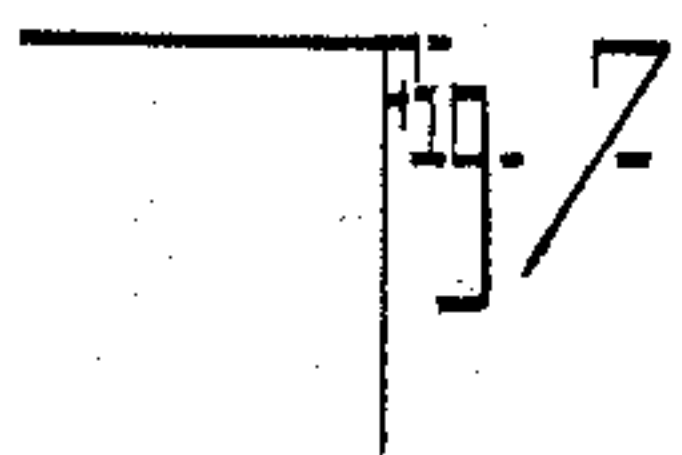
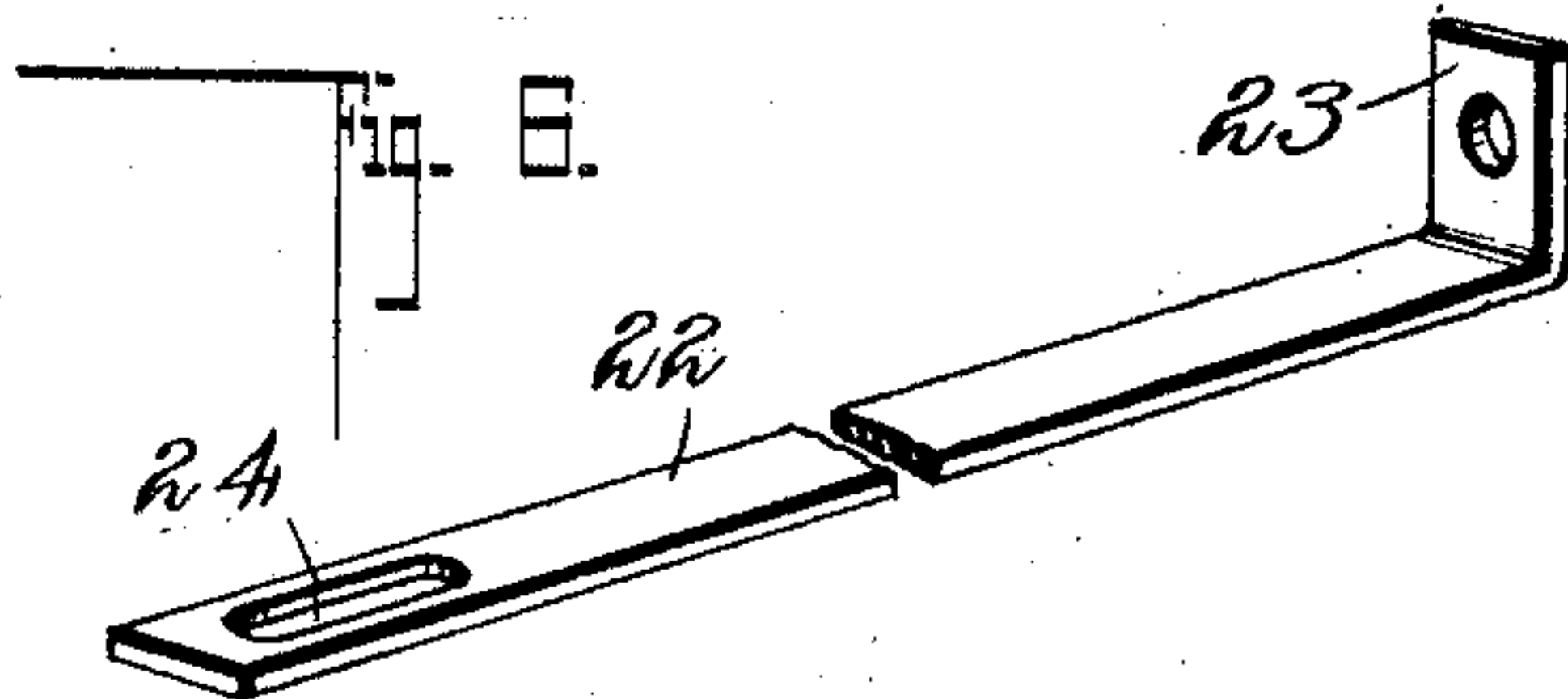
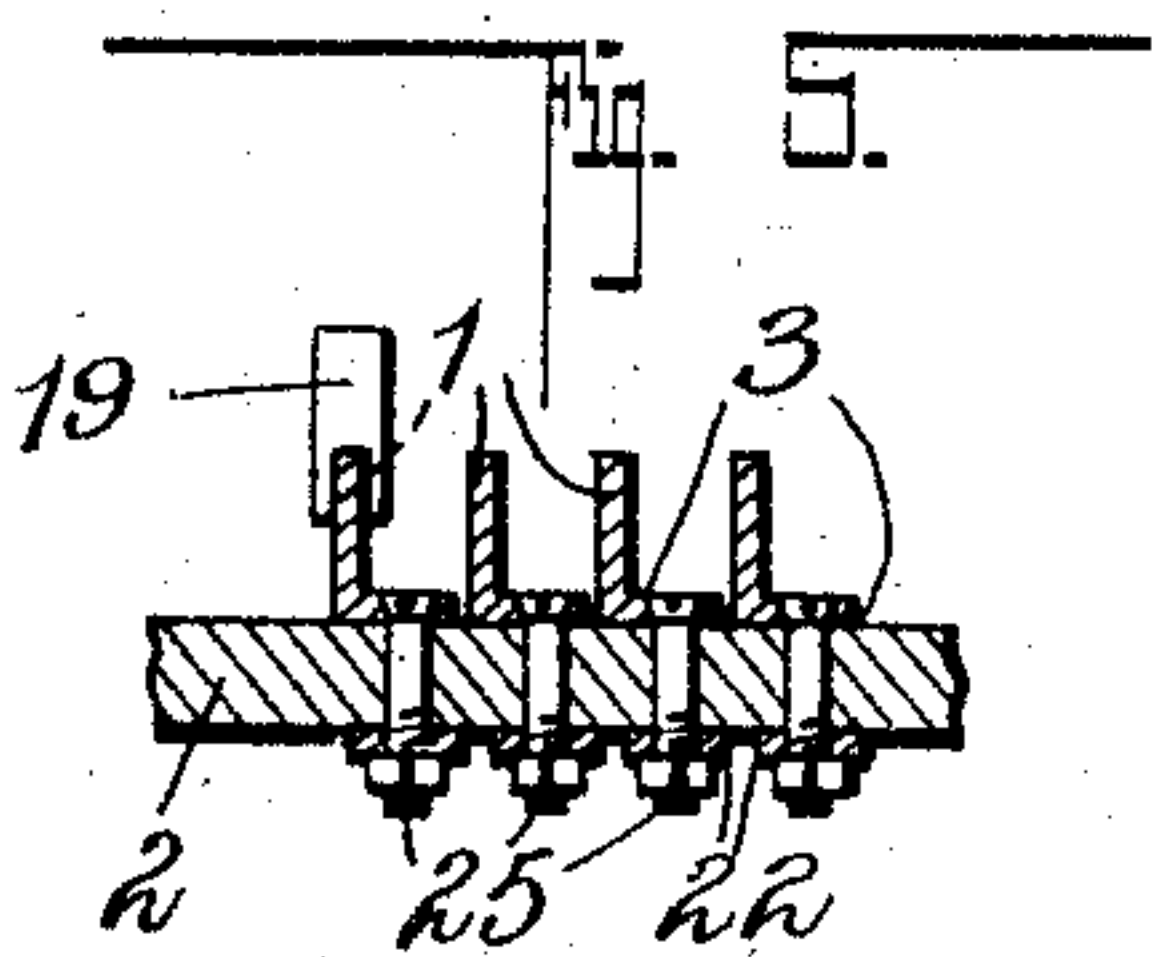
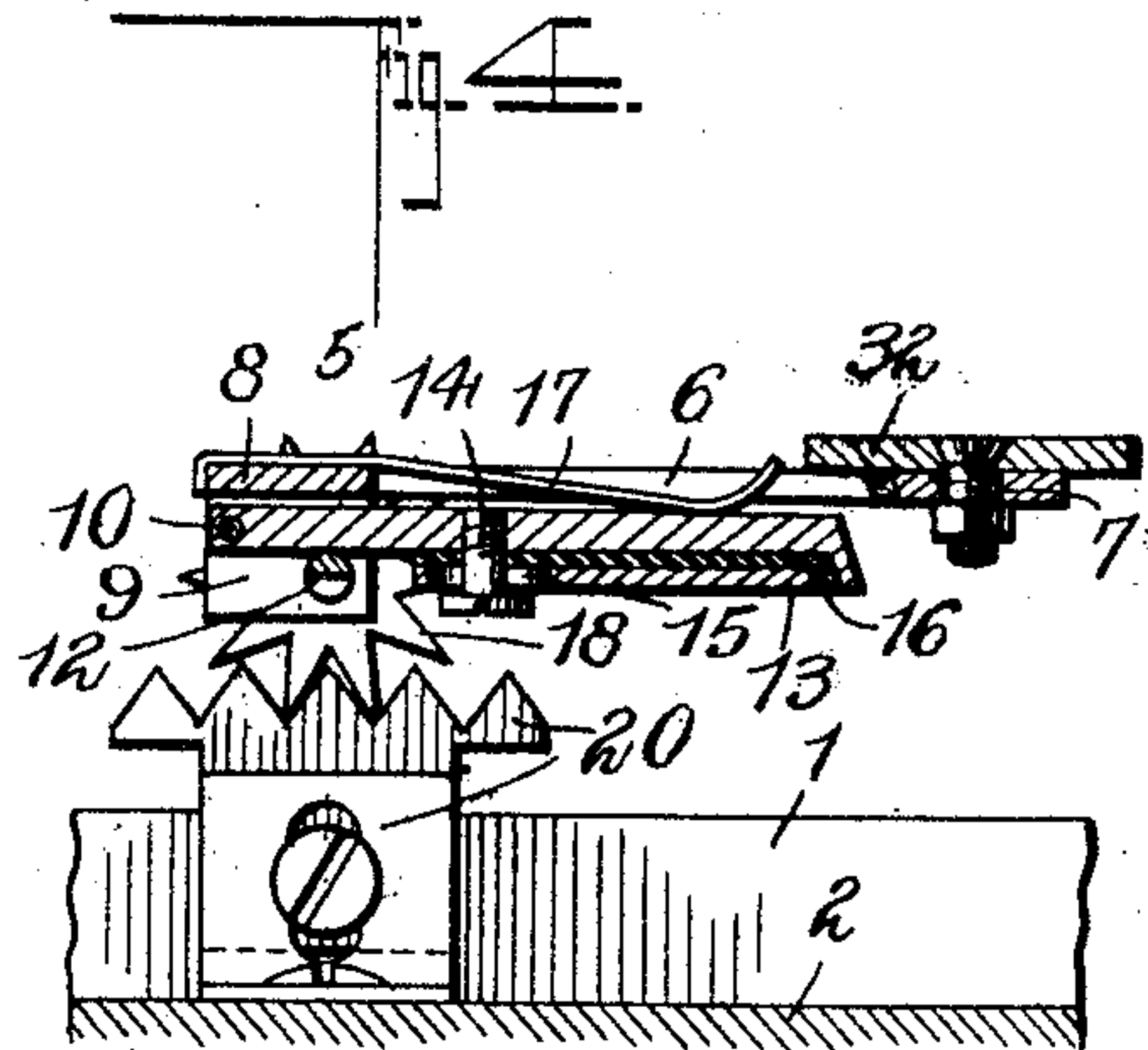
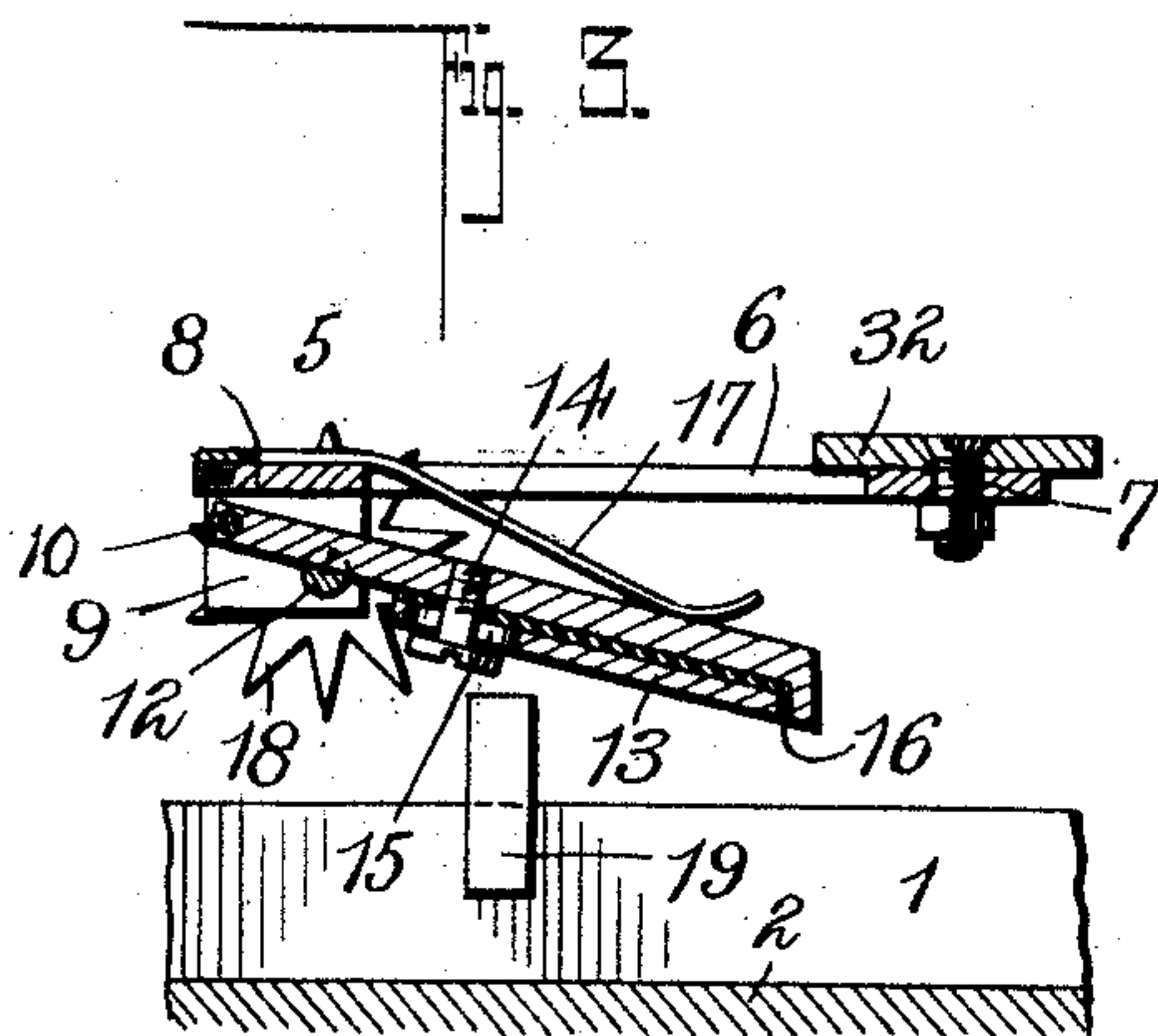
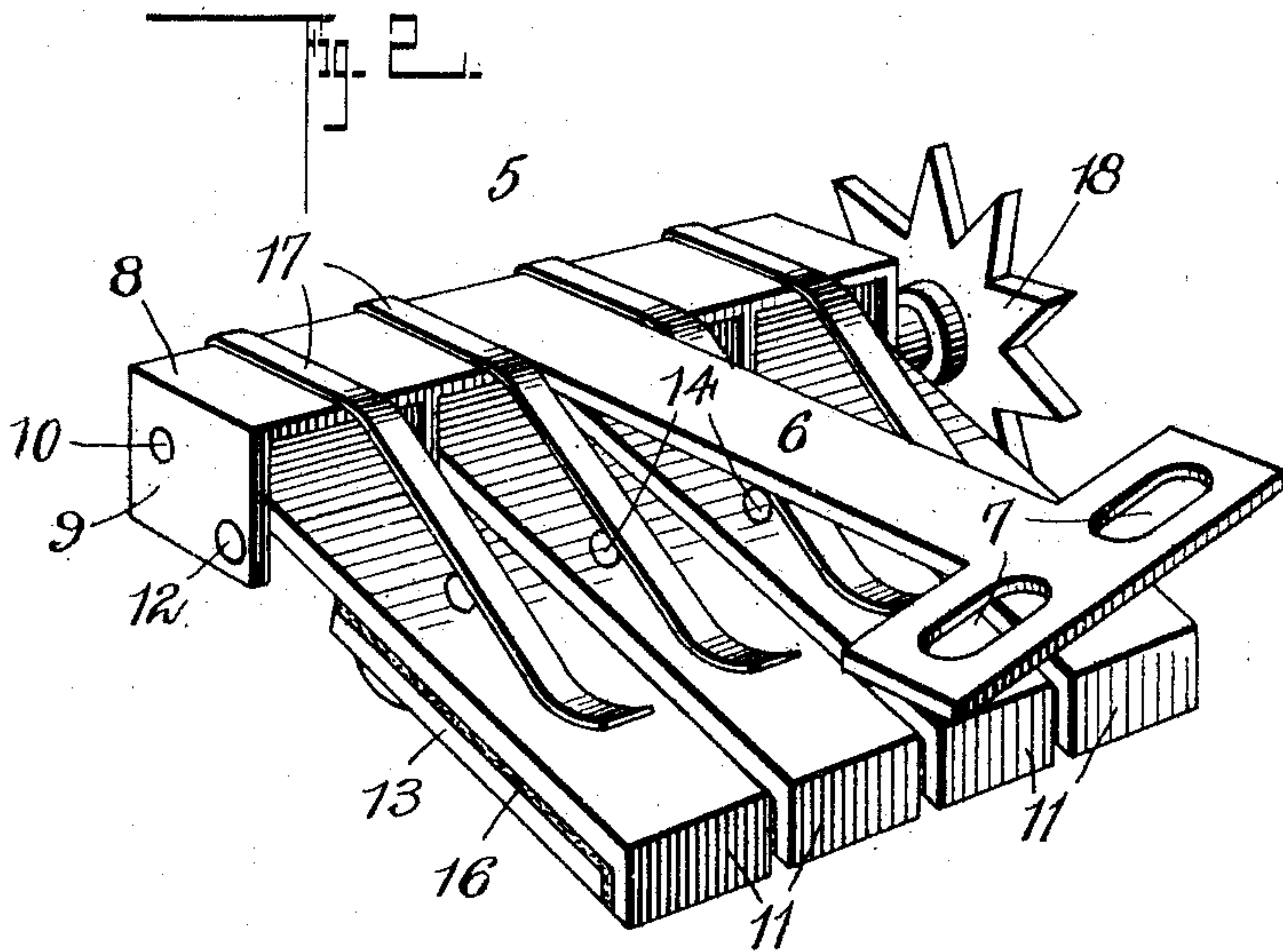
By Chas. E. Brock  
 Attorney

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2 SHEETS—SHEET 2.



Witnesses

Philip H. Burch  
 E. B. McRath

Inventor  
 O. P. Ragan,

Chas. E. Brock  
 Attorney



# UNITED STATES PATENT OFFICE.

OWEN P. RAGAN, OF RIDGEWAY, MISSOURI.

SIGNAL ATTACHMENT FOR CLOCKS.

976,214.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed March 16, 1910. Serial No. 549,737.

*To all whom it may concern:*

Be it known that I, OWEN P. RAGAN, a citizen of the United States, residing at Ridgeway, in the county of Harrison and State of Missouri, have invented a new and useful Improvement in Signal Attachments for Clocks, of which the following is a specification.

This invention relates to an attachment for a clock by means of which a series of signals may be given at one or more points and at predetermined times by means of the common electric bells.

This invention is an improvement upon the construction shown and described in the patent granted to me April 28, 1908 and given Number 885,953.

The invention consists in the novel features of construction hereinafter fully described, pointed out in the claims and shown in the accompanying drawings, in which,

Figure 1 is a face view of a clock with my attachment applied thereto, a casing being partly shown in section and the circuits being shown diagrammatically. Fig. 2 is a greatly enlarged perspective view of a set of brushes designed to be carried by the hour hand. Fig. 3 is a longitudinal section taken through one of said brushes, the hour hand and other parts being shown in transverse section, the parts being shown in operative position. Fig. 4 is a similar view the parts being shown in inoperative position and a rack bar for lifting the parts into inoperative position being shown in side elevation. Fig. 5 is an enlarged sectional view of a portion of the face of a clock, certain metallic rings being shown in cross section. Fig. 6 is a detail perspective view centrally broken out of a conductor bar which forms a part of the circuits leading to the clock. Fig. 7 is an enlarged detail section illustrating the mounting of the case upon the arbor.

In these drawings, 1 represents a series of concentric rings arranged upon the face of a clock, each ring being formed of a metal strip as shown in Fig. 5, said rings being slightly spaced apart and secured upon an insulated base 2 which forms the face of the clock. These rings are arranged vertically upon the clock face, and are provided at suitable intervals with lateral lugs or foot pieces 3 through which screws or bolts may be passed for the purpose of securing the rings in place. A similar series of smaller rings 4 are also arranged upon the clock face

and within the first mentioned series. Brushes 5 carried respectively by the hour and minute hands travel respectively upon the rings 4 and 1. These brushes in detail consist of a T-shaped arm 6 the head of which is provided with two slots 7 and this head is secured upon the underside of the hand by means of suitable machine screws, as shown in Figs. 3 and 4, the slots permitting proper adjustment so that the brushes will register with the rings above which they are to travel. At its free end the arm 6 carries a bar 8, which is preferably integral with the arm and said bar has its end portions bent downwardly as shown at 9 to form bearings for a shaft 10 upon which are pivotally mounted contact brushes 11, said brushes resting upon and being held in proper normal position by means of a cam roller 12.

The brush 11 has its free end bent downwardly to form a flange 11<sup>a</sup> and upon the underside of said brush is secured a metal plate 13 secured by a machine screw 14 which passes through a slot 15 in the plate 13 and threads into the brush 11, the slot being of such size that the screw does not touch the sides of said slot. This plate is insulated by any suitable insulating material both from the underside of the brush and from the inner face of the flange or angle 11<sup>a</sup>.

The plate 13 is employed in order that the brush may ride smoothly over contacts to be hereafter described, and is insulated from the brush in order to shorten the time during which the circuit is completed as it will be obvious that a circuit will be established through the brush only during contact between the end of the flange 11<sup>a</sup> and a suitable pin or other contact plate. Springs 17 are secured upon the bar 8 and have their free end portions bearing upon the upper faces of the brushes, and it will be understood that there are as many brushes carried by each bar as there are rings for the complete brush to travel on.

The cam roller 12 is in the form of a cylindrical rod one-half of which is removed between the ends and in the brush carried by the hour hand this roller carries at one end a toothed wheel 18. Normally the brushes rest upon the flattened face of said roller and in a position to just clear the rings 4 and to engage bifurcated contact points which are placed upon said rings, and which can be slipped along the rings from point to



point but it will be obvious that in connection with program clocks, such as are employed in schools, signals are desired only during the day and to automatically cut out such signals during the night, or between any particular hours, I place upon the face of the clock a rack bar 20 in position to be engaged by the wheel 18.

Assuming that said rack is placed opposite the hour numeral VI and that during the day the parts have normally been in the position shown in Fig. 3, it will be seen that as the hour hand brings its brush to the rack 20, the wheel 18 will be given a half rotation, thus turning the cam roller and lifting the pivoted brush members against the tension of the springs 17 into the position shown in Fig. 4 and that in said position the brushes will clear all points which may be placed upon the rings, and no circuit will be completed through the rings 4, which circuit is essential to the giving of a signal until the hour hand has again reached the numeral VI the next morning when a second half rotation will return the parts to their normal position. The minute hand brush is provided also with a similar cam roller, but as it is only necessary to break the circuit at one point the wheel 18 is omitted and in its place, I substitute any suitable form of handle 21, by means of which the brush members of the minute hand brush can be lifted, in order to prevent the brushes from striking a pin in case the minute hand is to be turned back.

The pins may be of any shape or size desired in order to shorten or lengthen the time of contact, and may be constructed or arranged so as to produce a single signal or a combination of any number of signals. These pins fit upon the metal rings sufficiently tight to prevent a contact brush from disturbing their position but at the same time may be readily moved along the ring by hand in order to set the device, and it will of course be obvious that any number of pins can be employed, and several may be used if desired upon the same ring.

To connect the attachment to exterior electric circuits I provide conductor bars 22 angled at one end as shown at 23 and having an oblong slot adjacent the other end as at 24. The slotted end extends back of the dial face 2 and is held thereto by machine screws 25 which also serve to connect the bars 22 with the rings 1 and 4. These screws pass through a portion of the lugs 3, machine screws being employed at the points where bars are to be connected but wood screws being employed for use in connection with lugs intended only to secure the rings in place. The angled end portions of the bars 22 are secured to the clock casing 26 by means of suitable binding posts 27, and these binding posts are divided into two sets corresponding

to the two series of rings, one binding post of each set being connected to wires of a circuit. If for example bells 28 are to be rung in four separate places, each bell would be connected to a binding post of one set and to a binding post of the other set by the usual conductor wires 29 and it will be understood that each binding post is connected by a bar 22 to one of the rings one set of binding posts being connected to the inner series of rings 4 and the other set to the outer series 1. Each bell is therefore in circuit with a ring of each series and to complete the circuit brushes upon both the hour and minute hands must at the same time engage pins upon their respective rings. For example if it is desired to give a signal at the point A the bell at which point is in circuit with the inner ring of each series, and is desired that said bell should ring at fifteen minutes past one a pin 22 is moved to the proper point on the inner ring for engagement by the hour hand brush, and the pin is moved to the proper point on the inner ring of the outer series for engagement by the brush of the minute hand. At fifteen minutes past one the brushes carried by the two hands will engage their respective pins and a circuit will be established extending from the bell 28 at A to and through its binding post 27, the bar 22, the inner ring of the outer series, the minute hand, along the minute hand to the hour hand, thence from said hour hand by way of the brush to the inner ring of the series 4, thence along its connecting bar 22 to a second binding post 27 and back to the said bell, batteries of course being placed at any desired point between the binding post 27 and the bell 28.

In Fig. 7, I have shown an enlarged view of the arbor with a spring bar 30 employed for the purpose of preventing lost motion with the hour hand 31 and minute hand 32 of the clock.

What I claim is:—

1. The combination with the hour and minute hands of a clock, of brushes carried by said hands, a series of inner and outer rings, said rings registering respectively with the brushes, the brushes being out of contact with the rings, pins slidable on said rings, and in position to be normally engaged by said brushes, the said rings forming part of a series of electric circuits, and means carried by the brushes for lifting them so that they will clear the pins.

2. The combination with a clock dial having hour and minute hands, a series of outer and inner rings arranged upon the dial, a series of electric circuits, each circuit including one of the outer and one of the inner rings, pins slidably mounted upon said rings, spring pressed brushes carried by the hands adapted to register with said rings and normally adapted to engage the pins and means



for lifting the brushes carried by one hand at a predetermined period of time.

3. In a device of the kind described, the combination with a clock hand, of a T-shaped arm, the head of which is adjustably connected to said hand, a bar carried by the free end of said arm and having downwardly turned end portions, a pivoted shaft journaled in said end portions, contact brushes pivotally mounted upon said shaft, springs secured to said arm and bearing upon said brushes, and a rotatable cam roller supporting said brushes, as and for the purpose set forth.

4. In a device of the kind described, the

combination with a clock hand, said hand being in an electric circuit, a pivoted brush member supported from said hand, adjustable contact points in position to be normally engaged by said hand, a cam roller normally supporting the brush in operative position and means for giving said roller a partial rotation at a predetermined time thereby lifting said brush into inoperative position, as and for the purpose set forth.

OWEN P. RAGAN.

Witnesses:

EARLE G. SPRAGG,  
CARL O. WHISLER.