

No. 686,636.

Patented Nov. 12, 1901.

W. RAUSCH.
TIME CIRCUIT CLOSER.

(Application filed Nov. 1, 1900.)

(No Model.)

2 Sheets—Sheet 1.

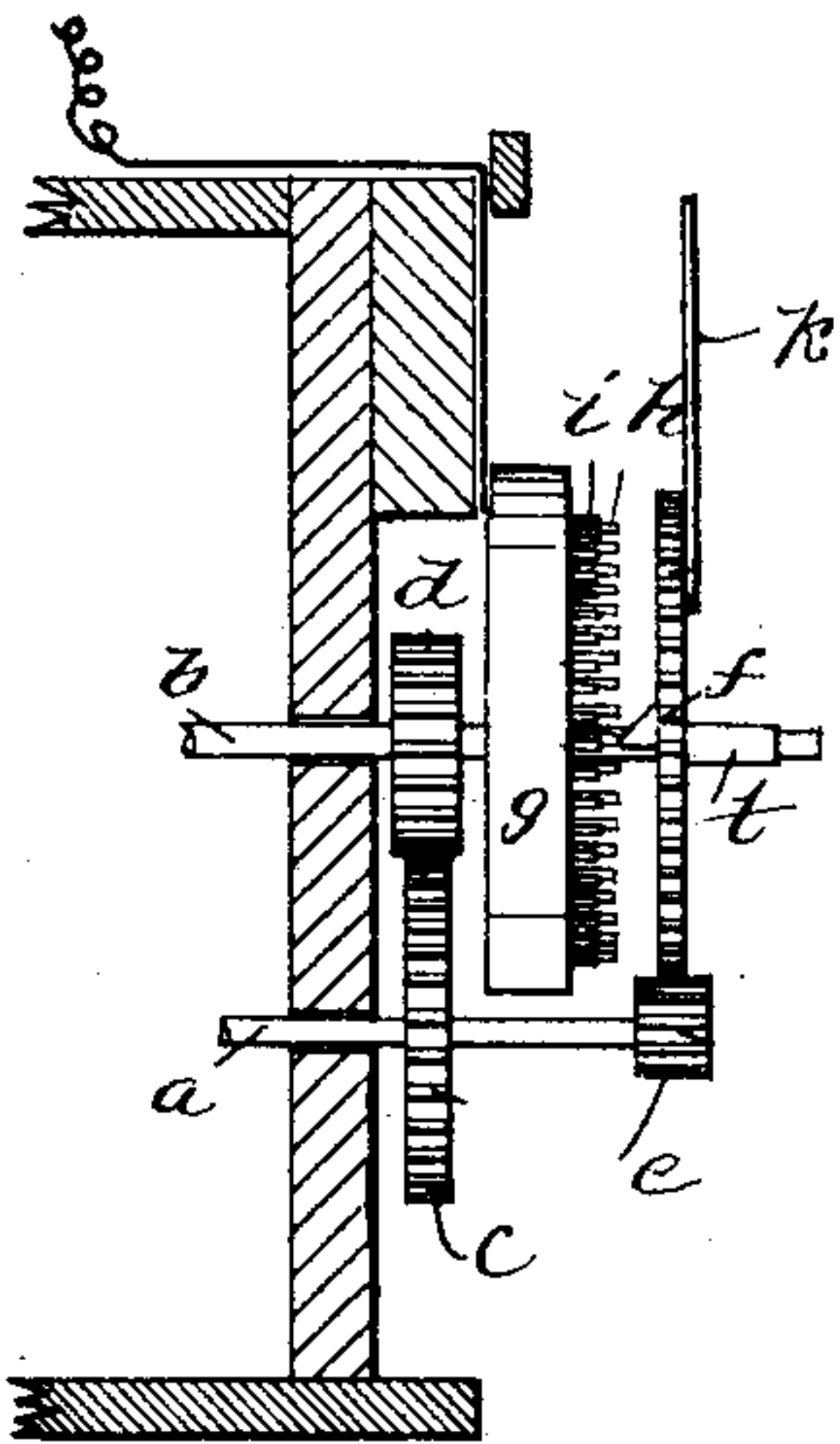
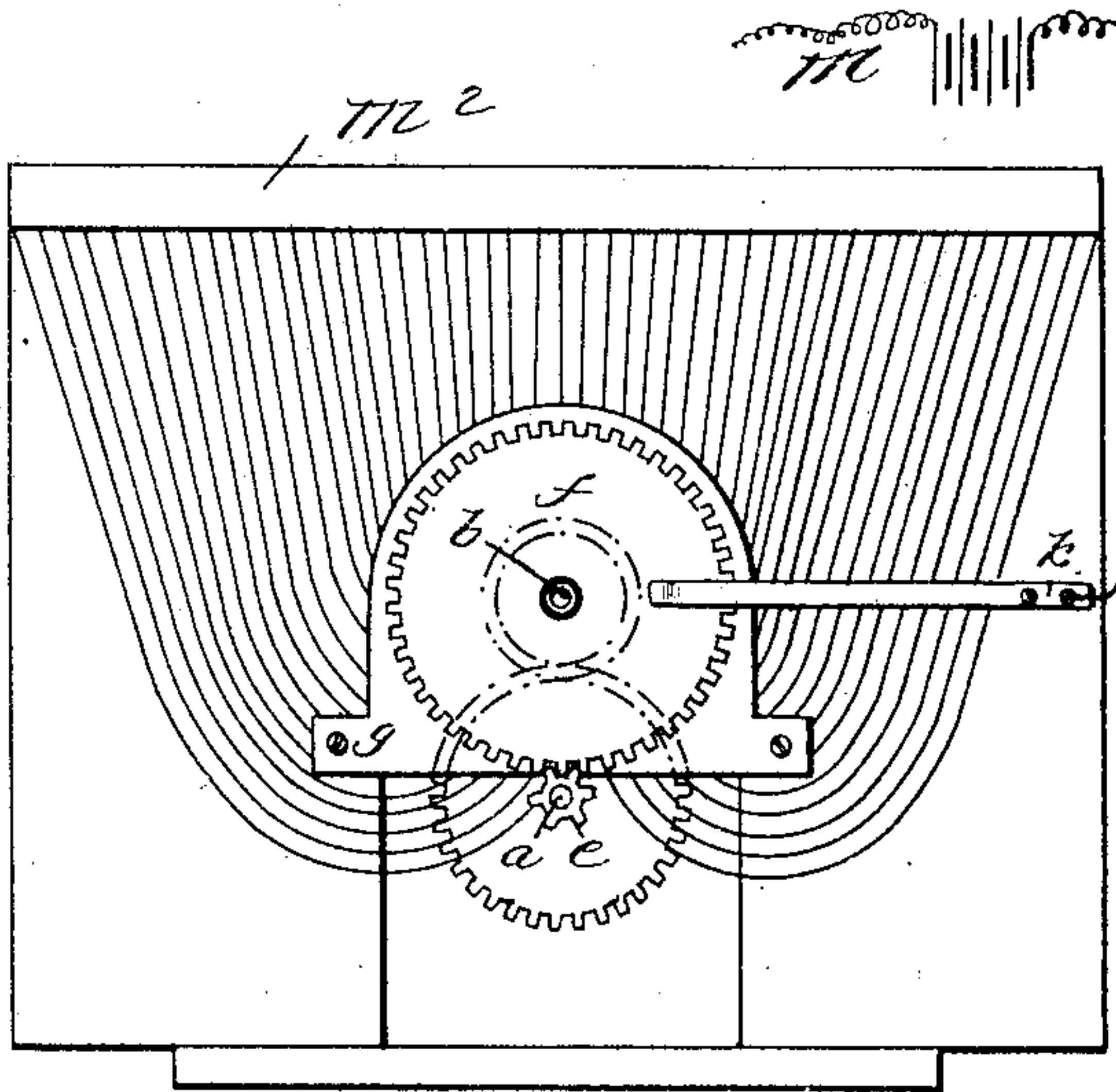


Fig. 1.



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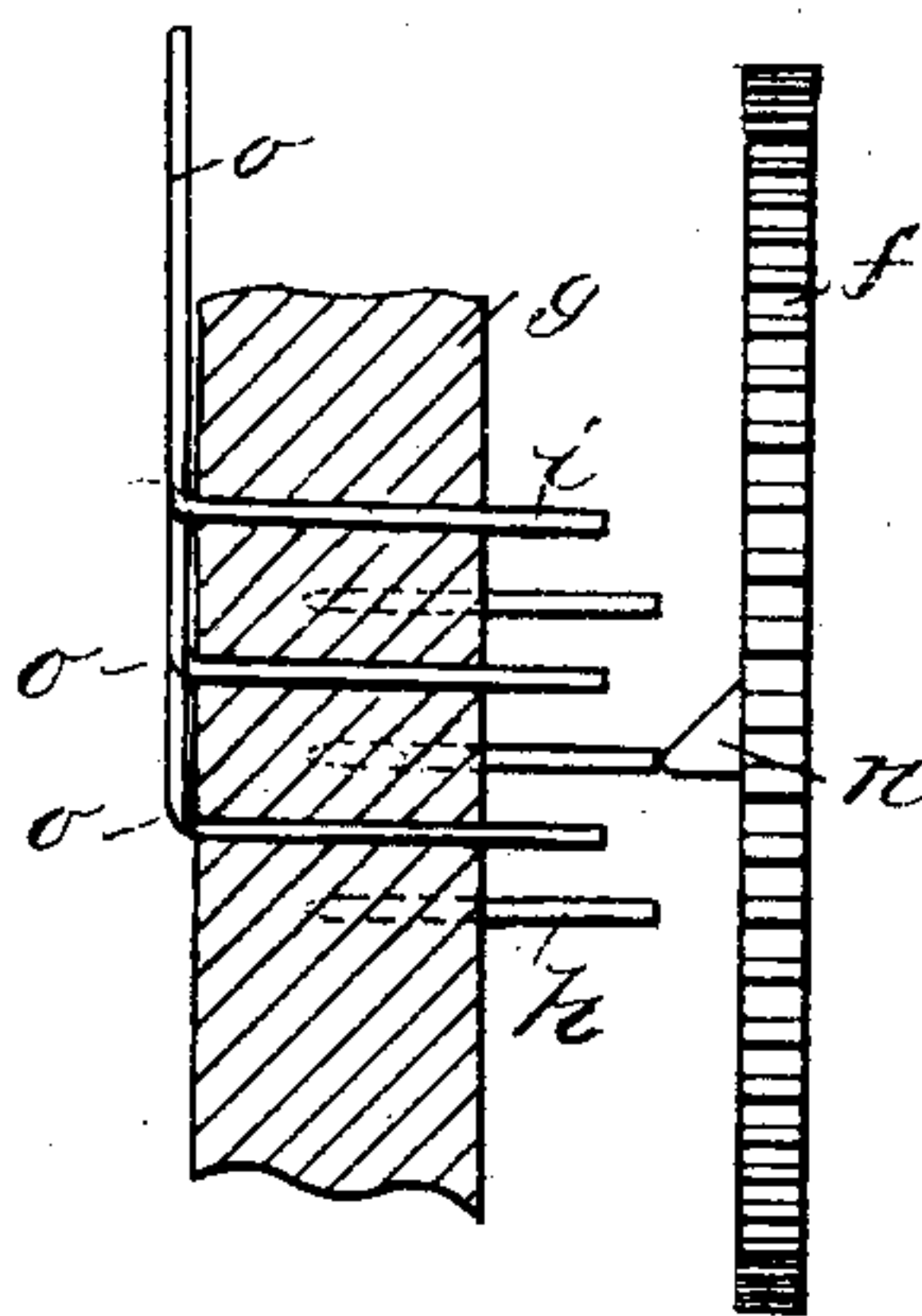


Fig. 5.

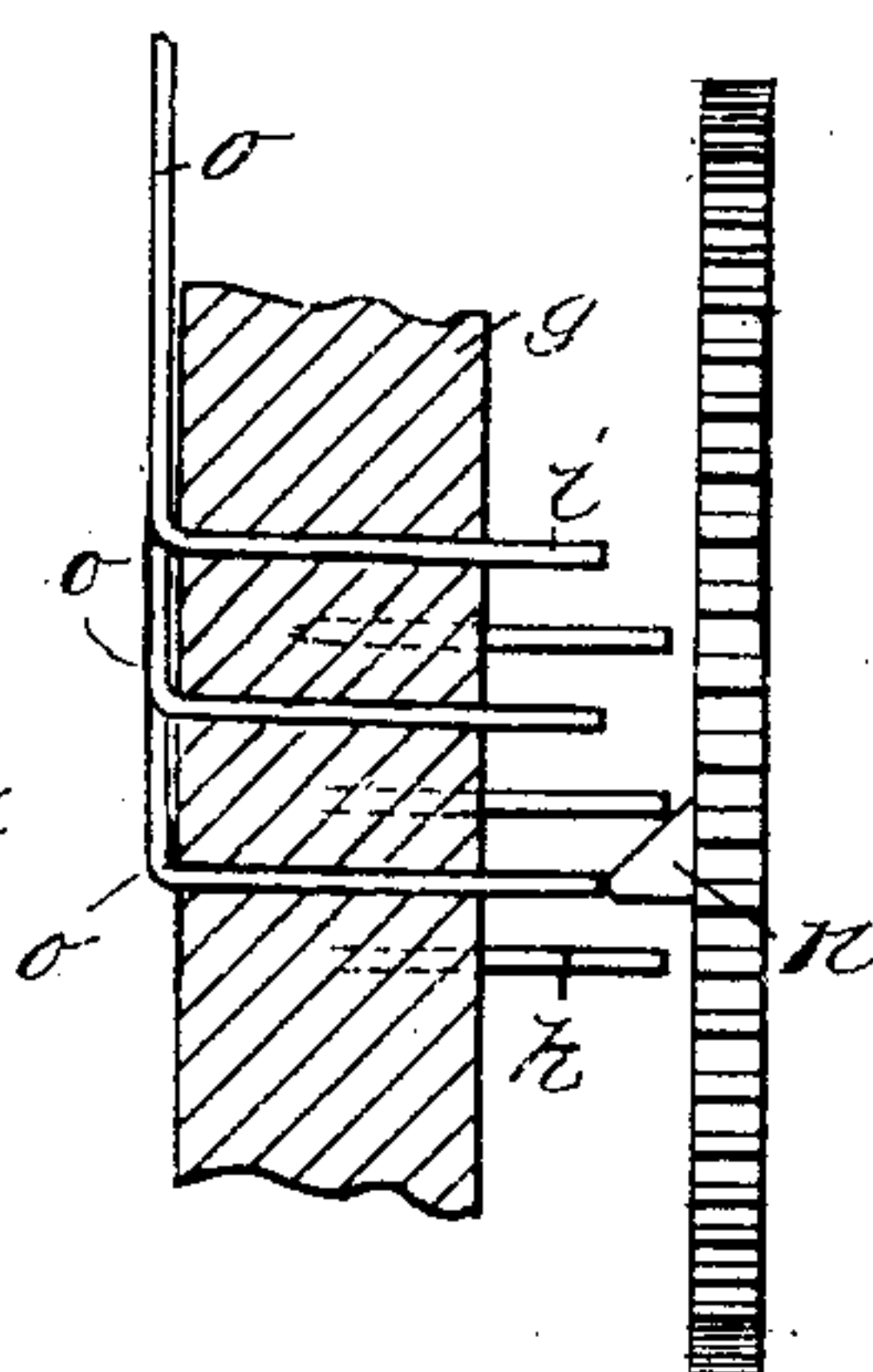


Fig. 6.

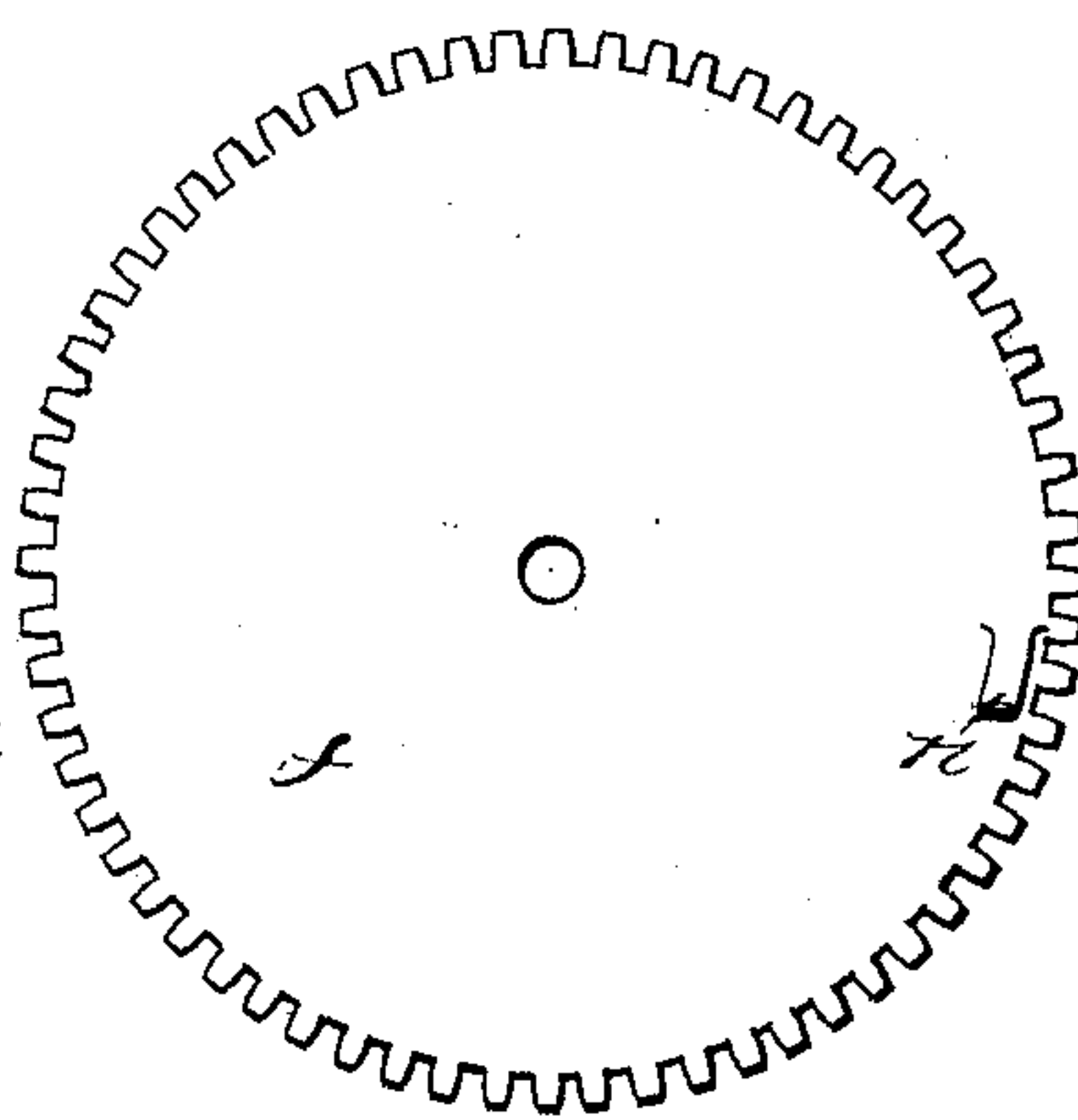


Fig. 7.

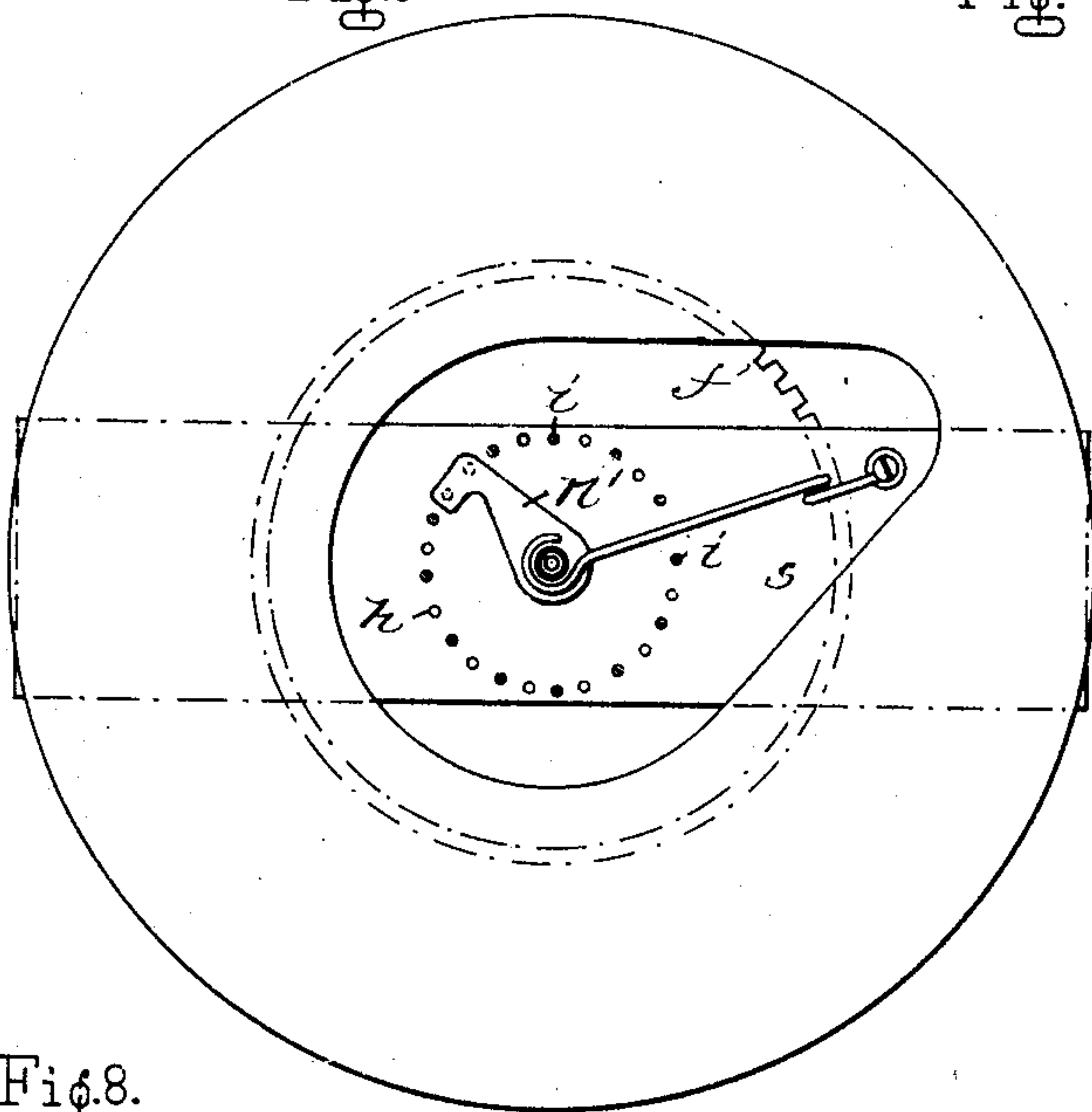


Fig. 8.

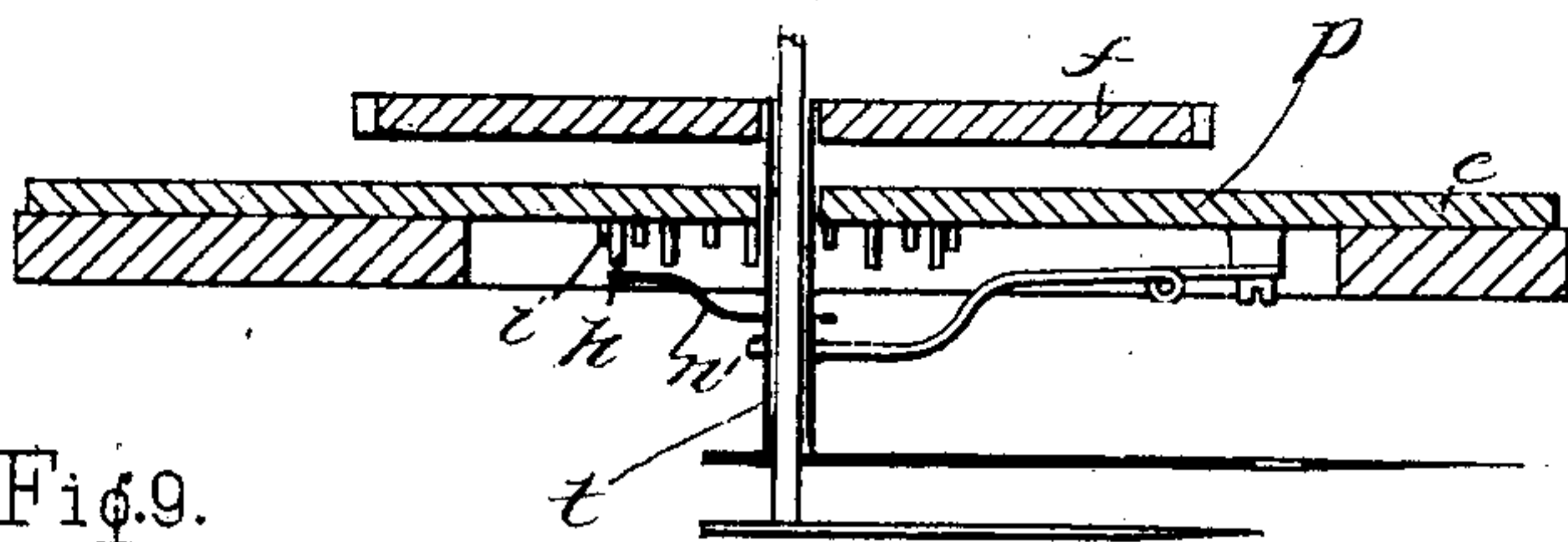


Fig. 9.

Witnesses
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UNITED STATES PATENT OFFICE.

WILHELM RAUSCH, OF DUSSELDORF, GERMANY.

TIME CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 686,636, dated November 12, 1901.

Application filed November 1, 1900. Serial No. 35,140. (No model.)

To all whom it may concern:

Be it known that I, WILHELM RAUSCH, a subject of the King of Prussia, Emperor of Germany, residing at Dusseldorf, in the Province of Rhenish Prussia and Kingdom of Prussia, Germany, have invented new and useful Improvements in Time Circuit-Closers, of which the following is a specification.

For automatic making and breaking during the daytime of electric signal apparatus or light or power plants at certain intervals, a clockwork or timepiece is employed which actuates a sliding contact and thus successively closes or opens the electric conduits. An objection to these arrangements is that they require considerable current, and consequently necessitate a large number of galvanic elements.

According to this invention a contact-lug is to be employed which is mounted on the axle of the hour-wheel of a clock in the customary manner, but which is shifted on the axle against the action of a spring and made to act as spring contact against a number of contacts arranged concentrically to the axis. The shifting of the contact-lug is effected by a cam contact-face thereon, which alternately runs onto an elevation or jumps to a contact-peg for closing the circuit.

In the drawings, Figure 1 shows a section of the clockwork, the circuit being broken. Fig. 2 is a view like Fig. 1, the circuit being closed. Fig. 3 is a front view of the clockwork. Fig. 4 shows an arrangement of contacts for electric signaling. Figs. 5 and 6 respectively show the closed and open position of the contact-maker on an enlarged scale. Fig. 7 is a rear view of the hour-wheel. Fig. 8 is an elevation, and Fig. 9 a sectional view of a specific form of the device.

The axle *a* of the clock work or train rotates the minute-shaft *b* by means of the wheels *c d*. The hour-wheel *f* is fixed on a sleeve *t*, which is slidable or shiftable on axle *b*, and the wheel *f* is also actuated from axle *a* by means of pinion *e*. On its rear face it has a contact-lug *n*, having an inclined contacting face. (See Figs. 5, 6, and 7.) Opposite the same and concentrically about axle *b* are the contacts *i*, mounted on a disk or

plate *g* of insulating material. Each of the contacts *i* is connected to an independent return-wire *o*, as most clearly shown in Figs. 4, 5, and 6, and all the return-wires *o* are connected to a metallic strip *m*², which in turn is connected to a single return-wire *m*'. On the rotation of the hour-wheel *f* the contact-lug *n* can be successively brought into touch with the contacts *i*. If the current passes through hour-wheel *f*, a closure is made each time that lug *n* touches a contact *i*, and on leaving the contact the circuit is broken. To make and break the circuit, the contacts are arranged in such manner that during the break of the circuit—that is to say, as soon as the lug *n* slips from off the contact *i*—the lug *n* rests or runs on a projection—as, for example, a pin *h*, fixed in the insulated plate *g*, and is moved out of reach of contacts *i* by the shifting of wheel *f* on its axle. If the conductor-wire *m* is joined to spring *k*, the current through such spring and hour-wheel is closed by lug *n* and passes on through contact *i*, with which said lug *n* comes into touch. By means of this contact-maker the circuit is only closed in the direction in which for the time being it is to act. The duration of action depends on the particular purposes in view. If, for example, an electric light or power plant is to be cut out at determined periods, a merely momentary touch of the contacts suffices. If, as indicated in the drawings, a larger number of electric signal apparatuses are to be actuated, the arrangement can be such that the signal sounds either for several seconds or for several minutes, according to the shape given the contact-face of lug *n*. Say, for example, the hour-wheel *f* has forty-eight teeth and back of the same are forty-eight contacts *i*, secured concentrically to shaft *b* on insulating-disk *g*. Either within or without the circle of contacts *i* is a circle of pins *h*, projecting beyond the plane of the contacts *i* and transposed with respect to the same. The lug *n* of wheel *f* consists of a projection having an inclined contact-face. The same wipes over the pins *h*, whereby the wheel *f* is shifted or pressed forward against the action of spring *k*, Fig. 3. When contact *n* has passed a pin *h*, said contact, with wheel

f, under the action of spring *k*, snaps back and touches the next following contact *i*, Figs. 2 and 6. In the construction mentioned a circuit-closure is made each quarter-hour
5 through one of the contacts *i* of conductors *o*, so that after each quarter-hour a signal can be sent in a desired direction.

The foregoing circuit-breaker can be applied to any clock without requiring material alteration. It is merely necessary to apply disk *g* with contacts *i* and pins *h* back of wheel *f* and to make such wheel shiftable on its axle against the action of a spring *k*.
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In Fig. 3 of the drawings I have shown the spring *k* arranged at a right angle to the position it is shown in Fig. 3, and this is merely done for the sake of clearness, or in order that the spring may appear in both of said figures.
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A special form of constructing this break mechanism is also shown in Fig. 8 in elevation and in Fig. 9 in section. In this form of construction the contacts *i* and pins *h* are arranged on a plate *p* in front of hour-wheel
20 *f*. The latter is mounted on a hollow axle or sleeve *t*, carrying the hour-hand and shiftable on the axle of the minute-hand. On the hollow axle with the hour-wheel the arm *n'* is secured, so as to ride or wipe over the elevating-pins *h* and contact-pins *i* and to exert spring-pressure against such pins. In such an arrangement a spring *q* operates to shift the hour-wheel and cause the arm *n'* to contact with the pins *h* and contacts *i* as the arm
30 *n'* rides or sweeps over the contacts and pins.
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What I claim as new, and desire to secure by Letters Patent, is—

1. A clock-actuated electric contact mechanism or contact-breaker comprising an hour-axle, a contact thereon, contact and elevating pins concentric to the axle, and a spring for the contact, said contact being shiftable against the action of the spring so as to alternately ride on the contact and elevating pins for making and breaking the circuit, substantially as described.
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2. A clock-actuated electric contact-breaker comprising an hour-axle, a contact shiftable on the hour-axle, contact and elevating pins, and a spring for the contact, the latter having an inclined contact-face so as to be shifted back and forth as it is carried past the pins, substantially as described.
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3. A clock-actuated shiftable wheel having a contact, an insulating plate or disk concentric to the wheel and having contact and elevating pins in the path of the contact, and a spring for pressing the contact toward the pins, said contact having an inclined face for causing said contact to press back against the spring as the arm rides or wipes over a pin, substantially as described.
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In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILHELM RAUSCH.

Witnesses:

WILLIAM ESSENWEIN,
PETER LIEBER.