

No. 677,331.

Patented July 2, 1901.

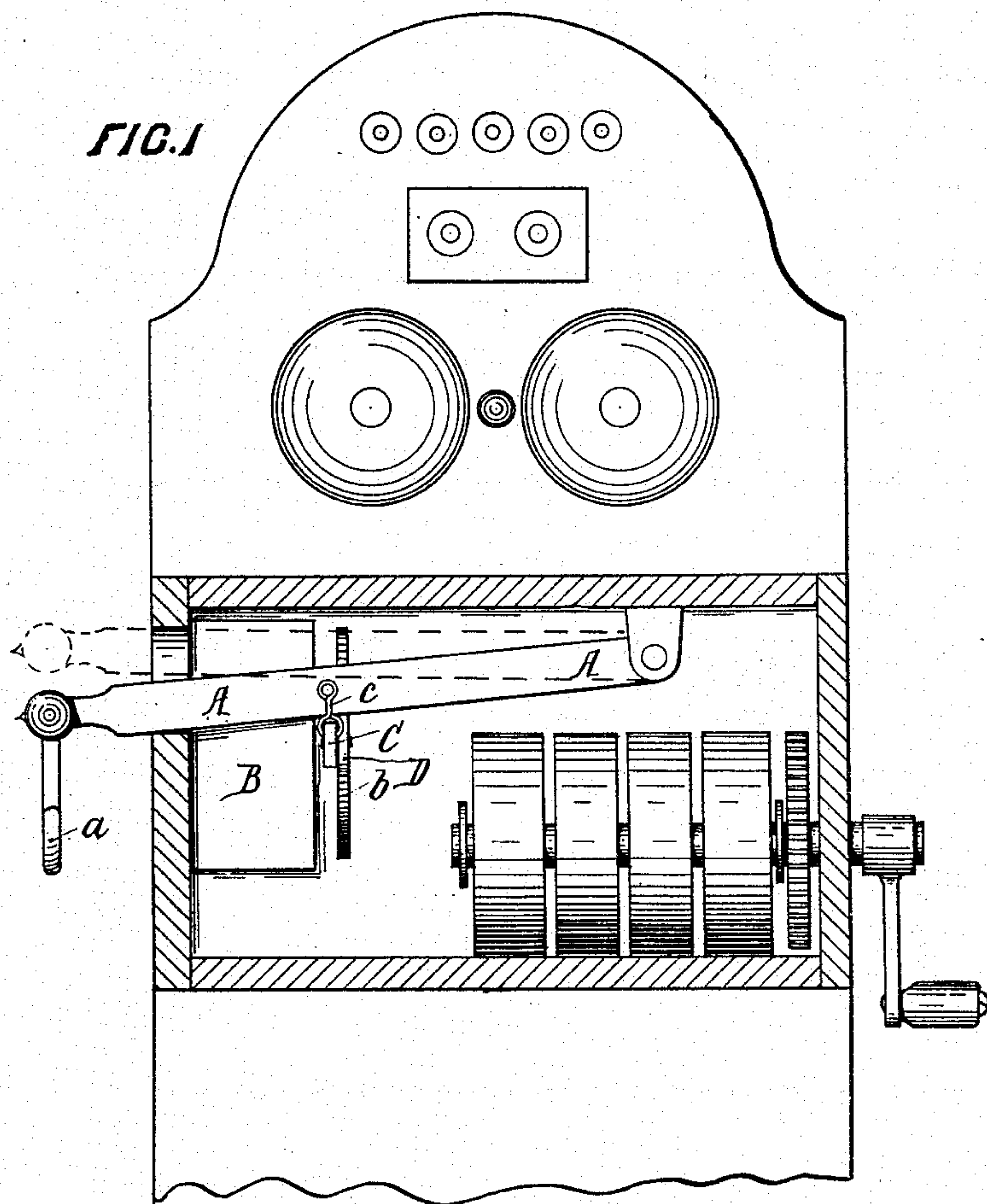
T. BARNET.

TIME INDICATOR FOR TELEPHONES.

(Application filed Jan. 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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2 Sheets—Sheet 2.

(No Model.)

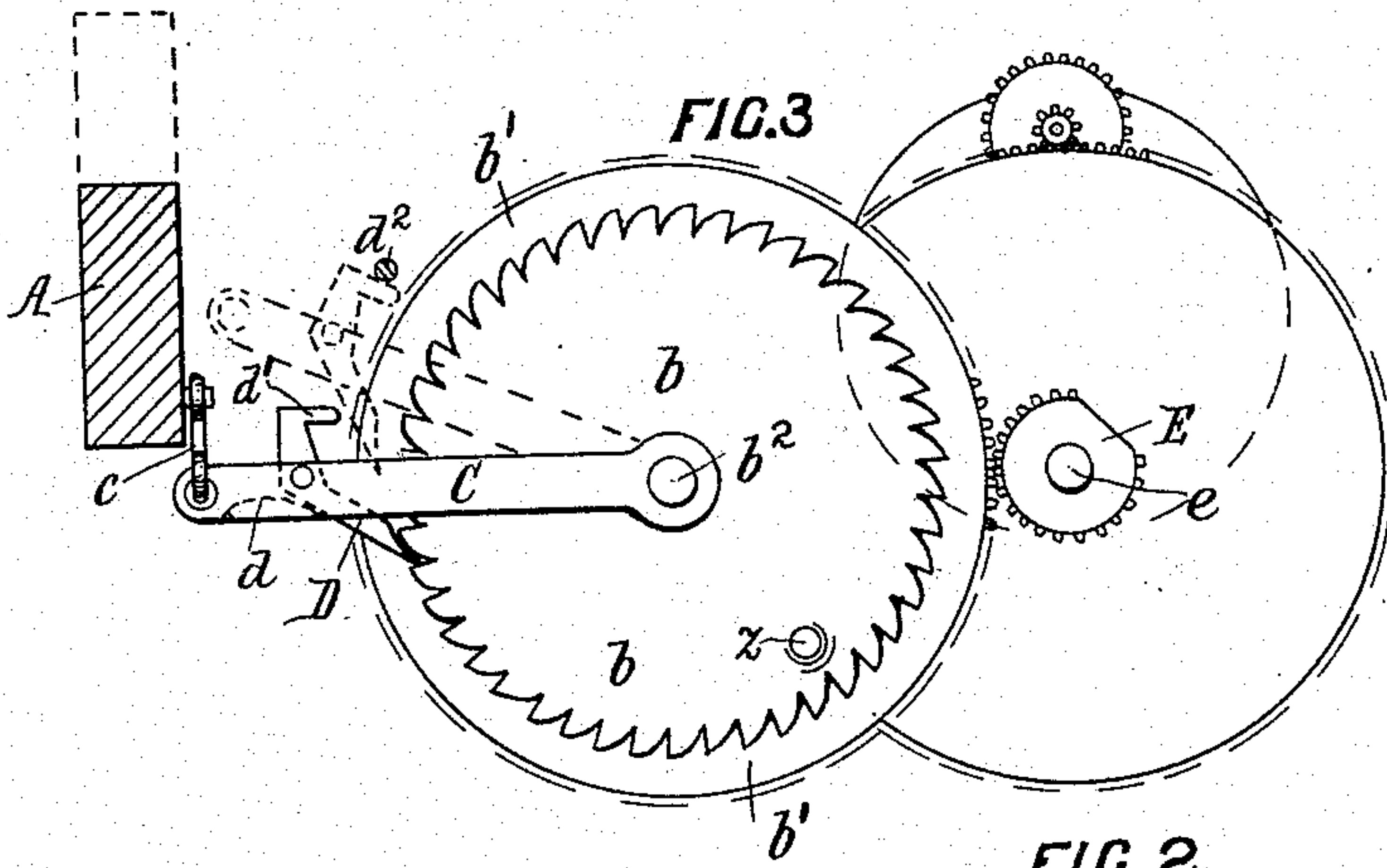


FIG. 2

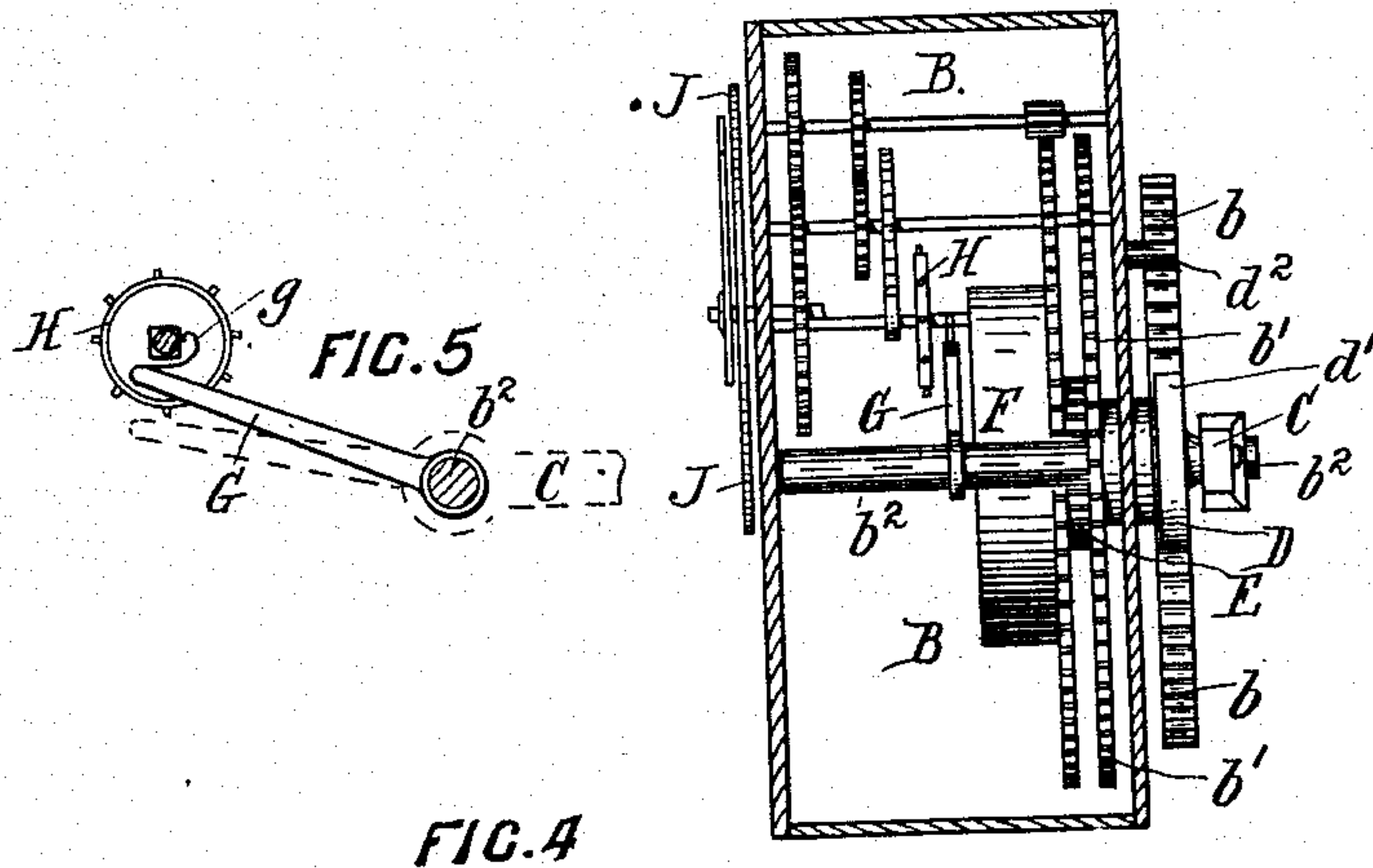
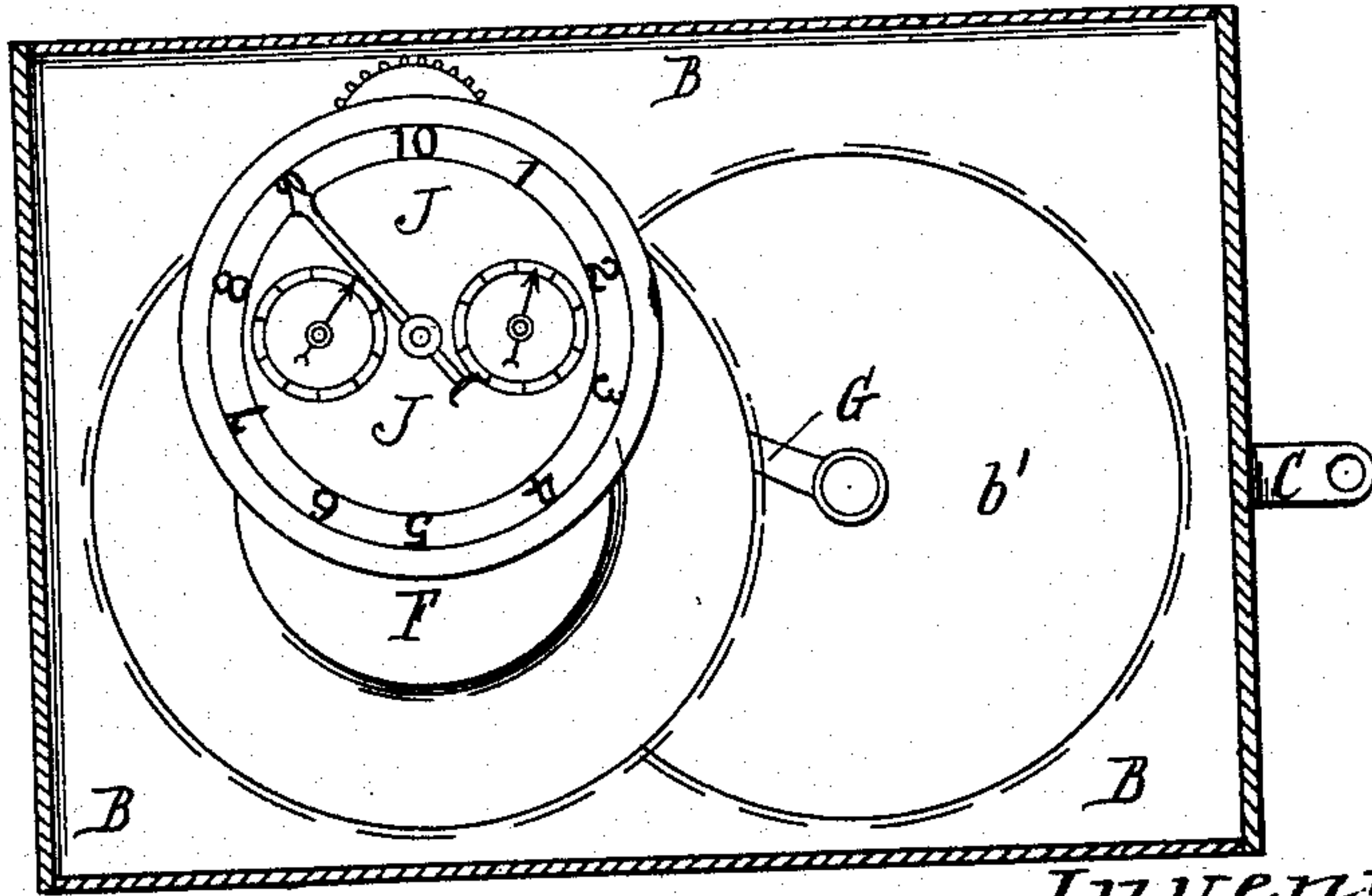


FIG. 4



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UNITED STATES PATENT OFFICE.

THOMAS BARNET, OF SYDNEY, NEW SOUTH WALES.

TIME-INDICATOR FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 677,331, dated July 2, 1901.

Application filed January 20, 1899. Serial No. 702,799. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BARNET, a subject of the King of England, residing at Sydney, county of Cumberland, and Colony of New South Wales, have invented certain new and useful Improvements in Time-Indicators for Telephones, of which the following is a specification.

It has been usual for the proprietors of telephone exchanges and systems hitherto to charge a uniform rate to all subscribers connected with the exchange. Some subscribers, however, have almost a monopoly of the wires, while other subscribers will only use the telephone for a short time once or twice each day. This invention has been specially devised with a view to charge for the use of the telephones by time, so that a subscriber who has but little use for his telephone will not be called upon to pay at the same rate as the subscriber whose instrument is in constant use. To this end the lever-switch of the telephone is connected with a clock or other mechanism which shall be inoperative when the telephone is not in use; but as soon as the receiver is lifted from the lever the clockwork shall commence to operate and will thus register the extent of time that the instrument is being used. The apparatus is so arranged that the up-and-down movement of the lever-switch shall wind up the clockwork, and thus the operation will be almost entirely automatic.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, of a telephonic instrument of the "Ericsson" type, showing the permanent magnets and with the clockwork arrangement introduced in the left-hand corner. Fig. 2 is a side elevation of the clockwork appliances. Fig. 3 is a front elevation of the automatic releasing and winding gear. Fig. 4 shows the dial upon which the time the telephone has been in use may be read. Fig. 5 is a detail showing a small appliance which may be found useful in starting the clockwork when it is released from the control of the switch-lever.

A is the switch-lever, provided with a hook *a*, on which the combined receiver and transmitter is suspended. The position shown is that assumed by the lever when it is depressed

by the weight of the combined transmitter and receiver, the elevated position being shown by dotted lines.

B is the clockwork appliance, which may be made in any way that would be effective in carrying out the idea involved in the invention. To one side of the clockwork appliance will be attached the hands and dials for indicating the time in any manner, such as is usually adopted in recording-meters. On another side of the clockwork appliance is placed the automatic winding-gear. This consists of a ratchet-wheel *b* outside the clockwork-case and connected to the spur-wheel *b'* within the case. These two wheels, ratchet-wheel *b* and spur-wheel *b'*, revolve together loosely upon the counter-shaft *b²*. The lever-arm C is keyed at one end onto the counter-shaft *b²*, while the other end is connected by the insulated link *c* to the switch-lever A. Articulated to the lever C is the pawl D, which is maintained in contact with the teeth of the ratchet *b* by means of the spring *d*.

The spur-wheel *b'* will gear with the segmental pinion E, which is keyed on the axis *c*, to which is connected the actuating-spring that is inclosed within the spring-case F. The spur-wheel E is made segmental in order to prevent overwinding of the spring. The pawl D is provided with a tailpiece *d'*, which will impinge against the stop *d²* (placed in any suitable situation) when the lever A is in its elevated position, and thus the pawl D will be kept clear of the teeth of the ratchet *b* and the clockwork apparatus will be free to revolve. When the switch-lever A is depressed, the pawl D will be released from contact with the stop *d²* and will reengage with the teeth of the ratchet *b*, thus arresting the movement of the clockwork.

The actuating-spring is automatically wound in the following manner: When the conversation through the telephone is finished, the receiver is hung upon the switch-lever A, thereby depressing it. The pawl D will be released from contact with the stop *d²* and will reengage with the teeth of the ratchet *b*, while the weight of the lever A will cause the ratchet to make a partial revolution backward equal to the space of about two ratchet-teeth. This backward movement

will be communicated through the spur-wheel *b'* and the segmental pinion *E* to the actuating-spring within the case *F*. The spring will therefore be potentially more powerful by the amount of resilience represented by the space of two teeth on the ratchet. Should the spring within the case *F* be run right down, it may be rewound by working the lever *A* up and down, or in order that the clockwork mechanism shall be prevented from running down should the receiver be left off the hook *a* a stop *z* is placed upon the side of the ratchet *b*, which shall engage with the lever-arm *C*, and thus prevent the ratchet and clockwork from turning when the stop comes up against the lever *C*. Any suitable form of connecting-train may be used between the clockwork mechanism and the indicating mechanism. Such a train is shown in Fig. 2, in which the clockwork mechanism described is located on the right of the figure and the indicating mechanism is on the left of said figure, with the connecting-train between.

Should it be found necessary to start the balance-wheel of the clockwork, the device shown in Fig. 5 may be employed. The lever-arm *G* is firmly pinned onto the counter-shaft *b²* and is provided at its outermost end with a small spring *g*. When the lever *C* is drawn up by the movement of the lever *A*, the lever *G* will be depressed to the dotted position shown in Fig. 5, thereby giving a slight send or impetus to the balance-wheel *H* sufficient to start it oscillating. It is considered that the balance-wheel would start without this appliance, but it has been considered advisable to show it in case of accidents.

J, Fig. 4, represents the recording-dials, which are constructed in a manner well known and understood, being similar in all their main features with those employed in any ordinary recording-meter.

Having now particularly described and ascertained the nature of my said invention and

in what manner the same is to be performed, I declare that what I claim is—

1. In combination with the lever for supporting the telephone-receiver said lever being arranged to rise when the receiver is removed therefrom, registering mechanism, a clock mechanism for operating the registering mechanism, a ratchet-wheel connected with the clock-spring for winding the same, a lever *C* pivoted on the shaft of the ratchet-wheel, a pivoted pawl carried by the said lever *C* and normally engaging the ratchet, a connection between the said lever and the receiver-supporting lever whereby the lever *C* will move when the receiver is removed and a pin in the path of the pawl for throwing the same out of engagement with the ratchet-wheel when the receiver is removed.

2. In combination with the lever for supporting the telephone-receiver said lever being arranged to rise when the receiver is removed therefrom, registering mechanism, a clock mechanism for operating the registering mechanism, a ratchet-wheel connected with the clock-spring for winding the same, a lever *C* pivoted on the shaft of the ratchet-wheel, a pivoted pawl carried by the said lever *C* and normally engaging the ratchet, a connection between the said lever and the receiver-supporting lever whereby the lever *C* will move when the receiver is removed and a pin in the path of the pawl for throwing the same out of engagement with the ratchet-wheel when the receiver is removed, a balance-wheel and a lever on the shaft of the ratchet-wheel for setting the balance-wheel in motion, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

THOMAS BARNET.

Witnesses:

MANFIELD NEWTON,
JAS. T. HUNTER.