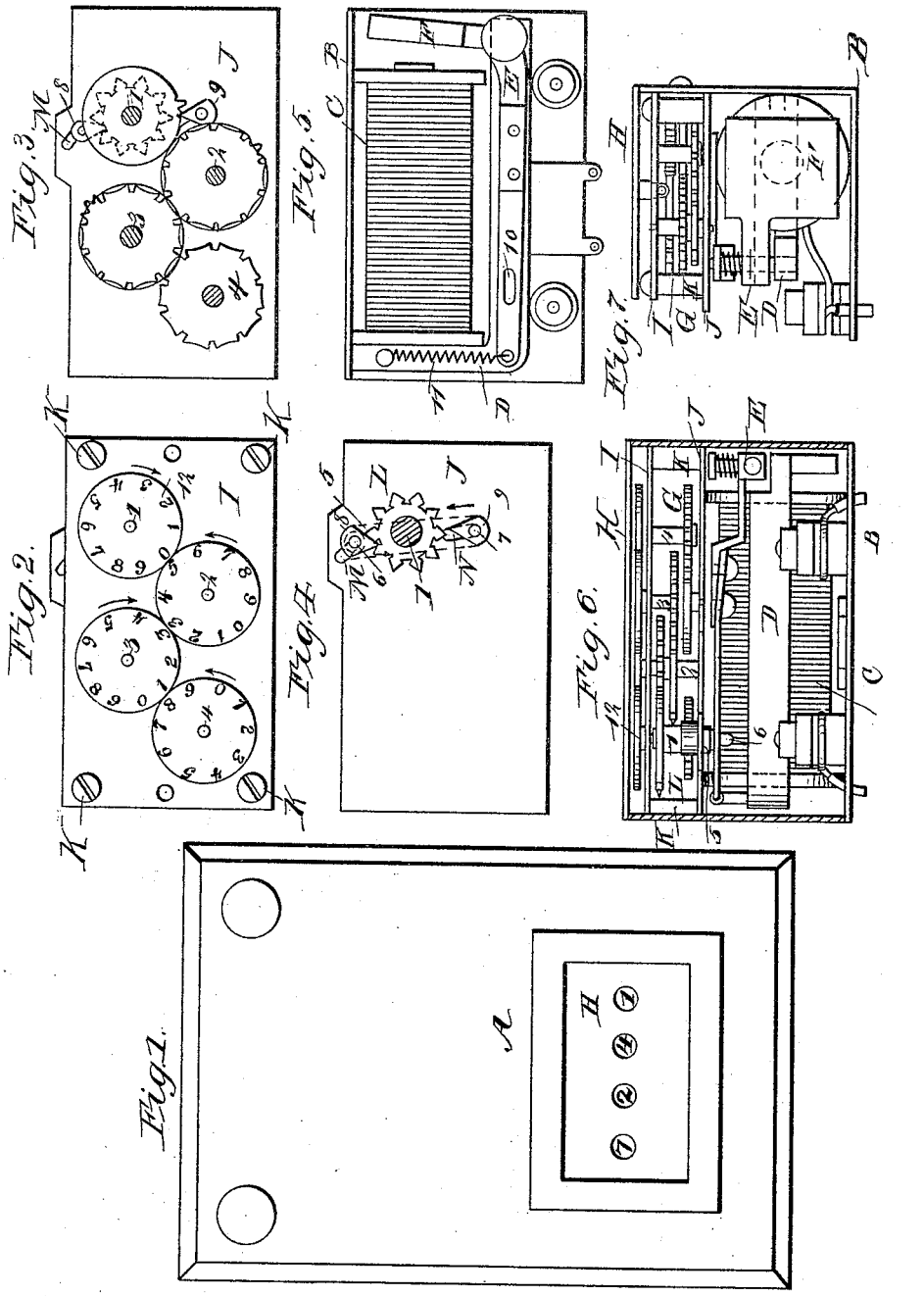
(No Model.)

W. McNEILL & J. H. TINDER.

REGISTERING MECHANISM FOR ELECTRIC LIGHT CIRCUITS.

No. 526,579. Patented Sept. 25, 1894.



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REGISTERING MECHANISM FOR ELECTRIC-LIGHT CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 526,579, dated September 25, 1894.

Application filed July 26, 1893. Serial No. 481,471. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM McNEILL, of Chicago, in the county of Cook and State of Illinois, and JAMES HENRY TINDER, of Winchester, in the county of Clark and State of Kentucky, have invented new and useful Improvements in Registering Mechanism for Electric-Light Circuits, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a front elevation of the register used in connection with the consumer's circuit. Fig. 2 is a front elevation of the number wheels. Fig. 3 is a transverse section showing the carrying wheels. Fig. 4 is a front elevation of the star wheel and pallets. Fig. 5 is a front elevation of the electro-magnet and the armature lever used for vibrating the pallets. Fig. 6 is an inverted plan view of the registering mechanism; and Fig. 7 is an end elevation of the same.

Similar letters and figures of reference indicate corresponding parts in all the views.

The object of our invention is to provide registering mechanism for electric light circuits that will be positive in its action, so that it will always indicate the lamp hours to be charged to the consumer.

Our invention consists in mechanism for registering lamp hours in the consumer's circuit, as will be hereinafter more fully described.

To the base A is secured an angled plate B, Fig. 7, to which is attached an electro-magnet C, furnished with a core extension D, to which is pivoted the armature lever E, supporting the armature F in front of the pole of the magnet C. To the L-shaped plate B in front of the magnet C, is secured the registering mechanism G, and the apertured plate H which covers the number wheels, with the exception of such portions as are shown through the apertures of the plate. The frame of the registering mechanism consists of the front and back plates I, J, and the studs K located at the corners of the plates.

In apertures in the plates I and J are journaled the arbors 1, 2, 3, 4, the said arbors being staggered or set in a zigzag line. To the arbor 1, is secured a star wheel L, and in the plate J above and below the star wheel are formed oblique slots M, N. The slot N forms a small angle (say of about ten degrees) with a line running through the axis of the star wheel, while the slot M forms a greater angle, (say of about sixty degrees.) On the back of the plate J is placed a bar 5, in which are inserted studs 6, 7, which extend through the slots M, N, and carry triangular pallets 8, 9, which are capable of engaging the teeth of the star wheel L, as the bar 5 is reciprocated by means of the armature lever E, the said armature lever being provided with a slot 10 for receiving the prolongation of the stud 6 at the rear side of the bar 5.

The armature lever E is furnished with a retractile spring 11, for returning it to the point of starting after it has been moved by the action of the magnet C on the armature F. Whenever the said armature is drawn forward and released by the magnet C, the bar 5 is moved upward, bringing the pallet 9 into engagement with one of the teeth of the star wheel L, and when the armature is released and moved in the opposite direction by the retractile spring 11, the bar 5 is moved downwardly and the pallet 8 is brought into engagement with one of the teeth of the star wheel, and the said pallet remains in the notch between the adjacent teeth of the star wheel, thus preventing the over-throwing of the wheel, and retaining it in the position into which it was moved. By virtue of the oblique slots in which the studs 6, 7, move, the sliding bar is swung and the pallets are moved toward the center of the star wheel, and at the same time receive a lateral motion each in different right lines that are not parallel—one with another which causes them to positively engage the star wheel.

The star wheel L is provided with ten teeth, and its arbor 1, carries on its outer extremity outside of the plate I, a number wheel 12, carrying on its face figures representing units and running consecutively from 1 to 9, and also a cipher representing the tens place. In like manner each of the arbors 2, 3, and 4, carry number wheels of the same description, the number wheel on

arbor 2 representing tens, that on arbor 3 representing hundreds, and that on arbor 4 representing thousands. The figures on the number wheel of arbor 1, and the figures on the number wheel on arbor 3, are arranged with their tops toward the center of the wheel, while the figures on the number wheel on arbor 2 and those on the number wheel on arbor 4, are arranged with their tops toward the periphery of the number wheel. This arrangement permits of showing the figures right side up through the apertures of the plate H.

The arbors 1, 2, 3, 4, are provided with carrying mechanism of the ordinary well known construction, which will therefore need no description here. When arbor 1, makes one rotation it carries forward arbor 2 and its wheel 12 one space. When arbor 2 makes one rotation it carries arbor 3 and its wheel 12 forward one space, and when arbor 3 makes one rotation it carries forward the arbor 4 and its wheel 12 one space.

To provide for the points of the pallets 8 and 9, which are inclined in opposite directions, the bottom of the space between the triangular teeth of the star wheel is widened or enlarged, preferably by drilling a hole through the wheel at that point.

It will be seen that the movement of the star wheel under the action of the pallets is positive and cannot overthrow.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a step-by-step registering mechanism, the combination, with a train of registering gearing provided with a star wheel and having oblique slots in one of the plates of the frame of the mechanism, of a sliding swinging bar provided with pins fitting in the oblique slots of the frame of the mechanism, and carrying pallets adapted to engage the star wheel, and electro-magnetic mechanism for reciprocating the bar, the oblique slots being arranged in lines that are not parallel one with another, whereby the end of the sliding bar carrying the pallets is made to swing laterally at different speeds, substantially as specified.

2. In a step-by-step registering mechanism, the combination with a star wheel, of pallets arranged to move in different right lines that are not parallel one with the other, substantially as specified.

3. In a step-by-step registering mechanism, the combination of a sliding swinging bar having angular pallets, and a star wheel provided with pointed teeth, and having spaces under-cut below the bases of the teeth, for receiving the angular ends of the pallets, substantially as specified.

4. In step-by-step registering mechanism, the combination with a star wheel, of a sliding swinging bar carrying pallets arranged to move in right lines that are not parallel one with another, electro magnetic mechanism for reciprocating the bar, and registering and carrying wheels and number disks, substantially as specified.

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