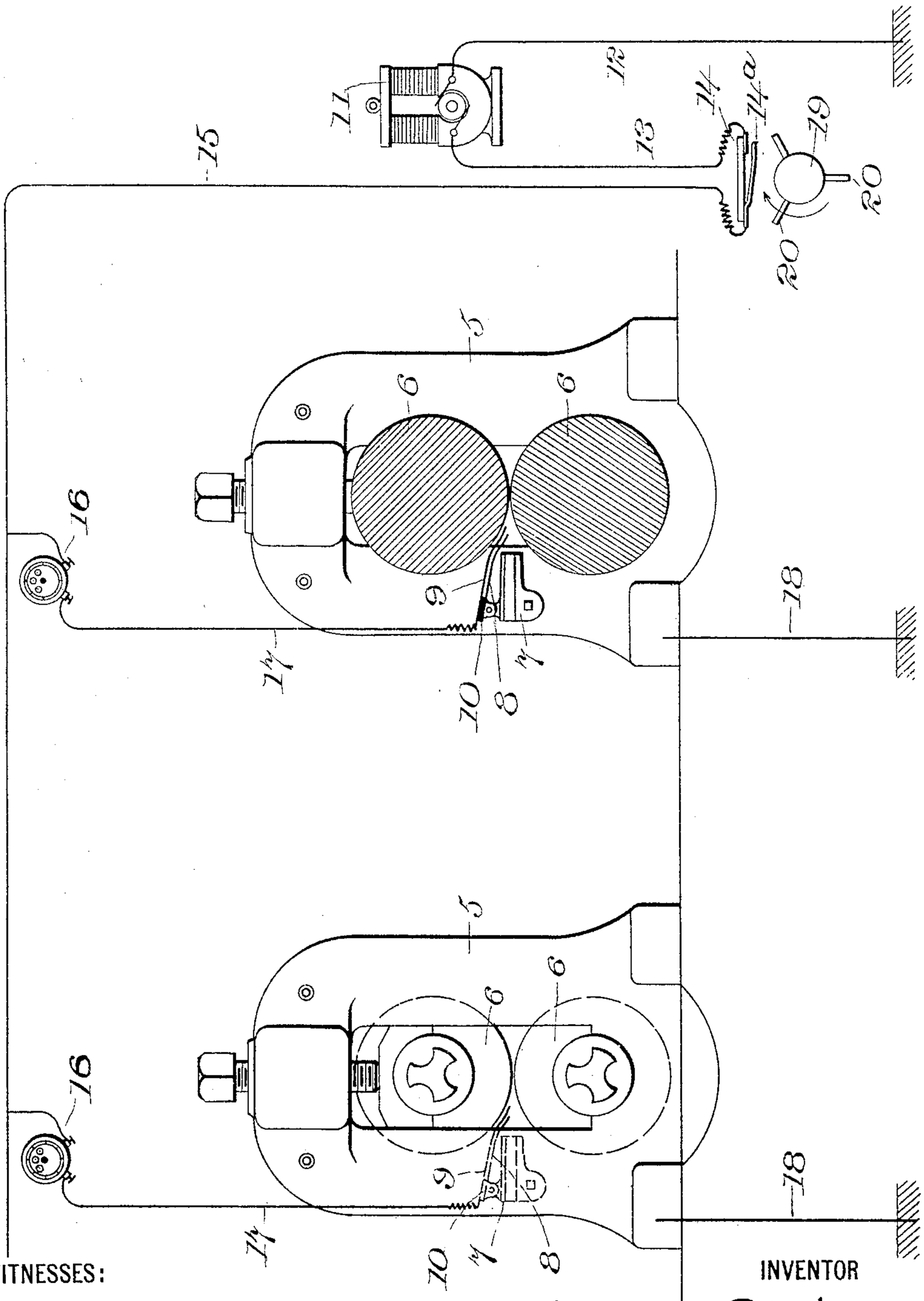
No. 638,333. Patented Dec. 5, 1899.

A. P. HINE.

ELECTRIC ROLLING MACHINE INDICATOR.

(Application filed Apr. 21, 1899.)

(No Model.)



WITNESSES:

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ADELBERT PHILANDER HINE, OF TORRINGTON, CONNECTICUT.

ELECTRIC ROLLING-MACHINE INDICATOR.

SPECIFICATION forming part of Letters Patent No. 638,333, dated December 5, 1899.

Application filed April 21, 1899. Serial No. 713,991. (No model.)

To all whom it may concern:

Be it known that I, ADELBERT PHILANDER HINE, a citizen of the United States, residing at Torrington, State of Connecticut, have invented a System and Device for Electrically Indicating the Operation of Rolling-Machines, of which the following is a specification.

My invention has reference to a system and device intended to be employed with rolling-machines, such as are used for rolling plates, strips, or other forms of metal. In a large mill where a number of such machines are employed it is desirable that the superintendent should be kept informed of the operation—*i. e.*, the amount of work done by each of said machines.

My system comprises a source of electrical energy, a contact-making device, an indicator or counter for each roll, and a device for making and breaking the circuit in which any or all of the rolls are included at predetermined intervals.

The accompanying drawing, which is partially diagrammatic, shows an end view of two rolls, circuit connections, &c., and will serve to illustrate my invention.

In the drawing, 5 represents the supporting-frame for the rolls 6 6. The diagram or drawing shows an end view of the rolls at the left and a transverse section through the rolls at the right. Arranged in front of the rolls is the usual guide 7, and pivotally mounted on the guide are the two contact-strips 8 and 9, the upper of which, 9, is insulated from the lower through a portion of insulating material 10.

11 represents a dynamo-machine or other source of electrical energy connected through the conductor 12 to earth and through conductor 13 to the contact making and breaking device 14. Leading from the contact making and breaking device 14 is a conductor 15.

16 represents an electrical counter or indicator of any required type, preferably one which will indicate every make or break in the circuit and count or register the number of makes or breaks within a given time. The contact-strip 9 is connected to one pole of the counter 16 through the conductor 17. The frames 5 of the rolls are connected to earth through the conductors 18.

It will be observed that the rolls are in multiple arc of the conductor 15 and the earth. Manifestly, instead of connecting the rolls to earth they may be connected to another conductor.

19 represents a tappet with three arms 20, which tappet may be mounted on a main shaft which gives motion to the rolls or it may be driven by any suitable device. As the device is driven the arms alternately make pressure under the contact-plate 14^a of the contact device 14 and make and break the circuit. Preferably the circuit should be made and broken once a second, but this is immaterial.

The operation of the device is as follows: The strip to be rolled is passed through guide 7. This forces the two contact-strips 8 and 9 together or in contact with the upper roll, thereby closing the circuit through the particular machine in use. In the meantime the tappet 19 is making and breaking the main circuit, and these makes and breaks are registered in the counter, which is in circuit with the machine or machines the circuit of which is closed.

I wish it understood that I do not limit myself to the precise arrangement of circuits shown or of the contact devices or of the make-and-break device, as many changes may be made therein without departing from the intent of my invention.

Having thus described my invention, I claim—

1. In a system for indicating the operation of a rolling-machine, the combination with a source of electrical energy, of main conductors, a make-and-break device in one of the main conductors adapted to be continuously operated, a rolling-machine and an electrical counter arranged in series across said conductors but having the circuit in which they are included normally open, and a device adapted to close said circuit when said machine is in operation.

2. In a system for indicating the operation of a rolling-machine, the combination with a source of electrical energy, of main conductors, a make-and-break device in one of the main conductors adapted to be continuously operated, a plurality of rolling-machines and electrical counters connected in series in pairs, arranged in multiple arc in said con-

ductors, but having the individual circuits in which they are included normally open, and a device in each of said circuits adapted to close said circuits when the machine included in the circuit is in operation.

3. In a system for indicating the operation of a rolling-machine, the combination with a source of electrical energy, of main conductors, a make-and-break device in one of the main conductors adapted to be continuously operated, a rolling-machine and electrical counters arranged across said conductors, but having the circuit in which they are included normally open, and a device in each of said circuits mounted on the guide in front of each of said rolling-machines and adapted to close said circuit when the machine included in the circuit is in operation.

In testimony whereof I affix my signature in the presence of two witnesses.

ADELBERT PHILANDER HINE.

Witnesses:

J. B. REID,

GEO. H. BRAMAN.