

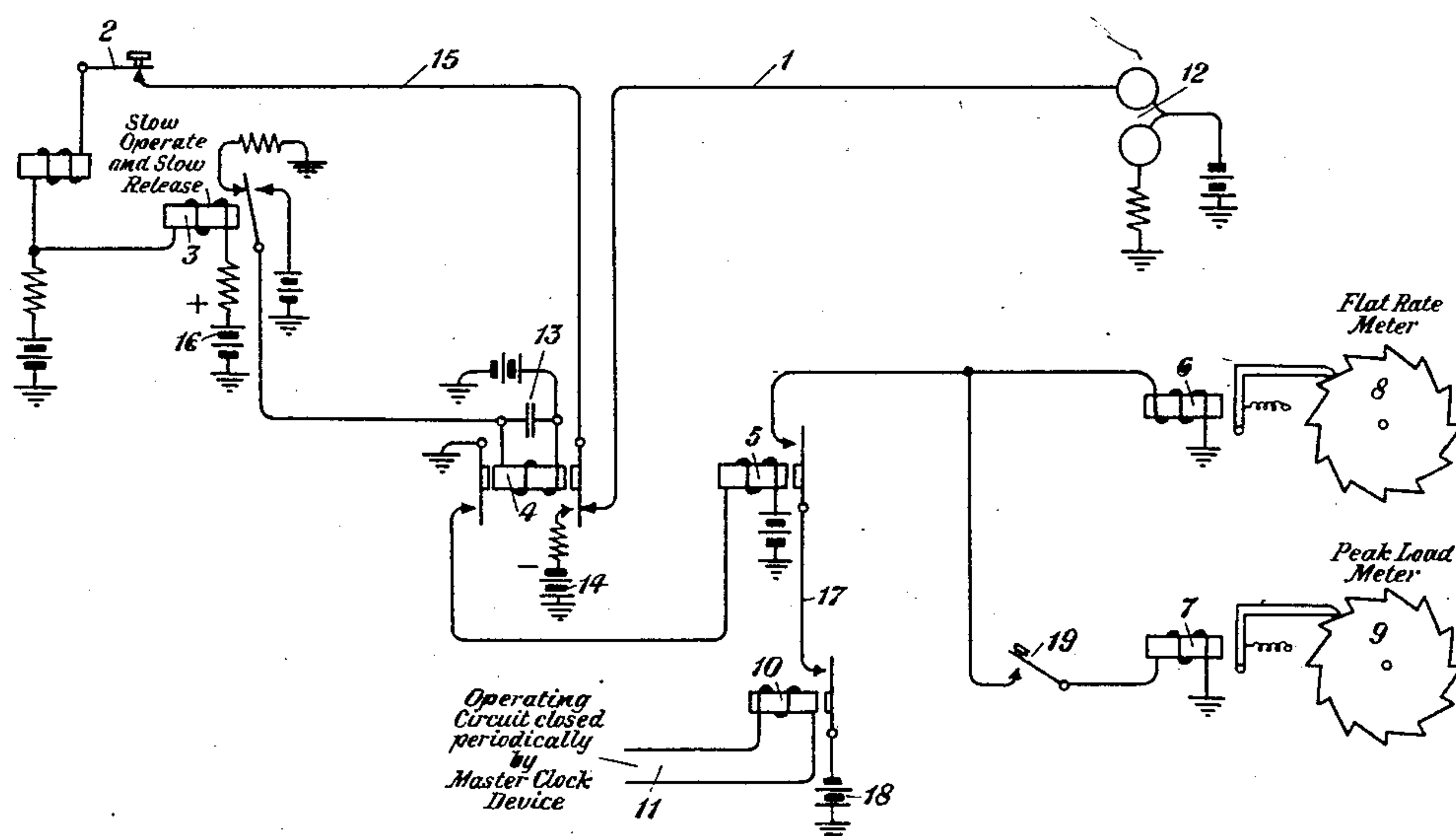
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SYSTEM FOR FURNISHING INTERMITTENT TELEGRAPH SERVICE

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SYSTEM FOR FURNISHING INTERMITTENT TELEGRAPH SERVICE

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This invention relates to an improved system for furnishing intermittent telegraph service whereby the utility of a line may greatly increase by only connecting a subscriber thereto when said subscriber desires to utilize the line. The invention also relates to an improved metering device suitable for use in furnishing telegraph service.

In furnishing certain types of leased wire telegraph service it is the practice to charge a subscriber for such service for a definite length of time regardless of whether or not the wire is utilized. In furnishing other types of leased wire service, it may be desirable to charge a subscriber only when the line is actually in use. The arrangements of the present invention are suitable for this latter type of service and are designed to meter or record the time a subscriber utilizes a line. A further advantage of the arrangements consists in the fact that they are so associated with the subscriber and the line that when the subscriber is not sending, the line is free to be utilized for other purposes. The arrangements of the invention are furthermore designed for metering under various conditions of the service load. Other objects and features of the invention will appear more fully from the detailed description thereof hereinafter given.

The invention may be more fully understood from the following description together with the accompanying drawing in the figure of which is shown a circuit diagram embodying a preferred form of the invention.

In the drawing is shown a section 1 of a telegraph circuit. Of the apparatus usually associated therewith, only a sending relay 12 is illustrated. The telegraph circuit 1 may be connected over the contact of a relay 4 and conductor 15 to the key 2 of a subscriber. It will appear hereinafter that when the key 2 is closed for a longer time than is normal in the transmission of signals, as would be the case when the subscriber is not using the telegraph line, the line 1 will be disconnected from the subscriber and the metering arrangements and may be utilized for service for other subscribers or for other desired purposes. If the subscriber opens the key 2 for

the purpose of sending, the following circuit will be opened; from the negative pole of battery 14, contact of relay 4, conductor 15, contact of key 2, winding of the slow operate relay 3, to the positive pole of battery 16. This will cause relay 3 to release. It is pointed out that relay 4 is normally held operated over the left hand contact of relay 3. This will hold the subscriber's circuit 15 disconnected from the telegraph line 1 so that when the subscriber is not sending the telegraph line may be utilized for other purposes. The winding of relay 4 is shunted by the condenser 13. When relay 3 releases, the condenser 13 will discharge and the relay 4 will release. This will connect the subscriber's line 15 to the telegraph circuit 1 and at its left hand armature will close a normally open circuit for relay 5, thereby operating relay 5. The operation of relay 5 will connect conductor 17 to the winding of relay 6. Conductor 17 may be connected over the contact of relay 10 to a battery 18. The relay 10 is controlled by an operating circuit 11 which may be closed periodically by clockwork mechanism of any desired type. Accordingly, every time the circuit 11 is closed, the relay 6 will be operated and will allow the register device 8 to move ahead one step. By means of the register device 8 and the clockwork mechanism, the time the subscriber utilizes the telegraph circuit 1 may be kept track of. The register device 8 may be used as a flat rate meter. If it were desired to meter during busy hours, or under peak load service conditions, the key 19 might be operated and the relay 7 and register 9 connected in parallel with the register 8.

When the subscriber ceases to send and accordingly closes the key 2 for a longer period than usual, the slow operate relay 3 will be operated by the battery connected to the sending relay 12. The operation of relay 3 will connect ground over its left hand contact to the winding of relay 4 which is shunted by the condenser 13. If the subscriber continues to hold his key closed, condenser 13 becomes charged and relay 4 operates. If the subscriber does not hold his key closed a sufficient interval of time, how-

ever, relay 3 will be released, causing battery to be connected to both terminals of relay 4 and condenser 13, thus causing the rapid discharge of condenser 13 and preventing the operation of relay 4.

While the invention has been illustrated as embodied in certain specific arrangements which are deemed desirable, it is understood that it is capable of embodiment in many and other widely varied forms without departing from the spirit of the invention as defined by the appended claims.

What is claimed is:

1. A telegraph line, a subscriber's circuit, a telegraph transmitter in said subscriber's circuit, means operated by the actuation of said telegraph transmitter for connecting said subscriber's circuit to said telegraph line, and a metering device controlled by the operation of said last mentioned means.

2. A telegraph line, a subscriber's circuit, a telegraph transmitter in said subscriber's circuit, a metering device, mechanism controlled by the opening of said subscriber's circuit by said telegraph transmitter for transmitting signals for connecting said subscriber's circuit to said telegraph line and for starting said metering device, and means to introduce a time element in the operation of said mechanism.

3. A telegraph line, a subscriber's circuit, a slow operate relay in said subscriber's circuit, a sending telegraph transmitter for opening said subscriber's circuit whereby said slow operate relay may be released, a circuit controlled by said slow operate relay, a relay included in said circuit, a condenser in said circuit for controlling the rate of operation of said relay, means controlled by said relay for connecting said subscriber's circuit to said telegraph line, a circuit controlled by said last mentioned relay, and metering arrangements controlled by said last mentioned circuit.

4. A telegraph line, a subscriber's circuit, a slow operate relay in said subscriber's circuit, a telegraph transmitter for opening said subscriber's circuit whereby said slow operate relay may be released, a circuit controlled by said slow operate relay, a relay included in said circuit, a condenser shunted about said relay for controlling the rate of operation of said relay, means controlled by said relay for connecting said subscriber's circuit to said telegraph line, a circuit controlled by said last mentioned relay, a periodically closed metering circuit controlled by said last mentioned circuit, and means for selectively connecting metering devices in said metering circuit.

5. A telegraph line, a subscriber's circuit, a telegraph transmitter in said subscriber's circuit, and mechanism in said subscriber's circuit for connecting said subscriber's circuit to said telegraph line, said mechanism

being controlled by said subscriber's telegraph transmitter when actuated for the transmission of signals.

In testimony whereof, I have signed my name to this specification this 11th day of April, 1928.

LELAND C. ROBERTS.