

J. H. BLYTHE.
INDICATING MEANS FOR PARTY LINE TELEPHONES.
APPLICATION FILED JUNE 24, 1907.

972,988.

Patented Oct. 18, 1910.

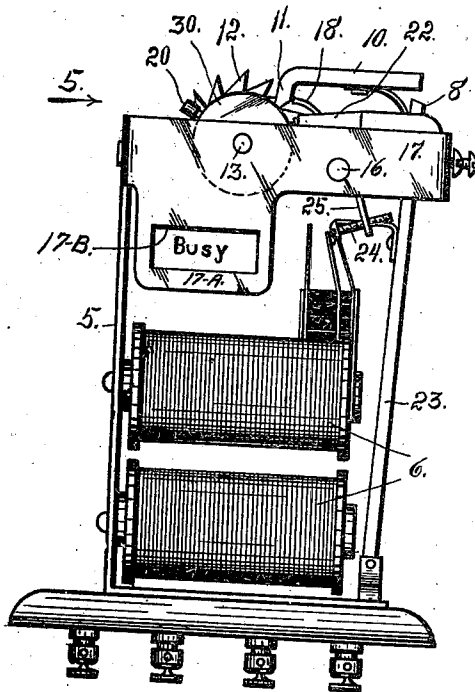


Fig. 1.

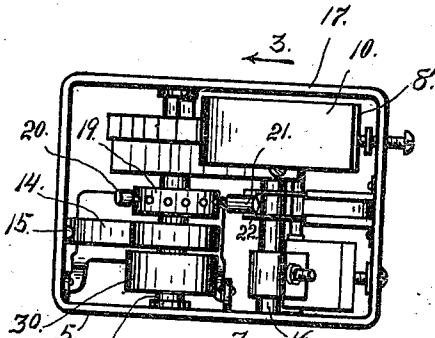


Fig. 2.

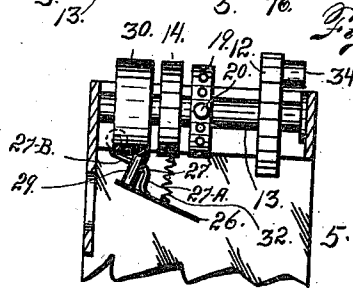


Fig. 3.

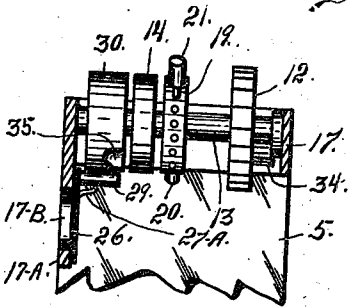


Fig. 4.

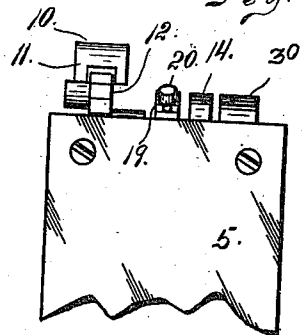


Fig. 5.

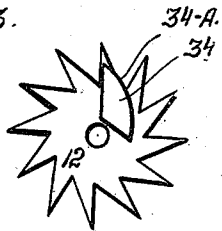


Fig. 6.

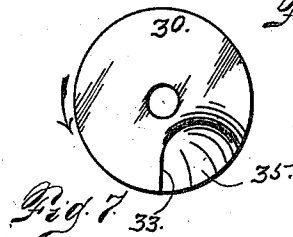


Fig. 7.

Witnesses
Otto E. Haddock.
Dana Nelson.

Inventor
J. H. Blythe.
By *[Signature]* Attorney

UNITED STATES PATENT OFFICE.

JAMES H. BLYTHE, OF DENVER, COLORADO.

INDICATING MEANS FOR PARTY-LINE TELEPHONES.

972,988.

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed June 24, 1907. Serial No. 380,446.

To all whom it may concern:

Be it known that I, JAMES H. BLYTHE, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Indicating Means for Party-Line Telephones; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in attachments for party line telephones.

My object is to provide an indicator or means whereby persons having party line telephones may at sight know the condition of the line.

My improvement consists of a pivotally mounted plate which is operated by a cam wheel. This plate as shown in the drawing has marked thereon the word "Busy" which is exposed when one of the party lines is in use thus indicating the condition of the line. Having briefly outlined my improved construction as well as the function it is intended to perform, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a front elevation. Fig. 2 is a top plan view. Fig. 3 is a detail view of the operating spindle taken in the direction of the arrow 3 in Fig. 2. Fig. 4 is a similar view showing the indicating plate in its raised position. Fig. 5 is a detail view taken in the direction of the arrow 5 Fig. 1 showing the pawl engaging the lug and in its raised position. Fig. 6 is a detail view of the ratchet wheel. Fig. 7 is a detail view of the cam wheel.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a frame upon which are mounted two electro-magnets which I will term registering and releasing magnets. The releasing magnet is designated by the numeral 6 and the registering magnet is not shown in the drawing but is

located just in back of the releasing magnet. The registering magnet is provided with an armature 8 pivoted at the base of the frame. To the upper extremity of this armature is spring attached or connected in any suitable manner a pawl 10 which is provided with a forked extremity 11 for acting on a ratchet wheel 12 fast upon the spindle 13. Connected with this spindle and coiled around the same is a spring 14 whose extremity remote from the shaft is connected with the frame as shown at 15. Mounted on the spindle 16, journaled in the top frame 17 is a locking pawl 18, which is in engagement with the under side of the pawl 10. The pawl 18 also engages the ratchet wheel 12 and locks the latter in any position to which it has been driven by the operating pawl 10. Upon the spindle 13 is also made fast a wheel 19 provided with a pin 20 and a pin 21. These pins engage a pair of metal contacts 22 which are separated sufficiently to form a good contact when any pin passes between them, the normal position of the wheel 19 when none of the party line telephones are in use is that shown in Fig. 2 that is to say with the pin 21 engaging the springs 22 which together may be termed a brush. When this pin 21 is in this position any telephone on the line is in position to call central.

As soon as any one desires connection with any telephone on the line the operator at central by closing the circuit of the registering magnets a given number of times depending upon the position of the pin 20 on the wheel 19 with reference to the pin 21 of the telephone to be connected, is enabled to bring the required pin 20 into engagement with the brush 22. When this operation is completed every other telephone is cut out of the circuit since its pin 21 is disengaged from the brush 22 and no other pin 20 is in engagement with the brush since no two telephones have pins 20 in the same relative position. After the connected telephone has been used in order to restore all the telephones to their normal calling condition or bring the pin 21 of each of my improved attachments back into engagement with the brush 22, the operator at central first pushes a button which engages the registering mag-

net and operates the armature which disengages the pawl 10 from the wheel 12, and then pushes a button or otherwise closes the circuit of the releasing magnet 6 and its armature 23, as it moves to the poles of the magnet by virtue of the electro-magnetic force, acts on a screw pin 24 connected with a depending arm 25 made fast to the spindle 16 and disengages the locking dog 18 from the ratchet wheel 12, and at the same time lifts the pawl 10 out of engagement with the ratchet 12 when the recoil of the spring 14 returns the pin wheel 19 to its normal position with the pin 21 in engagement with the brush 22. This occurs simultaneously at every telephone on the line though at only one of these telephones is the pin 20 of my improved attachment in engagement with the brush 22, or in other words all the telephones except one have been completely cut out of the circuit. By closing the releasing magnet all of them are placed in position for calling central the same as before the operation heretofore described took place. The spindle 13 has also fast thereon a cam wheel 30 the function and purpose of which will be hereinafter described.

Integral with the frame portion 17 is a depending portion 17^A provided with an opening 17^B which is adapted to expose what may be termed a busy sign for indicating the condition of the telephone that is to say when one of the party lines is in use the plate 26 carrying the busy sign will drop and be exposed through the opening 17^B thus indicating that the line is in use. The plate 26 is provided with two projections 27 and a projection intermediate the projections 27. The parts 27^A of the projections 27 are bent at right angles to the plate 26, and the parts 27^B of said parts 27 are bent upward in a position parallel to the plate 26 or at right angles to the parts 27^A. The parts 27^B are provided with perforated extensions by which said plate is pivoted to the frame 17. The central projection on the plate 26 has mounted thereon a pin upon which is rotatably mounted a sleeve 29. The free extremity of this sleeve engages the cam wheel 30. The plate 26 is normally held in its raised position as shown in Fig. 4 of the drawing by means of the spring 32 which is connected at one extremity with the plate and at the other extremity with the frame. The sleeve 29 when in its normal position or when the plate 26 is in its raised position is adjacent the wall or abutment 33 of the cam recess 35. This abutment prevents the cam wheel from being rotated in the direction of the arrow in Fig. 7 of the drawing when said abutment is engaged by the sleeve 29. When the cam wheel is rotated in the direction opposite to

that of the arrow in Fig. 7 the sleeve 29 is forced out of the recess 35 and made to engage the periphery of the wheel 30 thus causing the plate 26 to be lowered against the tension of the spring 32 and occupy the position shown in Figs. 1 and 3 of the drawing, thereby exposing the busy sign which indicates the condition of the line. The cam wheel 30 is operated at the same time and in the same manner that the wheels 19 and 12 are operated.

Integral with the ratchet wheel 12 is a lug 34 which limits the rotary movement of the spindle 13. This lug has an upper curved contact surface 34^A which is engaged by one of the fork members of the pawl 10. This lug is so located on the wheel that as the pawl 10 engages same said pawl will become disengaged from the ratchet wheel 12 thereby preventing further rotation of said spindle 13 or ratchet wheel. The pawl 10 is raised a sufficient distance to allow the same to ride over the teeth of the wheel 12, as shown in Fig. 5 of the drawing. This lug is suitably located on the wheel so that it will engage the pawl 10 just before the sleeve 29 enters the recess 35 of the cam wheel 30 which locks the shoulder 33 against releasing. As before stated the cam wheel 30 only rotates in one direction when the sleeve 29 is engaged in the recess 35 of said cam wheel and it is therefore essential that the lug 34 should be located at a certain point. The function of this lug therefore is to prevent a complete revolution of the cam wheel 30 so that the sleeve 29 cannot reënter the recess 33 of said cam wheel unless the releasing mechanism is operated. The releasing mechanism for operating the said wheel 30 is the same as the releasing means for operating the wheel 19 which has been heretofore described.

Having thus described my invention, what I claim is:

1. A device for indicating the condition of party line telephones, consisting of an indicating member, a disk having a recess on the periphery of its inner face for actuating said indicating member, and suitable means for actuating said disk.

2. A device for indicating the condition of party line telephones, an indicating plate pivotally mounted, the said plate provided with a laterally extending projection and means adapted to engage the projection for actuating the plate.

3. An indicating means for party line telephones consisting of an indicating plate, a disk having a cam recess on the face of the inner periphery of the disk, suitable means for actuating said disk, and means for limiting the movement of said disk for the purpose set forth.

4. A device for indicating the condition of party line telephones provided with a pivotally mounted indicating plate having a laterally extending projection thereon, and
5 a revolubly mounted disk provided with a recessed cam portion on the inner periphery of its face, the said disk adapted to engage the projection of the said plate as means of actuating the same, and suitable means for actuating the disk. 10

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

JAMES H. BLYTHE.

Witnesses:

DENA NELSON,
MAY GAWLEY.