March 17, 1925. 1,530,363

J. F. HAYDEN

CHRONOPHONE

Filed April 14, 1920

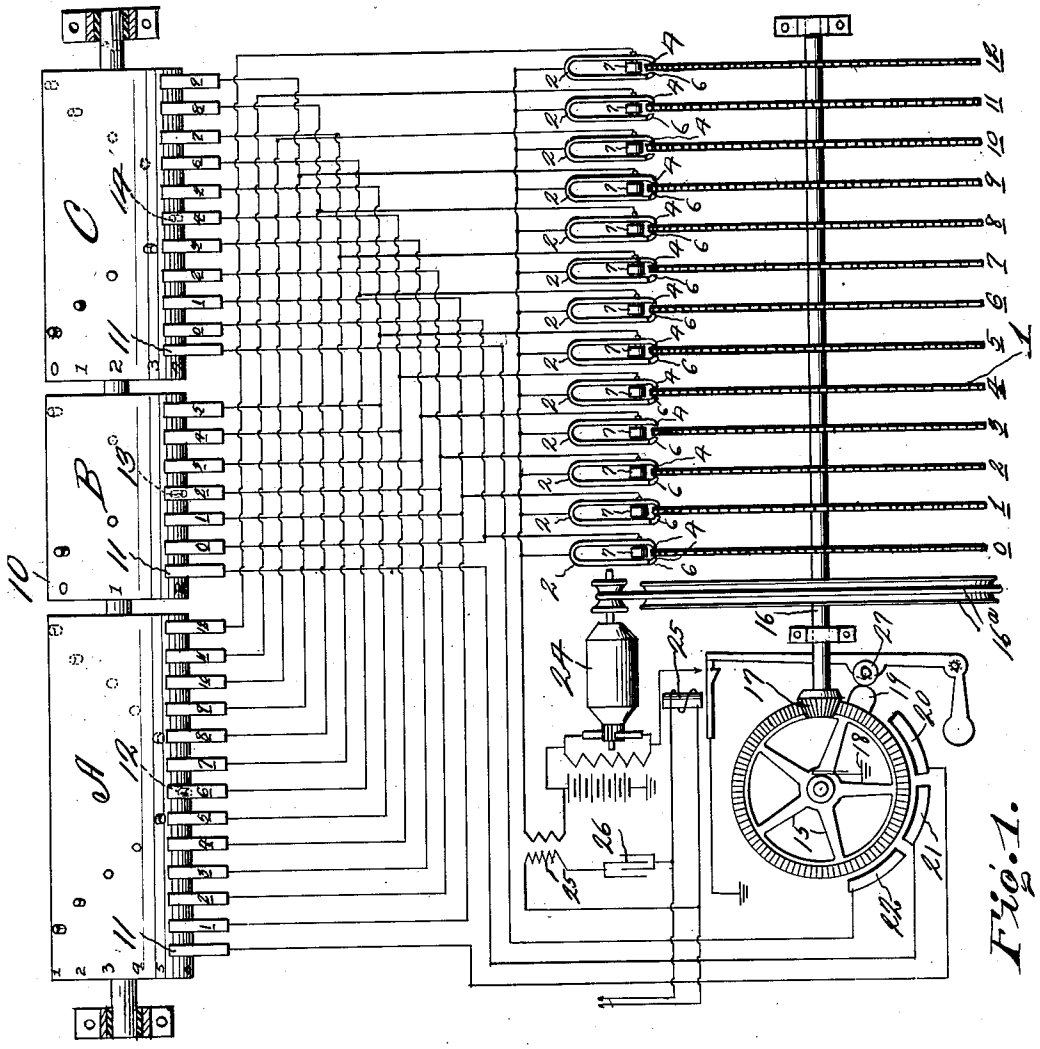


Fig. 1.

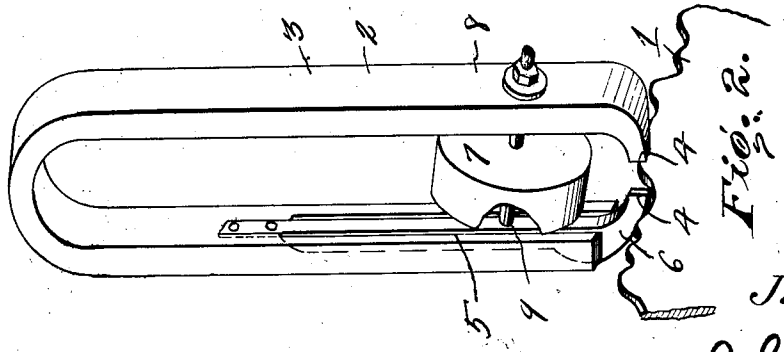


Fig. 2.

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UNITED STATES PATENT OFFICE.

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CHRONOPHONE.

Application filed April 14, 1920. Serial No. 373,809.

To all whom it may concern:

Be it known that I, JESSE F. HAYDEN, a citizen of the United States, residing at High Point, in the county of Guilford, State of North Carolina, have invented a new and useful Chronophone; and I do hereby 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.

The invention relates to telephones and has for its object to provide means whereby the user of a telephone may call for a special number so that anyone desiring to know the time may call this special number and the machine will at once give the time in audible words. A further object is to provide means whereby the device will be caused to stop when the plug is removed from the jack by the operator, and not by the subscriber.

A further object is to provide a series of rotating drums, on which drums a series of contacts are provided which move into and out of engagement with contacts thereby closing circuits which moved certain discs for indicating the hour and minute in audible words.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth shown in the drawing described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:—

Figure 1 is a plan view of the device showing the circuits in connection therewith.

Figure 2 is a perspective view of the reproducer.

Referring to the drawing the numeral 1 designates a series of records, the edges of which resemble to a certain extent teeth of a saw, however, the teeth of varying forms and sizes. Each record disc is made of annealed iron of the purest grade; the surface being smooth and free from imperfections. One side is covered with a photographic film. A deflected ray of light, as from the transmitter of a photophone is made to dance about the periphery of the disc while it rotates making an oscillograph record of the word on the side of the disc. The teeth may now be cut out with file using great care in following this line and then the teeth are polished. A second method of making the record would be to record the word on an ordinary talking machine disc (such as the Victor), use two or three inch diameter and make one revolution only, then work into the groove white lead or some other white substance so as to make the line plainly visible. After this has been done make an enlarged photograph of this white line on the iron disc having a diameter of from twelve to fifteen inches, then cut out with a file, same as set forth in the first example given above. Any of these methods may be used.

Adjacent each disc record is a reproducer 2 consisting of a magnet 3 of the horseshoe form between the poles 4 of which the record revolves. The poles reach very near the disc but do not touch it. One arm of each magnet is slotted at at 5 so that the pole pieces 6 may vibrate freely as the teeth of the disc pass through the magnetic field. An ordinary telephone transmitter button 7 is attached to the stationary side 8 of the magnet and to the movable portion 6 of the magnet as at 9. It is to be understood that various kinds of reproducers may be used if so desired.

The time register 10 comprises three cylinders A, B and C. The cylinder C is provided with contacts corresponding with the numbers 0 to 9 inclusive and make one complete revolution in ten minutes from any suitable mechanism attached to a clock. Cylinder B is numbered 0 to 5 and has corresponding contacts and makes one complete revolution in sixty minutes. It is also operated from any suitable clock mechanism desired. It will be seen that the cylinder C records the minutes, the cylinder B, the ten minute intervals, therefore all periods of time up to an hour are accommodated and taken care of by the cylinders

B and C. The third cylinder A is provided with a series of contacts numbered 1 to 12 and makes one revolution in twelve hours, therefore it will be seen that all of the hours will be taken care of whether post or anti meridian. The movement of the cylinders is controlled from one or more clock mechanisms, however, the cylinders are revolved in such a manner that the rotation will be sudden and not by degrees. The cylinders A, B and C are isolated from the base on which they may be supported and each cylinder is in permanent contact with brushes 11. The other brushes adjacent each cylinder only make contact with the cylinder whenever a projection or contact on the cylinder comes in proper position as shown at 12, 13 and 14. The timer 15 is geared to the shaft 16 which carries the records 1 by means of a bevel gear 17. The records make three revolutions while audibly sounding the three figures in giving the time. They then make six silent revolutions, thus the timer 15 makes one revolution while the records make nine revolutions which requires about six seconds. The timer wheel is grounded as at 18 and has a wiper 19, which makes contact with the plates 20, 21 and 22. The action of the device is as follows. The calling party asks for the time number and receives connection with the timing device through the usual talking battery, which is supplied by the central exchange equipment. This causes the relay 23 to pull up and start the motor 24. As soon as wiper 19 reaches contact plate 20 an electric circuit may be traced from the ground 18 of the timer through contact 20 to brush 11 engaging cylinder A, through contact 12 of the brush 6 which corresponds to the sixth hour to transmitter button of the record numbered 6, thence through induction coil 25 to the battery. The secondary winding of induction coil 25 is connected through condenser 26 to the telephone circuit leading to the listening parties. As record numbered 6 makes one revolution, the listening party will hear the audible word six. As wiper 19 passes over the contact plate 21 ground will be placed on cylinder B and the word two will be heard by the listening party. As the wiper 19 passes in contact with the plate 22 the word four will be heard by the listening party through the circuit in connection therewith and in connection with the cylinder C the lug contacting brush number 4 and the record numbered 4. Shaft 16 having a belt and pulley connection 16a to the motor 24 so that the records will be revolved from the motor. When the operator removes the plug from the jack the relay 23 will be deenergized, thereby stopping the operation of the device. Any form of telephone circuit may be used, for instance a circuit of the type shown in patent to C. E. Scribner No. 648,533 May 1, 1900, however applicant does not limit himself to any particular kind of telephone circuit, or to any particular trunk, which would more or less vary according to whether the same is used in connection with a manual board, an automatic connector, or automatic selector, and it is obvious that when a caller hangs up the receiver in any of these systems and the operator removes the plug from the jack, the circuit will be broken and the device stopped. The armature however, remains latched up until wiper 19 presses against the roller 27, which will unlatch the armature and cause the motor to stop. If the calling party does not hang up the time will be intermittently repeated about every . ur seconds. By disconnecting the busy connection at central exchange equipment as many parties as desire may hear the time at the same instant.

The invention having been set forth what is claimed as new and useful is:—

1. The combination with a telephone circuit, of a time device for audibly sounding the time over the telephone circuit, said device comprising a plurality of disc members having thereon sound waves, said discs being carried by a rotatable shaft, reproducers adjacent each disc for reproducing the sound thereon, means whereby the disc will be caused to rotate when the device is in circuit with the telephone circuit, a plurality of rotatable drums, contacts on said drums for indicating periods of time, contact plates adjacent each drum and in the path of the contacts on the drums, conductor members connecting the plates and the reproducers, conductor members connecting one of the plates adjacent each drum and contact plates, motor means for rotating the disc shaft and means actuated by the disc shaft and cooperating with the last named contact plates successively.

2. The combination with a telephone circuit, of a time device for audibly sounding the time over the telephone circuit, said device comprising a plurality of discs having wave sounds thereon, sound reproducers adjacent said discs and cooperating therewith, a plurality of drums rotatably mounted, a plurality of hour indicating contacts carried by one of said drums, a plurality of contacts carried by one of said drums indicating ten minute periods and a plurality of contacts carried by one of said drums indicating minute periods, contact members adjacent the drums and in the path of the contacts carried thereby, independent contact members adjacent the drums, conductor members carried by said independent contact members, spaced contact plates corresponding to the drums, conductor mem-

bers connecting the independent contact members and the plates corresponding with the drums, means for rotating the disc and contact means cooperating with the conductor plates whereby the hour disc will be first sounded followed by the minute disc.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JESSE F. HAYDEN

Witnesses:
ROBBINS TILDEN,
A. A. ALLRED.