

Aug. 19, 1941.

R. HOOVER

2,252,853

WEB CONTROLLED SIGNAL

Original Filed May 19, 1937

FIG. 1

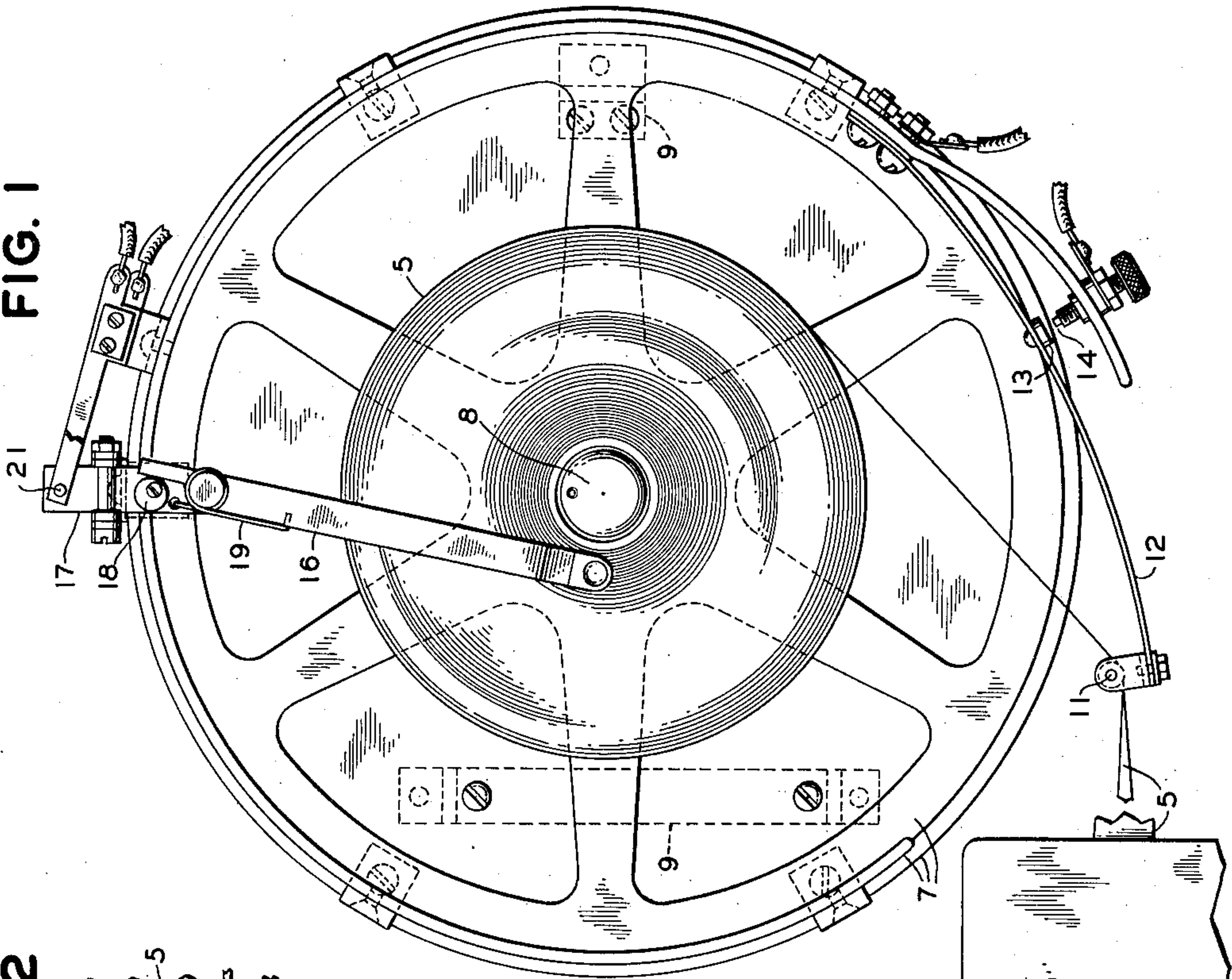


FIG. 2

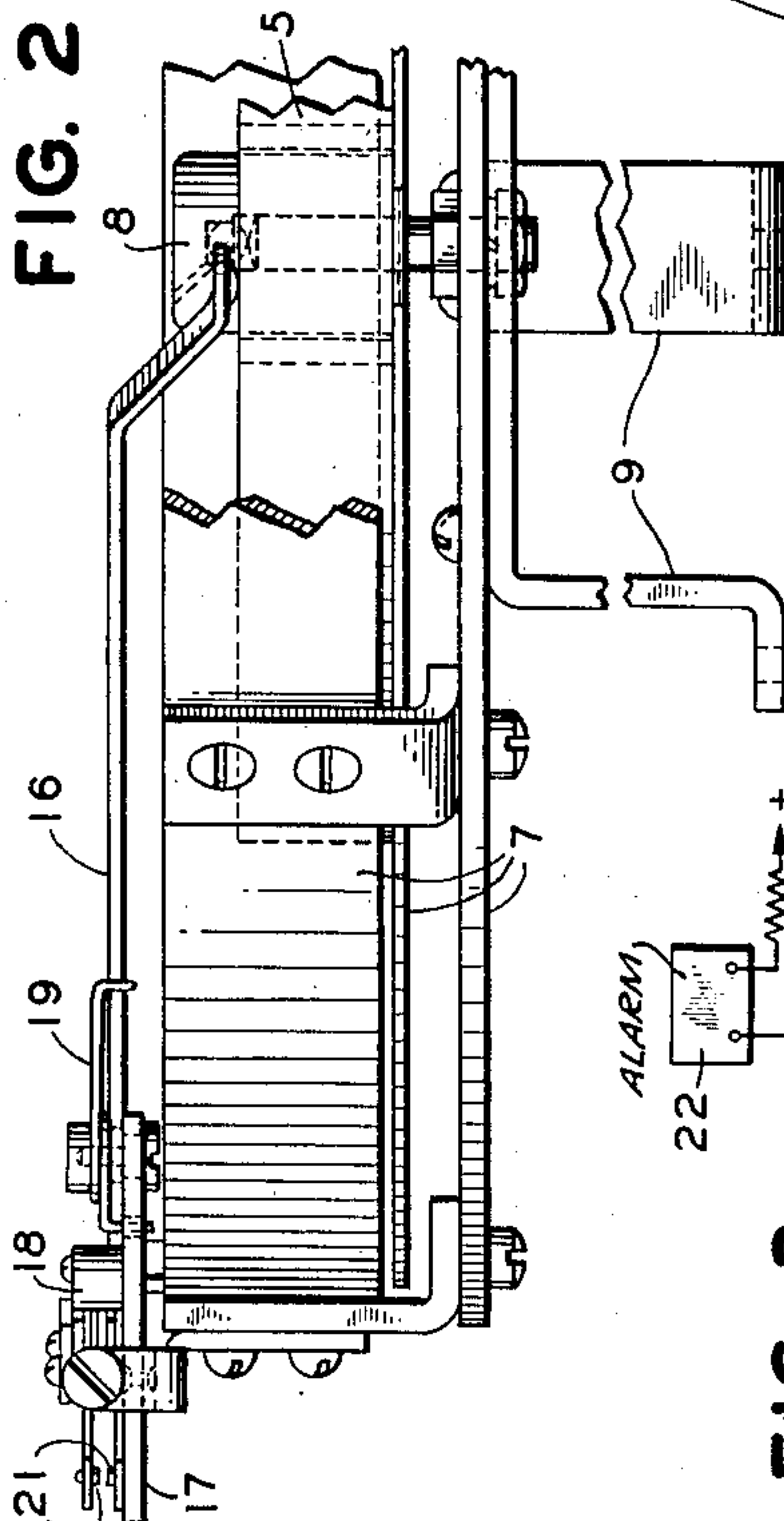
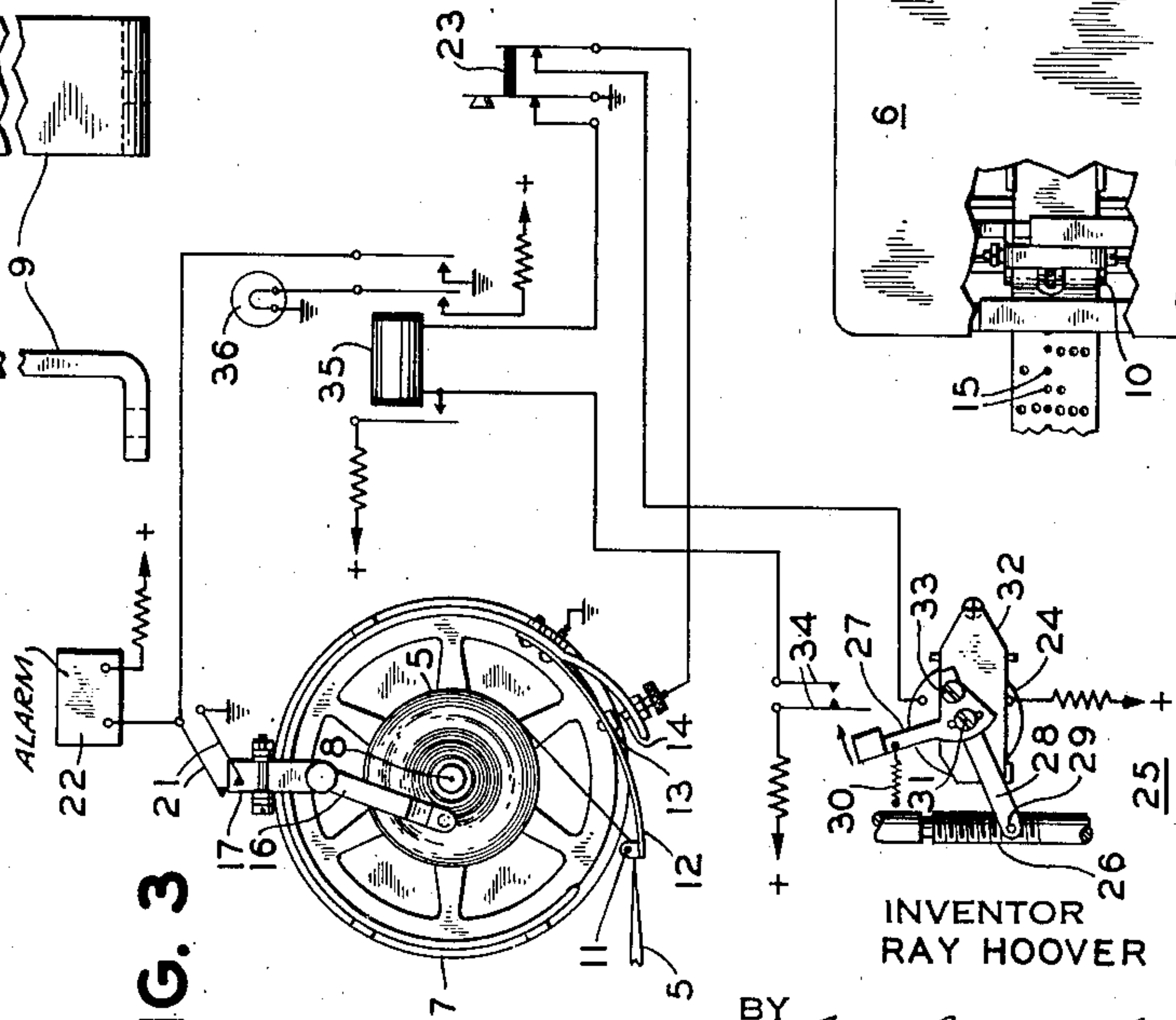


FIG. 3



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WEB CONTROLLED SIGNAL

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Original application May 19, 1937, Serial No.
143,616. Divided and this application July 1,
1938, Serial No. 216,866

6 Claims. (Cl. 177—311)

This invention relates to telegraph apparatus employing a web medium for recording purposes. The present application is a division of a co-pending application of Ray Hoover, Serial No. 143,616, filed May 19, 1937, and entitled Telegraph perforator.

The invention has particular reference to devices which may be used in connection with apparatus for perforating telegraph signals in a tape in accordance with any prearranged code as for example the Baudot code. Such apparatus may be either manually operated from a keyboard or actuated in response to telegraph signals received from a line circuit or signalling channel. The devices comprising the instant invention may also be used in connection with printing apparatus in which the characters are printed successively on a continuous tape or in parallel lines on a medium having substantial width such as used in the so-called page printers. Apparatus which combines the printing and perforating functions may also be adapted for use with this invention.

It is a major object of this invention to provide means for operating an alarm which is indicative of conditions relating to the supply of tape for such apparatus.

Another object of the invention is to provide means responsive to any discontinuity in the tape supply to operate a suitable signal.

The nature of the invention may be determined from the following description taken in conjunction with the accompanying drawing in which:

Fig. 1 is a top or plan view of a tape reel embodying the instant invention;

Fig. 2 is a partial view in side elevation of the tape reel shown in Fig. 1; and

Fig. 3 is a wiring diagram showing the connections of the responsive devices with the various alarms or signals.

Having reference first to Figs. 1 and 2 there is shown a roll of tape 5 supported adjacent a perforating mechanism 6 in a tape reel 7. The tape reel comprises a pivoted supporting member having an upstanding central spindle 8 adapted to receive the roll of tape. The reel is supported upon legs 9 of such height as to hold the roll of tape opposite the inlet to the perforating mechanism. The perforator contains a feed wheel 10 which is provided with pins on its periphery adapted to engage the feed holes in the tape to feed the tape intermittently to the perforator in a well known manner. Between the roll of tape and the tape perforator the tape engages a pivoted roll 11 carried by a leaf spring

12 which in turn carries a contact 13 adapted to engage a stationary contact 14 supported at the edge of the tape reel. The positions of the contacts 13 and 14 and the tension of the spring 12 are such that intermittent tightening and slackening of the tape fed into the perforator causes the contact 13 to engage and disengage the contact 14, thereby intermittently opening and closing the circuit through the contacts. However when the feeding of the tape ceases, the spring 12 causes the contacts 13 and 14 to engage and the continued closure of the circuit, including said contacts, is employed to indicate tie-up of the tape as will be explained in connection with the wiring diagram of Fig. 3. Thus if the contacts remain closed while signals are being received, either because of failure of the tape to feed as a result of the tearing of the tape between the feed holes 15 or because the tape is broken, an alarm may be operated to call the attendant in order to prevent the loss of signals.

A further alarm system may be provided which is operated when the supply of tape in the reel is nearly exhausted. In the embodiment shown the low-tape supply alarm comprises a pivoted arm 16 carried by a pivoted contact 17 and extending adjacent the central portion of the roll of tape. The position of the inner end of the arm 16 with respect to the center of the roll of tape may be adjusted by means of an eccentric 18, the outer end of the arm being held against the eccentric by means of a spring 19. It will be apparent that when the roll of tape is nearly exhausted the arm 16 is no longer supported thereby and the weight of the arm raises the contact member 17 to close contacts 21 and thereby light a lamp, operate a signal or both to call an attendant in order that the roll of tape may be replaced.

The operation of the present invention may be ascertained by having reference to Fig. 3. In connection with the tap reel 7 the low-tape supply contacts 21 may be arranged to control the alarm signal 22 when the supply of tape is nearly exhausted. The alarm may be in any conventional form such as a bell, buzzer, lamp or the like, or any combination thereof. It will be seen that one terminal of the alarm 22 is permanently connected to battery so that the closure of the contacts 21, by supplying a ground to the other terminal, completes the circuit and thereby causes the operation of the signal. This circuit extends from the positive terminal of a grounded source of direct current through a resistance to the right hand terminal of the alarm 22 and

from the left hand terminal of the alarm through the closed contacts 21 to ground.

The contacts 13 and 14 of the tape reel may be connected as shown through a key 23 to the operating magnet 24 of a timing unit 25. This timing unit is similar to that shown in the patent to Dirkes, et al., No. 1,954,621 granted April 10, 1934. Briefly it comprises a continuously rotating worm 26 and a mechanism which is adapted to be placed in engagement with the worm under certain conditions. A contact-operating arm 27 is provided with an angular extension 28 which carries at its outer extremity a pin 29 adjacent the worm 26. The arms 27 and 28 are normally biased by a spring 30 to the position shown. This bias may be adjusted by means of a screw 31 and the slot provided in the arm 27 so that the timing of the device may be varied. They are supported on the armature 32 of an electromagnet and pivoted on a screw 33. When the armature 32 is held by means of a spring in spaced relation to the electromagnet 24, the pin 29 is disengaged from the worm 26. However when the electromagnet 24 is energized, the armature 32 is pulled downward and thereby effects the engagement of pin 29 with the worm. Due to the rotation of the worm, the arms 27 and 28 are then rotated in the direction of the arrow so that after a predetermined movement thereof the arm 27 closes contacts 34. It will be appreciated that the arrangement of the timing device 25 may be modified so that the pin 29 projects from the upper face of the arm 28. In this position the pin will be adapted to be engaged with the under side of the worm 26 when the electromagnet 24 is de-energized and to be disengaged when the electromagnet is energized. In such case, suitable modifications of the wiring will be necessary and these will be apparent to anyone skilled in the art.

During normal operation the intermittent disengagement of contacts 13 and 14 periodically opens the circuit of the magnet 24 and thereby restores the arms 27 and 28 to normal. If however the contacts 13 and 14 remain closed as a result of breaking of the tape during the time when the signals are received by the reperforator, the timing unit 25 is arranged to close contacts 34 as described. It will be seen that these contacts are in circuit with an alarm relay 36 and the closure thereof energizes said relay. In order that this circuit may not be closed during the time that the reperforator is inoperative, the system may include a switch-board circuit or contact such as shown in the copending application of R. F. Blanchard, William B. Blanton and H. L. Browne, Serial No. 65,702, filed February 25, 1936, relating to a reperforator switching system in which the present invention may be employed. The operation of relay 35 closes, through the right hand armatures of said relay, circuits for energizing the alarm signal 22 and the alarm lamp 36 to call the attention of an attendant to the fact that the operation of the apparatus is faulty. Relay 35 becomes locked up through its left hand armature and front contact independently of the

contacts of the timing unit 25 so that it is not released until the key 23 is actuated. The operation of this key also restores the timing unit 25 to normal by opening the circuit of the operating magnet 24.

As previously indicated the present invention is not limited to use with a reperforating unit such as disclosed herein for the purpose of illustration, but may also be employed with any similar apparatus utilizing a continuous web or tape which is supplied from a roll carried on a tape reel. Hence it is not contemplated that the invention be limited to the specific disclosure but shall also embrace all equivalent forms as defined in the appended claims.

What is claimed is:

1. In combination, a tape handling device, a strip of tape, means for feeding said tape through said device, a contact device, a signal operable in response to sustained inaction of said contact device, and means for intermittently operating said contact device by and in response to the feeding of the tape.
2. In combination with a web recording medium or tape for recording telegraph signals, means for feeding said medium, a contact device, a signal controlled by said contact device and responding after a predetermined time to non-operation of said contact device, a roller engaging said medium, and means including said roller for operating said contact device in response to the feeding of said medium.
3. In a telegraph recording mechanism, a supply of tape, means for intermittently feeding said tape to said mechanism, a signal, a contact device intermittently actuated by the tape being fed to said mechanism, a timing device controlled by said contact device, and means operable by said timing device a predetermined time after the cessation of said tape-feeding function for actuating said signal.
4. In combination, a tape perforator, a strip of tape, means in said perforator for normally feeding tape therethrough, an electrical circuit, a member engaging said tape, and means including said member responsive to the feeding of the tape through the perforator for controlling said circuit upon the failure of the tape-feeding function.
5. In combination, a tape handling device, a strip of tape, means operable to advance said tape through said device, a tape engaging device, and means including said tape engaging device responsive to the advancing of the tape through said tape handling device to indicate failure of the tape advancing function.
6. In a telegraph recording mechanism, a supply of tape, means for intermittently drawing tape from said supply and feeding it to said mechanism, a signal, a contact device controlled by the tape being fed to said mechanism, means including said contact device responsive to the inability of said tape feeding means to draw tape from said supply to actuate said signal, and means including said contact device responsive to the drawing of tape from said supply to temporarily disable said signal actuating means.

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