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3,028,454

SELECTIVE RECORDING OF CONTINUOUS INFORMATION

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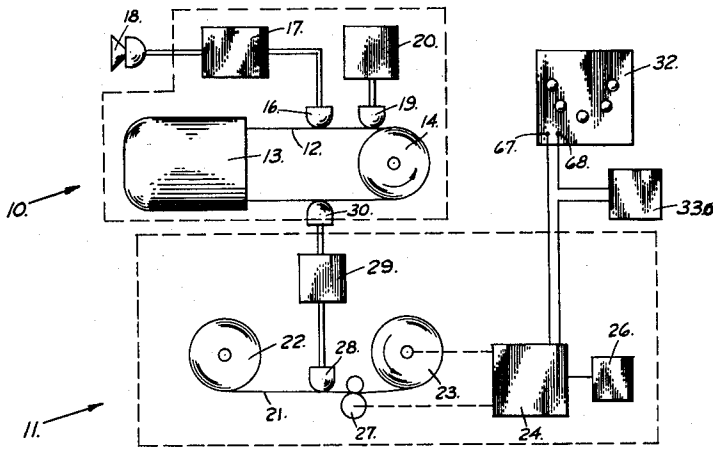


Fig. 1.

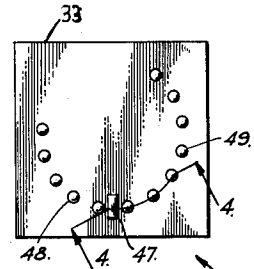


Fig. 2.

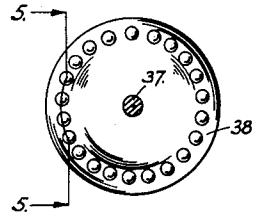


Fig. 3.

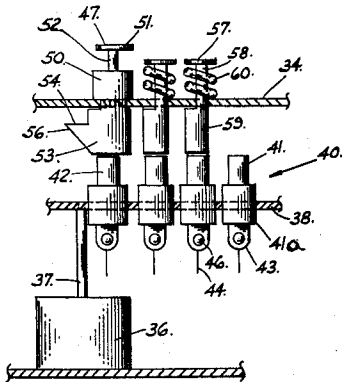


Fig. 4.

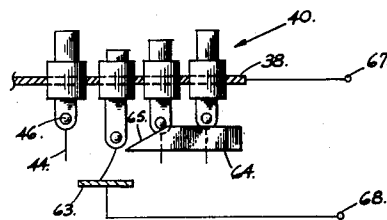


Fig. 5.

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3,028,454

SELECTIVE RECORDING OF CONTINUOUS INFORMATION

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The present invention relates generally to an improved recording device and it relates more particularly to an improved apparatus for the selective post facto recording in a substantially continuous manner of speech or other information which are interrupted or separated in time.

The conventional manner of recording information such as speeches, lectures, conversations or the like is to continuously and uninterruptedly record the entire sequence and thereafter edit the recording, extracting the unwanted material and rerecording the remainder. This procedure possesses numerous drawbacks and disadvantages. Not only is it highly time consuming but it requires the use of extensive equipment and information carrying material.

It is therefore a principal object of the present invention to provide an improved recording device.

Another object of the present invention is to provide an improved speech recording device.

Still another object of the present invention is to provide an improved speech recording and editing device.

A further object of the present invention is to provide an improved apparatus for the selective post facto recording in a substantially continuous manner speech or other information which are interrupted or separated in time and whose desirability is not previously determinable.

Still a further object of the present invention is to provide an apparatus of the above nature which is simple, rugged and inexpensive, and is highly versatile and easy to operate.

The above and other objects of the present invention will become apparent from a reading of the following description taken in conjunction with the accompanying drawing wherein;

FIGURE 1 is a block diagram of an apparatus embodying the present invention;

FIGURE 2 is a top plan view of an improved time delay switch employed in the present apparatus;

FIGURE 3 is a top plan view of the timing wheel employed in the improved switch;

FIGURE 4 is a sectional view taken along line 4—4 in FIGURE 2; and

FIGURE 5 is a sectional view taken along line 5—5 in FIGURE 3.

In a sense the present invention contemplates the provision of an improved recording device comprising a first continuously running device for temporarily continuously storing information for a predetermined time interval, means for continuously feeding information to said storage device, a second information storage device and means transferring preselected portions of information from said first storage device to said second storage device a preselected time interval following the feeding of said information to said first storage device.

Referring now to the drawing which illustrates a preferred embodiment of the present invention and more particularly to FIGURE 1 thereof, the numeral 10 generally designates a continuously running temporary information storing or speech recording device and the numeral 11 designates a second information storing or speech recording device which may be of conventional

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construction. The recording devices 10 and 11 are preferably of the magnetic recording type employing tape or wire as the recording medium.

The temporary recording device 10 includes an endless recording band 12 in the form of a wire or tape having a predetermined length thereof stored in a cartridge 13 which is of well known construction and which is driven to continuously withdraw and feed the band 12. There is also provided a synchronously driven drum or wheel 14 about which the band 12 passes, a part thereof being exposed, the drum 14 being driven at a peripheral speed, and the length of the band being such as to provide a temporary storage of the recorded information for a predetermined time period for example one to three minutes. A first magnetic recording head 16 of conventional construction is coupled to and registers with the band 12. The recording head 16 is connected to and energized by the output of an audio amplifier 17 whose input signal is derived from a microphone 18. An erasing head 19 is coupled to the endless band 14 immediately behind the recording head 16 and is energized in the usual fashion by an alternating current oscillator 20.

The second recording device 11 may be of conventional construction provided with an electrically actuated drive clutch and includes a recording band 21 which may be in the form of a tape or wire. The band 21 is carried on a pair of rotatable storage reels 22 and 23 respectively, the reel 23 defining a take up reel and being coupled by way of the conventional slipping device through a normally open, electrically actuated clutch 24 to a synchronous drive motor 26. Also connected to the drive motor 26 through the clutch 24 is a positively driven drum or capstan 27 which advances the band 21 at a predetermined rate.

A second magnetic recording head 28 registers with and is coupled to the tape 21 and is connected to the output of an audio amplifier 29. The amplifier 29 has its input connected to a magnetic pickup head 30 which registers with and is coupled to the first recording band 12 at a point behind the erasing head 19.

The electric clutch 24 is connected by way of a time delay switch 32 to a source of actuating current 33a. The time delay switch 32 is of the type which closes for a predetermined period of time a preselected interval following the actuation or triggering thereof. An improved switch of the above type is illustrated in FIGURES 2 through 5 of the drawings and includes a housing 33 having a top wall 34. Located in the housing 33 is a synchronous timing motor rotating a drive shaft 37 at a speed inversely proportionate to the storage time of the recording band 12 preferably between one and one third revolutions per minute.

A horizontal commutator disc 38 is concentrically mounted on the shaft 37 and is rotatable therewith. Located along the peripheral border of the disc 38 are a plurality of regularly spaced contact members 40. Each of the contact members 40 comprises a collar or sleeve 41 registering with a corresponding opening in the disc 38, and a plunger member 41 vertically slidably movable in the sleeve 41. The sleeve 41 includes a toggle mechanism of any conventional or well known construction which normally urges the plunger 41 past dead center to its uppermost or lowermost position. The plunger 41 includes an upper button portion 42 and a lower rod 43 terminating in a depending flexible electrical wiper element or brush 44. Located on each of the rods 43

immediately above the lower end thereof is an outwardly directed pin 46.

Mounted on the casing upper wall 34 along the path of the contacts 40 and projecting therethrough are a first triggering or ordering button 47 and leading and trailing buttons 48 and 49 respectively. The first button 47 is vertically movable in a collar or sleeve 50 and includes a finger piece 51 and a depending rod 52 projecting through the sleeve 50 and terminating in a block 53 having a leading arm 54 having an inclined cam defining undersurface 56. The sleeve 50 includes a toggle mechanism of any conventional or well known construction which normally urges the button 47 past dead center to its uppermost or lowermost position. Thus upon depression of the button 47 it depresses an aligned contact 40, the button 47 being maintained in its lowermost position until the cam surface 56 thereof is engaged by a raised contact button portion 42 to effect the raising of the button 47.

Each of the buttons 48 and 49 includes a finger piece 57 and a depending rod 58 passing through a corresponding opening in the casing top wall 34 and terminating in a block 59. A helical compression spring 60 is entrapped between the confronting faces of each of the finger pieces 57 and casing wall 34 to urge the buttons 48 and 49 to their uppermost positions. Upon depression of any of the buttons 48, 49 and aligned contact 40 is depressed past its dead center position.

An arcuate contact 63 is located along the path of the wipers 44 when the respective contacts are in depressed position and is disposed a predetermined peripheral distance from the button 47. The time of travel of a wiper or brush 44 from a position below the button 47, to the arcuate contact 63 is substantially equal to the time required for a point on the recording band 12 to travel from the recording head 16 through the storage cartridge 13 to the pickup head 30. Further, the time of engagement between a wiper 44 and the arcuate contact 63 is approximately equal to or slightly greater than the time interval between successive contacts 40. Immediately following the arcuate contact 63 is a contact raising member 64 having a trailing cam defining forwardly upwardly inclined surface 65 in the path of the pins 46. As a depressed contact 40 travels along the member 64 the cam surface 65 engages the pin 46 to raise the plunger 41 to its uppermost position. The wipers 44 are connected electrically by way of the disc 38 to a first terminal 67 and the arcuate contact 63 is connected to a second terminal 68.

Considering now the operation of the improved apparatus, the contacts 40 being initially in their raised position whereby the clutch 24 is deenergized and the recording band 21 stationary, and the endless band 12 is actuated to advance at a predetermined rate. Speech or other information is picked up by the microphone 18 and amplified and recorded on the band 12 by the head 16. The band 12 travels through the storage cartridge 13 to the pickup head 30 where the information recorded on the band 12 by the head 16 is picked up a fixed time interval thereafter and fed through the amplifier 29 to the second recording head 28. Thus the information fed through the microphone 18 reaches the recording head 28 a long fixed time interval thereafter. Upon depression of the button 47 a corresponding contact 40 is depressed as is a wiper 44. The depressed wiper 44 reaches and engages the arcuate contact 63 said fixed time interval following the depression thereof to close the circuit between the terminals 67 and 68 and actuate the clutch 24 to effect the driving and advance of the recording band 21. The information recorded on the band 21 will be that information picked up by the microphone 18 at the time of the depression of the button 47. The increment recorded by the band 21 corresponds to the length of the contact 63 and hence the distance between contacts 40. Uninterrupted successive increments may be recorded on

the band 21 by keeping the button 47 depressed for the desired time.

In the event that the speech or information desired to be recorded has been picked up some time interval past, one or more of the buttons 49 following the button 47 may be depressed depending upon the time elapsed between the delivery of the information and the depression of the buttons. As a result, the elapsed time between pickup and transfer is reduced so that the earlier information is transferred from the band 12 to the band 21. By depressing one or more buttons 48 the successive trailing contacts 40 are depressed to thereby effect the transfer of corresponding increments of information which have not yet been picked up. As a raised plunger 42 passes the button 47 it engages the cam surface 56 to effect a raising of the button 47. Thus a raised button 47 indicates that the delivered information will not be recorded unless it is depressed or one of the buttons 49 is subsequently depressed. A depressed button 47 indicates that the delivered information will be recorded on the band 21.

While there has been described and illustrated a preferred embodiment of the present invention it is apparent that numerous alterations, additions and omissions may be made without departing from the spirit thereof.

What is claimed is:

1. An improved recording device comprising a first continuously running device for temporarily continuously storing information for a predetermined time interval, means for continuously feeding information to said first storage device, a second information storage device, means transferring preselected portions of information from said first storage device to said second storage device and manually operable means selectively actuating said transfer means a preselected time interval following said manual operation thereof independently of said means for continuously feeding information.

2. An improved recording device comprising a continuously running information storing endless first band, means for continuously feeding information to said first band, a second band, a manually actuatable time delay switch for selectively advancing said second band independently of said means for continuously feeding information, and means for transferring information from said first band to said second band.

3. An improved recording device comprising a continuously running information storing endless first band, means for continuously feeding information to said first band, a second band, a manually actuatable time delay switch for selectively advancing said second band independently of said means for continuously feeding information, means for transferring information from said first band to said second band, and means following said transfer means for erasing said information from said first band.

4. An improved recording device comprising a first continuously advancing endless magnetic recording band, a first magnetic recording head coupled to said first band, a modulating network responsive to a modulating signal connected to said first recording head, a magnetic pickup coupled to said first band following said first recording head a distance along said first band corresponding to a predetermined time interval, a second magnetic recording band, drive means intermittently advancing said second band independently of said modulating signal, a manually actuatable time delay switch actuating said drive means a predetermined time interval following said manual actuation of said switch, a second magnetic recording head coupled to said second band and an amplifier network connecting said second recording head to said pickup.

5. An improved recording device in accordance with claim 4 including an erasing head coupled to said first band following said pickup.

6. An improved recording device comprising a driven

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endless first recording band, a signal energizable first recording head coupled to said first band, a pickup head coupled to said first band a predetermined interval following said first recording head, a second recording band, a second recording head coupled to said second recording band and connected to said pickup head, means for driving said second recording band and means including a manually operable time delay switch selectively actuating said drive means independently of the signal energization of said first recording head.

7. An improved recording device in accordance with claim 6 wherein said time delay of said switch is shorter than said predetermined interval by a predetermined time.

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8. An improved recording device in accordance with claim 6 wherein said time delay is variable.

References Cited in the file of this patent

UNITED STATES PATENTS

2,006,961	Moore -----	July 2, 1935
2,281,405	Barrish -----	Apr. 28, 1942
2,329,107	Clausen -----	Sept. 7, 1943
2,401,888	Smith -----	June 11, 1946
2,406,350	Harrison -----	Aug. 27, 1946
2,833,866	Esser -----	May 6, 1958
2,886,650	Fairbanks et al. -----	May 12, 1959