Nov. 27, 1934. A. D. EITZEN 1,981,858

TENSIONING MEANS FOR TICKER TAPE

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Fig. 1

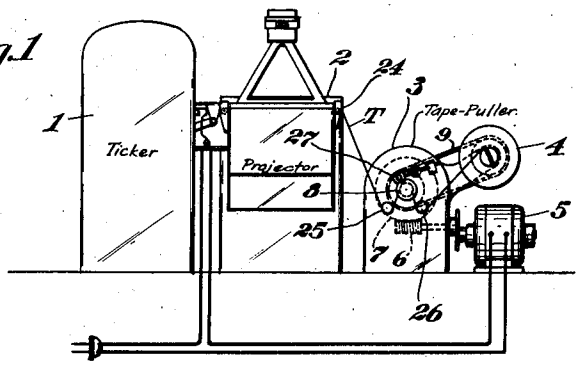
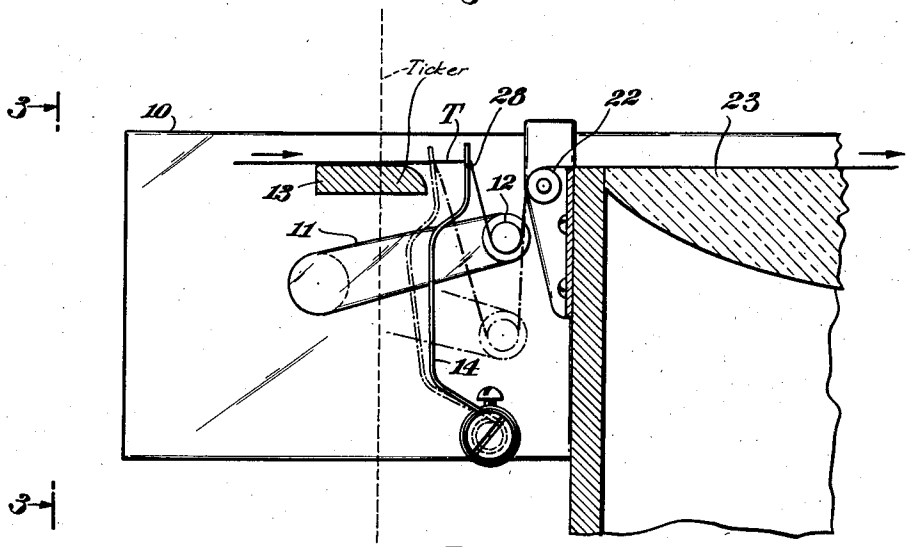


Fig. 2



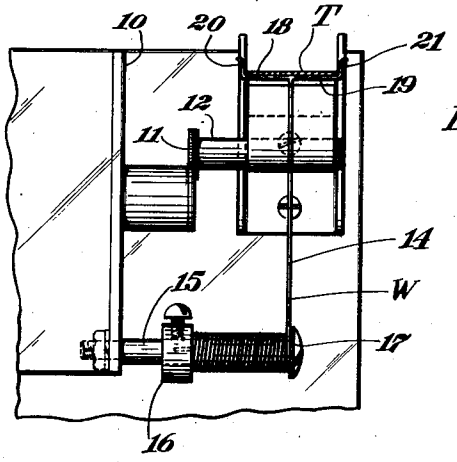


Fig. 3

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TENSIONING MEANS FOR TICKER TAPE

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5 Claims. (Cl. 271—2.3)

This invention relates to improvements in stock quotation projecting machines in general and more especially to improvements in tensioning means for the ticker tape as it is fed.

Among the objects of the present invention it is aimed to provide an improved stock quotation projecting machine whereby the ticker tape can with facility be controlled while it passes the light aperture of the projecting machine to effect smooth projection, both when the ticker tape is at rest and when it is traveling.

It is still another object of the present invention to provide an improved tensioning means or shock absorbing device for maintaining the tape under tension at all times, both when at rest and when traveling, in order to effect smooth projection of the images produced.

More especially it is an object of the present invention to provide tensioning means for the ticker tape of a stock quotation projecting machine which cooperates with the tape adjacent to the ticker so as to absorb the slack produced in the tape as quickly as it is formed by the discharge of the tape by the ticker.

It is still another object of the present invention to provide an improved tensioning means for the ticker tape of a stock quotation projecting machine having a tape puller and a switch arm for controlling the tape puller which engages the tape between the ticker and the projecting machine, in which the tensioning means is disposed to engage the tape between the ticker and such arm so as to cooperate with such switch arm to absorb the slack produced in the tape as quickly as it is formed by the discharge of the tape from the ticker.

It is still a further object of the present invention to provide an improved tensioning device for the ticker tape of a stock quotation projecting machine which is especially adapted for use with cellophane tape or the like that is inclined to stick on humid days, especially if the tensioning device is of the type which requires frictional contact with the tape.

These and other features, capabilities and advantages of the invention will appear from the subjoined detail description of one specific embodiment thereof illustrated in the accompanying drawing in which

Figure 1 is a diagrammatic side elevation of a stock quotation projecting machine equipped with the present improvement;

Fig. 2 is an enlarged longitudinal section showing the present improvement; and

Fig. 3 is a view looking in the direction of the arrows 3—3 of Fig. 2.

In the embodiment illustrated, the tape T travels from the ticker 1 to the projector 2, then to the tape puller 3 and from there to the rewind reel 4. For actuating the tape puller 3 and rewind reel 4, a motor 5 is provided which is operatively connected to drive the worm 6 in mesh with the worm wheel 7 which is operatively connected to drive the tape pulling roller 8, and which worm wheel 7 is operatively connected by means including the spring belt 9 to actuate the rewind reel 4.

The motor 5 is electrically connected with the switch box 10 whereby the current to the motor is controlled. The switch box 10 is provided with a switch arm 11 which has a finger 12, see Figs. 2 and 3, which rests on the tape T. Between the finger 12 and the discharge platform 13 of the ticker, the tape, in the present instance, is engaged by the tensioning device consisting of a spring arm 14 which is secured at its lower end to the pin 15 extending from the switch box 10.

The arm 14 may consist of any suitable spring wire W, one end of which is fixedly secured to the collar 16 fixed on the pin 15. Between the collar 16 and the shoulder formed by the screw head 17, the wire W is wound around the pin 15 and then at the head 17 extends into the straight arm 14, and at the free end of the arm 14 is formed into two branches 18 and 19 respectively which are provided at their ends with the ears 20 and 21 respectively. The tape passes over the two branches 18 and 19, forming a unitary guiding surface, and the ears 20 and 21 form lateral guides to limit the lateral movement of the tape T while passing over the branch portions 18 and 19.

As clearly appears from Fig. 2, the tape T passes from the discharge platform 13 of the ticker 1 to the free end of the arm 14 between the ears 20 and 21, then down below the finger 12 and then up above the guide roller 22 to the light aperture of the projecting machine 2 above the lens 23. From the lens 23 the tape preferably passes over the roller 24 down to the pin or idler 25, then over the tape pulling roller 8, then back below the idler 26 and then to the rewind reel 4. The tape is preferably frictionally held in engagement with the tape pulling roller 8 by means of the pressing roller 27.

From Fig. 2 it will be seen that the tension of the spring arm 4 is in the direction of the arm 12 and consequently as quickly as slack is formed in the tape T at the portion 28, the spring arm 14 will immediately advance to break up such slack, thus forming a cushion to cooperate with the arm 12 to prevent the formation of any free loop at the portion 28 which might result in the sudden descent of the finger 12 causing a jar or vibration to the tape T.

Practice has shown that the sudden release of the arm 11 when the ticker starts operating after a period of rest results in a disturbing jar or vibration being transmitted to the tape T which in turn will be transmitted to the portion of the

tape resting on the lens 23 or light aperture, as a result of which a momentary flicker will be projected. Such vibrations of the tape will result in very disturbing and annoying flickering of the images on the screen. With the present tensioning means, such annoying jars will be practically eliminated and at least sufficiently eliminated to be imperceptible to the eye of the average observer.

It is noted of course that the tension of the spring arm 14 should not be sufficient to prevent the arm 12 from descending in the interval that the spring arm 14 takes up the slack, but merely sufficient to act as a cushion, yieldable enough however to be returned to the dash and dot position indicated in Fig. 2 by the weight of the arm 12. The arm 14 thus moves toward the finger 12 when the finger 12 starts to descend upon the formation of any slack and thus merely acts as a cushion to prevent the sudden free descent of the finger 12.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. The combination with a tape puller for drawing tape through a projector, of an electric motor operatively connected to drive said tape puller, means for controlling said motor including a switch having a switch arm resting on the upper face of said tape at the supply end to the projector to form a loop, said switch arm following the tape to close the switch when the loop increases to a predetermined size and to open the switch when the loop is diminished below said predetermined size, and a quick acting tension member engaging the lower face of the tape at the loop so formed in advance of said switch arm and supplementing the switch arm initially to take up the slack as quickly as formed and said tension member being yieldable backward away from said switch arm to permit the switch arm thereupon to take up the slack and urge the tension member out of such initial slack absorbing position to prevent the transmission of vibrations formed in the tape by such slack to the portion of the tape beyond such switch arm.

2. The combination with a tape puller for drawing tape through a projector as the tape is fed thereto by a ticker, of an electric motor operatively connected to drive said tape puller, means for controlling the current to said motor in turn to control the operation of said tape puller including a switch arm resting on the upper face of the tape at the entrance end of the projector entirely depending upon gravity for its engagement with the tape, and a spring-pressed tensioning device between said switch arm and the ticker depending upon its spring pressure for engagement with the lower face of the tape, said tensioning device being more quick acting than said switch arm to absorb the slack as quickly as formed by the ticker and thereby ease the follow-up of the switch arm as slack is formed to protect the portion of the tape passing through the projector from the jars or vibrations otherwise transmitted thereto by the repeated release and re-engagement of the tape by the switch arm with the intermittent feed of the ticker.

3. The combination with a tape puller for drawing tape through a projector as the tape is fed thereto by a ticker, of an electric motor operatively connected to drive said tape puller, means for controlling the operation of said motor in turn to control the operation of said tape puller including an electric circuit for the motor having a switch element resting on the upper face of the tape at the entrance end of the projector entirely depending upon gravity for its engagement with the tape, a loop being formed in the tape in advance of the projector when the ticker operates, said switch element descending with the formation of a loop in the tape to close the circuit for the motor, and a spring-pressed tensioning device between said switch element and the ticker depending upon its spring pressure for engagement with the lower face of the tape, said tensioning device being more quick acting than said switch element to cushion the descent of the switch element when the loop is formed to protect the portion of the tape passing through the projector from the jars or vibrations otherwise transmitted thereto by the repeated release and re-engagement of the tape by the switch element with the intermittent feed of the ticker.

4. The combination with a tape puller for drawing tape through a projector as the tape is fed thereto by a ticker, of an electric motor operatively connected to drive said tape puller, means for controlling the operation of said motor in turn to control the operation of said tape puller including an electric circuit for the motor having a switch element resting on the upper face of the tape at the entrance end of the projector entirely depending upon gravity for its engagement with the tape, a loop being formed in the tape in advance of the projector when the ticker operates, said switch element descending with the formation of a loop in the tape to close the circuit for the motor, and a spring arm engaging the tape between said switch element and the ticker and depending upon its spring character for engagement with the lower face of the tape, said spring arm being more quick acting than said switch element to cushion the descent of said switch element when the loop is formed to protect the portion of the tape passing through the projector from the jars or vibrations otherwise transmitted thereto by the repeated release and re-engagement of the tape by the switch element with the intermittent feed of the ticker.

5. The combination with a tape puller for drawing tape through a projector as the tape is fed thereto by a ticker, of an electric motor operatively connected to drive said tape puller, means for controlling the operation of said motor in turn to control the operation of said tape puller including an electric circuit for the motor having a switch element resting on the upper face of the tape at the entrance end of the projector entirely depending upon gravity for its engagement with the tape, a loop being formed in the tape in advance of the projector when the ticker operates, said switch element descending with the formation of a loop in the tape to close the circuit for the motor, and an arm composed of spring wire having its upper free end engaging the lower face of the tape between said switch element and the ticker normally urging the tape upward toward said switch element and yieldable backward away from said switch element.

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