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2,153,552

TAPE FEED CONTROLLING MECHANISM

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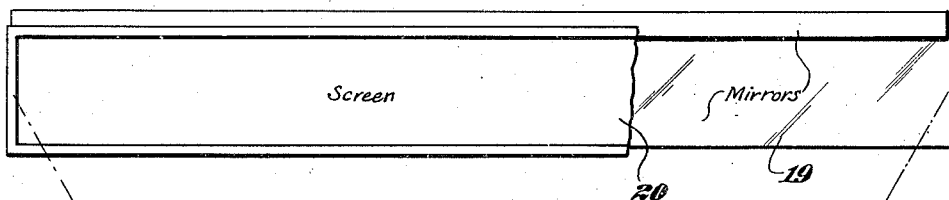


Fig. 1

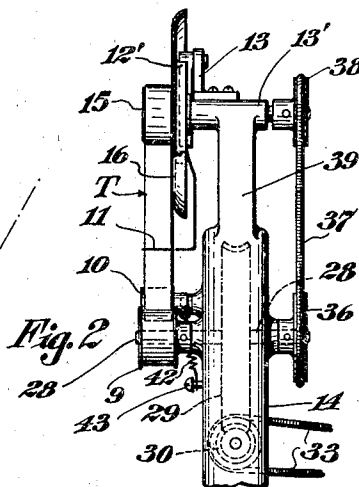


Fig. 2

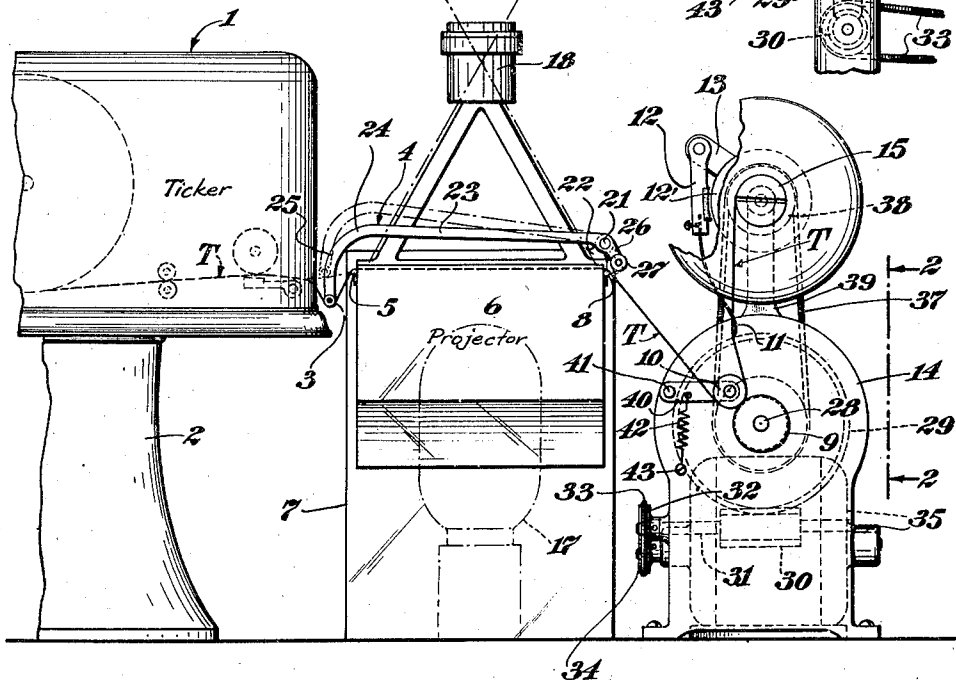
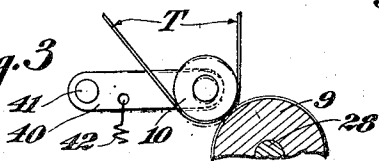


Fig. 3



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TAPE FEED CONTROLLING MECHANISM

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22 Claims. (Cl. 271—2.3)

This invention relates to an improved tape feed controlling mechanism especially adapted for use with a stock quotation projecting machine or the like.

Among the objects of the present invention, it is aimed to provide an improved tape feed controlling mechanism especially adapted for use with a stock quotation projecting machine having a ticker which intermittently discharges tape as messages are transmitted thereto, a continuously operating motor drivingly connected with a tape feeding roller, an idler, and means for yieldably urging such idler normally to press the tape into driving engagement with the feeding roller, which means is yieldable to permit the tape to clear the feeding roller when the ticker is arrested.

It is still another object of the present invention to provide an improved tape control mechanism having a continuously operating tape pulling roller, a device for resiliently maintaining the tape to be advanced in driving engagement with such tape pulling roller, and means associated with the tape for retarding the same when the discharge thereof from a ticker or the like comes to rest thereby in turn to react on such device to release the tape from the tape pulling roller.

It is still another object of the present invention to provide an improved tape feed controlling mechanism having a continuously operating tape pulling roller and a device for releasing the tape from such tape pulling roller when the discharge of tape thereto by a ticker or the like comes to rest.

Specifically it is an object of the present invention to provide an improved tape retarding mechanism which will not only iron out the vibrations transmitted to the tape by a ticker or the like before the tape passes to the light aperture of a projecting machine but will also lock the tape at the discharge end of the light aperture upon the arrest of the tape by the ticker in order to prevent the transmission of any pulling force back to the ticker or back to the tape portion at the light aperture after the ticker comes to rest, such improved tape retarding mechanism including a one-piece lever pivotally connected at the discharge end of the light aperture with the free end of its long arm engaging the tape to form a control at the entrance end of the light aperture, and a roller formed at the free end of the short arm of such lever to engage and lock the tape beyond the discharge end of

the light aperture when the ticker comes to rest as aforesaid.

Specifically, it is still another object of the present invention, to provide an improved device for releasing the tape from the tape pulling roller upon the arrest of the ticker or the like including means for snugly maintaining the tape in engagement with such device in releasing position and effectively to cause such device to clear the tape pulling roller throughout the releasing period.

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 front elevation of a stock quotation projecting machine equipped according to the present invention;

Fig. 2 is a fragmental section on the line 2—2 of Fig. 1; and

Fig. 3 is an enlarged fragmental detail showing a part of the pulling control.

In the embodiment illustrated, there is shown a ticker 1 of standard construction mounted upon a support 2 from which the tape T is intermittently discharged. After leaving the ticker 1, the tape passes in the present instance under the finger or roller 3 formed at the free end of the lever 4 and then passes over the small roller 5 at the entrance end of the light aperture formed on the top of the extension 6 of the lamp housing 7. After crossing the light aperture, the tape T passes across the small roller 8 at the discharge end of the light aperture and then passes down to the tape pulling roller 9.

The tape T is adapted to be maintained in driving engagement with the roller 9 by the idler 10. From the idler 10, the tape T passes around and into engagement with the free end of the whisker 11 consisting of a spring wire secured to the brake shoe 12 pivotally mounted on the bracket 13 extending upwardly from the hub 13' and formed at the upper end of the bracket 39 extending upwardly from the housing 14 of the reduction gearing for the pulling roller 9.

From the whisker 11, the tape T passes up to the spindle 15 of the rewind reel 16.

The lever 4 of course clears the light aperture on the extension 6 so that the light rays from the lamp 17 may pass up through the tape T at the light aperture and then pass through the objective lens unit in the casing 18 up to the mirrors 19 and from there be directed on to the screen 20.

The lever 4 which constitutes an important part

of the present invention is pivoted at 21 to the bracket 22 extending upwardly from the discharge end of the light aperture. The long arm 23 of the lever 4 extends from the pivot point 21 across the extension 6 and adjacent to the light aperture and then is curved at 24 to terminate in the downward extension 25 at the free end of which the roller or finger 3 is secured to engage and rest on the tape T to form a control loop between the ticker 1 and the light aperture. The lever 4 has a short arm 26 extending beyond the pivot point at the free end of which there is rotatably mounted a roller 27, the short arm 26 extending downward slightly relative to the long arm portion 23.

In operation, when the ticker discharges tape, the finger 3 will immediately follow the tape T to form a loop between the ticker 1 and the light aperture and due to the length of the arm 23 take up the slack as quickly as it is formed and at the same time to release the roller 27 out of engagement with the tape T to permit the tape pulling roller 9 to draw the tape across the light aperture. When however the ticker comes to rest, the continued operation of the tape pulling roller 9 will cause the loop under the finger 3 to be diminished and thereby raise the finger 3 in turn to depress the arm 26 and cause the roller 27 to press the tape T into locking or anchoring engagement with a suitable abutment, such as the roller 8. When the tape T is so anchored upon the arrest of the ticker 1 either by this locking roller 27 or the resistance offered by the ticker or the like, the tape T due to the pulling force exercised by the rewind reel 15 will cause the idler 10 to be raised out of tape pressing engagement with the roller 9. The spring 42 is of such design as to build up rapidly and just release the contact.

The roller 9 is mounted upon a shaft 28 journaled in the casing 14 on which is fixed the worm wheel 29 in mesh with the worm 30 mounted on the shaft 31 journaled in the lower part of the casing 14. On the shaft 31, there is fixed the sheave 32 which is connected by the belt 33 with the sheave 34 mounted on the shaft of the motor 35.

The shaft 28 also has fixed thereon the sheave 36 which is connected by the spring belt 37 with the sheave 38 fixed to rotate with the spindle 15 of the rewind reel 16, such spindle 15 being journaled in the upper end of the bracket 39 extending upwardly from the housing 4. The idler 10 is journaled in the free end of the arm 40 pivoted at 41 to the outside of the housing 14 and connected by the spring 42 with the abutment 43 secured to the outside of the housing 14.

As illustrated, the roller is adapted to press the tape T in engagement with the face of the roller 9 facing the discharge end of the light aperture. The pivot point 41 of the arm 40 as indicated preferably is disposed between the roller 9 and the extension 6.

The whisker 11 as indicated exercises a pressure on the tape T toward the light aperture to form a resilient loop. The direction and distribution of the forces of the whisker 11 and idler 10 as aforesaid on the tape T is such that when a retarding force is imparted to the tape T, the continued pulling force exercised by the spindle 15 of the rewind reel 16 will oppose the spring 42 to withdraw the idler 10 into a position where the tape T will just clear the roller 9 so that the pulling force of the roller 9 on the tape T will be interrupted and not wear the tape

through while the roller 9 is rotating. The spindle 15 will continue to exercise a pulling force but due to the spring belt 37 will yield especially if the tape is locked between the rollers 27 and 8. The whisker 11 will tend to take up any sudden slack and jerk formed in the tape T between the spindle 15 and idler 10 and dampen the pendulum action or oscillation caused by the inertia and momentum of rewind 16 together with the spring belt 37 to cause movement or vibration of the tape on the aperture.

The brake shoe 12 will cooperate with the brake drum 12' on the rewind reel 16 to cause the same to come to rest when the loop in the tape T is diminished and the spring wire 11 is thereby deflected to press the brake shoe 12 into braking contact on the brake drum 12' against the constant urge of the spring belt 37.

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 feed for intermittently discharging tape, of means including a roller for pulling the tape across the light aperture of a projection machine as it is discharged by said feed, and means adapted to deflect a loop of the tape out of its normal path of movement into tape pulling engagement with said roller but yieldable to clear said roller when said feed comes to rest.

2. The combination with a feed for intermittently discharging tape, of means including a roller for pulling the tape across a light aperture as it is discharged by said feed, and a spring pressed idler for deflecting a loop of the tape out of its normal path of movement into tape pulling engagement with said roller but yieldable to clear said roller when said feed comes to rest.

3. The combination with a feed for intermittently discharging tape, of means including a roller for pulling the tape across a light aperture as it is discharged by said feed, an idler, and means for urging the idler in the direction of the movement of the tape from said feed to deflect a loop of the tape out of its normal path of movement into tape pulling engagement with said roller but yieldable to clear said roller when said feed comes to rest.

4. The combination with a feed for intermittently discharging tape, of a roller for pulling the tape across a light aperture as it is discharged by said feed, an idler, a spring for urging the idler in the direction of the movement of the tape from said feed to deflect a loop of the tape out of its normal path of movement into pulling engagement with said roller, a rewind reel, and yieldable means for actuating said rewind reel to wind up the tape and cooperate with said spring and the tape to actuate said idler and therewith to actuate the tape engaging the same out of engagement with said roller upon the arrest of said feed.

5. The combination with a feed for intermittently discharging tape, of a roller for pulling the tape across a light aperture as it is discharged by said feed, an idler, a spring for urging the idler in the direction of the movement of the tape from said feed to deflect a loop of the tape out of its normal path of movement into pulling engagement with said roller, a rewind reel, yieldable means for actuating said rewind reel to wind up the tape and cooperate with said spring and the

tape to actuate said idler and therewith to actuate the tape engaging the same out of engagement with said roller upon the arrest of said feed, and a spring for taking up the slack between said rewind reel and said idler as quickly as it is formed.

6. The combination with a feed for intermittently discharging tape, of a puller for pulling the tape across a light aperture as it is discharged by said feed, a yieldable device for deflecting a loop of the tape out of its normal path of movement into pulling engagement with said puller, a rewind reel, and yieldable means for actuating said rewind reel to wind up the tape and actuate said device and therewith actuate the tape engaging said device out of engagement with said puller upon the arrest of said feed.

7. The combination with a feed for intermittently discharging tape, of a puller for pulling the tape across a light aperture as it is discharged by said feed, a yieldable device for deflecting a loop of the tape out of its normal path of movement into pulling engagement with said puller, and a rewind reel for winding up the tape and cooperating with said device to move the tape engaging said device out of engagement with said puller upon the arrest of said feed.

8. The combination with a feed for intermittently discharging tape, of a puller for pulling the tape across a light aperture as it is discharged by said feed, a yieldable device for deflecting a loop of the tape out of its normal path of movement into pulling engagement with said puller, a rewind reel for winding up the tape and cooperating with said device to move the tape engaging said device out of engagement with said puller upon the arrest of said feed, and a whisker for taking up the slack between said rewind reel and said yieldable device.

9. The combination with a feed for intermittently discharging tape, of a puller for pulling the tape across a light aperture as it is discharged by said feed, an idler, a spring pressed arm for deflecting the idler into engagement with the tape and therewith a loop of the tape out of its normal path of movement into pulling engagement with said puller, a rewind reel for winding up the tape and cooperating with said device to move the tape engaging said device out of engagement with said puller upon the arrest of said feed, and a whisker for taking up the slack between said rewind reel and said idler.

10. The combination with means including a puller for pulling tape across the light aperture of a stock quotation projection machine as it is fed thereto, of a yieldable device for deflecting a loop of the tape out of its normal path of movement into pulling engagement with said puller and yieldable in response to tension in the tape to permit the tape portion engaging said device to clear said puller upon interrupting the supply of tape thereto.

11. The combination with a feed for intermittently discharging tape, of a roller for pulling the tape across a light aperture as it is discharged by said feed, an idler, a spring for urging the idler in the direction of the movement of the tape from said feed to deflect a loop of the tape out of its normal path of movement into pulling engagement with said roller, a rewind reel, yieldable means for actuating said rewind reel to wind up the tape and cooperate with said spring and the tape to actuate said idler and therewith to actuate the tape engaging the same out of engagement with said roller upon the arrest of said feed,

a spring for taking up the slack between said rewind reel and said idler as quickly as it is formed, and a brake cooperating with said spring and said reel to anchor said reel against movement when said feed comes to rest.

12. The combination with a feed for intermittently discharging tape, of a support, tape pulling means including a roller for engaging the tape to pull the same across said support as it is intermittently supplied thereto, yieldable means cooperating with the tape to enable the tape to be deflected out of tape pulling position, and means for maintaining the tape smooth at said support consisting in tape engaging elements for maintaining the tape in engagement with the entrance and discharge ends of said support when the tape is at rest, one of said tape engaging elements cooperating with said roller to maintain the tape in engagement with the entrance and discharge ends of said support to iron out the vibrations at said support when the tape is moving across said support.

13. The combination with a feed for intermittently discharging tape, of a main support, tape pulling means including a roller for engaging the tape to pull the same across said main support as it is intermittently supplied thereto, a yieldable support for said roller responsive to a deflection in the tape to enable said roller and tape to be deflected out of tape pulling position, and means for maintaining the tape smooth at said support consisting in tape engaging elements for drawing the tape into engagement with the entrance and discharge ends of said main support when the tape is at rest, one of said tape engaging elements cooperating with said roller to maintain the tape in engagement with the entrance and discharge ends of said support to iron out the vibrations at said support when the tape is moving across said support.

14. The combination with a feed for intermittently discharging tape, of a main support, tape pulling means including a roller for engaging the tape to pull the same across said main support as it is intermittently supplied thereto, a take-up for taking up the tape as it is pulled across said support, a yieldable support for said roller responsive to a deflection in the tape to enable said roller and tape to be deflected out of tape pulling position when the tape supply to said main support is interrupted and the take-up exercises tension on the tape, and means for maintaining the tape smooth at said main support consisting in tape engaging elements for drawing the tape into engagement with the entrance and discharge ends of said main support when the tape is at rest, one of said tape engaging elements cooperating with said roller to maintain the tape in engagement with the entrance and discharge ends of said support to iron out the vibrations at said support when the tape is moving across said support.

15. The combination with a feed for intermittently discharging tape, of a support, tape pulling means for pulling the tape across said support as it is intermittently supplied thereto, said tape pulling means including a tape drawing roller and a slippage device, an idler engaging the tape between said support and said tape drawing roller, a yieldable bracket for said idler to enable said idler to be deflected by the tension in the tape when the intermittent feed is interrupted, and tape engaging means at said support effective to impose a drag on the tape and cooperate

with the normal urge of said yieldable bracket when the feed is interrupted to bring said slippage device into operation.

16. The combination with a feed for intermit-
- 5 tently discharging tape, of a support, tape pulling means including a drive, a rewind reel, a slippage device for drivingly connecting said rewind reel to said drive, a tape drawing roller adapted to drivingly engage the tape between said support
- 10 and said rewind reel, an idler engaging the tape between said support and said tape drawing roller, a yieldable bracket for said idler responsive to tension in the tape when the intermittent feed is interrupted to deflect said idler out of its normal position and thereby be effective to inter-
- 15 rupt the driving force imparted to the tape by said drawing roller, and tape engaging means at said support cooperating with the normal urge of said yieldable bracket and said slippage device
- 20 when the intermittent feed is interrupted to arrest said rewind reel.

17. The combination with a feed for intermit-
- 25 tently discharging tape, of a support, successive tape advancing means including a rewind reel and a tape drawing roller, a drive operatively connected to said drawing roller, a slippage device for drivingly connecting said rewind reel to said drive, a pivotally mounted bracket, an idler mounted on said bracket and in engagement with
- 30 the tape, and a spring associated with said bracket and responsive to tension in the tape to enable said bracket to be rocked and effective thereupon to interrupt the drawing action im-
- 35 parted by said drawing roller to the tape, said spring cooperating with the tension in the tape and said slippage device when the intermittent feed is interrupted to arrest said rewind reel.

18. The combination with a feed for intermit-
- 40 tently discharging tape, of a support, successive tape advancing means including a rewind reel and a tape drawing roller, a drive operatively connected to said drawing roller, a slippage device for drivingly connecting said rewind reel to said drive, a pivotally mounted bracket, and an
- 45 idler mounted on said bracket and resting on the tape effective to press the tape into driving engagement with said drawing roller but responsive to tension in the tape to free the draw-
- 50 ing roller from the tape in turn to interrupt the

drawing action imparted by said drawing roller to the tape.

19. The combination with a feed for intermit-
- 5 tently discharging tape, of means including a roller for advancing the tape as it is so intermit-
- 10 tently discharged by said feed, and means to deflect a loop of the tape out of its normal path of movement into tape pulling engagement with said roller but yieldable to clear said roller when said feed comes to rest.

20. The combination with a feed for intermit-
- 15 tently discharging tape, of two successive tape advancing means for advancing the tape as it is discharged by said feed, and means to deflect a loop of the tape out of its normal path of move-
- 20 ment into tape pulling engagement with the first of said successive tape advancing means but yieldable to cooperate with the second of said suc-
- 25 cessive tape advancing means to withdraw the tape out of tape advancing engagement with the first of said successive tape advancing means.

21. The combination with a feed for intermit-
- 30 tently discharging tape, of successive tape advancing means for advancing the tape as it is discharged by said feed, and means to deflect a loop of the tape out of its normal path of movement into tape pulling engagement with one of said
- 35 successive tape advancing means but yieldable to cooperate with another of said successive tape advancing means to withdraw the tape out of tape advancing engagement with the first named
- 40 successive tape advancing means.

22. The combination with a feed for intermit-
- 45 tently discharging tape, of a support, successive tape pulling means for pulling the tape across said support as it is intermittently supplied there-
- 50 to, an idler engaging the tape between said support and the first of said successive tape pulling means, a yieldable bracket for said idler normally pressing the tape into tape pulling engagement with the first of said successive tape pulling means, and a tape engaging means at said support effective to impose a drag on the tape when said feed means comes to rest in turn to co-
- 55 operate with the second of said successive tape pulling means to urge said yieldable bracket and thereby said idler out of tape pulling engagement with the first of said successive tape pulling means.

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