

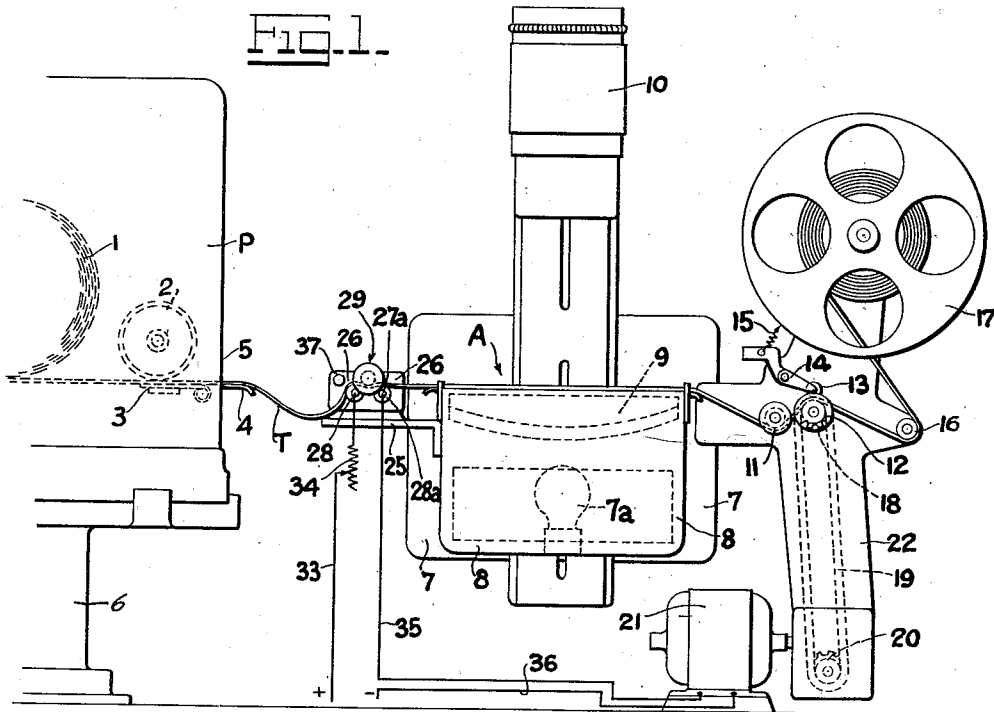
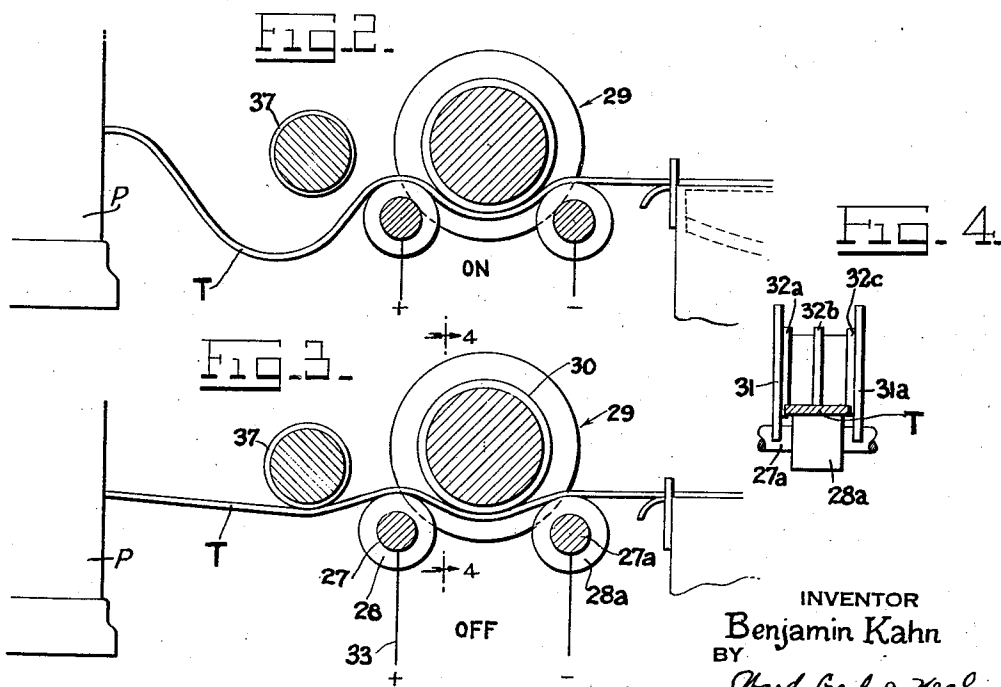
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B. KAHN

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TAPE-CONTROLLING MEANS

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INVENTOR
Benjamin Kahn
BY
Hard, Crosby & Neal
ATTORNEYS

UNITED STATES PATENT OFFICE

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TAPE-CONTROLLING MEANS

Benjamin Kahn, Bronx, N. Y., assignor to Trans-Lux Corporation, New York, N. Y., a corporation of Delaware

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My invention relates to an arrangement or means for controlling a character-bearing tape for movement through a projection field.

In accordance with my invention, a tape of the character described is drawn through a projection field by a tape-drawing means which is controlled by an arrangement disposed at the entrance to the projection field, such arrangement serving to prevent transmission into the projection field of tape vibrations such, for example, as those produced by the mechanism which prints the tape characters.

Various other objects, advantages and features of my invention will become apparent from the following detailed description.

My invention resides in the tape-controlling means, features and combinations of the character hereinafter described and claimed.

For an understanding of my invention and for an illustration of one of the forms thereof, reference is to be had to the accompanying drawing, in which:

Figure 1 is an elevational view showing a combined ticker-projection system having associated therewith the tape-controlling means of my invention;

Fig. 2 is an enlarged elevational view, partly in section, showing my novel tape-controlling means;

Fig. 3 is an elevational view corresponding generally with Fig. 2 but showing a different relation of the parts; and

Fig. 4 is a vertical sectional view, partly in elevation, taken on the line 4—4 of Fig. 3 looking in the direction of the arrows.

Referring to the drawing, P represents a suitable printing device such, for example, as the well known Western Union ticker mechanism utilizable for printing characters representative of stock quotations lengthwise on a narrow tape T, such tape being opaque if desired although, in the form of the invention herein illustrated, said tape T is formed from transparent or translucent material such as is suitable for "through" projection. As illustrated although not necessarily, the ticker mechanism P is of a conventional constant speed type and, therefore, it comprises a roll 1 of the tape T, a pair of spaced rollers, not shown, being utilized to feed and eject said tape T from the ticker mechanism in a direction from left to right, Figs. 1 and 2, these rollers moving the tape along a path which is disposed closely adjacent the type wheel 2 with which the usual platen or hammer 3 coacts to effect the printing operation, the tape T

finally engaging and passing over a guide surface 4 and then passing beyond the housing 5 of the ticker mechanism, this housing 5, if desired, being mounted upon any suitable support 6.

After the tape T leaves the ticker mechanism P, it is drawn through a suitable projection device A whereby images of the tape characters are projected onto any suitable screen, not shown. The projection device A may be of any suitable type such as is well known in the art. As herein shown, this projection device A comprises a rear lamp housing 7 and a front lens housing 8, the projection light beam being produced by a source of light 7a and said projecting light beam, in suitable manner, being caused to pass upwardly through a condensing lens 9, Fig. 2, which is disposed at the top of the lens housing 8, said projecting light beam then passing upwardly through the projection field which may be an open rectangular aperture formed, as well understood in the art, at the top of the lens housing 8. After the projecting light beam leaves that section of the tape which is at the aforesaid projection field, it travels vertically through the objective lens 10 and then, usually, is reflected by one or more mirrors before coming into engagement with the projection screen, not shown. It will be understood that the "means" defining the projection field may be omitted, if desired. If so, the projection field may be considered in its optical sense as in the plane which is at right angles to the longitudinal axis of the objective lens 11, this plane being in focus with said objective lens.

The tape T may be pulled or drawn through the projection field in any suitable manner. Thus, for example, said tape T may be passed beneath a roll 11, or equivalent, the latter being positioned at or below the horizontal level of the projection field. Thereafter, the tape T passes over a pulling roll 12 with the upper surface of which said tape is held in engagement by an idler roll 13 mounted on a lever 14, the latter being biased in a clockwise direction, Fig. 1, by a suitable spring 15. After the tape passes beyond the pulling roll 12, it preferably engages a guiding surface such as an idler roll 16, or equivalent, and then passes upwardly to a suitable reel 17.

The aforesaid pulling roll 12 may be operated in any suitable manner. To this end, if desired, the operating shaft for said pulling roll 12 may carry a suitable sprocket wheel 18 with which an endless sprocket chain 19 engages, this chain

being operated by a sprocket wheel 20 which, through suitable gear mechanism, not shown, is rotated at suitable speed by an electrical motor 21.

As herein shown, although not necessarily, the above described rolls 11, 12, 13, 16, the reel 17 together with the parts associated therewith are carried by a supporting bracket 22 which may be supported in the position shown by any suitable arrangement.

The reel 17 is utilizable in the customary manner for supporting the tape in roll form after said tape has been passed through the projection field. The reel 17 may be operated in any suitable manner and, to this end, an endless spring belt, not shown, may be engaged with pulleys carried, respectively, by the shaft of the reel 17 and the common shaft for the roller 12 and pinion 18. Accordingly, as well understood in the art, the motor 21 furnishes power for operating the pulling roll 12 and the reel 17.

In the form of the invention herein shown, the tape loop formed or existing between the printing mechanism P and the projection device A is utilized for controlling operation of the tape-drawing means, i. e., the set of coacting rollers 12 and 13.

To this end, there may be provided a suitable bracket 25 secured, for example, to the lens housing and which carries a housing or other support 26 for a pair of fixed, horizontally disposed members 27, 27a on which the respective rollers 28, 28a are loosely journaled. Or, if desired, the rollers 28, 28a may be replaced by stationary cylinders or members fixed to the respective members 27, 27a. Disposed above and between the members 27, 27a is a movable structure or roller structure 29 which comprises a transverse member 30 terminating in the oppositely disposed disks 31, 31a. Between the disks 31 and 31a, the movable structure 29 comprises, in the form of the invention shown, three peripheral rings 32a, 32b, 32c disposed symmetrically with respect to each other as illustrated and adapted to engage the upper surface of the tape T.

The members 27, 27a and the disks 31, 31a are formed from iron or other suitable electricity-conducting material. Extending, for example, from the member 27 is a conductor 33 which may include a variable resistance unit 34, the conductor 33 leading to one terminal of a suitable source of current, not shown. Extending from the member 27a is a conductor 35 which leads to one terminal of the aforesaid motor 21, the other terminal of which has connected thereto a conductor 36 leading to the other terminal of said source of current.

When neither the ticker mechanism P nor the motor 21 is operating, the tape T, between said ticker mechanism and the projection field, is more or less taut and the upper tape surface engages the rings 32a, 32b and 32c, Fig. 3, to thereby hold the movable structure 29 elevated whereby the disks 31, 31a are disengaged from the members 27, 27a. Accordingly, under the conditions just recited, the circuit through the motor 21 is open and the tape-pulling means comprising the rollers 12 and 13 is stationary.

When operation of the ticker mechanism P is initiated, the tape section at the entrance to the projection field becomes more or less slack with the result that the movable structure 29 is permitted to move downwardly under the influence of gravity until the disks 31, 31a come into engagement with and bridge the members 27, 27a.

when this happens, the circuit through the motor 21 is closed and, accordingly, the coacting rollers 12 and 13 become effective to draw the tape T from left to right, Fig. 1, through the projection field.

As clearly appears from a consideration of Fig. 2, the tape T, during operation of the motor 21, is caused to take a tortuous path as it moves past the roller 28, the movable structure 29, and the roller 28a, said movable structure 29 maintaining the tape depressed between the rollers 28, 28a so that it is below the level of the projection field, Fig. 2. Accordingly, in this area of the tape path, the vibrations set up in the tape responsive to operation of the ticker mechanism P are largely or substantially eliminated and, therefore, the section of the tape T in the projection field at any given time is substantially free from the vibrations transmitted to the tape by the ticker mechanism. As a result, the projected images on the screen move thereacross in a relatively steady manner and, therefore, the projecting operation proceeds in a satisfactory manner. By my invention, therefore, it is unnecessary to use the known J-spring arrangement by which, at the entrance to the projection field, pressure is applied to the tape by a spring or weight.

The operating conditions of the structure 29 may be varied by changing its weight or by changing the position of one or the other or both of the supporting members 28.

It is evident that upon reduction in weight of the structure 29, the forces required to break the circuit of the tape-drawing motor are reduced and vice versa. Both contacts need not be broken at one time as illustrated. The structure 29 need only roll on one member 28 or 28a and away from the other. By bringing the supporting members 28, 28a closer together and positioning them slightly to one side of the vertical center line, the contacts could be made to respond, as above, to a slight upward force at the lowermost point of the structure 29.

It will be noted that, during operation of the motor 21, i. e., while the disks 31 and 31a are in engagement with the respective members 27 and 27a, the rings 32a, 32b and 32c are spaced from the rollers 28 and 28a a distance somewhat greater than the thickness of the tape T. Accordingly, during operation of the disclosed system, there is no direct binding action on the tape in the vibration-dissipating area. This is in accordance with present preference. However, it shall be understood that the arrangement may be such, if desired, that, while the tape-drawing operation proceeds, the rings 32a, 32b and 32c do press or hold the tape into engagement with the rollers 28, 28a to some extent. This may be accomplished, for example, by suitably enlarging said rings 32a, 32b and 32c.

In the form of my invention as disclosed, the arrangement comprising the members 28, 28a and the movable structure 29 serve to eliminate vibrations from the tape and also to control operation of the motor 21. It shall be understood that the invention is not to be thus limited since said members 28, 28a and the structure 29 may be used solely for vibration-eliminating purposes, the motor 21 being controlled by other suitable mechanism.

In this country, narrow ticker tapes of the character herein disclosed have the characters printed on the upper tape face in two rows reading longitudinally of the tape. It is for this reason that I provide the rings 32a, 32b and 32c.

The two rows of characters pass between the respective pairs of these rings and, therefore, there is no smudging of the freshly inked characters.

Under some circumstances, it may be desirable to provide a member such as the member or roller 37 which is suitably mounted in fixed position between the vibration-dissipating rollers and the ticker mechanism. This member 37, when used, serves to control the position of the tape in a desired manner to prevent undue movement thereof transverse to its path of movement. Preferably, the member 37 is positioned close to the movable structure 29 so as to direct the tape downwardly in the pendant form illustrated and prevent it from forming an arch. This is important because it is preferred to have the tape maintain generally the curved configuration shown in Figs. 2 and 3, i. e., the pendant curve adjacent the ticker and rising at least twice before it enters the projection field. It is evident that, if the tape maintained itself normal to the tangent between the structure 29 and that member 28 toward the left, there would be one less bend or curve in the tape between the ticker mechanism and the projection field. This would not be objectionable since the arrangement is satisfactorily operable under the condition last noted.

In addition to the foregoing, the member 37 serves to prevent undue displacement of the structure 29 and, obviously, suitable means may be provided on the other side of said structure 29 to serve the same purpose.

While the invention has been described with respect to a certain particular preferred example which gives satisfactory results, it will be understood by those skilled in the art after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention and it is intended therefore in the appended claims to cover all such changes and modifications.

What is claimed as new and desired to be secured by Letters Patent is:

1. A device coactable with a character-bearing tape during passage thereof from a printing mechanism to a projection field, said device comprising a pair of spaced members with which the lower surface of the tape engages prior to passage thereof into said projection field, a movable structure having an extended surface with which the upper surface of the tape engages between said members, said movable structure maintaining the tape depressed between said members, said members and said movable structure cooperating to largely or substantially prevent transmission of tape vibrations into the projection field, and means preventing said movable structure from passing downwardly between said members.

2. A device coactable with a character-bearing tape during passage thereof from a printing mechanism to a projection field, said device comprising a pair of spaced members with which the lower surface of the tape engages prior to passage thereof into said projection field, and a movable structure having an extended surface with which the upper surface of the tape engages between said members, said movable structure maintaining the tape depressed between said members below the level of said projection field, substantially the entire mass of said movable structure remaining above said spaced members at all times, said members and said movable

structure cooperating to largely or substantially prevent transmission of tape vibrations into the projection field.

3. A device coactable with a character-bearing tape during passage thereof from a printing mechanism to a projection field, said device comprising a pair of spaced members with which the lower surface of the tape engages, and a movable structure with which the upper surface of the tape engages between said members, said movable structure comprising means adapted to engage said spaced members, said tape holding said movable structure elevated from said spaced members when said printing mechanism is non-operative, said tape permitting the means of said movable structure to engage said spaced members during operation of said printing mechanism, said spaced members and said movable structure cooperating to define a tortuous path for the tape as it moves toward said projection field, said path, throughout the length thereof, having a thickness at least somewhat greater than the thickness of said tape.

4. A device coactable with a character-bearing tape during passage thereof from a printing mechanism to a projection field, said device comprising a pair of spaced members with which the lower surface of the tape engages, a movable structure with which the upper surface of the tape engages between said members, said movable structure maintaining the tape depressed between said members, substantially the entire mass of said movable structure remaining above said spaced members at all times, means for drawing the tape through said projection field, and means whereby said members and said movable structure cooperate to control the operation of said drawing means.

5. A device coactable with a character-bearing tape during passage thereof from a printing mechanism to a projection field, said device comprising a pair of spaced members with which the lower surface of the tape engages, means for drawing the tape through said projection field, means comprising an electrical circuit for operating said drawing means, said spaced members forming terminals of said electrical circuit, and a movable structure with which the upper surface of the tape engages between said members, said movable structure comprising means adapted to engage said spaced members, said tape holding said movable structure elevated from said spaced members when said printing mechanism is non-operative, said tape permitting the means of said movable structure to engage said spaced members during operation of said printing mechanism, said movable structure, when thus engaging said spaced members, closing said electrical circuit.

6. A device coactable with a character-bearing tape during passage thereof from a printing mechanism to a projection field, said device comprising a pair of spaced members with which the lower surface of the tape engages, a motor and an electrical circuit for drawing the tape through said projection field, said spaced members forming terminals of said electrical circuit, and a movable structure with which the upper surface of the tape engages between said members, said movable structure comprising means adapted to engage said spaced members, said tape holding said movable structure elevated from said spaced members when said printing mechanism is non-operative, said tape permitting the means of said movable structure to en-

gage said spaced members during operation of said printing mechanism, said movable structure, when thus engaging said spaced members, closing said electrical circuit.

7. The combination with means for drawing a character-bearing tape through a projection field after passage thereof from a printing mechanism, and means comprising an electrical circuit for controlling the operation of said drawing means, of a device coactable with said tape during passage thereof from said printing mechanism to said projection field, said device comprising tape-deflecting means included in said electrical circuit and with which the lower surface of the tape engages, said device further comprising a movable structure with which the upper surface of the tape engages, said movable structure maintaining the tape depressed adjacent said tape-deflecting means and comprising a member adapted to close said electrical circuit, said tape holding said movable structure elevated from said tape-deflecting means when said printing mechanism is non-operative, said tape permitting said movable structure to descend during operation of said printing mechanism whereby said member closes said electrical circuit, said tape-deflecting means and said movable structure cooperating to largely or substan-

tially prevent transmission of tape vibrations into the projection field.

8. The combination with means for drawing a character-bearing tape through a projection field after passage thereof from a printing mechanism, and means comprising an electrical circuit for controlling the operation of said drawing means, of a device coactable with said tape during passage thereof from said printing mechanism to said projection field, said device comprising tape-deflecting means with which the lower surface of the tape engages, said device further comprising a movable structure with which the upper surface of the tape engages, said tape holding said movable structure elevated from said tape-deflecting means when said printing mechanism is non-operative, said tape permitting said movable structure to descend, during operation of said printing mechanism, so as to be supported by said tape-deflecting means, said tape-deflecting means and said movable structure cooperating to largely or substantially prevent transmission of tape vibrations into the projection field, said tape-deflecting means and said movable structure being constructed and arranged to control said electrical circuit.

BENJAMIN KAHN.