

Feb. 6, 1940.

A. D. EITZEN

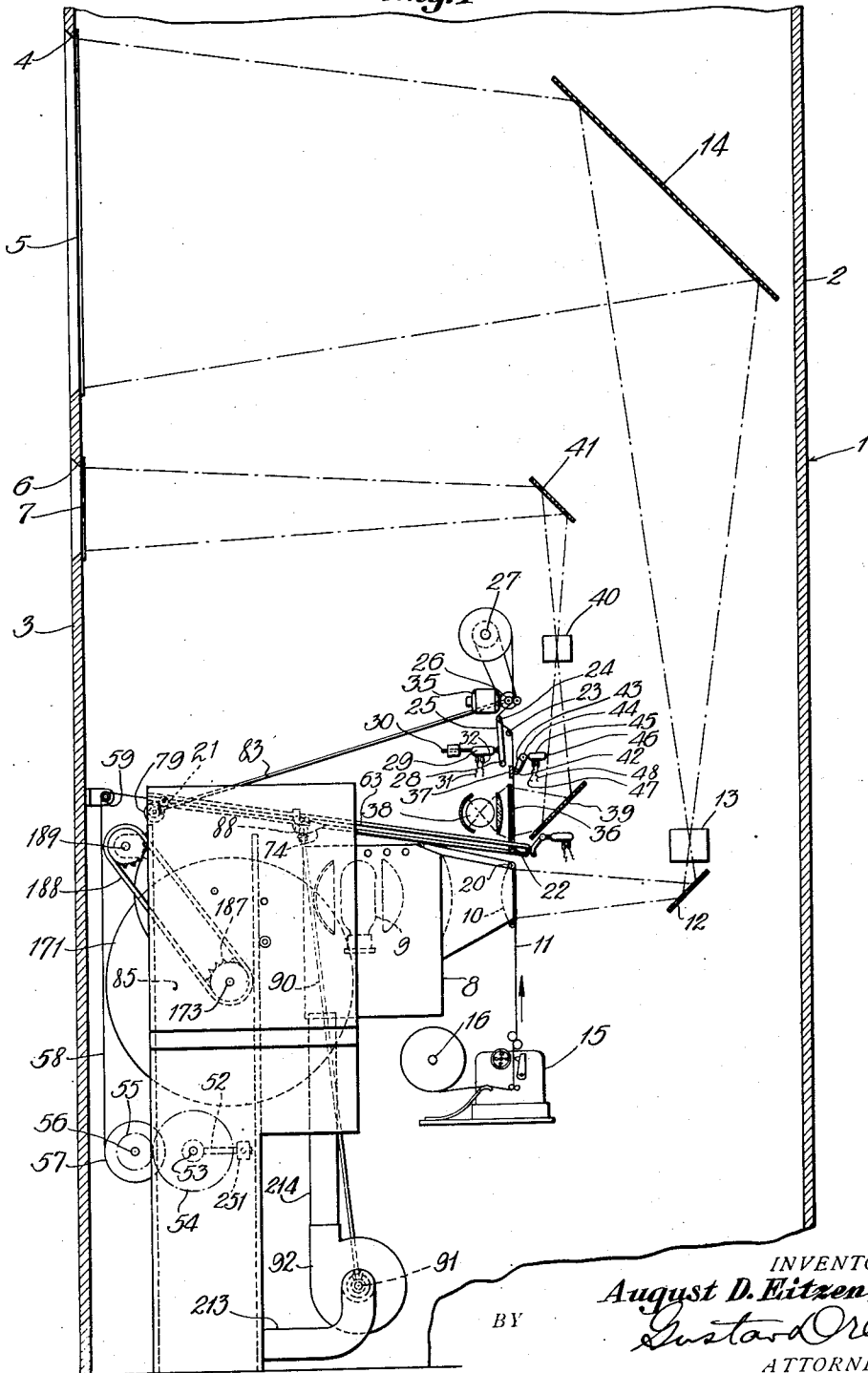
2,188,896

PAGE PRINTER

Filed May 1, 1937

6 Sheets-Sheet 1

Fig. 1



BY

INVENTOR
August D. Eitzen,
Gustard Orms
ATTORNEY

Feb. 6, 1940.

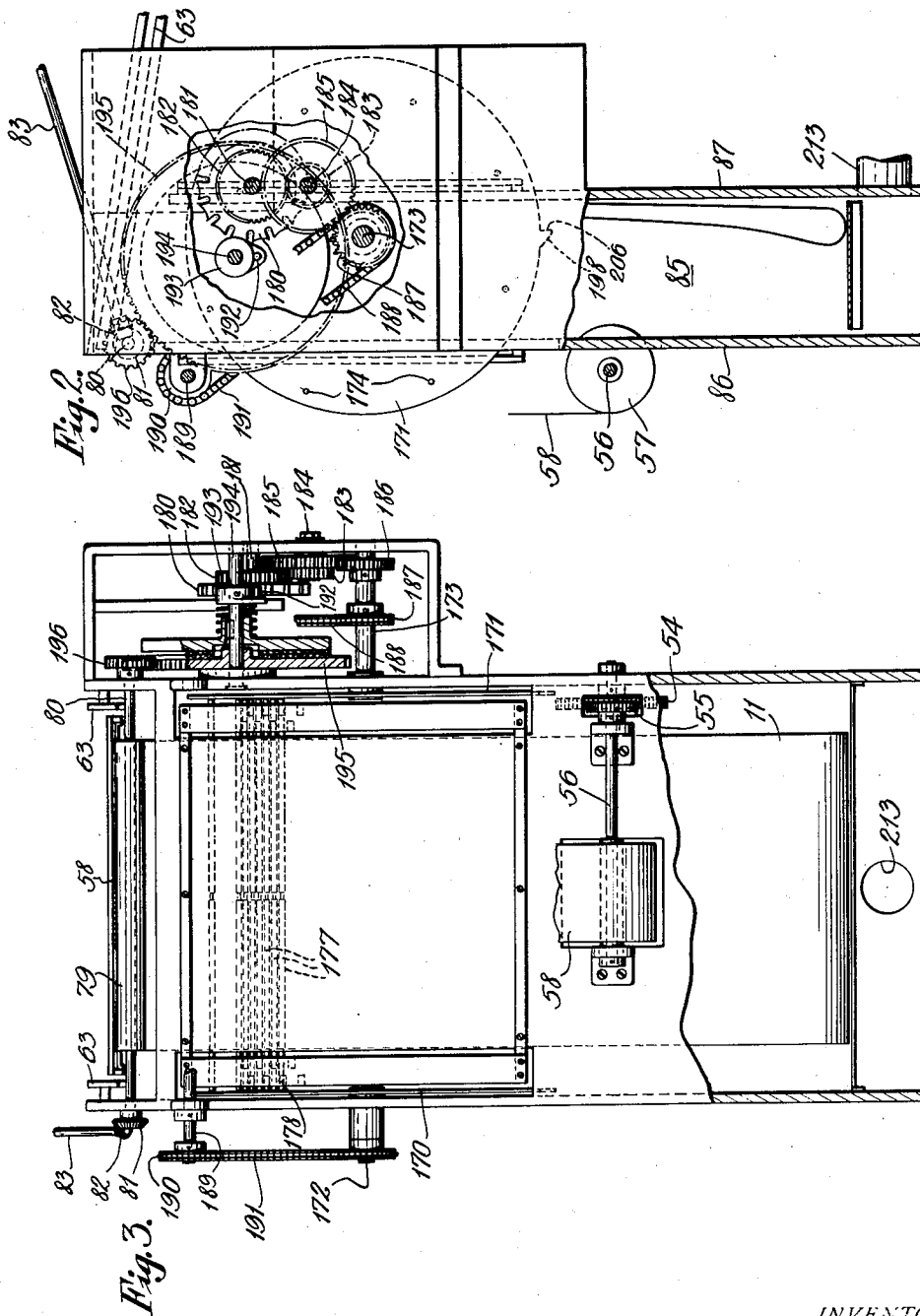
A. D. EITZEN

2,188,896

PAGE PRINTER

Filed May 1, 1937

6 Sheets-Sheet 2



BY

INVENTOR
August D. Eitzen,
Gustav Oren,
ATTORNEY

Feb. 6, 1940.

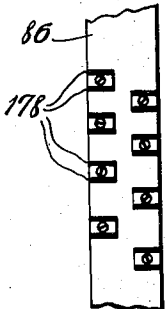
A. D. EITZEN

2,188,896

PAGE PRINTER

Filed May 1, 1937

6 Sheets-Sheet 3



Feb. 6, 1940.

A. D. EITZEN

2,188,896

PAGE PRINTER

Filed May 1, 1937

6 Sheets-Sheet 4

Fig. 6.

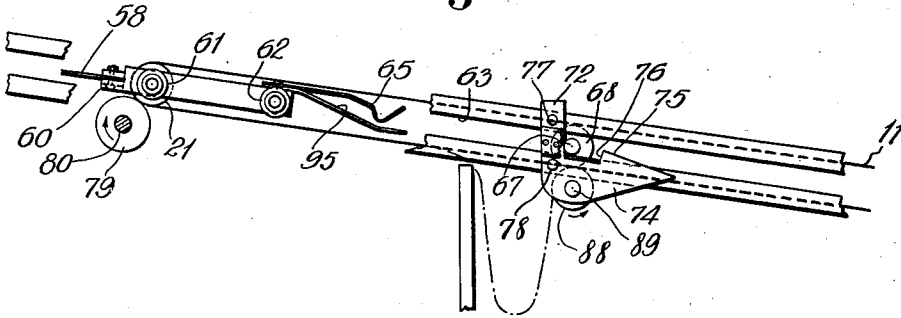


Fig. 7.

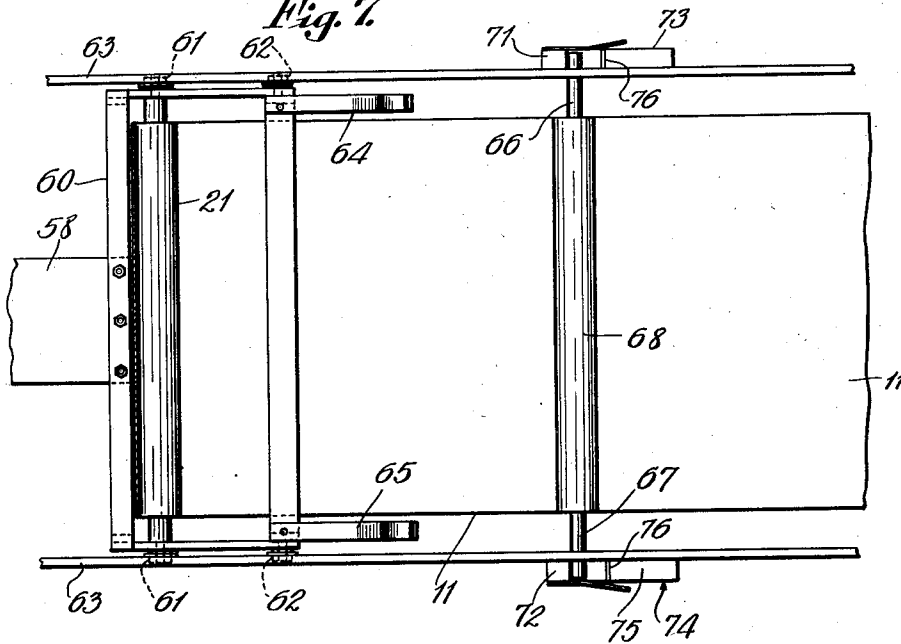
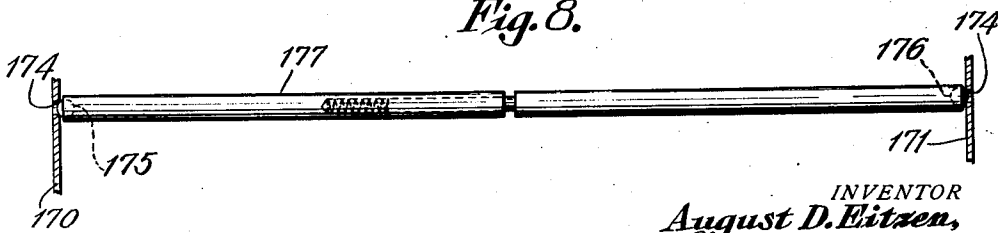


Fig. 8.



BY

INVENTOR
August D. Eitzen,
Gustav L. Drews
ATTORNEY

Feb. 6, 1940.

A. D. EITZEN

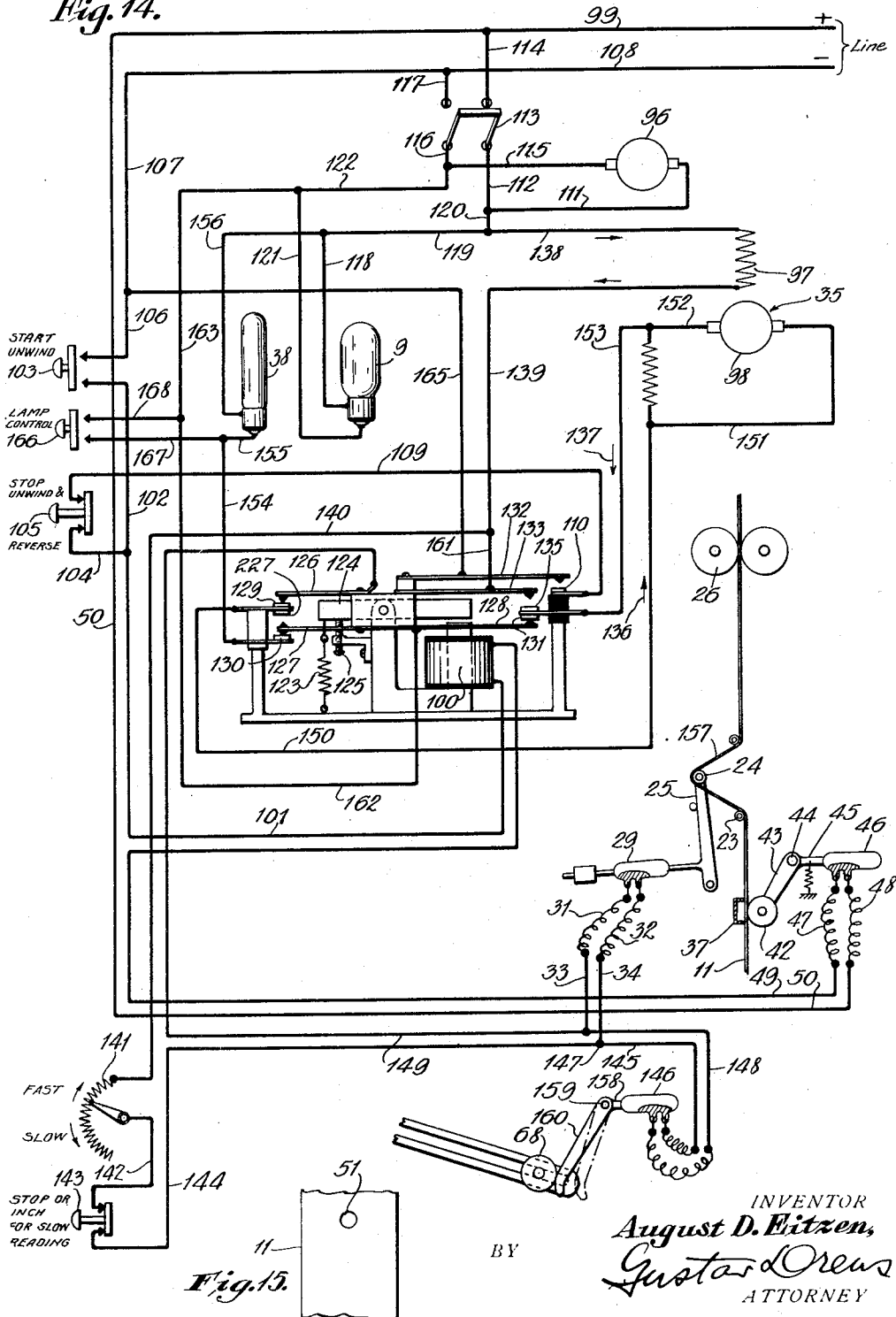
2,188,896

PAGE PRINTER

Filed May 1, 1937

6 Sheets-Sheet 6

Fig. 14.



UNITED STATES PATENT OFFICE

2,188,896

PAGE PRINTER

August D. Eitzen, Rockville Centre, N. Y., assignor to New Projection Corporation, New York, N. Y., a corporation of New York

Application May 1, 1937, Serial No. 140,195

10 Claims. (Cl. 88—24)

This invention relates to page printers in general and more particularly to combination page printers and projectors.

Among the objects of the present invention, it is aimed to provide an improved page printer and more particularly an improved combination page printer and projector by means of which two areas of the printed sheet may be inspected at the same time, as an instance an area of the printed matter as it is being printed and an area of the printed matter previously printed.

It is still another object of the present invention to provide an improved page printer having a tape feeding mechanism by means of which the tape feed may be reversed after it has been printed for a predetermined length of tape and then the advance feed resumed to read back the previously printed tape.

It is still another object of the present invention to provide an improved means for changing the advance and reverse feed of a 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 drawings in which

Figure 1 is a transverse section of a cabinet showing a side elevation of the main elements of the improved combination;

Fig. 2 is an enlarged fragmental side elevation showing a part of the auxiliary feed mechanism and temporary storage chamber for tape;

Fig. 3 is an enlarged fragmental front elevation of the mechanism shown in Fig. 2;

Fig. 4 is a fragmental side elevation still further enlarged of a part of the tape storing apparatus shown in Fig. 2;

Fig. 5 is a section on the line 5—5 of Fig. 4;

Fig. 6 is an enlarged fragmental detail showing another part of the auxiliary feed mechanism partly shown in Fig. 2;

Fig. 7 is a fragmental plan view of the detail shown in Fig. 6;

Fig. 8 is a side elevation of one of the rods used in the storage apparatus sectionally showing its support;

Figs. 9, 10, 11, 12 and 13 are diagrammatic views showing successive positions of the tape and parts of the auxiliary feed mechanism in the process of unwinding the tape preparatory to scanning previously printed matter;

Fig. 14 is a wire diagram including switches, lamps and the like connected with the control mechanism; and

Fig. 15 is a fragmentary elevation of a portion of the tape.

In the embodiment shown, there is illustrated a main cabinet 1 typical of the broad tape projectors today in use having a rear wall 2 and a front wall 3. The front wall 3 in the present instance is provided with an opening 4 to the inner borders of which there is secured a main projection screen 5. The cabinet 1 is preferably provided with another window and projection screen which in the present instance is also associated with the front wall 3, see the small opening 6 and auxiliary screen 7 in the present instance spaced from and positioned below the window 4.

Associated with the main screen 5, there is provided the lamp housing 8 having a lamp 9 and an optical system including a condensing lens 10, the outer face of which forms a light aperture across which a tape 11 is advanced so that the light rays from the lamp 9 may pass through the tape 11 and project an image impressed light beam onto the inclined reflector 12 by which such image impressed light beam is directed upwardly through the objective lens unit contained in the housing 13 and then passed to the inclined reflector 14 and by the reflector 14 deflected onto the rear face of the screen 5 to be legible from the outside thereof.

The tape 11 may be passed to the light aperture from any suitable tape advancing means, such as the intermittent feed of a broad tape ticker or by a continuous feed through the ticker or as a previously printed strip by a tape advancing roller.

In the present instance, there is shown a broad tape ticker 15 of the Dow-Jones type. The tape 11 whether coming from the ticker 15 as it is being printed or from a previously printed roll is generally initially mounted on a shaft 16 to constitute a supply reel. In normal tape feeding operation, the tape 11 after leaving the light aperture provided by the condensing lens 10 passes over the roller 20, then around the roller 21 and from the roller 21 contacts the roller 22 and then upwardly to the roller 23 and around the roller 24 at the end of the arm 25 and then around the tape advancing roller 26 and up onto the shaft 27 of the take-up reel.

The arm 25 is preferably pivoted at 28 as shown and provided with a mercury switch 29 and a weighted outwardly extending arm 30. The mercury switch 29 is connected by the leads 31 and 32 to the conductors 33 and 34 of the control wires hereinafter to be described.

The tape pulling roller 26 is drivingly con-

ected to the motor 35 and may either pull the tape as it is supplied to the take-up reel 27 when the motor 35 is rotated in one direction or pull the tape from the supply reel 27 when the motor 35 is rotated in the reverse direction.

In the ordinary operation of the machine when the tape is merely being advanced across the light aperture at the condenser 10 from the supply shaft 16 through the ticker to the take-up reel 27, the tape pulling roller 26 will of course be rotated by the motor 35 to pull the tape toward the take-up reel 27.

There will now be described and as constituting an important part of the present invention the mechanism for reversing the rotation of the motor 35 and tape advancing roller 26 to unwind the tape from the take-up reel 27 and subsequently rewind it and at the same time when rewinding it permit scanning or inspecting the tape previously printed either directly or through the projection mechanism here provided on the screen 7.

After the tape 11 leaves the roller 22 and before it engages the roller 23 in the present instance, it first passes across the light aperture formed by the glass plate 36 and then passes over the recess forming support 37. To one side of the glass plate 36, there is provided a source of light such as the lamp 38 with associated optical means to direct a beam of light through the lamp at the glass plate 36 so that the image impressed light beam will be received by the inclined reflector 39 by which it will be deflected upwardly through the objective lens unit contained in the casing 40 and from there passed to the inclined reflector 41 by which it will be deflected onto the rear face of the small screen 7 to form images to be read on the outer face thereof.

Opposite the aperture support 37, there is positioned the roller 42 formed at the end of the arm 43 pivoted at 44 and having connected thereto another arm 45 to which is connected the mercury switch 46 from which the leads 47 and 48 pass to the conductors 49 and 50 forming part of the control wires hereinafter to be described.

The roller 42 is urged to exercise a pressure against the tape 11 so that when it registers with an opening in the tape, such as the opening 51, it will be forced into the recess formed in the support 37 and rock the mercury switch 46 to interrupt the current passing through the conductors 49 and 50 in turn to effect the reversal of the motor 35 back to normal. This opening 51 is preferably formed at the very beginning of the tape at the beginning of a day's run. The reason for this position of the aperture 51 in the tape 11 is that after a length of tape 11 has been wound up on the take-up reel 27 at least long enough to have passed upwardly out of the light aperture formed at 36 and it is then desired to examine the tape so passed, it is only necessary to reverse the operation of the motor 35, whereupon the rotation of the tape puller 26 will be reversed to permit the tape 11 to be drawn down past the light aperture at 36 until the opening 51 in the tape 11 registers with the recess support 37 whereupon the switch 46 will be actuated to cause the motor 35 again to be reversed to normal operation, whereupon the tape puller 26 will again draw the tape back upwardly across the light aperture at 36.

When the tape is being drawn downwardly by the tape puller 26 in the act of unwinding the tape 11 from the reel 27, the devices now to be described will be actuated in the manner indi-

cated. The roller 21, see Fig. 9, will first move to the left due to the pull exercised thereon by the weight 251. The weight 251 is adjustably mounted on the rod 52 secured to the shaft 53 of the gear 54 in mesh with the gear 55 on the shaft 56 to which is fixed the drum 57 to which in turn is attached the flexible tape 58 preferably composed of canvas or the like which extends upwardly from the drum 57 to and around the idler 59 and then is connected to the carriage 60 in which is rotatably mounted the roller 21. The carriage 60 constituting a shuttle has secured at its ends the pairs of guide rollers 61 and 62 traveling in the slotted guideways 63.

Projecting rearwardly from the ends of the carriage 60 inside of the rollers 61 and 62, there are provided the spring fingers 64 and 65 which are adapted to frictionally grip and hold the diminished ends 66 and 67 of the roller 68 in the position shown in Fig. 9, when as an instance the tape 11 is being drawn across the light apertures at 10 and 36 by the tape puller 26.

When as an instance, it is desired to unwind the tape 11 it is first necessary to reverse the motor 35 to cause the tape puller 26 to draw the tape 11 downwardly from the take-up reel 27, thereupon, the loop controlling the finger 24 is in position or remains in position to maintain the switch 29 in circuit making position and permit the formation of sufficient slack in the tape 11 so that the weight 251 will come into operation moving down in the direction of the arrow 69 of Fig. 10, thereby actuating the drum 57 to take up the tape 58 and draw the roller 21 in the direction of the arrows 70 of Fig. 10. The shuttle 60 in this movement will carry the roller 68 with it until it strikes the arms 71 and 72 of the brackets 73 and 74 respectively. These brackets have the upwardly inclining projections 75, see Fig. 6 having shoulders 76 to the front thereof for cooperation with the projections 71 and 72 to position the roller 68.

The brackets 73 and 74 are preferably secured to the guideways 63 by the pins 77 and 78. After the roller 68 is so positioned in the brackets 73 and 74, the shuttle 60 will continue in the direction of the arrows 70 until the roller 21 passes the tape 11 into driving engagement with the drive roller 79 on the shaft 80 and to which is connected a beveled gear 81 in mesh with the beveled gear 82 at the end of the shaft 83 extending upwardly into driving engagement with the shaft of the tape pulling roller 26.

As soon as the roller 21 presses the tape 11 into frictional driving engagement with the driven roller 79, at such time rotated in the direction of arrow 84 of Fig. 10, the tape 11 will be draped down into the storage space 85 formed between the partitions 86 and 87, Fig. 4, and due to the fact that the roller 68 is pressing the tape 11 into advancing engagement with the driven roller 88, the tape being advanced if at all by the ticker 15, will be draped down into the storage space 85 to the rear of the partition 87.

The roller 88, see Figs. 1 and 9 to 13 is fixed on the shaft 89 which is drivingly connected to the shaft 90 and in turn drivingly connected to the shaft 91 of the blower in the housing 92. The blower shaft 91 is constantly rotated in the same direction to impart a constant rotation in the direction of the arrow 93 in Fig. 10.

When as heretofore noted, however, the opening 51 registers with the roller 42, the switch 46 will be rocked to cause the motor 35 to be reversed into normal rotation thereby reversing, not only the rotation of the tape pulling roller 26 but

also the roller 70 so that the latter will then be rotated in the direction of the arrow 94 of Fig. 9 to withdraw the tape 11 out of the storage space 85.

When all of the tape 11 draped into the storage space 85 has been taken up, the continued rotation of the tape puller 26 will then exercise a pull through the tape 11 on the shuttle 60 to return it to the normal position shown in Fig. 9. On its return, the cams 95, Fig. 6, of the spring fingers 64 and 65 will engage the diminished ends 66 and 67 of the roller 68 and first raise it above the shoulder 76 and then carry it back with the shuttle 60 to the position shown in Fig. 9.

The writing diagram of Fig. 14 may now be described to advantage. The rotor 96 represents the motive force of the blower in the housing 92. The field 97 and armature 98 represent parts of the motor 35.

The main lead 99 is connected to the conductor 50 which is connected by the conductor 48 with the switch 46 which in turn is connected by the conductor 47 with the conductor 49 which is connected to the windings of the electromagnet 100 which is in turn connected by the conductor 101 to the conductor 102 of the reversing button 103 and by the conductor 104 to the restoring button 105.

The reversing button 103 is connected by the conductor 106 to the conductor 107 which is connected to the return main lead 108. The restoring button 105 on the other hand is connected by the conductor 109 to the contact 110 of the relay associated with the electromagnet 100.

The current for the blower motor 96 and for the lamp 9 will be constantly established during the operation of the machine, one side of the motor 96 being connected by the conductors 111 and 112 to the switch 113 which is in turn connected to the main lead 99 by the conductor 114, the other side of said motor 96 being in turn connected by the conductors 115 and 116 to the switch 113 which is connected to the return lead 108 by the conductor 117.

The lamp 9 in turn is connected in the order named by the conductors 118, 119, 120 and 112, switch 113 and conductor 114 to the main lead 99, the lamp being also connected in the order named by the conductors 121, 122 and 116, switch 113 and conductor 117 to the return lead 108.

During normal operation, that is when the parts are positioned as shown in Fig. 9 and the tape 11 is normally being advanced upwardly past the light apertures 10 and 36, the spring 123 is free to maintain the arm 124 against the adjustable stop 125 with the switch arms 126, 127 and 128 engaging the contacts 129, 130 and 131 respectively and the switch arms 132 and 133 separated from their respective contacts 110 and 135.

In this position, the current will be passing from the main lead 99 through the armature 98 of the motor 35 in the direction of the full line arrows 136 and 137. As an instance, the current will then pass from the main lead 99 in the order named through the conductor 114, switch 113, conductors 112, 120 and 138, field 97, conductors 139 and 140, rheostat 141, conductor 142, control-button 143 and both to the conductor 145 and to the conductor 34. If the switch 29 is closed and switch 146 is open, the current will flow through the conductors 34 and 32, switch 29 and conductors 31 and 33 to the conductor 149. From conductor 149 and again in the order named, the current will pass by way of switch arm 126, contact 129, conductors 150 and 151,

armature 98, conductors 152 and 153, contact 131, switch arm 128, conductors 162, 163, 122, 116, switch 113 and conductor 117 back to the return lead 108.

From the foregoing, it will be seen that at this time, both lamps 9 and 38 for the two light apertures at 10 and 36 respectively will be illuminated and also that if the switch 146 is open, the current can be shut off and will be shut off when the loop 167 is dissipated to rock the arm 28 to open the switch 29.

During this normal operation, the switch 146 will be open, it being mounted on the arm 158 pivotally connected at 159 and having a finger 160 in position to be rocked into the dash and dot line position shown in Fig. 14 by the roller 68 when disposed in the position shown in Fig. 9.

When it is desired to read or examine the previously printed tape 11, it is only necessary first to press the button 163 when the electromagnet 100 will be energized to rock the arm 124 where its switch arms 127, 132 and 133 will engage the contacts 227, 110 and 135 respectively and the switch arms 126, 127 and 128 will be separated from their respective contacts 129, 130 and 131. In this position, the motor 35 will be reversed, current then flowing in the reverse direction to that shown by the arrows 136 and 137 and the lamp 38 will be normally extinguished. As an instance, the current can now be traced from the main lead 99 in the order named through conductor 114, switch 113, conductors 112, 120 and 138, field 97, conductors 139 and 161, switch arm 133, contact 135, conductors 153 and 152, armature 98, conductors 151 and 150, contact 129, switch arm 127, conductors 162, 163, 122 and 116, switch 113 and conductor 117 back to the return lead 108. At the same time, after releasing the button 163, the current will also continue to pass through the electromagnet 100 so long as the switch 46 is closed, although both the switches 146 and 29 will now be closed, due to the fact that the current is interrupted by separating the switch arm 126 from the contact 129.

The current to the electromagnet 100 can now be traced from the main lead 99 in the order named through conductors 50 and 48, switch 46, conductors 47 and 49, electromagnet 100, conductors 101 and 104, button 105, conductor 109, contact 110, switch arms 132 and conductors 165 and 107 back to the return lead 108.

In this setting, the lamp 38 will be normally extinguished but may be illuminated by pressing button 166 when the current will be established from the conductor 155 connected to the lamp 38 in the order named through conductor 167, button 166 and conductor 168 to the conductor 163 which is connected to the return lead 108 by conductors 122 and 116, switch 113 and conductor 117 and which lamp 38 in this setting will be connected to the main lead 99 by the conductors 156, 119, 120, and 112, switch 113 and conductor 114. This abnormal illumination of the lamp 38 may be desired should a trader wish to watch the tape unwinding so that he may stop it before it entirely unwinds should he so desire. On the other hand, if it is permitted entirely to unwind the tape, then the arm 43 is relied upon automatically to start the rewinding operation. In other words, when the beginning of the tape 11 has been reached so that the opening 51 registers with the roller 42, the switch 46 will be rocked to interrupt the current thereby de-energizing the electromagnet 100 to enable the spring 123 again to actuate the switch arms to the position

shown in Fig. 14 when the current of the motor 35 will be restored to its normal flow, that indicated by the arrows 136 and 137 and the tape puller 26 will again pull the tape upward.

Should the rewinding be allowed to run its natural course, when all of the tape in the storage space 85 as well as to the rear of the partition 87 has been taken up, the continued pull on the tape 11 by the puller 26 will draw the shuttle 60 rearward, first to pick up the roller 68 and finally to press the roller 68 against the arm 160 to interrupt the current and arrest the actuation of the tape puller 26, unless the switch 29 is still closed so that the tape puller will now be again controlled entirely by the formation and dissipation of the loop 157.

Should the trader wish to retard the rewinding action aforesaid, he can do so by regulating the rheostat 141 in the usual way. On the other hand, should he wish to effect the rewinding of the tape 11 in an intermittent feed, he can do so by operating the button 143.

As shown in Figs. 12 and 13, the feed transmitted by the rollers 68 and 88 is permitted to take up the tape 11 during an unwinding action, should the ticker 15 be supplying tape during this period thus insuring the advance of the tape 11 so supplied across the light aperture at 10.

The mechanism now to be described relates to festooning the tape 11 in the storage space 85. Here there are two large discs 170 and 171 mounted on aligned shafts 172 and 173 respectively. The opposing faces of the discs 170 and 171 are provided with spiral rows of aligned round holes 174 to receive the spring pressed heads 175 and 176 protruding from the ends of the composite rods 177. Adjacent the inner faces and to the rear of the partition 86, there are provided a plurality of pairs of spring fingers 178 extending rearwardly and in the direction of the arcuate path of travel of the recesses 174, one set of pairs of spring fingers 178 for each pair of holes 174; and to the front of the partition 87 and extending upwardly, there are provided a plurality of pairs of spring fingers 179 also extending in the direction of the arcuate path of travel of the holes 174, one set of pairs of spring fingers 179 for each pair of holes 174.

Initially the rods 177 are positioned in the aligned pairs of spring fingers 178, one rod for each aligned set of pairs of spring fingers 178. These rods 177 are successively transferred from the fingers 178 to the fingers 179, the timing of the transfer being predetermined to correspond to the feed of a loop or festoon of tape 11 into the storage space 85. In Fig. 4, one festoon has been formed by the uppermost rod 177 and the second festoon is in the process of being formed by the next topmost rod 177.

The number of rods 177 and cooperating parts will of course depend upon the length of tape that is expected to be festooned or stored in the storage space 85. Preferably the discs 170 and 171 will be intermittently actuated, a Geneva drive being here provided, see the Geneva gear 180 mounted on the shaft 181 to which is fixed the gear 182 in mesh with the gear 183 on the shaft 184 on which is also fixed the gear 185 in mesh with the gear 186 on the shaft 173. On the shaft 173, there is also fixed the sprocket gear 187 connected by the sprocket chain 188 to the sprocket gear on the shaft 189 mounted in bearings extending to the front of the partition 86, on the other end of which shaft 189 there being secured another sprocket gear 190 connected by the

sprocket chain 191 with the sprocket gear on the shaft 172 in order simultaneously to transmit the same rotative motion to the discs 170 and 171.

The Geneva gear 180 is positioned to be engaged by the pin or tooth 192 extending from the hub 193 fixed to the shaft 194 of the gear 195 which is in mesh with the gear 196 on the shaft 80 of the roller 79.

From the foregoing, it will of course appear that as the rotation of the roller 79 is reversed with the reversal of the motor 35, the intermittent rotation of the discs 170 and 171 will likewise be reversed.

It will also be noted that at least one of the discs, as an instance the disc 170, is provided with a spur 198 for cooperating with the latch formed by the pivotally mounted lever 199 having two downwardly extending supports for the rollers 200 and 201. The lever 199 is pivoted at 202 and is limited in its movement by the two stops 203 and 204. In addition, the rear end of the lever is provided with a stop shoulder 205 to engage the shoulder 206 of the spur 198 and arrest the movement of the discs 170 and 171 when rotating in a direction opposite to that of the full line arrow 207 of Fig. 4. The front end of the lever 199 is provided with a projection 208 to cooperate with the roller 209 on the lever 210 which is urged into cooperative engagement with the projection 208 by the spring 211.

In other words, this latch will enable the spur 198 to pass the lever 199 when the discs are operating in the direction of the full line arrow 207 but obstruct its return movement when the discs 170 and 171 are rotating in the direction of the dotted line arrow 212.

In order to facilitate festooning the tape in the storage chamber 85, the lower end of the chamber 85 is provided with a suction pipe 213 which is connected with the blower 92. As the air is sucked out of the chamber 85, it is preferably directed through the lamp housing 8 to facilitate ventilating the same.

For this purpose, the blower 92 and lamp housing 8 are connected with the discharge conduit 214.

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. A projector including a main screen, an auxiliary screen, two light apertures, a reversible tape drawing means for successively drawing the tape across said light apertures, means including a source of light, lenses and mirrors, one for directing light beams through the tape at one of said light apertures and onto said main screen and the other for directing light beams through the tape at the other of said light beams and onto said auxiliary screen, a device operatively connected to said tape drawing means for reversing said tape drawing means, guides for guiding the tape so reversed across the light aperture for said auxiliary screen only, and auxiliary feeding means normally inoperative drivingly engaging the tape between said light apertures for supplementing said tape drawing means to continue advancing the tape across the light apertures for said main screen when said reversing device is operated.

2. The combination of two vertically extending tape inspection areas, reversible tape drawing means for successively drawing a tape upwardly

across said inspection areas, means operatively associated with said tape drawing means for reversing said tape drawing means to feed the tape downwardly across the upper of said inspection areas only, and supplemental tape drawing means engaging the tape between said inspection areas and operatively associated with said reversing means for intercepting the tape between said inspection areas and solely drawing the tape upwardly across the lower of said inspection areas only when said reversing means becomes effective.

3. The combination of two tape inspection areas, tape drawing means at the far end of the second of said areas for successively drawing the tape across said areas, a reversible motor operatively connected to said tape drawing means for actuating said drawing means, means including the electric circuit for said motor and an electric switch included in said circuit for reversing said motor and thereby for reversing said tape drawing means to feed the tape in the reverse direction across the second of said areas only, and supplemental tape drawing means engaging the tape between said inspection areas and operatively associated with said motor for intercepting the tape between said inspection areas and drawing it across both of said areas in opposite directions to one another in the reverse direction across said second area and in the normal advancing direction across said first area.

4. The combination of two tape inspection areas, tape drawing means at the far end of the second of said areas drivingly engaging the tape for successively drawing the tape across said areas, a reversible motor operatively connected to said tape drawing means for actuating said drawing means, means including the electric circuit for said motor and an electric switch operatively associated with said circuit for reversing said motor and thereby for reversing said tape drawing means to feed the tape in the reverse direction across the second of said areas, and supplemental tape operative upon the reversal of the motor drawing means including a roller engaging the tape between said inspection areas and operatively associated with said motor for intercepting the tape between said inspection areas and drawing it across both of said areas in opposite directions to one another, in the reverse direction across said second area and in the normal advancing direction across said first area.

5. The combination of two tape inspection areas, tape drawing means at the far end of the second of said areas drivingly engaging the tape at such far end for successively drawing the tape across said areas, a reversible motor operatively connected to said drawing means for actuating said drawing means, means including the electric circuit for said motor and an electric switch operatively associated with said circuit for reversing the direction of the current and therefore the direction of rotation of said motor and thereby for reversing said tape drawing means to feed the tape in the reverse direction across the second of said areas, and a pair of rollers upon the reversing of the motor in engagement with said tape intermediate said inspection areas and operatively associated with said motor for intercepting the tape between said inspection areas, one roller for drawing the tape in the reverse direction across said second area and the other roller for drawing the tape in the normal advancing direction across said first area.

6. The combination of two inspection areas, tape drawing means at the far end of the second

of said areas drivingly engaging the tape at such far end for successively drawing the tape across said areas, a reversible motor operatively connected to said drawing means for actuating said drawing means, means including the electric circuit for said motor and an electric switch operatively associated with said circuit for reversing the direction of the current and therefore the direction of rotation of said motor and thereby for reversing said tape drawing means to feed the tape in the reverse direction across the second of said areas, a pair of rollers upon the reversing of the motor in engagement with said tape intermediate said inspection areas and operatively associated with said motor for intercepting the tape between said inspection areas, one roller for drawing the tape in the reverse direction across said second area and the other roller for drawing the tape in the normal advancing direction across said first area, a storage chamber, and festooning mechanism operatively associated with the first of said rollers for successively draping the tape in loops in said storage chamber as the same is being reversibly fed.

7. The combination of two inspection areas, tape drawing means at the far end of the second of said areas drivingly engaging the tape at such far end for successively drawing the tape across said areas, a reversible motor operatively connected to said drawing means for actuating said drawing means, means including the electric circuit for said motor and an electric switch operatively associated with said circuit for reversing the direction of the current and therefore the direction of rotation of said motor and thereby for reversing said tape drawing means to feed the tape in the reverse direction across the second of said areas, a pair of rollers upon the reversing of the motor in engagement with said tape intermediate said inspection areas and operatively associated with said motor for intercepting the tape between said inspection areas, one roller for drawing the tape in the reverse direction across said second area and the other roller for drawing the tape in the normal advancing direction across said first area, a storage chamber, festooning rods, two brackets, one for supporting said rods in idle position and the other for supporting said rods when supporting loops of the tape, and a rotatable mechanism operatively associated with the first of said rollers successively to actuate said rods, successively to drape the tape in loops over successive rods in said storage chamber as the tape is being reversibly fed.

8. The combination of two inspection areas, tape drawing means at the far end of the second of said areas drivingly engaging the tape at such far end for successively drawing the tape across said areas, a reversible motor operatively connected to said drawing means for actuating said drawing means, means including the electric circuit for said motor and an electric switch operatively associated with said circuit for reversing the direction of the current and therefore the direction of rotation of said motor and thereby for reversing said tape drawing means to feed the tape in the reverse direction across the second of said areas, a pair of rollers upon the reversing of the motor in engagement with said tape intermediate said inspection areas and operatively associated with said motor for intercepting the tape between said inspection areas, one roller for drawing the tape in the reverse direction across said second area and the other roller for drawing the tape in the normal advancing direction across

said first area, a storage chamber, festooning rods, two brackets, one for supporting said rods in idle position and the other for supporting said rods when supporting loops of the tape, a rotatable mechanism operatively associated with the first of said rollers successively to actuate said rods, successively to drape the tape in loops over successive rods in said storage chamber as the tape is being reversibly fed, and means including a second switch for again reversing said motor into the normal tape advancing movement simultaneously to reverse the direction of rotation of said rotatable mechanism successively to return said rods to normal position and thereby to release the tape to be freely re-advanced across said second area.

9. The combination of a tape inspection area, a tape, means for marking said tape, a reversible tape feeding means for normally feeding said tape across said inspection area as it is being marked, a reversible motor operatively connected to said feeding means, means including two main electric circuits operatively connected to said motor, a movable control switch operably connected to said two main circuits and movable to establish an electric circuit in one or the other circuit in turn to effect the normal rotation of said motor when establishing one circuit and to effect the

reverse rotation of said motor when establishing the other circuit, and a manually operated switch including an electric circuit and a magnet operatively associated with said control switch to actuate said control switch to interrupt said first main circuit and establish said second main circuit.

10. The combination of a tape inspection area, a tape, means for marking said tape, a reversible tape feeding means for normally feeding said tape across said inspection area as it is being marked, a reversible motor operatively connected to said feeding means, means including two main electric circuits operatively connected to said motor, a movable control switch operably connected to said two main circuits and movable to establish an electric circuit in one or the other circuit in turn to effect the normal rotation of said motor when establishing one circuit and to effect the reverse rotation of said motor when establishing the other circuit, said tape having an opening, and a movable switch including an electric circuit, and a magnet operatively associated with said switch, said movable switch being in engagement with the tape and yieldable to be actuated when registering with said opening to actuate said control switch to interrupt said first main circuit and establish said second main circuit.

AUGUST D. EITZEN.

• CERTIFICATE OF CORRECTION.

Patent No. 2,188,896.

February 6, 1940.

AUGUST D. EITZEN.

It is hereby certified that the name of the assignee in the above numbered patent was erroneously described and specified as "New Projection Corporation" whereas said name should have been described and specified as News Projection Corporation, of New York, N. Y., a corporation of New York, as shown by the record of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of March, A. D. 1940.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.