

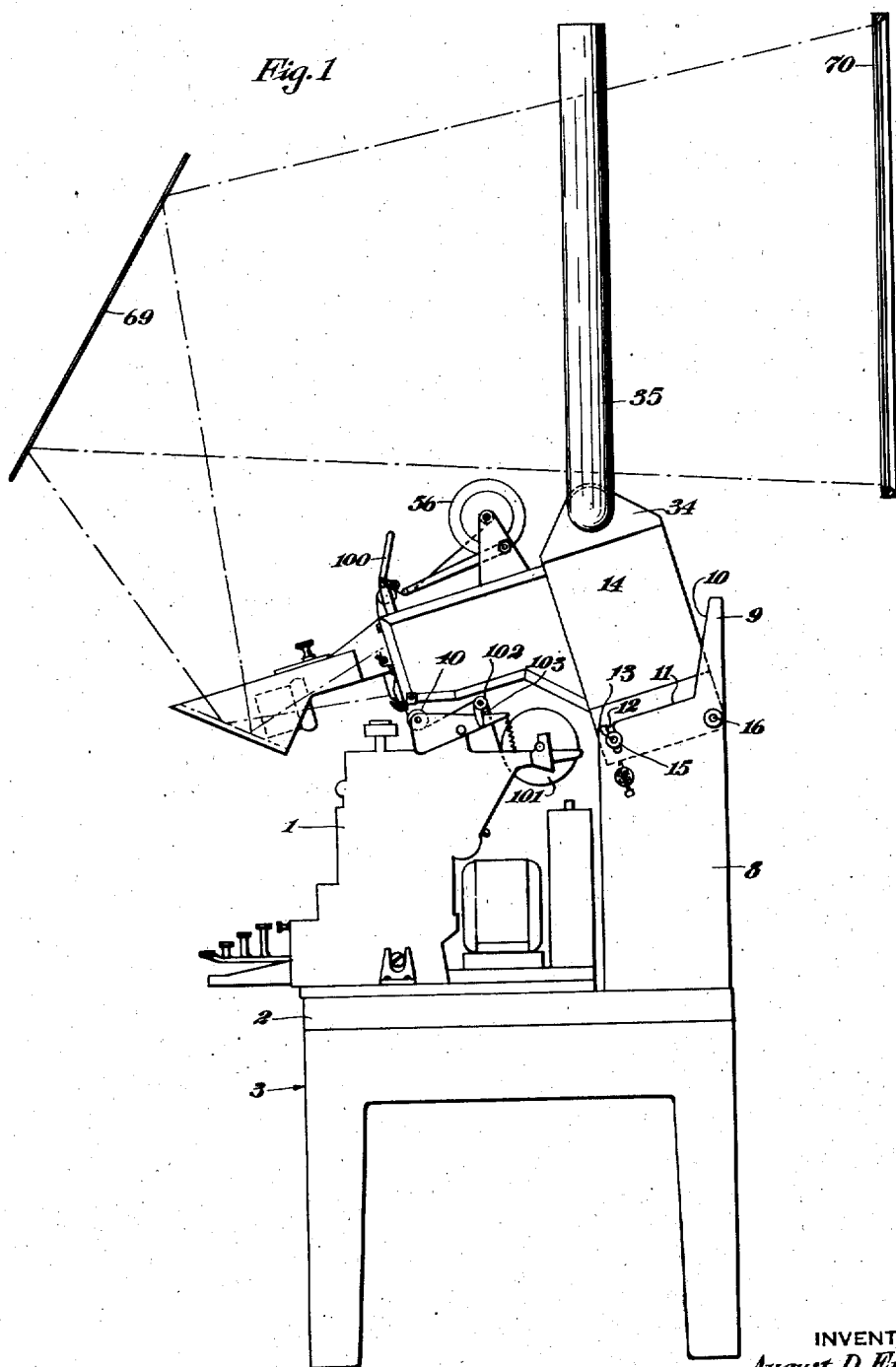
Feb. 15, 1938.

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2,108,053

BROAD TAPE PROJECTOR

Original Filed Oct. 15, 1930 4 Sheets-Sheet 1



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BROAD TAPE PROJECTOR

Original Filed Oct. 15, 1930 4 Sheets-Sheet 2

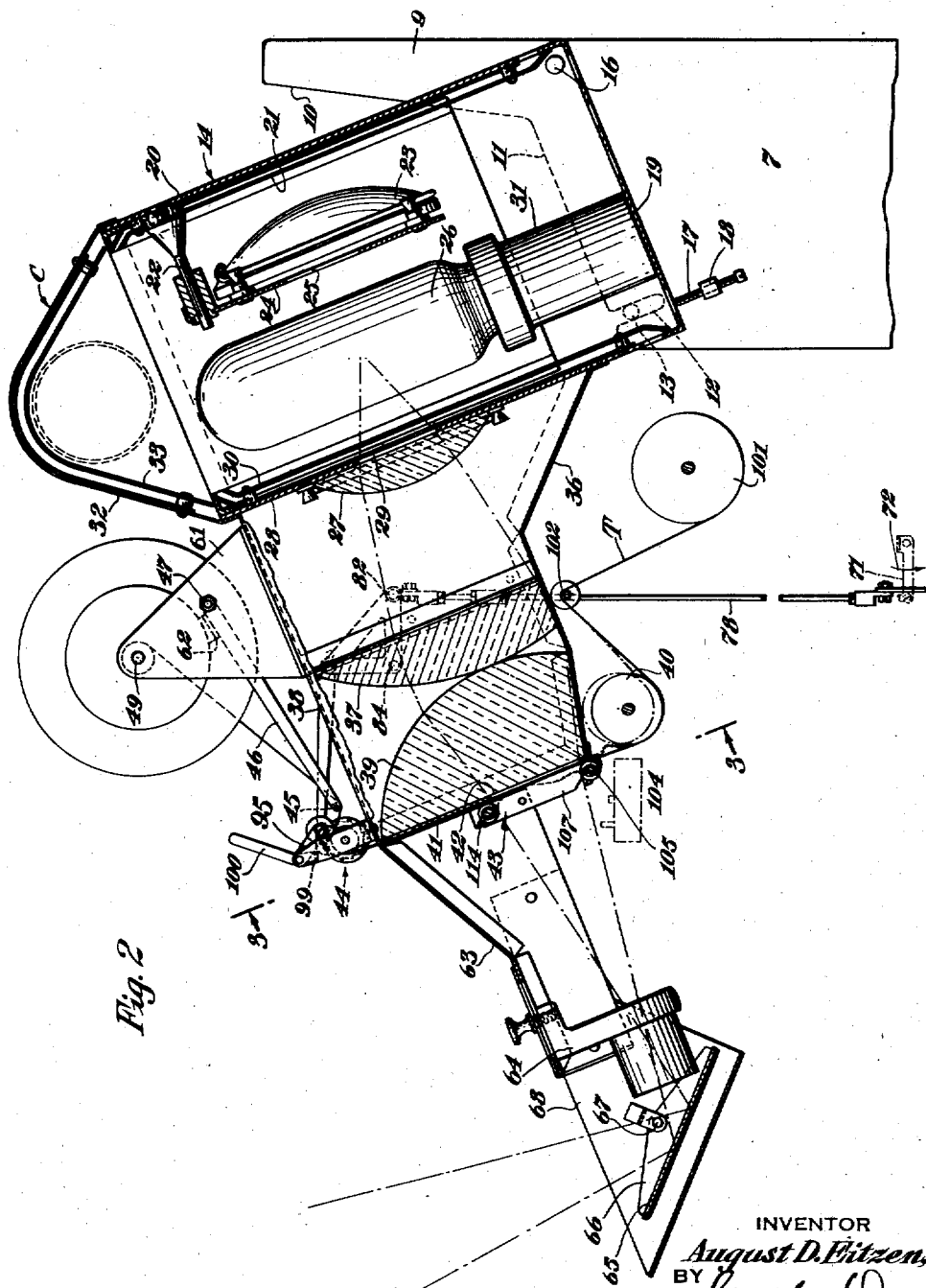


Fig. 2

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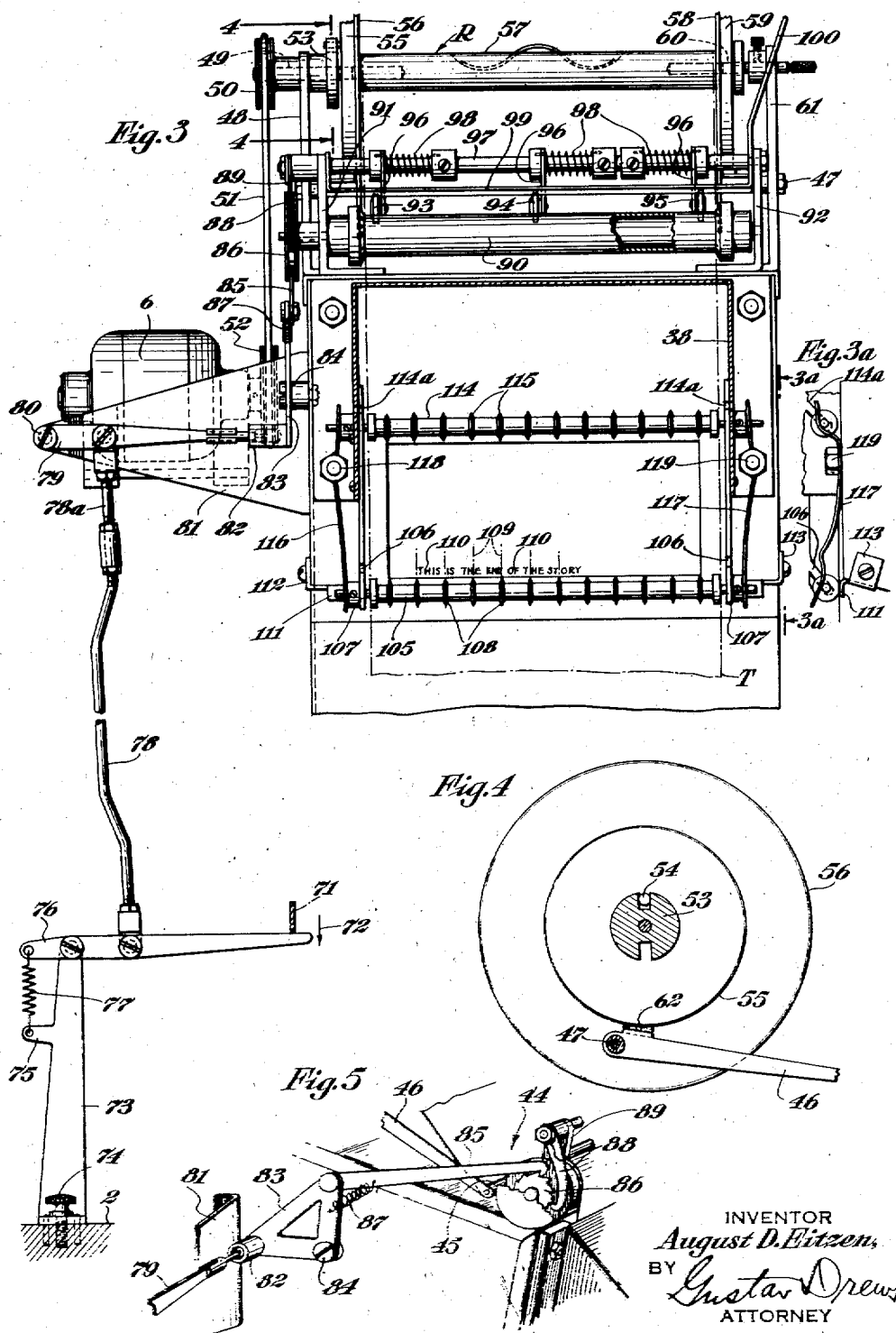
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BROAD TAPE PROJECTOR

Original Filed Oct. 15, 1930

4 Sheets-Sheet 3



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BROAD TAPE PROJECTOR

Original Filed Oct. 15, 1930 4 Sheets-Sheet 4

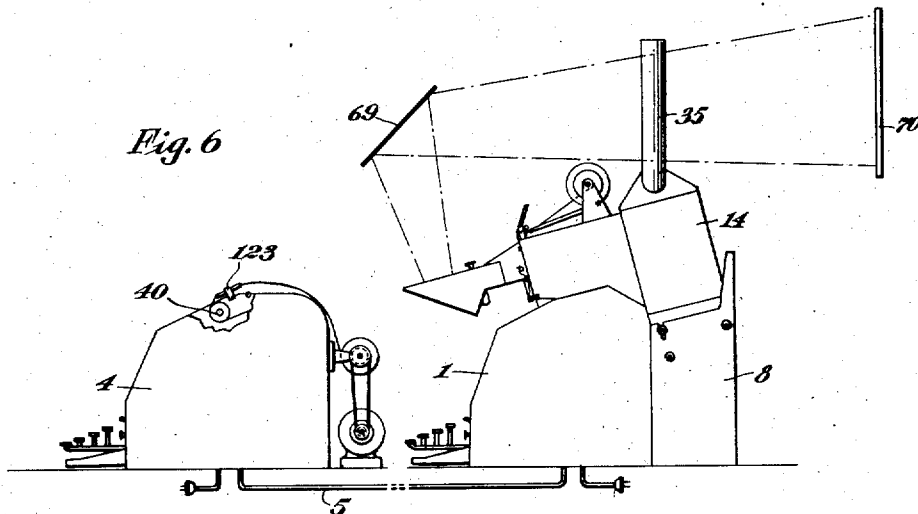


Fig. 7a



Fig. 7b

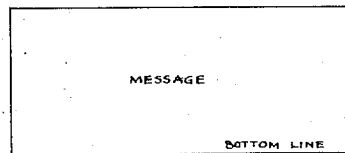


Fig. 8

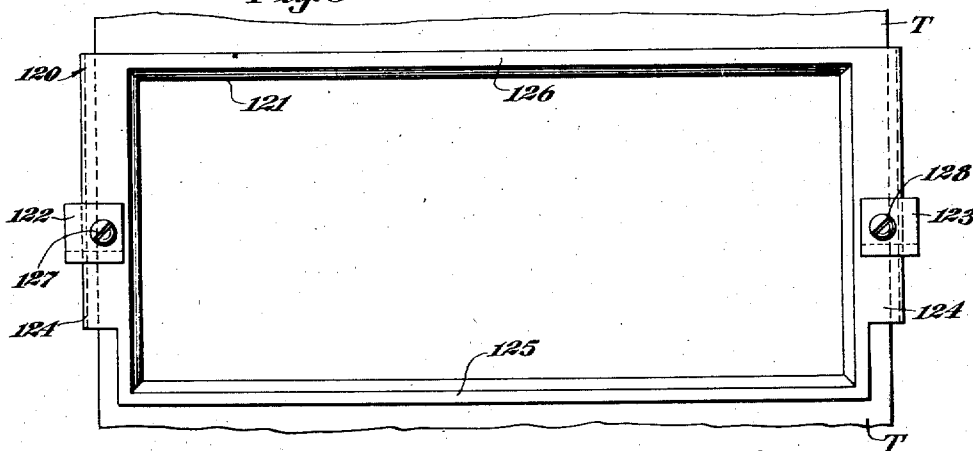


Fig. 9

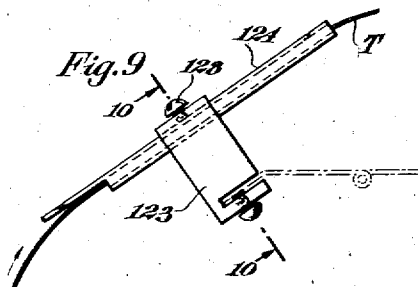
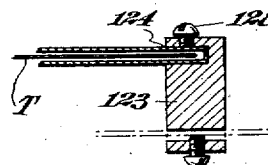


Fig. 10



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2,108,053

BROAD TAPE PROJECTOR

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Application October 15, 1930, Serial No. 488,724
Renewed October 10, 1936

41 Claims. (Cl. 88—24)

This invention relates to broad tape projectors in general and more especially to broad tape projectors including an electric typewriter such as a teletype.

Among the objects of the present invention, it is aimed to provide an improved broad tape projector in which the printing is formed transversely of the tape and in which the tape is fed or advanced a line space at a time instead of a character space at a time as is the case with the narrow tape projectors.

It is still another object of the present invention to provide an improved broad tape projector, including an electric typewriter such as a teletype or the like, in which the tape or paper platen is transversely movable or shiftable to facilitate the impression of upper and lower case type.

It is still another object of the present invention to provide an improved broad tape projector, including an electric typewriter such as a teletype or the like, in which the paper or tape platen is shiftable transversely to receive upper case type impressions and in which the tape at the light aperture is anchored during such shifting action, and only movable when the tape is advanced or fed a line space at a time.

It is still another object of the present invention to provide an improved broad tape projector, including an electric typewriter such as a teletype or the like, in which the type basket is movable longitudinally of the platen and the platen of the tape or paper platen remains stationary during the printing action and the platen is movable transversely when the paper or tape receives upper case type impressions while the tape at the light aperture is anchored against movement at all times, except when the same is fed a line space at a time, simultaneously with the line space feeding of the electric typewriter.

It is still another object of the present invention to provide an improved broad tape projector, including a printing mechanism such as a teletype, in which the paper is fed a line space at a time and in which tape drawing means are provided for drawing the tape through the light aperture a line space at a time, simultaneously with the line space movement of the printing mechanism but at a little faster rate of speed so as to compensate for the tension of the tape and thus retain the tape taut and smooth in the projecting position both during the period of movement and the period of rest.

The present invention also aims to provide an improved broad tape projecting machine in which the beam of light from the light aperture is di-

rected to the screen across the lamp housing and in which means are provided for eliminating the heat waves transmitted to the air above the lamp housing in the path of movement of the light beam.

The present invention also aims to provide an improved broad tape projector including an electric typewriter such as a teletype or the like used as the transmitter and a tape receiving gauge or guide whereby the transmitter may at all times be apprised of the location of the projected matter on the screen.

The present invention still further aims to provide an improved broad tape projector including a printer having a platen at the upper end thereof from which the tape passes after printing and a projecting mechanism extending across the printer having a light aperture adjacent to said platen and having a focal axis inclined to said platen to facilitate locating the light aperture adjacent to the platen.

It is still another object of the present invention to provide an improved broad tape projector including a printer having a tape discharge at its upper end and a projecting mechanism pivotally mounted relative to said printer to extend across the same in a projecting position and to be raised out of the way of the printer to afford access to such printer.

Specifically, it is also an object of the present invention to provide an improved tape drawing means associated with an electric typewriter such as a teletype or the like for drawing tape a line space at a time through a light aperture in synchronism with the tape feed of the electric typewriter.

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 an end elevation of a projecting machine made according to the present invention;

Fig. 2 is an enlarged longitudinal section of the mechanism supporting the projecting lamp, optical system and the like;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 3a is a fragmental detail on the line 3a—3a of Fig. 3;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 is a fragmental perspective of the escapement for the tape drawing means;

Fig. 6 is a diagrammatic end elevation showing a transmitter as associated in the present invention;

Fig. 7a is a plan view of the portion of tape projected in the guide on the transmitter;

Fig. 7b is a plan view of the portion of the screen showing the projected area corresponding to the area of the tape portion shown in Fig. 7a;

Fig. 8 is an enlarged plan view of the gauge formed on the transmitter and showing the tape exposed therein;

Fig. 9 is an end elevation of the guide shown in Fig. 8 and

Fig. 10 is a section on the line 10—10 of Fig. 9. In the embodiment shown, there is provided an electric typewriter, such as the teletype 1, mounted on the platform 2 of the table 3. The typewriter 1 illustrated in Fig. 1 may be either the receiver or the transmitter. In Fig. 6 the typewriter 1 is the receiver and the typewriter 4 is the transmitter which are connected to one another by any suitable wiring 5.

At the rear of typewriter 1 shown in Fig. 1, there are provided in the present instance two supporting side walls 7 and 8 which have rear upwardly extending arms 9 having front inclined faces 10 continuing into the upper inclined faces 11 of the side walls 7 and 8. The front upper ends of the side walls 7 and 8 are recessed at 12 to receive the pins 13 formed at the front lower end of the lamp housing 14 and provided with thumbscrews 15 for anchoring the lamp housing to the side walls 7 and 8 when the lamp housing is in its downwardly inclined position as indicated in Figs. 1 and 2. The sides of the rear lower end of the lamp housing 14 are pivotally connected to the side walls 7 and 8 adjacent to the rear edges of the side walls 7 and 8 by the pins 16. When access to the typewriter 1 is desired, it is only necessary to loosen the thumbscrews 15 and swing the lamp housing 14 around its pins 16 until the pins 13 engage the faces 10 of the arms 9.

In order to adjust the position of the lamp housing 14 at the inclination desired, the set screw 17 is provided journaled in the bearing 18 connected to the side wall 7. The free upper end of the set screw 17 thus supports the lamp housing 14 in its downwardly inclined position, it engaging the front end of the lower wall 19 of the lamp housing 14 as shown in Figs. 1 and 2. It may be desired to have another set screw, such as the set screw 17 attached to the side wall 8 to engage the other side of the front end of the bottom wall of the lamp housing 14.

The rear wall 20 of the lamp housing 14 is provided with the usual heat deflecting baffle plate 21 and a supporting arm 22 for the reflector 23. The reflector 23 is provided with a fixed plate 24 at its front end provided with an aperture 25 to permit the beam of light from the lamp 26 to pass to the reflector 23 and be reflected outwardly onto the condenser lens 27 on the front wall 28 of the lamp housing 14, the beam of light from the reflector 23 and lamp 26 passing through the aperture 29 of the wall 28 to the condenser 27. The front wall 28 of the lamp housing is similarly provided with a heat deflecting baffle plate 30 which is recessed to permit the light rays from the lamp 26 and reflector 23 to pass therefrom to the condenser 27. Lamp 26 as shown in Fig. 2 is mounted in the socket 31 formed near the front end of the wall 19. The wall 19 as shown in Fig. 1 is perforated to permit the air from the outside to enter the lamp housing. The upper end of the lamp housing 14 is provided with an inverted V-shaped cover member 32 also provided with a heat deflecting baffle plate 33.

The end wall 34 of the cover C is provided with a chimney extension 35 so that the heated air at the top of the housing under the cover C may be quickly and rapidly drawn out therefrom by the chimney 35 to prevent formation of heat waves above the lamp housing 14.

The front wall 28 is provided with an extension housing 36 having at its upper end a second or intermediate condenser or lens 37 to receive the light rays from the condenser lens 27. The lower end of the condenser 37 is cut off as shown substantially along the lower edge of the column of light rays coming from the condenser 27 whereby clearance is formed for the path of the tape without affecting the operation of the condenser 37. To the front of the condenser 37, there is formed a second extension 38, at the front end of which there is secured the third condenser lens 39 extending toward the condenser lens 37 and having its lower end cut off substantially along the line of the lower edge of the column of light rays as they are refracted by the condenser 39 so that no useful part of the lens is cut off and the extension 38 may be cut off further to clear the path of the tape T and in the present instance also the path of movement of the typewriter platen 40 mounted in the usual way at the upper end of the typewriter 1. The front end of the extension 38 is provided with a light baffle shield 41 having a light aperture 42 corresponding to the portion of the cone of light at the exit end of the lens 39 to conform to the light beam passing through said lens 39.

At the outer end of this shield, there is provided a tape guide 43 to receive the tape from the platen 40 to permit its passage up above the upper edge of the extension 38 to the tape pulling mechanism 44 and from there under the roller 45 at the ends of the arms 46 pivotally connected at 47 on the supporting brackets 48 and 49. On the bracket 48, there is journaled a shaft 49 which is provided with a sheave 50 to receive the spring belt 51 connecting the sheave 50 with the sheave 52 on the motor shaft of the motor 6. The shaft 49 is preferably provided with a hub 53 to receive the pin 54 on the brakedrum 55 of the disc 56 of the reel R having a mandrel 57. The other end of the mandrel 57 is provided with a disc 58 and brakedrum 59 to receive the bearing pin 60 extending through the bracket 61 similar to the bracket 48 and also mounted on the upper wall of the extension 36. The brakedrums 55 and 59 in the present instance are in position to be engaged by the brakeshoes 62 formed on the arms 46. The shoes 62 are frictionally pressed into engagement with the drums 55 and 59 to anchor the mandrel 57 against rotation when the finger 45 is raised by the taking up of the slack in the tape when the tape comes to rest.

Connected to the front upper end of the extension 38, there is formed an arm 63 to the front end of which there is formed an objective lens holder 64 for carrying an objective lens through which the light beam passes from the condenser 39 to the mirror 65 supported on the bracket 66 pivotally mounted at 67 in the extension 68. From the mirror or deflector 65 the light rays and images are directed upwardly onto the mirror or deflector 69, see Fig. 1 from which the projected beam of light is projected onto the rear face of the screen 70.

From the foregoing, it will be seen that the beam of projected light passes across the lamp housing 14 when passing from the mirror 69 to

the screen 70. The ventilating means, to wit the chimney extension 35 in the present instance for withdrawing the heated air from the top of the lamp housing 14 and directing it to one side of the path of movement of the projected light rays, preserves the air in the path of movement of the projected light rays in a normal condition of rest as distinguished from the wavering condition resulting when the air is subjected to unusual heat such as would be transmitted by the lamp housing if the heat were not drawn off. This provision is particularly important since such resulting heat waves affecting the atmosphere through which the projected light rays pass will cause the resulting light rays to have transmitted to them the same wavering, vibrating condition in turn to cause the projected images to flicker or vibrate on the screen.

The means for drawing the tape through the light aperture in synchronism with the tape feeding of the typewriter is an important part of the present invention and will now be described.

The electric typewriter 1 in the present instance is of the type well known in which the basket of type moves longitudinally of the platen 40 during the printing action and the platen 40 remains at rest throughout this printing action except when it is desired to impress an upper case type. In other words, the type bars are each provided with two sets of type which for convenience may be designated as lower and upper case type. When the platen is in its normal position, it is in a position to receive an impression from the lower case type. In order to effect printing with an upper case type, the platen in the present instance is shifted upwardly. Due to the fact that the tape in the light aperture must be maintained smooth and taut when the images are projected, provision is made to prevent the movement of the tape at the light aperture when the platen moves in order to prevent the transmission of the images therefrom when located at the light aperture.

For advancing the tape T a line space in synchronism with the typewriter 1, resort is here had to the movement of the line feed bell crank 71 of the typewriter, see Figs. 2 and 3. Whenever the platen of the typewriter 1 is actuated to advance the tape T a line space the bell crank 71 is depressed in the direction of the arrow 72. In order to take advantage of this motion, there is provided a bracket 73 secured to the platform 2 by the thumbscrew 74 and having a short spring abutment 75 and having also pivotally mounted at its upper end the lever 76, the short arm of which is connected by the spring 77 with the abutment 75, and the long arm of which is urged into engagement with the line feed bell crank 71, see Fig. 3. The long arm of the lever 76 is pivotally connected to the link 78 having the extensible portion 78* which is pivotally connected to the lever 79 which is in turn pivotally connected at 80 to the bracket 81 fixed to the housing extension 36. The free end of the long arm of the lever 79 has a ball and socket connection 82 with one end of the bracket 83 pivotally connected at 84 to the housing extension 38. The upper end in the present instance of the bracket 83 is pivotally connected to the pawl 85 which is urged into engagement with the ratchet wheel 86 by the spring 87 connecting the pawl 85 with the bracket 83. The ratchet wheel 86 is provided with a latch 88 maintained in engagement with the ratchet wheel 86 by the spring 89 to coop-

erate with the pawl 85 to form a step by step escapement, that is the ratchet wheel 86 will be only advanced one tooth at a time by the pawl 85, the latch 88 will anchor the ratchet wheel 86 against reverse rotation and the pawl 85 will engage the teeth of the ratchet wheel 86 to anchor it against advance movement when it, the pawl 85, is at rest.

The ratchet wheel 86 is fixedly connected to the rubber covered feed roller 90 which is journaled in the brackets 91 and 92. The tape or paper T is maintained in engagement with the roller 90 by the pressure rollers 93, 94, and 95 journaled on the levers 96, pivotally mounted on the rod 97 secured to the upper ends of the brackets 91 and 92. The levers 96 are provided with springs 98 connected to the rod 97 to urge the pressure rollers 93, 94 and 95 into engagement with the tape or paper T and press it into frictional engagement with the roller 90. For withdrawing all of the pressure rollers 93, 94 and 95 out of engagement with the tape for the purpose of adjustment or for the purpose of threading a new roll of tape or the like, the U-shaped bracket 99 is provided pivotally connected at its arms to the rod 97 and with its bail in position to engage the lower edges of the levers 96 of the pressure rollers. One arm of the bracket 99 is extended to form the arm 100 by means of which the bracket 99 may be manipulated to withdraw the pressure rollers 93, 94 and 95.

From the foregoing, it will thus be seen that the tape T passes from the supply roll 101 mounted on the rear upper end of the typewriter 1 below the housing extension 35, then passes over idler 102 journaled in the brackets 103 extending upwardly from the typewriter 1, then down and around the platen 40, thereupon under the guide 43 and across the light aperture and the condenser lens 39 up to and over the feed roller 90, then under the pressure rollers 93, 94, and 95, then under the finger 45, and then to the mandrel 57 of the rewind reel R. From the foregoing, it will be seen that whenever the platen 40 is actuated to advance the paper T a line space, the roller 90 will similarly be actuated to advance the tape T a line space. The connecting means or linkage between the bell crank 71 and the ratchet 86 are of such dimensions that the said roller 90 will transmit a feeding impulse to the paper T that is slightly greater than the feeding impulse transmitted to the paper by the platen 40, whereby the tension in the paper T between the platen 40 and the said roller 90 will be taken up to bring the paper T into smooth and taut condition at the light aperture 42.

As aforesaid, the typewriter 1 is of the character in which the platen 40 is transversely actuated when it is desired to form a printed impression of a type of the upper case. For this purpose, see particularly Fig. 1, a clearance is formed above the platen 40 to permit the same to be raised when a printing impression of an upper case is to be made. The dash and dot position in Fig. 2 indicates the raised position of the platen 40 in which case it will be noted that a loop 104 is formed between the platen 40 and the lower edge of the housing extension 38. So that this loop or slack will not cause a vibration to be transmitted to the tape portion at the light aperture 42, means are provided for anchoring the tape T at the light aperture 42. These anchoring means consist essentially of two rows of discs engaging the tape T both at the entrance

side to the light aperture 42 and at the exit side thereof. At the entrance side, there is provided the shaft 105 journaled in the slots 106 at the lower ends of brackets 107. The shaft 105 has formed thereon a plurality of discs 108 which are so positioned relative to one another and to the positioning of the type shown in typewriter 1, that they may engage the tape between the type impressions thereon so that under no circumstances will the discs 108 cause the ink of the type impressions on the paper T to be blurred or smeared, the lines 109 indicating the path of movement of the discs 108 relative to the printed matter 110 printed on the tape. As indicated in Fig. 3, the paper T preferably passes over the ledge 111 provided with end brackets 112 and 113 secured to the sides of the extension housing 38, and the discs 108 press the paper T into engagement with such ledge 111. At the exit side of the light aperture 42, there is provided the shaft 114 journaled in the slots 114* in the upper ends of the brackets 107 and the side walls of the housing extension 38. The shaft 114 is provided with the discs 115 which are also spaced relative to one another and to the spacing of the type impressions on the tape T so that the same will pass between the divisions of the letters. Obviously it is not so essential to have the discs 115 as carefully spaced with regard to the divisions between the letters as the discs 108 are spaced since the paper T may not be used after passing the light aperture and consequently the slight blurring of the characters at this end of the light aperture will be immaterial. For frictionally urging the shaft 105 with its discs 108 and the shaft 114 with its discs 115 into engagement with the paper T to anchor the same against displacement and against vibration as for instance by movement of the platen 40, the springs 116 and 117 are provided secured in place by the nuts 118 and 119 with the upper arms of the springs 116 and 117 each engaging and urging the ends of the shaft 114 inwardly and the lower arms of the springs 116 and 117 engaging and urging the ends of the shaft 105 inwardly.

The inclination of the lamp housing 14 and housing extensions 36 and 38 are important. By means of this inclination and the cutting off of the lower edges of the lenses 39 and 37, particularly the inclined cut of the lower end of the lens 39, the lower edge of the light aperture 42 may be located within a few line spaces of the printing point on the platen so that a minimum number of line spaces will be waiting on the tape between the time of printing and the time of projection whereby the projection of the printed matter may take place almost immediately after being printed.

When a transmitter 4 as shown in Fig. 6 is used remote from the place of projection or places of projection, the operator of the transmitter 4 will of course not be in a position to see the screen and thus the matter projected. In order to provide such operator with means whereby he may be in a position to follow the matter projected and thus be in a position to control the message to be projected by the line spacing of the transmitter, the present invention has provided a gauge. This gauge consists essentially of the frame 120, Fig. 8, the aperture 121 of which will be formed to contain the length of line and number of lines of printed matter which can be effectively projected on the screen 78. This frame 120 is adjustably mounted on the brackets 122 and 123 secured to the type-

writer 4 above the platen 40 as indicated in Fig. 6. The frame 120 as indicated in Figs. 9 and 10 consists of U-shaped channels 124 at the sides thereof to receive the edges of the tape T, the upper wall of which frame 120 extends transversely across the frame from one channel to the other to form the lower entrance side wall 125 and the upper exit side wall 126. Set screws 127 and 128 are provided on the brackets 122 and 123 to anchor the frame 120 on the typewriter 4 a distance removed from the platen 40 corresponding to the position of the light aperture 42 on the receiving machine 1. These positions will of course be predetermined. The transmitter 4 will preferably also be provided with a tape controlling mechanism to maintain the tape T smooth and taut in the gauge 120. Preferably the transmitter 4 will be substantially a duplicate of the receiving machine 1, having both the tape guide 43 cooperating with the gauge 120 and a tape pulling mechanism such as the feed roller 90 and pressure rollers 93, 94 and 95.

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 the light aperture of a projecting machine of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, said light aperture being disposed directly above said printer at the tape discharge end of said printer, a condensing lens being disposed adjacent to said light aperture with a segment cut from the lower side of effective focusing area of said lens to clear said printer and yet permit location of the light aperture directly above the printer at the tape discharge end thereof, and means for drawing the tape through said light aperture from the tape discharge end of said printer.

2. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, said light aperture being disposed directly above said printer at the tape discharge end of said printer, a condensing lens being disposed adjacent to said light aperture with a segment cut from the lower side of the effective focusing area of said lens to clear said printer and yet permit location of the light aperture directly above the printer at the tape discharge end thereof, means for drawing the tape through said light aperture from the tape discharge end of said printer, and means for anchoring the tape at said light aperture against displacement when the line space feeding means is at rest.

3. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, said light aperture being disposed directly above said printer at the tape discharge end of said printer, a condensing lens being disposed adjacent to said light aperture with a segment cut from the lower side of the effective

focusing area of said lens to clear said printer and yet permit location of the light aperture directly above the printer at the tape discharge end thereof, means for drawing the tape through said light aperture a line space at a time, and means for connecting said printer to said drawing means to actuate said drawing means in synchronism with said feeding means.

4. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, said light aperture being disposed directly above said printer at the tape discharge end of said printer, a condensing lens being disposed adjacent to said light aperture with a segment cut from the lower side of the effective focusing area of said lens to clear said printer and yet permit location of the light aperture directly above the printer at the tape discharge end thereof, means for drawing the tape through said light aperture a line space at a time, means for connecting said printer to said drawing means to actuate said drawing means in synchronism with said feeding means, and means for anchoring said tape in said light aperture against displacement when said feeding means is at rest.

5. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape with one set of characters or letters and including means for feeding the tape a line space at a time out of the printer after the completion of each line of printed matter and a platen shiftable transversely for printing another set of characters or letters, said light aperture being disposed directly above said platen and spaced therefrom sufficiently to clear the platen during its shifting movement, a condensing lens being disposed adjacent to said light aperture with a segment cut from the lower side of the effective focusing area of said lens to clear said printer and yet permit location of the light aperture directly above the printer at the tape discharge end thereof, means for drawing the tape through said light aperture from the platen, and means for anchoring the portion of the tape in the light aperture against displacement when said platen is shifted.

6. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, said printer having a platen shiftable transversely into two positions for printing two sets of characters or letters according to the position of the platen, said light aperture being disposed directly above said platen but spaced therefrom to allow for the shifting of said platen, a condensing lens having its plane face aligned with the rear face of said light aperture and having a segment cut off from the lower end of the effective focusing area of said lens to form a plane adjacent and parallel to said platen, means for drawing the tape through said light aperture from said platen, and means for anchoring the tape in said light aperture immune to the vibration transmitted to the tape by the said platen.

7. The combination with the light aperture of a projecting machine, of a broad tape, a printer

for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, said printer having a platen shiftable transversely into two positions for printing two sets of characters or letters according to the position of the platen, said light aperture being disposed directly above said platen but spaced therefrom to allow for the shifting of said platen, a condensing lens having its plane face aligned with the rear face of said light aperture and having a segment cut off from the lower end of the effective focusing area of said lens to form a plane adjacent and parallel to said platen, means for drawing the tape through said light aperture, one line space at a time, means for connecting said drawing means to said printer to actuate said drawing means in synchronism with said feeding means, and means for anchoring said tape in said light aperture immune to the vibrations transmitted to the tape by said platen.

8. The combination with a broad tape, of a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, a support, and a projecting machine being connected by a horizontal pivot to said support and having a light aperture disposed directly above said printer at the tape discharge end of said printer when said projecting machine is swung down into projecting position, said pivotal connection facilitating the swinging of said projecting machine upwardly out of projecting position and away from said printer to afford access to said printer.

9. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, said light aperture being disposed directly above said printer at the tape discharge end of said printer, a condensing lens having its plane face aligned with the rear face of said light aperture and inclined downwardly in a forward direction and having a segment cut from the lower end of the effective focusing area of said lens to form a plane perpendicular to a vertical plane to clear said printer and yet permit location of the light aperture directly above the discharge end of said printer, and means for drawing the tape through said light aperture from the tape discharge end of said printer, the focal axis of said light aperture being inclined downwardly in a forward direction toward the printing location of said printer so that the light aperture may be disposed in close proximity to the printing location.

10. The combination with the light aperture of a projecting machine, of a broad tape, a printer having a platen at the upper end thereof for supporting the tape while printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly off the platen after the completion of each line of printed matter, a condensing lens having its plane face aligned with the rear face of said light aperture and inclined downwardly in a forward direction and having a segment cut off from the lower end of the effective focusing area of said lens to form a

plane parallel to said platen, said light aperture having a focal axis inclined to said platen so that said light aperture may be disposed directly adjacent to the printing location of said platen.

- 5 11. The combination with the light aperture of a projecting machine, of a broad tape, a printer having a platen at the upper end thereof for supporting the tape during the printing operation and including means for feeding the tape a
10 line space at a time upwardly off the platen after the completion of each line of printed matter, a condensing lens having its plane face aligned with the rear face of said light aperture and inclined downwardly in a forward direction and
15 having a segment cut off from the lower end of the effective focusing area of said lens to form a plane parallel to said platen, the focal axis of said light aperture being inclined downwardly into close proximity to the printing location of
20 said platen.

12. A projecting machine adapted for use with a printer having a platen at the upper end thereof and having a lamp and optical system, including a light aperture and a condenser lens corresponding to the direction of the cone of light,
25 said condenser lens having its plane face aligned with the rear face of said light aperture and inclined downwardly in a forward direction and having a segment cut off from the lower end of the effective focusing area of said lens to form
30 a plane perpendicular to a vertical plane to clear the discharge end of said printer and yet permit location of the light aperture directly above the discharge end thereof, the focal axis of said
35 optical system being inclined to said platen to facilitate disposing the light aperture directly above and adjacent to the platen.

13. A projecting machine including a lamp, a screen, an optical system, said optical system including a deflector for directing the images
40 across the upper edge of said lamp to said screen, and means for withdrawing the heated air from said lamp and direct such air to a level above the path of the light rays from said deflector to
45 said screen to protect the path of the images above said lamp from distortion due to heat waves that might otherwise pass upwardly from said lamp.

14. A projecting machine including a screen, a lamp housing, a lamp in said housing, a light
50 aperture for receiving the tape from said printer, an optical system for directing the projected images across the lamp housing to said screen, and a chimney connected to the upper end of
55 said lamp housing to withdraw the heated air from said lamp housing and extending up above the path of images to discharge such heated air above such path of images and thus protect the path above the lamp housing from transmitting
60 heat waves to distort the projected images.

15. The combination with a printer including means for feeding the tape upwardly out of the printer, a support having a horizontal pivot and two abutments, one abutment above and to one
65 side of said pivot and the other abutment below and to the other side of said pivot, and a projecting machine connected to said support on said horizontal pivot and having a light aperture disposed directly above said printer at the discharge
70 end of said printer when said projecting machine is swung down into engagement with one of said abutments, the other of said abutments supporting the projecting machine when swung out of projecting position to afford access
75 to said printer.

16. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly
5 out of the printer after the completion of each line of printed matter, said light aperture disposed adjacent to the tape discharge end of said printer, and means for anchoring the portion of the tape at said light aperture against
10 accidental displacement and including a spring pressed rod having a plurality of discs thereon for engaging the tape at the entrance end of said light aperture.

17. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly
15 out of the printer after the completion of each line of printed matter, said light aperture disposed adjacent to the tape discharge end of said printer, and means for anchoring the portion of the tape at said light aperture against accidental displacement and including spring pressed
20 rods at the entrance end and exit end of the light aperture, each rod having a plurality of discs formed thereon for engaging the tape.

18. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time upwardly
30 out of the printer after the completion of each line of printed matter, said light aperture disposed adjacent to the tape discharge end of said printer, and means for anchoring the portion of the tape at said light aperture against accidental displacement and including spring pressed rods at the entrance end and exit end of the light aperture, each rod having a plurality of discs formed thereon for engaging the tape, the discs being spaced from one another to register with the divisions between the letters of the printed matter on the tape to prevent blurring
45 the ink on the tape.

19. A guiding mechanism adapted for use with a news projecting system whereby the operator of a printing transmitter remotely controlling a printing receiver associated with a projecting machine may be advised of the location of the projected images of the printed matter on the screen of such remotely located projecting machine, in combination with a printing transmitter, a printing receiver operated by said transmitter to produce like impressions, and the light aperture of a projecting machine for receiving the impressions produced by said receiver, consisting in a framed area for receiving impressions produced by the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the relative dimensions of such framed area corresponding proportionately to the relative dimensions of the light aperture of the projecting machine, and the relative position of the framed area to the transmitter corresponding proportionately to the relative position of the light aperture to the receiver so that the impressions in the framed area may correspond with the impressions appearing at the light aperture whereby the operator of the transmitter can be informed and guided as to the images produced at the light aperture of the projector.

20. A guiding mechanism adapted for use with 75

a news projecting system whereby the operator of a printing transmitter remotely controlling a printing receiver associated with a projecting machine may be advised of the location of the projected images of the printed matter on the screen of such remotely located projecting machine, in combination with a printing transmitter, a printing receiver operated by said transmitter to produce like impressions, and the light aperture of a projecting machine for receiving the impressions produced by said receiver, consisting in a framed area for receiving impressions produced by the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the relative dimensions of such framed area corresponding proportionately to the relative dimensions of the light aperture of the projecting machine, and the relative position of the framed area to the transmitter corresponding proportionately to the relative position of the light aperture to the receiver, and means for adjusting the position of said framed area so that the impressions in the framed area may correspond with the impressions appearing at the light aperture whereby the operator of the transmitter can be informed and guided as to the images produced at the light aperture of the projector.

21. A guiding mechanism adapted for use with a news projecting system whereby the operator of a printing transmitter remotely controlling a printing receiver associated with a projecting machine may be advised of the location of the projected images of the printed matter on the screen of such remotely located projecting machine, in combination with a printing transmitter, a printing receiver operated by said transmitter to produce like impressions, and the light aperture of a projecting machine for receiving the impressions produced by said receiver, consisting in a framed area for receiving impressions produced by the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the relative dimensions of such framed area corresponding proportionately to the relative dimensions of the light aperture of the projecting machine, and the relative position of the framed area to the transmitter corresponding proportionately to the relative position of the light aperture to the receiver, and means for adjusting the positions of said framed area and light aperture so that the impressions in the framed area may correspond with the impressions appearing at the light aperture whereby the operator of the transmitter can be informed and guided as to the images produced at the light aperture of the projector.

22. A guiding mechanism adapted for use with a printing transmitter, a printing receiver operated by said transmitter to produce like impressions, and the light aperture of a projecting machine for receiving the impressions produced by said receiver, consisting in a frame for receiving a predetermined area of printed matter from the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the relative dimensions of such frame corresponding proportionately to the relative dimensions of the light aperture of the projecting machine, and the relative position of the frame to the transmitter corresponding proportionately to the relative position of the light aperture to the receiver so that the impressions appearing in the frame may correspond to the impressions appearing at the light aperture.

23. A guiding mechanism adapted for use with a printing transmitter for successively printing a plurality of lines of impressions, a receiver operated by said transmitter, and the light aperture of a projecting machine for receiving the successive corresponding lines of impressions produced by said receiver, consisting in a framed area for receiving a succession of lines of impressions from the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the relative dimensions of such framed area corresponding proportionately to the relative dimensions of the light aperture of the projecting machine, and the relative position of the framed area to the transmitter corresponding to the relative position of the light aperture to the receiver, and means for simultaneously advancing the lines of impressions through said framed area and the light aperture one line space at a time so that the successive lines of impressions in the framed area may successively correspond with the lines of impressions at the light aperture.

24. A guiding mechanism adapted for use with a printing transmitter for successively printing a plurality of lines of impressions on a strip of paper, a receiver operated by said transmitter, and the light aperture of a projecting machine for receiving the successive corresponding lines of impressions produced by said receiver, consisting in a frame for receiving a predetermined area of the strip of paper printed by the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the frame having an aperture the relative dimensions of which correspond proportionately to the relative dimensions of the light aperture of the projecting machine and the relative position of the aperture of the frame to the transmitter corresponding proportionately to the relative position of the light aperture to the receiver so that the impressions appearing in the aperture of the frame may correspond to the impressions appearing at the light aperture, the frame also having U-shaped end guides to receive the edges of the strip of paper, and means for simultaneously advancing the strips of paper through the aperture of said frame and the light aperture one line space at a time so that the successive lines of printed matter in the aperture of the frame may successively correspond with the lines of impressions at the light aperture.

25. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time out of the printer after the completion of each line of printed matter, said light aperture being disposed directly above said printer at the tape discharge end of said printer, means for drawing the tape through said light aperture from the tape discharge end of said printer, means for anchoring the tape at said light aperture against displacement when the line space feeding means is at rest, and a yieldable take-up for taking up the tape as it is discharged from said light aperture, said take-up being yieldable to permit inspection of the discharged tape, said anchoring means also anchoring said tape at said light aperture against displacement when said take-up is actuated to permit inspection of the tape discharged.

26. The combination with the light aperture of a projecting machine, of a broad tape, a printer

for printing a plurality of lines of printed matter transversely across said tape and including means for feeding the tape a line space at a time upwardly out of the printer after the completion of each line of printed matter, said light aperture being disposed directly above said printer at the tape discharge end of said printer, means for drawing the tape through said light aperture from the tape discharge end of said printer, a rewind for taking up the tape as it is discharged from said light aperture, slippage driving means for actuating said rewind and permit unwinding the tape to inspect the same, and means for anchoring the tape at said light aperture against displacement both when the line space feeding means is at rest and also when the tape is being unwound from said rewind for inspection.

27. The combination with a scanning area, of a broad tape a printer for printing a plurality of lines of printed matter transversely across said tape and including means for feeding the tape a line space at a time out of the printer after the completion of each line of printed matter, means for drawing the tape across said scanning area from the tape discharge end of said printer, a take-up device for taking up the tape as it is discharged from said scanning area, a slippage driving device for actuating said take-up device and permit freeing the tape from said take-up device to inspect the same, and means for anchoring the tape at said scanning area against displacement when said tape is being freed from said take-up device during inspection thereof.

28. The combination with a scanning area, of a broad tape, a printer for printing a plurality of lines of printed matter transversely across said tape and including means for feeding the tape a line space at a time out of the printer after the completion of each line of printed matter, means for drawing the tape across said scanning area from the tape discharge end of said printer, a rewind reel for winding up the tape as it is discharged from said scanning area, a slippage drive for actuating said rewind reel and yieldable to permit unwinding the tape from said reel for inspection, and means for anchoring the tape at said scanning area against displacement when said tape is being unwound for inspection from said rewind reel.

29. The combination with a broad tape, of a telegraphic printer for printing a plurality of successive lines of printed matter on said tape and actuating a line spacing control linkage in response to telegraphic code signals, means for drawing the tape through an illuminated area, said means including a tape feeding roller at the discharge end of said illuminated area spaced from said printer, means for tractably pressing the tape into feeding engagement with said feeding roller, a ratchet wheel fixed to rotate with said feeding roller, a step by step actuator operatively associated with said ratchet wheel, and an elongated link operatively connecting said linkage to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

30. The combination with a broad tape, of a telegraphic printer for printing a plurality of successive lines of printed matter on said tape and including a control for feeding the tape a line space at a time after the completion of each line of printed matter, means for drawing the tape through an illuminated area, said means including a tape feeding roller at the discharge end of said illuminated area spaced from said printer,

spring pressed rollers for frictionally engaging the tape with said tape feeding roller, a pawl and ratchet device for actuating said tape feeding roller, and an elongated link operatively connecting said printer control with said device for actuating said tape drawing means to feed the tape a line space at a time after the completion of each line of printed matter through said illuminated area.

31. The combination with a broad tape, of a telegraphic printer for printing a plurality of successive lines of printed matter on said tape and including a control having a bell crank fixed thereto, means for drawing the tape through an illuminated area, said means including a tape feeding roller beyond the discharge end of said illuminated area, spring pressed rollers for tractably pressing the tape into feeding engagement with said tape feeding roller, a ratchet wheel fixed to rotate with said feeding roller, a step by step actuator operatively associated with said ratchet, and linkage connecting said bell crank to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

32. The combination of a broad tape, a telegraphic printer including means for printing a plurality of successive lines of printed matter on said tape and including a line spacing control both in response to telegraphic code signals, means for drawing the tape through an illuminated area, a step by step line spacing actuator operatively associated with said drawing means, and means operatively connecting said actuator with said control to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

33. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape and including means for feeding the tape a line space at a time out of the printer after the completion of each line of printed matter, means for drawing the tape through said light aperture from the tape discharge end of said printer, means for anchoring the tape at said light aperture against displacement when the line space feeding means is at rest, and a yieldable take-up for taking up the tape as it is discharged from said light aperture, said take-up being yieldable to permit inspection of the discharged tape, and said anchoring means also anchoring said tape at said light aperture against displacement when said take-up is actuated to permit inspection of the tape discharged.

34. A guiding mechanism adapted for use with a news projecting system whereby the operator of a printing transmitter remotely controlling a printing receiver associated with a projecting machine may be advised of the location of the projected images of the printed matter on the screen of such remotely located projecting machine, in combination with a printing transmitter, a printing receiver operated by said transmitter to produce like impressions, and the light aperture of a projecting machine for receiving the impressions produced by said receiver, consisting in a framed area for receiving impressions produced by the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the relative dimensions of such framed area corresponding proportionately to the relative dimensions of the light aperture of the projecting ma-

chine so that the impressions in the framed area may correspond with the impressions appearing at the light aperture whereby the operator of the transmitter can be informed and guided as to the images produced at the light aperture of the projector.

35. A guiding mechanism adapted for use with a news projecting system whereby the operator of a printing transmitter remotely controlling a printing receiver associated with a projecting machine may be advised of the location of the projected images of the printed matter on the screen of such remotely located projecting machine, in combination with a printing transmitter, a printing receiver operated by said transmitter to produce like impressions, and the light aperture of a projecting machine for receiving the impressions produced by said receiver, consisting in a framed area for receiving impressions produced by the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the position of the framed area to the transmitter being predetermined relative to the position of the light aperture to the receiver, and means for adjusting the position of said framed area relative to the position of the impressions appearing at the light aperture whereby the operator of the transmitter can be informed and guided as to the images produced at the light aperture of the projector.

36. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape, said light aperture being disposed at the tape discharge end of said printer, a condensing lens disposed adjacent to said light aperture with a segment cut off adjacent one side of the effective focusing area of said lens to clear said printer and yet permit location of the light aperture directly adjacent to the tape discharge end of the printer, and means for drawing the tape through said light aperture from the tape discharge end of said printer in a direction transverse to the direction of the lines of printed matter.

37. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape, said light aperture being disposed at the tape discharge end of said printer, a condensing lens disposed adjacent to said light aperture with a segment cut off adjacent one side of the effective focusing area of said lens to clear said printer and yet permit location of the light aperture directly adjacent to the tape discharge end of the printer, and means for drawing the tape a line space at a time across said light aperture.

38. The combination with the light aperture of a projecting machine, of a broad tape, a

printer for printing a plurality of lines of printed matter on said tape and having a platen shiftable transversely into two positions for printing two sets of characters or letters according to the position of the platen, said light aperture being disposed directly adjacent to said platen but spaced therefrom to allow for the shifting of said platen, a condensing lens disposed adjacent to said light aperture with a segment cut off adjacent to one side of the effective focusing area of said lens to form a plane adjacent and parallel to said platen, and means for drawing the tape a line space at a time across said light aperture.

39. The combination of a broad tape, a telegraphic printer including means for printing a plurality of successive lines of printed matter on said tape and including a line feed bell crank both in response to telegraphic code signals, means for drawing the tape through an illuminated area, a step by step line spacing actuator operatively associated with said drawing means, and means operatively connecting said actuator with said bell crank to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

40. The combination of a broad tape, a telegraphic printer including a platen for receiving and line spacing the tape, said printer also including means for printing a plurality of successive lines of printed matter on the tape and a line spacing control for the platen in response to telegraphic code signals, means for drawing the tape through the illuminated area at a faster surface speed than that transmitted to the tape by said platen, a line spacing actuator operatively associated with said drawing means, and means operatively connecting said actuator with said control to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

41. The combination of a broad tape, a telegraphic printer including a platen for receiving and line spacing the tape, said printer also including means for printing a plurality of successive lines of printed matter on the tape and a line spacing control for the platen in response to telegraphic code signals, means for drawing the tape through an illuminated area, said drawing means transmitting a faster surface speed to said tape than that transmitted to the tape by said platen to maintain the tape smooth at said illuminated area, a line spacing actuator operatively associated with said drawing means, and means operatively connecting said actuator with said control to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

AUGUST D. EITZEN.

DISCLAIMER

2,108,053.—August D. Eitzen, Rockville Centre, N. Y. BROAD TAPE PROJECTOR. Patent dated February 15, 1938. Disclaimer filed August 28, 1941, by the assignee, News Projection Corporation.

Hereby enters this disclaimer to claims 32, 36, and 37 of said patent.

[Official Gazette September 30, 1941.]

chine so that the impressions in the framed area may correspond with the impressions appearing at the light aperture whereby the operator of the transmitter can be informed and guided as to the images produced at the light aperture of the projector.

35. A guiding mechanism adapted for use with a news projecting system whereby the operator of a printing transmitter remotely controlling a printing receiver associated with a projecting machine may be advised of the location of the projected images of the printed matter on the screen of such remotely located projecting machine, in combination with a printing transmitter, a printing receiver operated by said transmitter to produce like impressions, and the light aperture of a projecting machine for receiving the impressions produced by said receiver, consisting in a framed area for receiving impressions produced by the transmitter to be there readily exhibited to the operator of the transmitter as the impressions are being produced, the position of the framed area to the transmitter being predetermined relative to the position of the light aperture to the receiver, and means for adjusting the position of said framed area relative to the position of the impressions appearing at the light aperture whereby the operator of the transmitter can be informed and guided as to the images produced at the light aperture of the projector.

36. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape, said light aperture being disposed at the tape discharge end of said printer, a condensing lens disposed adjacent to said light aperture with a segment cut off adjacent one side of the effective focusing area of said lens to clear said printer and yet permit location of the light aperture directly adjacent to the tape discharge end of the printer, and means for drawing the tape through said light aperture from the tape discharge end of said printer in a direction transverse to the direction of the lines of printed matter.

37. The combination with the light aperture of a projecting machine, of a broad tape, a printer for printing a plurality of lines of printed matter on said tape, said light aperture being disposed at the tape discharge end of said printer, a condensing lens disposed adjacent to said light aperture with a segment cut off adjacent one side of the effective focusing area of said lens to clear said printer and yet permit location of the light aperture directly adjacent to the tape discharge end of the printer, and means for drawing the tape a line space at a time across said light aperture.

38. The combination with the light aperture of a projecting machine, of a broad tape, a

printer for printing a plurality of lines of printed matter on said tape and having a platen shiftable transversely into two positions for printing two sets of characters or letters according to the position of the platen, said light aperture being disposed directly adjacent to said platen but spaced therefrom to allow for the shifting of said platen, a condensing lens disposed adjacent to said light aperture with a segment cut off adjacent to one side of the effective focusing area of said lens to form a plane adjacent and parallel to said platen, and means for drawing the tape a line space at a time across said light aperture.

39. The combination of a broad tape, a telegraphic printer including means for printing a plurality of successive lines of printed matter on said tape and including a line feed bell crank both in response to telegraphic code signals, means for drawing the tape through an illuminated area, a step by step line spacing actuator operatively associated with said drawing means, and means operatively connecting said actuator with said bell crank to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

40. The combination of a broad tape, a telegraphic printer including a platen for receiving and line spacing the tape, said printer also including means for printing a plurality of successive lines of printed matter on the tape and a line spacing control for the platen in response to telegraphic code signals, means for drawing the tape through the illuminated area at a faster surface speed than that transmitted to the tape by said platen, a line spacing actuator operatively associated with said drawing means, and means operatively connecting said actuator with said control to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

41. The combination of a broad tape, a telegraphic printer including a platen for receiving and line spacing the tape, said printer also including means for printing a plurality of successive lines of printed matter on the tape and a line spacing control for the platen in response to telegraphic code signals, means for drawing the tape through an illuminated area, said drawing means transmitting a faster surface speed to said tape than that transmitted to the tape by said platen to maintain the tape smooth at said illuminated area, a line spacing actuator operatively associated with said drawing means, and means operatively connecting said actuator with said control to actuate said actuator in turn to feed the tape a line space at a time through said illuminated area.

AUGUST D. EITZEN.

DISCLAIMER

2,108,053.—August D. Eitzen, Rockville Centre, N. Y. BROAD TAPE PROJECTOR. Patent dated February 15, 1938. Disclaimer filed August 28, 1941, by the assignee, News Projection Corporation.

Hereby enters this disclaimer to claims 32, 36, and 37 of said patent.

[Official Gazette September 30, 1941.]

DISCLAIMER

2,108,053.—*August D. Eitzen*, Rockville Centre, N. Y. BROAD TAPE PROJECTOR.
Patent dated February 15, 1938. Disclaimer filed April 21, 1942, by the
assignee, *News Projection Corporation*.

Hereby enters this disclaimer to claim 39 of said patent.

[*Official Gazette May 19, 1942.*]