April 18, 1933. R. I. MEADER 1,904,874

MEANS FOR GUMMING TAPE ON BLANKS

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Fig. 1.

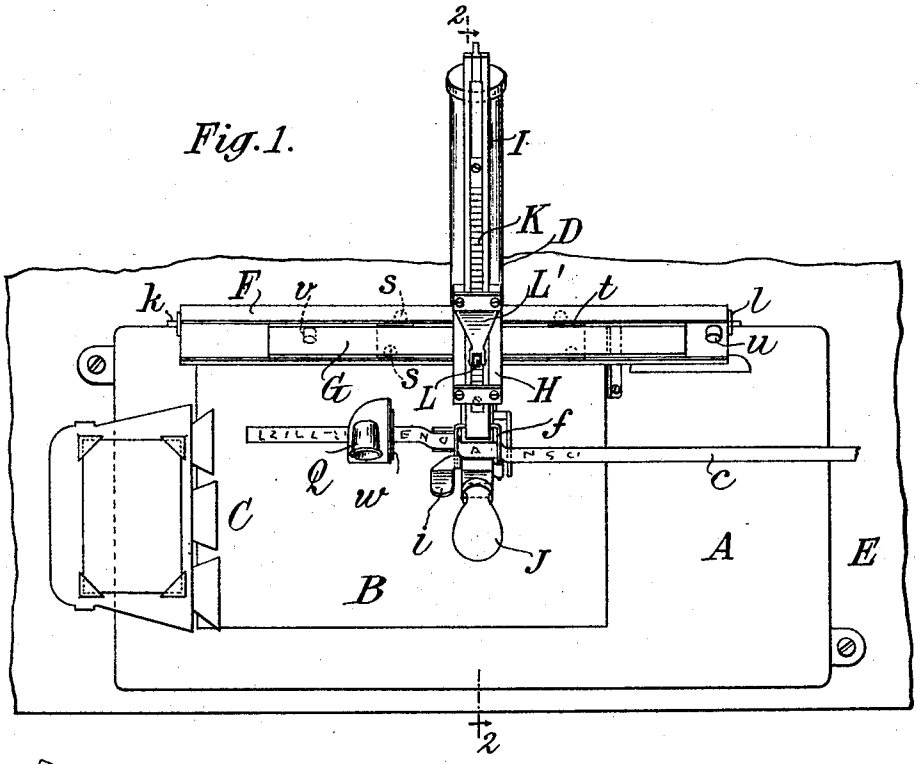


Fig. 2.

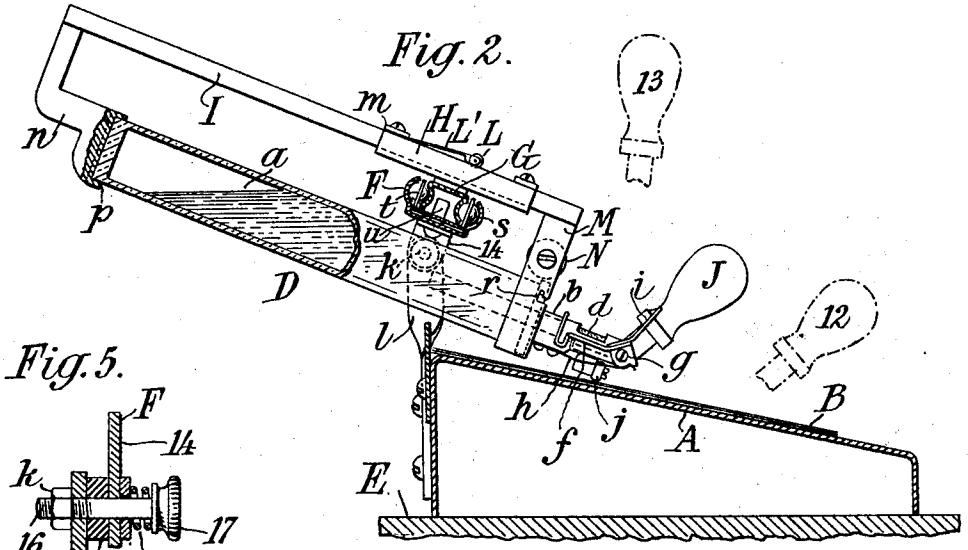
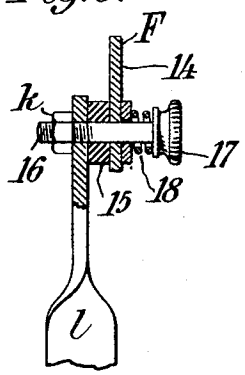


Fig. 5.



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Fig. 4.

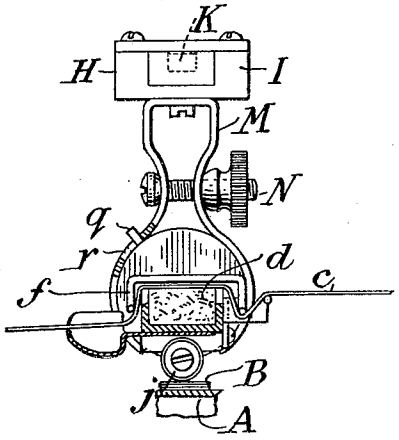


Fig. 7.

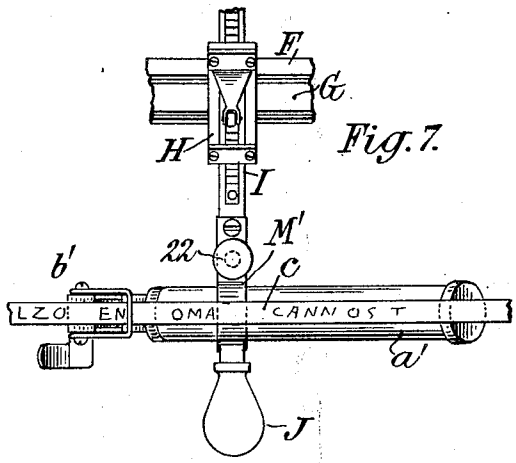


Fig. 3.

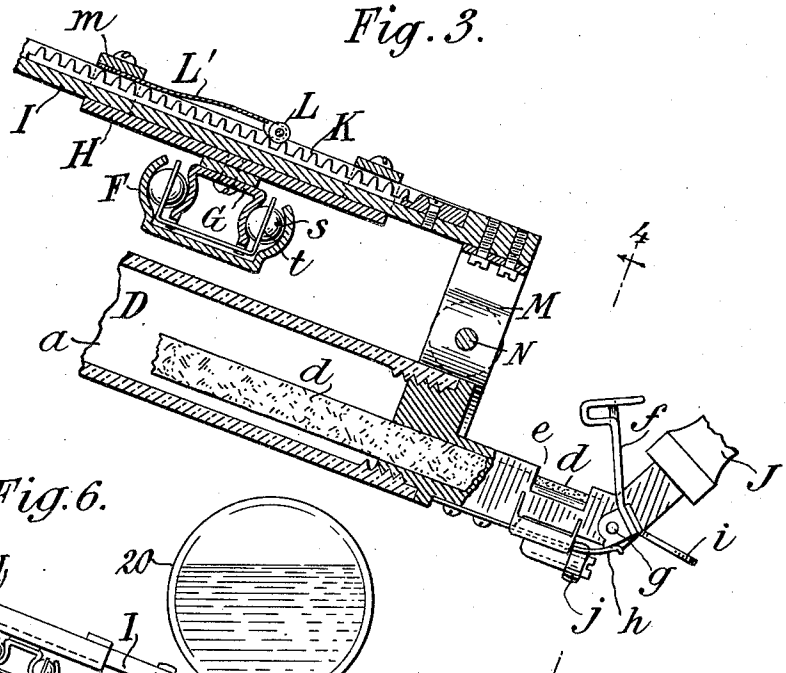
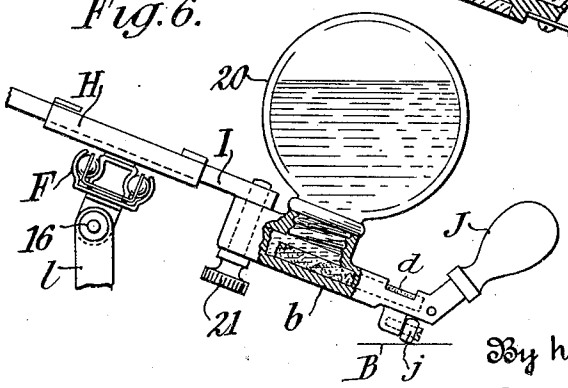


Fig. 6.



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UNITED STATES PATENT OFFICE

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MEANS FOR GUMMING TAPE ON BLANKS

Application filed February 6, 1932. Serial No. 591,333.

This invention relates to devices for gumming or pasting tape on a backing sheet, such as the tape coming from a tape printer which requires to be gummed to a telegraph blank. Devices for this purpose, which are sometimes designated applicators, comprise a reservoir for liquid which commonly serves as the handle by which the operator grasps the instrument, and a nozzle portion through or over which the tape is guided, the liquid being carried through a duct to this nozzle and there applied to the tape as the latter is drawn through or over the nozzle. For previously gummed tape the liquid is usually water; or for an ungummed tape it may be a solution of gum, glue or paste. Such devices have means for opening the tape passage in the nozzle to permit of introducing a new length of tape, and are commonly provided with a cutter for severing a length of tape. An illustration of such an applicator is contained in my Patent No. 1,834,632, granted December 1, 1931.

In the use of such devices the tape coming from the printer is introduced through the tape passage in the nozzle, and the operator starts the end of the tape, pressing it on the blank, and then moves the device horizontally over the blank, whereby the tape is drawn through the nozzle, moistened and pressed upon the blank; at the end of the line it is severed, and the operator moves it back and starts a second line which is laid down as nearly parallel with the first as the operator's skill will permit; this operation being repeated for as many lines as are applied to the blank.

The gumming down of tape to a blank in this manner requires considerable skill and care on the part of the operator in order that the tape may be applied in parallel, horizontal lines which succeed each other with regular spacings. Any want of parallelism of the lines or irregularity of the spacing produces an unsightly message.

The object of this invention is to provide means whereby in applying the tape it may be guided in parallel lines equally spaced so as to produce neat work with less care and skill on the part of the operator than has heretofore been necessary, and at the same time to increase the speed with which the messages from a tape printer may be gummed to the blanks. To this end my invention provides a tape applying device with a guiding means which engages or carries the applicator and guides it in its horizontal movements so as to lay down the gummed tape upon the blank in parallel lines, with means for determining the spacing between the lines, whereby to assist the operator in securing parallelism and equal spacing, and at the same time to increase the operator's speed.

The preferred embodiment of the invention is shown in the accompanying drawings, wherein,—

Figure 1 is a plan of the apparatus.

Fig. 2 is a side elevation thereof, partly in vertical, transverse section.

Fig. 3 is a fragmentary, vertical, transverse section on a larger scale.

Fig. 4 is a transverse section on the line 4—4 in Fig. 3, taken in the direction of the arrow.

Fig. 5 is an enlarged fragmentary section of one of the pivots for the longitudinal guideway.

Fig. 6 is a sectional side elevation corresponding generally to Fig. 2 and showing a modified construction.

Fig. 7 is a plan showing another modified construction.

Referring to the drawings, A is a table or desk for carrying the pile of blanks B which are held in place at one side by a clamp C (shown as having three clamping feet) and D is the applicator or tape-applying device as a whole. The table A is most conveniently made sloping, as shown, and is fastened down upon a bench or other support E.

The applicator D is shown as of the type

already described having a reservoir *a* for liquid and a nozzle *b* with a communicating passage or duct through which the liquid is conveyed down into the nozzle, and with a transverse passage for carrying the tape *c* over the nozzle in communication with an opening *d* in the nozzle through which the liquid emerges into contact with the tape. Commonly the nozzle is fitted with wicking or felt *d* and the tape is drawn across the opening *d* in contact with the moist wicking or felt. The tape is held down in contact with the moist absorbing material by any suitable pressure fingers such as shown at *f*, the pressure device being a wire frame or loop extending to both sides of the nozzle, being pivoted thereto at *g*, pressed down by a spring *h* and having a thumb-piece *i* by which it may be thrown up to introduce a new tape.

Suitably anchored to the table A or other support is a longitudinal guide F and movable longitudinally in or on this guide is a slide G which carries a transverse guide H. In the latter is movable a sliding frame I, which constitutes the carrier for the applicator D. The carrier I being suitably located in any given position with relation to the transverse guide H, the applicator may be freely moved to right or left, the slide G sliding in the guide F with the lateral movements of the applicator. These lateral movements are herein referred to as longitudinal movements because they are thus made in laying down the longitudinal lines of tape. Thus the operator having started the tape at the left, applies it to the blank in a horizontal line, and at the end of this line the tape is cut or broken off and the applicator is moved back to the left to start a new line, and at the same time is given a new position or location by a movement of the frame I in the transverse guide H and by the operation of a suitable locating device, coacting between these parts, and a second line of tape may be laid down parallel with the first; and so on until the entire message is gummed down to the blank.

For conveniently communicating these movements to the applicator, it is provided with a front handle J and to guide it during its movements while being pressed down against the blank it is desirably provided with a roller *j*. The illustrated arrangement of the applicator has its reservoir *a* projecting to the rear where it is out of the way, and its weight serves as a counterbalance; but any other arrangement of the reservoir may be adopted and the cylindrical form of reservoir is not essential. To enable the nozzle end of the applicator to be readily lifted, the whole guiding structure is pivoted on a longitudinal axis by hinges *k* at opposite ends of the guide F, by which the guide F is pivoted to uprights *l l* which are rigidly attached to the table A.

The means for locating the applicator relative to the transverse guide H for each of the succeeding lines is preferably of such construction as to permit the operator to readily shift from line to line, and to shift with a greater or lesser line spacing as may be desired, this being preferable to any connection in the nature of a positive lock. The preferable construction consists of a rack K carried by a slide I and a roller L carried on a spring L′ mounted on a transverse guide H, as by being attached to a cross-piece *m* thereon. The spring presses the roller down between two teeth of the rack, as shown in Fig. 3, and a slightly perceptible force is required to displace it and shift the applicator transversely from one line to the next; while the spring stress is sufficient to hold the parts in place during the longitudinal movement so as to insure that the tape shall be applied in the true line, and that each line of tape shall be parallel with the others.

In the construction shown the carrier frame I is arranged over and parallel with the reservoir *a* and has a back arm *n* terminating in a socket *p* for receiving the outer end of the reservoir while the opposite end thereof is engaged in a frame M which is fastened to the lower or front end of the frame I, and its two arms are drawn together by a screw N to embrace and clamp the lower and front end of the reservoir or body of the applicator, which has a pin *q* which enters within a slot *r* to locate the applicator and keep it from becoming displaced.

The guide F is shown as of channel form and between it and the slide G are anti-friction balls *s s* engaged by a spacer *t* to hold them at proper distances apart. This construction renders the movements of the slide G practically frictionless. Stops *u* and *v* may be provided for limiting the opposite movements of the slide corresponding to the ends of the lines of applied tape. Any suitable guiding connection may be made between the guide H and slide I.

In Fig. 2 the handle J is shown displaced at 12 in dotted lines, which is one of the positions in laying on tape toward the lower part of the sheet or blank. In position 13 the handle is shown lifted in order to tilt the frame and move the applicator to the left to start a new line.

It will be understood that this invention may be greatly modified without departing from its essential features. Various constructions of longitudinal and transverse guides may be adopted for imparting the requisite guiding control to the movements of the applicator. The construction illustrated is believed to be the best for the purpose, being light, strong and free moving, and affords a convenient arrangement for the oper-

ator. It has been demonstrated as so facilitating the operation as to enable high speed of application to be attained.

The applicator is not shown as having any knife or cutter for severing the tape, but such a cutter may be provided in any of the known ways if desired. There is illustrated in Fig. 1 a thimble Q for a finger of the operator's left hand and which carries a knife *w* against which the tape may be cut by holding this knife down upon it while the handle J is lifted.

It is desirable to make the pivotal connection between the uprights *l* and the guideway F so as to provide a moderate frictional resistance against turning on this pivot, although not sufficient to interfere with the free lifting and lowering of the handle J by the operator. Fig. 5 shows a construction of frictional pivot adapted for this purpose. Between the pivotal ear on the upright *l* and the coinciding ear on the downturned portion 14 at the end of the guideway F is interposed a frictional washer 15 preferably of rubber, and the pivot pin 16 is made as an adjusting screw which may be turned by a knurled head 17 to more or less compress a spring 18 to press the members together and thereby vary the frictional resistance due to the interposed rubber washer. By this means any looseness or lost motion may be taken up and the rocking movement of the guide F and the parts which it carries may be retarded to any desired extent.

Fig. 6 shows a modified construction of applicator which departs from the conventional cylindrical reservoir *a* and substitutes a spherical bottle 20 which is screwed or otherwise united to the nozzle *b*, which latter is fastened to the front end of the slide I. In this instance the guideway F and guide H are located to the rear of the applicator. To facilitate the removal and inversion of the nozzle for connecting it to a filled reservoir, it is shown as fastened to the front of the guide frame I by means of a knurled thumb-screw 21. Otherwise the applicator may be of the same construction shown in Figs. 1 to 4.

The present invention is applicable to the type of applicator having a cylindrical reservoir or handle portion which extends from the nozzle toward the right, so that the tape is conducted over the top of this reservoir to the nozzle. This application is shown in Fig. 7. The reservoir *a'* is clamped to the front end of the guiding frame I by means of a clamping frame M' fastened thereto and contracted around the reservoir by a tightening screw 22. The handle J is conveniently attached to the middle of the connecting clamp M'. The nozzle *b'* is of a well known construction wherein the tape passes through a longitudinal groove in the upper part of the nozzle passing in contact with a wick which extends up into the reservoir.

The modifications shown in Figs. 6 and 7 are illustrated as examples of the variations which may be made within the scope of the present invention.

What I claim is:

1. A tape applier combined with horizontal longitudinal guiding means for directing its movements in parallel, longitudinal lines.

2. A tape applier, combined with longitudinal and transverse guides for directing its movements in longitudinal lines and controlling its transverse movements for spacing between the lines.

3. A tape applier, combined with longitudinal and transverse guides, the one fixed in position and the other movable thereon and connected with the tape applier.

4. A tape applier, combined with guiding means comprising a longitudinally moving guide, and spacing means for indicating the line spacing between successive longitudinal movements.

5. A tape applier, combined with a tape guiding means comprising a longitudinal guideway, a slide guide thereby, a transverse guide mounted on said slide, a carrier movable in said transverse guide, and means for resisting displacement thereof between lateral line positions.

6. A tape applier, combined with guiding means for directing its movements in parallel, longitudinal lines, including an impositive engagement for locating the successive parallel lines.

7. The combination of claim 6, such impositive device consisting of a series of rack teeth on one part and a spring-pressed roller on the reciprocal part.

8. A tape applier combined with guides for directing its movement in longitudinal, parallel lines, having a pivotal engagement permitting of lifting the applier at the end of a line.

9. A tape applier combined with guides for directing its movement in longitudinal, parallel lines, said guiding means pivoted on a longitudinal axis to permit of lifting the applier at the end of a line.

10. A tape applier combined with guides for directing its movement in longitudinal, parallel lines, the applier pivoted to permit of lifting it, and counterbalanced to assist such lifting movement.

11. A tape applier comprising a reservoir and nozzle, combined with guides for directing its movements in longitudinal, parallel lines, and having a pivotal engagement on a longitudinal axis to the rear of the nozzle, permitting of lifting its nozzle, the reservoir prolonged to the rear of such axis to counterbalance the applier and assist such lifting movement.

12. A tape applier according to claim 8, with frictional retarding means at the piv-

otal engagement for opposing frictional resistance to the movement.

13. A tape applier according to claim 9, the pivots for the guiding means having means for applying the frictional resistance to pivotal movement.

14. A tape applier combined with guides for directing its movement in longitudinal parallel lines comprising a longitudinal guideway, a slide guided thereby and the applier carried on said slide, said longitudinal guideway pivoted at its opposite ends, and frictional means for applying resistance to its pivotal movement.

In witness whereof, I have hereunto signed my name.

RALPH I. MEADER.

CERTIFICATE OF CORRECTION.

Patent No. 1,904,874. April 18, 1933.

RALPH I. MEADER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 90, claim 5, for "guide" read "guided"; 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 23rd day of May, A. D. 1933.

M. J. Moore.
Acting Commissioner of Patents.

(Seal)