Feb. 20, 1940. A. BENNETT 2,190,766

TAPE GUMMING APPARATUS

Original Filed April 6, 1935

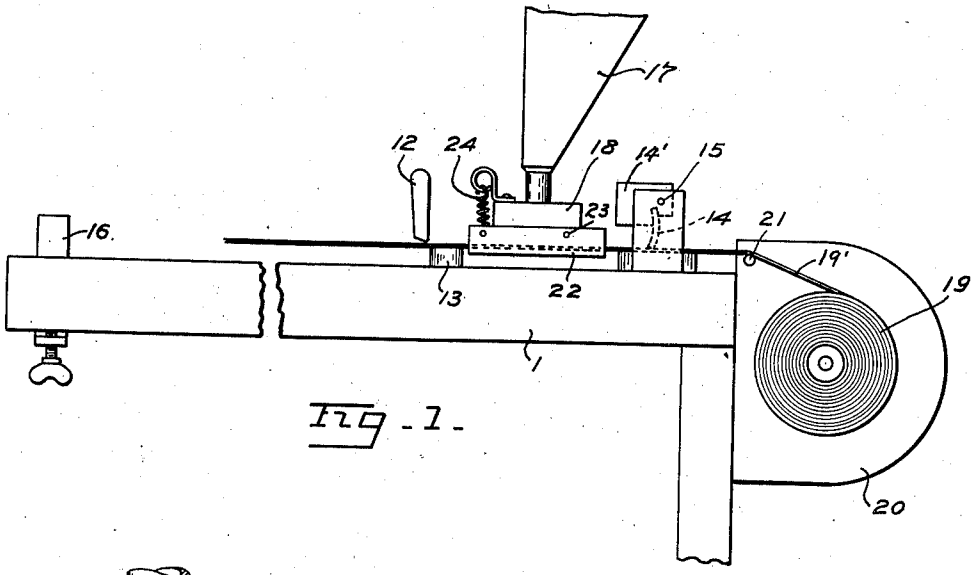


Fig. 1.

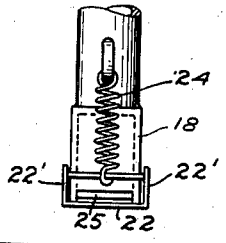


Fig. 3.

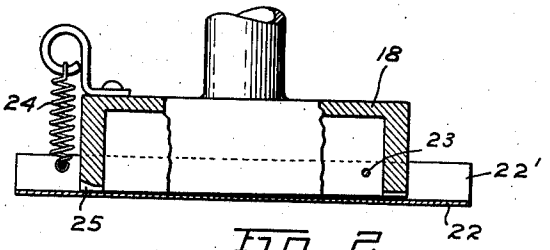


Fig. 2.

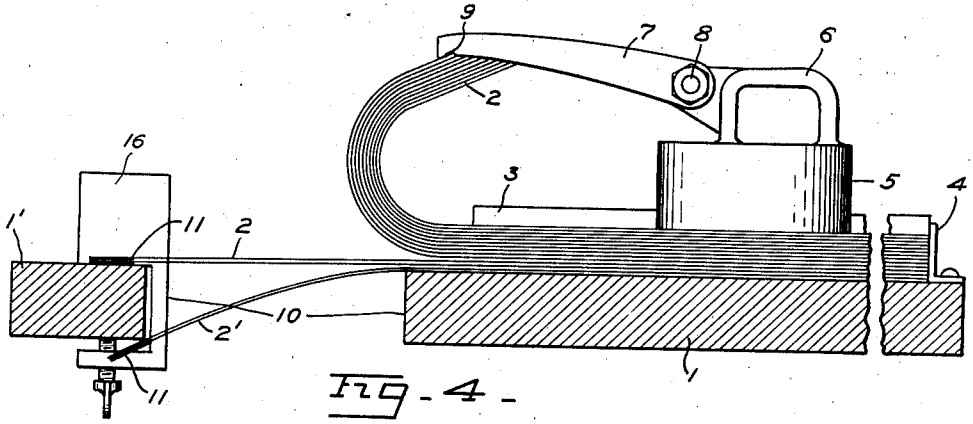


Fig. 4.

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TAPE GUMMING APPARATUS

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3 Claims. (Cl. 91—43)

This invention relates to gummed tape and the application of such tape to sheets of paper and the like, and the objects of the invention are to provide suitable apparatus to facilitate the application of gummed strips to paper sheets, and also for coating the tapes with the gum in applying them to the sheets. Other features and advantages of the invention will appear in the following description and accompanying drawing.

This application represents a divisional case of my copending application filed April 6, 1935, under Serial No. 15,005, covering certain matter ordered divided from the parent case by the Examiner.

In the drawing

Fig. 1 is a front elevation of the right-hand forward corner of the tape supporting table with a gum applying fountain in place over the tape.

Fig. 2 is an enlarged elevation partly in section showing the construction of the nozzle of the gum applying fountain.

Fig. 3 is an end view of Fig. 2 showing the gum exuding slot in the nozzle.

Fig. 4 is a vertical cross section of the table showing the paper stack holding finger and associated parts.

Briefly described, the invention comprises apparatus to facilitate applying strips of gummed tape along margins of sheets of paper such as printed sheets, signs, posters, etc., which are later to be stuck to show windows, walls, etc., for temporary display. The type of gummed tape for which the apparatus was particularly designed to handle is that which is always tacky and may be transferred bodily from the tape on which it is coated to the margin of a printed poster or the like, the tape being stripped off when it is desired to apply the poster to the show window, the ever-tacky gum left on the poster sufficing to stick the same to the window. Such a tape and the ingredients for the special gum used is fully described in my copending patent application filed under Serial No. 13,037 on date of March 26, 1935, though it is to be understood that the present apparatus is also useful for applying other or any kind of gummed tape or strips to the margins, or other portions of printed or unprinted sheets of paper or other material.

In further detail the drawing shows a table top 1 adapted to support a pile or stack of paper sheets 2 suitably aligned along one side by a strip or straight edge 3, and at the rear by a block 4 adjustably clamped in place, while on top of the stack of paper sheets, which may be printed posters or the like, is a heavy weight 5 provided with a handle 6, and a forwardly extending rod or finger 7 which overlies the upturned forward edges of the paper sheets and holds them in the position shown in Fig. 4. This finger is adjustably pivoted and clamped to the weight 5 as at 8 so that it may be set for any size stack of sheets desired and its outer end is curved downwardly and provided with a small notch as at 9 or slightly hooked extremity so that one sheet of the paper at a time may be easily and quickly released from engagement with the finger 7 by the friction of an operator's fingers on the forward (or bottom) sheet and whereupon said sheet will fall to bridge a gap 10 in the table top and rest with its forward margin on the forward portion or rail 1' of the table and along which the gummed tape 11, sticky side up, has previously been laid so that the forward margin of the sheet will fall upon it.

The tape is gum-coated on the apparatus and is pulled from a roll 19 along the inner margin of table rail 1' adjacent gap 10 and one of the paper sheets 2 released from finger 7 will fall upon its sticky surface, and after which the tape is cut off in line with the right-hand edge of the sheet by means of a movable shear blade 12 cutting against a fixed block 13 and operated by any suitable means, not shown, as not involved in the present invention claimed.

When the gummed tape is cut off by blade 12 the tape is automatically clamped to prevent its pulling back or curling. This is done by a pivotally mounted block or back stop 14 under which the tape is pulled and which block has one or more small spurs or an impinging edge on its lower side which is forced against the tape by the weight 14' of the block swinging on its pivot 15 yet due to the cam-like pivoting of the block it permits the tape to be freely drawn forwardly under the block.

After dropping one sheet upon a stretch of the freshly coated tacky tape and cutting it off, a fresh length of tape is drawn along the rail right on top of the previous fallen sheet and the next sheet is dropped from the stack to this strip of tape to stick to it, and so on until several are thus superimposed and after which they are pushed bodily through the table gap 10 to spring below it as indicated at 2' in Fig. 4 so that they can dry more easily, and/or will be out of the way of continued operations.

An adjusting stop gage 16 is provided on the left-hand edge of the table rail 1' against which to align the outer end of the tape with the edges of the sheets of paper.

For coating the tape with the liquid ever-tacky gum, a gum coating fountain 17 is provided which supplies the liquid gum to a special coating nozzle 18 through which the plain uncoated tape is drawn from a roll 19 supported on a suitable bracket 20 attached to the side of the table so that the tape can run straight from it and along the rail 1'. This is shown in Fig. 1 with details of the gumming nozzle in Figs. 2 and 3. In this arrangement the uncoated tape 19' runs over a guide pin 21, thence under the back stop 14, and thence under the nozzle 18 of the gum fountain, thence over the shearing block 13 and along the rail as previously described.

In Fig. 1 the cutting off blade 12 is shown as partially descended and about to cut off the coated tape.

The gum fountain is a can containing the desired fluid gum compound of about the consistency of glue or rubber cement, and it flows by gravity into the nozzle 18 which is an elongated housing the width of the tape and provided with an under-cover 22 pivoted to it as at 23 and resiliently held upward by a light tension spring 24 so as to gently hold the tape against the relatively thick or wide edges of the nozzle as the tape slides along and thus keep opposite margins of the tape bare of gum. This cover is channel-shaped and its sides 22' extend loosely up along both sides of the nozzle as best shown in Fig. 2, and at the tape-leaving end of the nozzle the end wall is relieved a trifle as at 25 so as to provide a clearance above the tape, and it is the size of this clearance which determines the thickness of the layer of adhesive gum compound deposited on the tape as it is manually pulled through and drawn along the table rail 1' to receive a sheet 2 of paper from the pile.

With this arrangement the freshly coated tape is applied consecutively to the paper sheets. Owing to the very small clearance for the gum to flow from the nozzle and the adhesive nature of the gum, it will not flow out objectionably when the tape is at rest, and the upwardly extending sides of the channel 22 prevent any outflow of gum along the sides by forming a seal of the set resilient gum, yet being a loose fit against the nozzle do not become immovably cemented against free operation as would be the case if a close fit were used.

In operation, as each length of tape is pulled out along the table rail 1', or with its tacky face up over and upon a previously taped sheet of paper still in place so as to receive the next sheet, the finger is gently rubbed along the sheet below to insure a good contact of the previously applied tape and sheet, or this may be done on the return stroke of the hand in moving back to pull the tape again.

Any size sheets may be handled on the table by suitable adjustment of its guides and stops 3, 4 and 16. Also tape of any desired material may be used in the apparatus, such as cloth, paper, Cellophane, or any other flexible material, and the adhesive coating may be of any nature or quality desired, and the tape may be placed at any desired position on the sheets, either at one or opposite margins, and/or in any other position on the sheets by suitably adjusting the position of the sheets relative to the tape.

Having thus described my improved apparatus and the manner of its use, what I claim is:

1. An apparatus for gumming tape, a container for liquid gum, a nozzle at the lower portion of said container across which the tape is arranged to pass for depositing a band of the gum on the tape, means resiliently pressing the tape against the nozzle comprising a channel plate at the outer side of the tape pivotally connected at one end to the nozzle, and a spring at the other end of the plate urging the plate toward the nozzle, said channel plate arranged with its legs freely embracing the edges of the tape and sides of the nozzle.

2. In an apparatus for gumming tape, a container for liquid gum, a downwardly directed nozzle at the bottom of the container through which the gum is adapted to flow for spreading a layer of gum on a tape drawn across the end of the nozzle and in contact therewith, said nozzle being of elongated rectangular form with relatively wide marginal edges against which the tape bears so as to preserve bare ungummed margins on the tape, a channel plate bearing against the under side of the tape with its legs extending upwardly along opposite sides of the nozzle, means pivoting one end of the channel plate to the nozzle adjacent to the point of entry of the tape, and a spring resiliently urging the opposite end of the plate toward the nozzle so as to yield and adapt the device to varying thickness of tape or inequalities therein.

3. In an apparatus for gumming tape, a container for liquid gum, a downwardly directed nozzle at the bottom of the container through which the gum is adapted to flow for spreading a layer of gum on a tape drawn across the end of the nozzle and in contact therewith, said nozzle being of elongated rectangular form with relatively wide marginal edges against which the tape bears so as to preserve bare ungummed margins on the tape, a channel plate bearing against the under side of the tape with its legs extending upwardly and spaced outwardly from opposite sides of the nozzle, means pivoting one end of the channel plate to the nozzle adjacent to the point of entry of the tape, and a spring resiliently urging the opposite end of the plate toward the nozzle so as to yield and adapt the device to varying thickness of tape or inequalities therein, said nozzle further characterized by having its end wall cut away where the tape leaves the nozzle in passing thereover so as to provide a clearance above the tape at this point for determining the thickness of the band of gum spread on the tape.

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