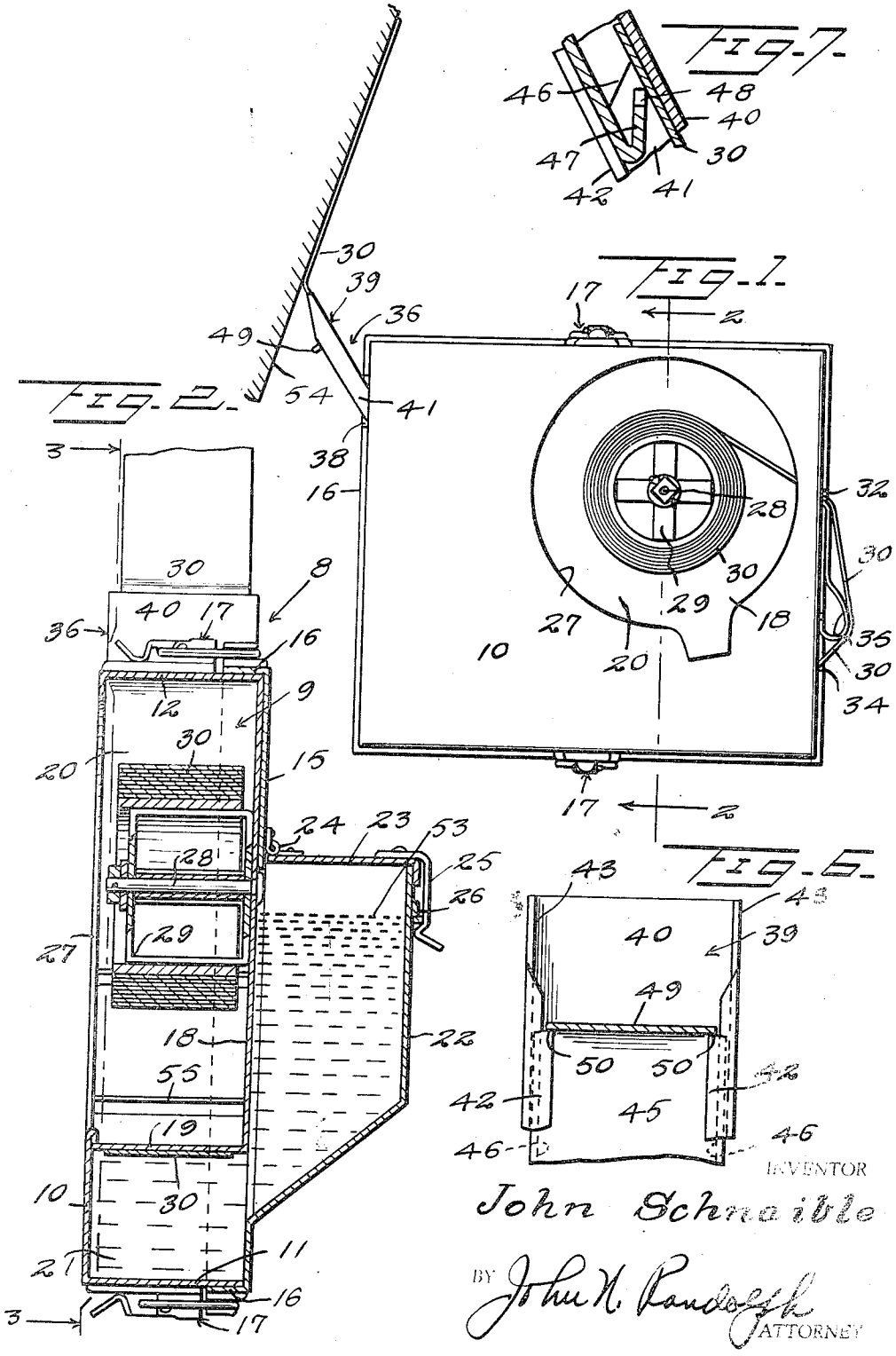
Nov. 16, 1954 J. SCHNAIBLE 2,694,378

TAPE COATING AND APPLYING APPARATUS

Filed Sept. 12, 1952 2 Sheets-Sheet 1



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FIG. 3.

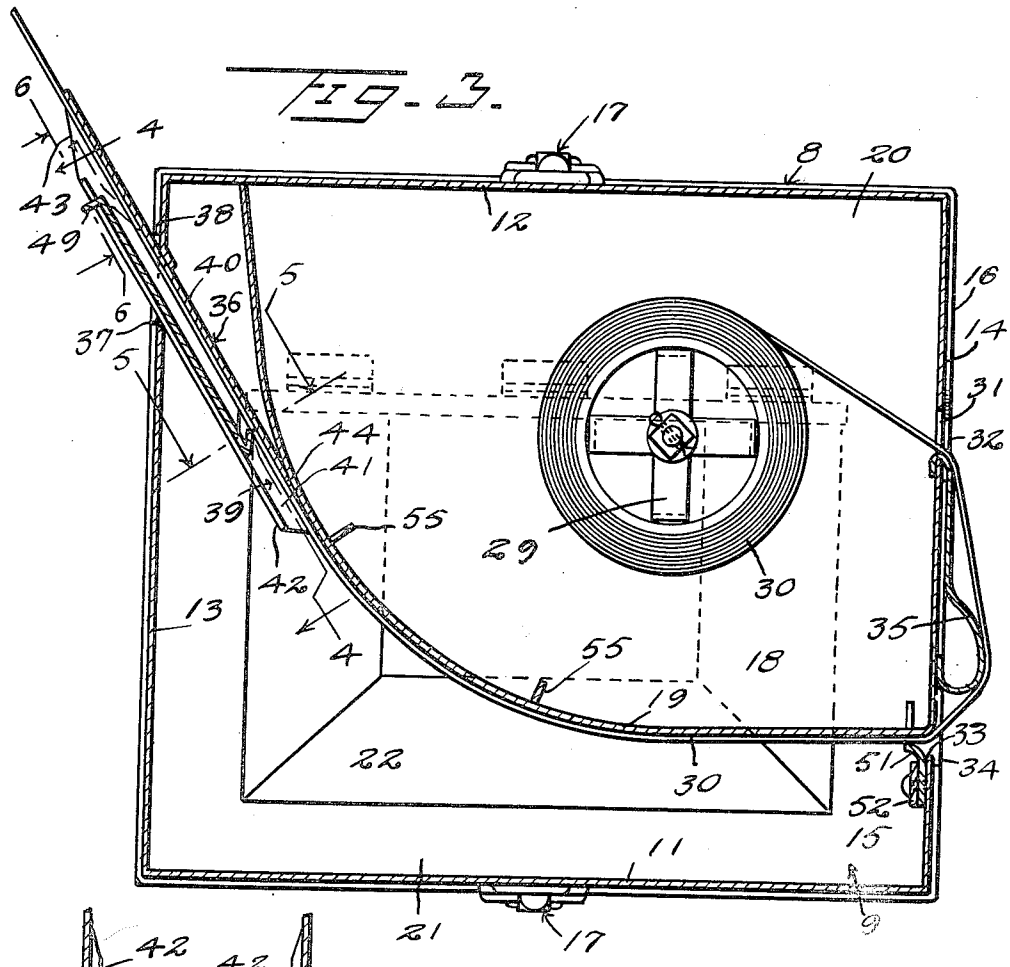


FIG. 4.

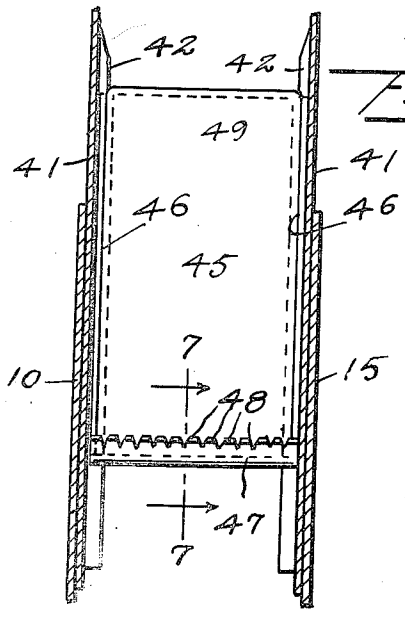
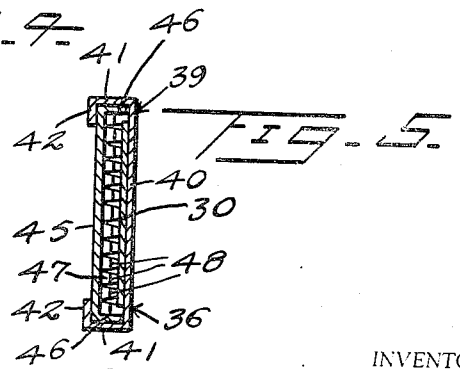


FIG. 5.



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TAPE COATING AND APPLYING APPARATUS

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9 Claims. (Cl. 118—125)

This invention relates to a novel apparatus or machine for containing a roll of tape in one chamber of the apparatus and for feeding and applying the tape from an outlet passage of the apparatus after the tape has been passed through another chamber in which one side of the tape is coated with a bonding medium.

More particularly, it is an aim of the present invention to provide a box-like apparatus of extremely simple construction which will be light in weight and small in size enabling it to be readily held manually while tape is dispensed therefrom freshly coated on one side and in a position so that the apparatus may be utilized for applying the tape to a surface as it is fed from the apparatus.

A further object of the invention is to provide an apparatus wherein coating of the tape with a viscous mixture is accomplished by movement of the tape through a chamber of the apparatus partially surrounding another storage chamber of the apparatus in which the stored tape is contained to thus provide a device of extremely simple and compact construction.

Another object of the device is to provide an apparatus including a box-like structure for housing a roll of tape in a dry condition and from which the tape is fed through another compartment of the structure to be coated with a bonding medium on one side thereof and thereafter dispensed from an outlet passage of the apparatus so constructed that it can be readily employed for application of the tape to a surface without the necessity of the operator touching the tape after an end of the tape has been initially anchored to the surface.

A further object of the invention is to provide an apparatus having means for initially wiping any foreign matter from the tape during its travel from the storage compartment to the coating chamber and which is additionally provided with means for removing an excess amount of coating from the coated side of the tape before the tape is dispensed from the machine.

Still a further object of the invention is to provide a machine embodying a box-like structure which may be reloaded with a fresh roll of tape and refilled with the viscous bonding medium without the necessity of completely opening the structure.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a side elevational view of the taping apparatus;

Figure 2 is an enlarged cross sectional view thereof taken substantially along a plane as indicated by the line 2—2 of Figure 1;

Figure 3 is a longitudinal sectional view thereof taken substantially along a plane as indicated by the line 3—3 of Figure 2;

Figure 4 is an enlarged longitudinal sectional view of the outlet passage taken substantially along a plane as indicated by the line 4—4 of Figure 3;

Figure 5 is a cross sectional view of the outlet passage, taken substantially along a plane as indicated by the line 5—5 of Figure 3;

Figure 6 is a fragmentary bottom plan view partly in section of the outer portion of said outlet passage, taken substantially along a plane as indicated by the line 6—6 of Figure 3, and

Figure 7 is an enlarged fragmentary longitudinal sectional view of a portion of the outlet passage, taken substantially along a plane as indicated by the line 7—7 of Figure 4.

Referring more specifically to the drawings, the taping apparatus or machine in its entirety is designated generally 8 and includes a box-like housing, designated generally 9, comprising a rear wall 10, bottom wall 11, top wall 12, end walls 13 and 14 and a detachable front wall 15. The front wall 15 along its ends and top and bottom edges is provided with an inturned flange 16 which overlappingly engages portions of the top and bottom and end walls of the housing 9. Said detachable front wall 15 is secured in an applied position by means of latch members 17 which are secured to the top and bottom walls of said housing 9 and have keeper elements secured to flanges 16 overlying said walls. The box-like housing 9 also includes a front partition wall 18 which is permanently secured to or formed integral with portions of the top wall 12 and end wall 14 and which front partition wall 18 is disposed on the inner side of the detachable front wall 15 and parallel thereto and in abutting engagement with a portion thereof. The housing structure 9 also includes a partition wall 19 which is secured to or formed integral with a bottom edge and an end edge of the front partition wall 18 and which extends therefrom across the housing 9 and has its opposite longitudinal edge secured to the rear wall 10. The partition wall 19 extends from the end wall 14 toward the opposite end wall 13 and is disposed nearer the bottom wall 11 than the top wall 12. From a point relatively near to the end wall 14, the partition wall 19 commences to curve upwardly as it approaches the end wall 13 and the opposite upper end of said partition wall 19 joins with the top wall 12 and is spaced from the end wall 13. Thus, the front partition wall 18 and the bottom and end partition wall 19 cooperate to divide the housing structure 9 into an upper compartment 20 and a lower compartment 21, which compartments are completely separated from one another even when the detachable front wall 15 is removed.

The detachable front wall 15 is provided with an externally bulged portion defining an upwardly opening hopper 22 the bottom portion of which is disposed beneath the bottom partition 19, so that the bottom of said hopper 22 opens into the bottom compartment or chamber 21 below the bottom partition wall 19 while the upper portion of said hopper is closed on its inner side from the upper compartment 20 by the front partition wall 18. The hopper 22 is provided with a cover or closure 23 for closing the open top thereof and which is hinged to a portion of said front wall 15 by one or a plurality of hinges 24. The cover 23 is provided with a spring latch 25 for engaging a keeper 26, secured to the hopper 22, for maintaining the cover in a closed position.

The rear wall 10 is provided with a relatively large opening 27 above the partition wall 19 and between said partition wall 19 and the end wall 14, so that the opening 27 communicates only with the upper compartment 20. A spindle or shaft 28 is secured to the partition wall 18 and extends therefrom transversely into the compartment 20 to provide a support and journal for a spool 29 on which a roll of tape 30 is detachably mounted for rotation with the spool. The end wall 14 is provided with an opening 31 which extends from side to side thereof and the flange 16 is notched as seen at 32 where it registers with the opening 31. The opening 31 is disposed substantially above the partition 19. The end wall 14 is also provided with a lower opening 33 which likewise extends from side to side thereof and which is disposed directly beneath the partition wall 19. The flange 16 is also provided with a notch 34 disposed in registration with the opening 33. A spacing strip 35 is secured to the outer side of the end wall 14 between the openings 31 and 33 and is bulged away from said end wall near the opening 33. One end of the wound roll of tape 30 extends from the top of the roll outwardly through the opening 31 and notch 32 and thence downwardly around the outer side of the spacing strip 35 and then inwardly through the notch 34 and opening 33 into the bottom compartment 21. The tape 30 extends along the underside of the partition wall 19 from the end wall

14 until said tape enters an outlet passage or conduit 36 the entrance end of which is disposed against the partition wall 19 within the chamber 21, substantially above the bottom part of said partition wall and between the partition wall and the end wall 13. The passage or conduit 36 is disposed at an incline and extends upwardly and away from the partition wall 19 outwardly through an opening 37 in the upper portion of the end wall 13 and through a notch 38 of a portion of the flange 16. The passage or conduit 36 includes an inverted channel shape member, designated generally 39, which extends from end-to-end thereof and which includes a top wall 40 defining the top wall of said passage or conduit 36 and which has depending substantially parallel side walls 41. The side walls 41 at their lower edges are provided with inturned flanges 42. The top wall 40 extends upwardly and outwardly from the opening 37 and notch 38 preferably to substantially beyond the end wall 13 and to above the top wall 12 and the side walls 41 are beveled as seen at 43 downwardly and away from the upper end of the top wall 40. The lower end of the top wall 40 merges with a portion of the partition wall 19, as seen at 44, the lower end of the top wall 40 preferably being beveled on its upper or outer side at the point where it merges with and is secured to the partition wall 19, as best illustrated in Figure 3. The passage or conduit 36 also includes a plate or strip 45 which is slidably disposed in the channel member 39 and removable therefrom through its outer upper end. The slide plate 45 has upturned side walls 46 which bear against the inner sides of the walls 41 and is also provided at its lower inner end with an upwardly turned back end wall 47 which is disposed at an acute angle to the slide plate 45 so as to extend upwardly with respect to the passage 36 and away from the lower end of said passage. The end wall 47 defines the lower end of the slide plate 45, which constitutes the bottom of the passage 36, and is disposed above and spaced from the lower end of said passage, so that the lower end of the passage has an open bottom between the flanges 42. The upper edge of the end wall 47 is notched to provide a series of blunt teeth 48, as best seen in Figures 4 and 5, which are spaced only slightly from the top wall 40, for a purpose that will hereinafter be described. The slide plate 45 is provided at its opposite upper end with a down turned lip 49 forming a fingerhold by means of which said slide plate may be slidably applied to or removed from the channel member 39. The inturned flanges 42, near their upper ends are notched, as seen in Figure 6, to provide shoulders 50 against which the end portions of the lip 49 bear to form stops to limit the extent that the slide plate 45 can be inserted downwardly into the inverted channel member 39.

A wiper element 51, preferably formed of a strip of relatively thick resilient rubber, is secured by a clamp 52 to the inner side of the end wall 14 below the opening 34 and has an upper free edge which extends upwardly from the clamp and yieldably bears against a part of the partition wall 19. The partition wall 19 may be provided on its upper side with suitable ribs or cross braces 55 which are secured to and extend transversely thereof and have end portions suitably secured to the walls 10 and 18.

Assuming that a roll of tape 30, preferably paper tape, has been applied to the spool 29 through rear wall opening 27 and that the outer end of the tape 30 passes off of the top of the roll outwardly through the opening 31 and notch 32, around the spacing member 35, inwardly through the opening 33 and notch 34, between the wiper element 51 and partition wall 19, along the underside of said partition wall and into the lower end of the passage 36, longitudinally through said passage between its top wall and the toothed wall edge 48, with the tape 30 thus applied and drawn tight so that it will bear tightly against the partition wall 19, the front wall 15 may be secured by the latches 17 in an applied position, as illustrated in Figure 2. The hopper lid 23 may then be opened for filling the hopper 22 with a viscous bonding mixture commonly known in the trade as "mud" which is almost of a paste like form but capable of being poured. The bonding mixture 53, as indicated in Figure 2, fills the bottom portion of the bottom chamber 21 and may substantially fill the hopper 22. The mixture 53 is prevented from leaking through the opening 33 by the wiper element 51 and the level thereof is below the opening 37 and ordinarily below the slide plate wall 47. The apparatus or device 8 is primarily adapted for taping wallboard or sheetrock joints and will be described in connection with this use; however, it will be understood that the apparatus 8 may be utilized in any connection where tape is to be coated and applied, preferably by a single operation. Assuming that it is desired to tape wallboard or sheetrock joints of a sloping surface 54, a vertical surface, a ceiling surface or in fact any other surface, the housing 9 is supported manually with the outer end of the conduit or passage 36 adjacent the surface to be taped. The outer upper end of the tape 30 can be pulled outwardly through the passage 36 until a freshly coated portion is exposed and which is applied to the surface 54 over an end of a joint to be taped. The housing 10 can then be moved along the joint as illustrated in Figure 1 for withdrawing the tape, due to the pull exerted by the anchored end of the tape to the surface 54, outwardly through the passage 36 and to be applied by the upper end of the top wall 40 to the joint of the surface 54. As previously stated, the wiper 51 will prevent the mixture 53 escaping through the opening 33 and will wipe the bottom of the tape as it enters the bottom chamber 21. Tight contact of the upper side of the tape with the partition wall 19 will keep this surface of the tape clean and free from the mixture 53 while the bottom surface of the tape will be completely coated with the mixture 53 as the tape moves through the chamber 21. As the tape passes between the end wall 47 and top wall 40 the teeth 48 will scrape the excess mixture from the coated side of the tape and which will be returned by gravity to the chamber 21. The chamber 21 and hopper 22 can be refilled with the mixture 53 by opening the lid 23 and without otherwise opening the housing 9. Likewise, when the roll of tape 30 has been exhausted a new roll may be applied to the spool 29 through the rear wall opening 27 and an end of the new roll stapled to the end of the old roll to form a continuation thereof, without opening the housing 9, so that the apparatus 8 may be used indefinitely without the necessity of removing the front wall 15. The tape 30 may be torn off when desired across the outer upper edge of the top wall 40.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A portable tape coating and applying device comprising a housing adapted to be manually supported provided with an upper chamber and a lower chamber, said housing having a rear wall provided with an opening communicating only with the upper chamber, a spool journaled in said upper chamber on which a roll of tape is adapted to be rotatably supported, said housing including a first end wall having an upper opening through which the tape is adapted to extend outwardly of the housing from said upper chamber, said first end wall having a lower opening communicating with the lower chamber and through which the tape extends into the lower chamber, said housing including a partition wall completely separating the upper and lower chambers along the underside of which the tape extends and against which one side of the tape bears, and a conduit extending downwardly and inwardly into the lower chamber through a second end wall of the housing and secured thereto and through which the tape extends from the lower chamber outwardly of said second end wall, said lower chamber being adapted to contain a viscous mixture filling said lower chamber to above the level of the portion of the partition wall located adjacent said first end wall for coating the other underside of the tape as it passes through said lower chamber to a lower inner end of said conduit.

2. An apparatus as in claim 1, and scraper means forming a part of said conduit for scraping an excess of the mixture from the coated underside of the tape in its passage through the conduit, said scraper means being disposed to return the mixture removed thereby to the lower chamber by gravity.

3. An apparatus as in claim 1, said housing having a permanent front wall closing the front side of the upper chamber, said lower chamber having an open front side, a detachable front wall closing the open front side of said lower chamber, and means for filling said lower chamber through said detachable front wall.

4. An apparatus as in claim 3, said means for filling the lower chamber comprising an upwardly opening hopper forming an integral part of said detachable front wall and having a bottom portion opening downwardly and inwardly into the lower chamber, and a hinged closure closing the open top of said hopper and through which the hopper is refilled with the viscous mixture while the detachable front wall is in an applied position.

5. An apparatus as in claim 1, said housing including a detachable front wall closing the front side of said bottom chamber, and a hopper forming a part of said detachable front wall, said hopper opening at its bottom into said lower chamber below a portion of the partition wall located adjacent the hopper.

6. An apparatus as in claim 5, and means for filling said hopper through the top thereof with the viscous mixture.

7. An apparatus as in claim 1, said bottom chamber extending to the upper portion of the housing adjacent said second end wall, and said conduit having its inner

end disposed substantially above the level of a part of the upper chamber located adjacent said first end wall.

8. An apparatus as in claim 1, and wiper means disposed in the lower chamber adjacent said lower opening of the first end wall and yieldably bearing against the tape for wiping the underside of the tape as it enters the lower chamber and to prevent escape of the viscous mixture through said lower opening.

9. An apparatus as in claim 1, said chambers being coplanar and said lower chamber being disposed beneath and beyond an end of the upper chamber.

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