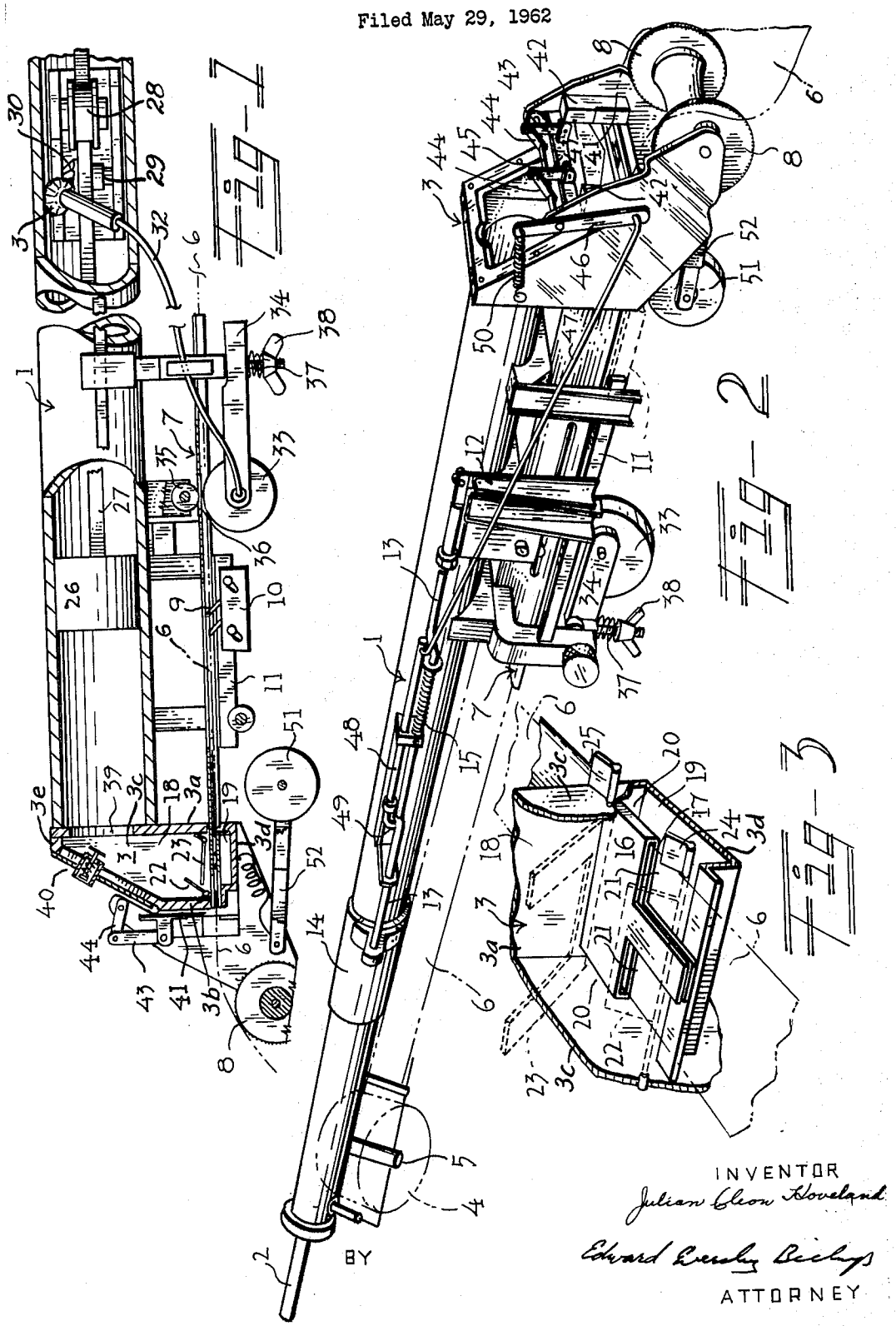
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TAPER AND MASTIC APPLICATOR

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TAPER AND MASTIC APPLICATOR

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This device relates to an improved dry wall taper and mastic applicator.

Dry wall taping and mastic applicating devices are well known and generally these comprise a mastic barrel with a roll of tape carried by the barrel and with some form of tape applying means at the forward end of the barrel. The tape applying means usually comprises spaced wheels over which the tape is passed and there is a piston in the mastic barrel that is coupled to the tape applying wheel so that movement of the wheels results in the piston ejecting mastic from the barrel. The ejection of mastic from the barrel usually is by way of a nozzle that is used to apply the mastic to the tape so that the mastic covered tape may be rolled in position to cover a dry wall joint.

The chief difficulty in prior devices of this sort is that the mastic is applied only to one side of the tape, that is to say, the side of the tape that will be pressed against the wall and the opposite side of the tape is dry. This makes for difficulty when the joint is trowelled to press the tape particularly in a corner since the dry tape tends to drag on the trowel as the trowelling operation proceeds and time and effort must be spent to achieve a satisfactory finish.

Efforts to overcome this have been in the direction of applying more mastic to the underside of the tape so that when the tape is pressed into the wall surface the excess mastic would be squeezed out the side of the tape and then used as a lubricant on the dry tape face. While this has been satisfactory to a degree, the excess of mastic squeezing from the side of the tape has resulted in a messy and untidy operation and considerable mastic is lost during the finishing.

Since it is necessary, in prior devices of this sort, to cut off the tape when taping a dry wall joint, it has also been necessary to provide some form of tape feeding means whereby the end of the tape may be moved into contact with the tape applying wheels. Since the ejection of mastic from the barrel is coupled to movement of the tape applying wheels, it will be obvious that movement of the tape by the tape feeding means to bring the end of tape into contact with the tape applying wheels will result in a section of the tape being without mastic and it usually has been necessary to use some form of manual means to apply mastic to this portion of the tape or to the portion of the joint to be covered by this tape.

An additional disadvantage is to be found in the fact that the mastic barrel is of opaque construction and to eliminate the danger of the piston in the barrel becoming fouled at the end of the barrel, there generally is provided some form of disengaging mechanism that disengages movement of the piston once it has progressed dangerously close to the barrel end.

A further disadvantage in prior apparatus of this nature may be found in the use of a nozzle at the barrel end to discharge mastic onto the moving tape. The use of a nozzle necessitates that there must always be movement of the piston in the barrel to place the mastic under pressure so that it will be discharged positively onto the tape and, should there be no movement of the piston in the barrel to place the mastic under pressure, no mastic will be discharged on the tape and sections of the tape may be left without mastic.

I have overcome the above and other disadvantages in devices of this sort by firstly constructing my device with a mastic chamber at the forward end of the barrel wherein a quantity of mastic may be stored at all times. Further, I have provided a pair of spaced guide plates within my mastic chamber for guiding the tape through the chamber and which serve to divide the chamber into upper and lower compartments.

Openings through the guide plates are provided for the passage of mastic from the upper to the lower compartment and additional openings in the plates are provided so that the tape passing through the mastic chamber may pick up mastic on either or both of its sides prior to its passage from the guide plates onto the tape applying means.

Control of the flow of mastic from the upper to the lower compartments and of mastic onto either or both sides of the tape is accomplished through simple manually operated valves that may be actuated as desired.

To eliminate the difficulty of a portion at the end of the tape being without mastic as the tape is advanced, I have associated movement of the piston within the mastic barrel with a drive wheel in frictional contact with the moving tape prior to the passage of the tape into the mastic chamber. In this way, whenever the tape is advanced by the tape advancing means, the drive wheel will be brought into operation and this will move the piston in the barrel to force mastic out of the barrel into the mastic chamber.

I have found that this system for moving the piston in the mastic chamber is a considerable advantage over prior systems in that it requires only a change in the diameter of the drive wheel to accelerate or retard movement of the piston in the barrel and thereby control movement of mastic from the barrel.

Further, to eliminate disengaging mechanism that prevent damage to the piston striking the end of the barrel I have adopted the simple expedient of making the entire mastic barrel of translucent material so that movement of the piston, condition of the mastic and general operation of the machine is visible to the operator at all times.

With reference now to the drawings illustrating a preferred embodiment:

FIG. 1 is an enlarged broken away sectional side elevation illustrating the mastic chamber and the piston driving mechanism.

FIG. 2 is a projected view of the complete machine illustrating the placement of the tape and passage of the tape onto the tape applying means and the tape cutter.

FIG. 3 is a broken away projected enlarged view of the mastic chamber and guide plates.

With reference now to the drawings, my device comprises the elongated mastic barrel indicated generally at **1** which is closed at its rearward end and provided with a handle **2** and which exhausts at its forward end **39** into the mastic chamber indicated generally at **3**.

The mastic chamber **3** is formed by a housing comprising rear wall **3***a*, forward wall **3***b*, side walls **3***c*, bottom wall **3***d*, and top wall **3***e*.

As is customary in devices of this sort, a reel of tape **4** is carried by the barrel **1** on the axle **5** and the tape **6** passes to the guide mechanism indicated generally at **7** and from the guide mechanism **7** through the mastic chamber **3** to the tape applying wheels **8**. Since the tape applying wheels are more or less standard in this type of apparatus it is not considered that further explanation of these is necessary.

Included in the tape guide means **7** is the tape advancing mechanism consisting of the prongs **9** secured to the block **10** which is in turn secured to the bar **11**. The bar **11** is coupled through the linkage **12** and **13** to the

sleeve 14 on the barrel 1 so that forward movement of the sleeve 14 with relation to the barrel 1 will bring the prongs 9 into contact with the tape and advance the tape forwardly. A spring 15 serves to maintain the sleeve 14 normally in a rearward or retracted position with the prongs 9 out of contact with the tape 6. With this mechanism it will be obvious that reciprocation of the sleeve 14 on the barrel 1 will engage the prongs 9 with the tape on forward movement and disengage the pins on rearward movement and will thereby advance the tape 6 in successive steps.

In the mastic chamber 3 I have provided the pair of guide plate 16 and 17 which are positioned in the mastic chamber in spaced parallel relationship to receive the tape from the tape guide 7 and transfer the tape through the mastic chamber to the tape wheels 8. It should be noted that the guide plates 16 and 17 divide the mastic chamber into an upper compartment 18 and a lower compartment 19 and that the width of the plates 16 and 17 is less than the width of the mastic chamber. This leaves spaces 20 between the sides of the plates 16 and 17 and the sides of the mastic chamber through which mastic can flow from the upper compartment 18 to the lower compartment 19.

The plates 16 and 17 are also reduced in width at their forward ends as indicated at 21 to provide additional openings whereby the tape 6 passing therethrough can pick up mastic on either of its sides.

Since it is not always desirable or advisable to apply mastic to both sides of the tape simultaneously, and since it is necessary to close off the openings 20 and 21 when the barrel 1 is being filled, I have provided the flap valves 22 and 23 mounted on axles extending through the mastic chamber with tabs 24 and 25 which may be actuated manually to open and close the flap valves 22 and 23 respectively.

The piston 26 is mounted slidably within the barrel and is connected to the rack 27 which extends rearwardly from the piston substantially coaxially in the barrel 1 and is interconnected with the pinion 28. The pinion 28 is in turn driven from the gears 29 and the bevel gear 30 in engagement with the bevel gear 31 on the flexible drive shaft 32. The flexible drive shaft 32 is connected to the roller wheel 33 which is mounted rotatably to the arm 34 to engage with the idler wheel 35 through the slot 36 in the guide means 7. Adjustment of the tension between the roller wheel 33 and the idler 35 is accomplished through the spring 37 adjustable by the wing nut 38.

Obviously, as the tape 6 passes between the idler 35 and the roller 33, the roller 33 will be rotated and through the bevel gears 30–31 and the gear 29 the pinion 28 will be actuated to move the rack 27 and, thereby the piston 26, to force mastic through the end 39 of the barrel 1 into the mastic chamber 3.

Loading of the mastic barrel 1 is accomplished through the one way valve 40 which will allow mastic to be pumped through the valve into the barrel but will close and prevent the passage of any mastic in the opposite direction.

The tape cut off is accomplished through the knife blade 41 which operates vertically in the posts 42 in the manner of a guillotine and is connected through the links 43 and 44 to the lateral bar 45. The bar 45 is connected to the actuating arm 46 which is, in turn, connected through the link 47 to the bar 48 formed downwardly at 49 to engage with the end of the bar 13 on the sleeve 14. With this connection, whenever the sleeve 14 is moved rearwardly the arm 46 will be moved to rotate the bar 45 and lower the knife 41 to sever the tape below the knife. A spring 50 coacting between one end of the arm 46 and the exterior of the mastic chamber serves to hold the knife 41 normally in the up or non-cutitng position.

In operation, the mastic barrel 1 would be filled as described by connecting a feed pipe to the one way valve 40 and with the flap valves 22 and 23 closed, mastic would

then be forced into the barrel 1 to move the piston 26 rearwardly until the barrel were full.

Thereafter, the roll of tape 6 would be fed through the tape guide 7 between the idler 35 and roller 33 and up to the mastic chamber 3. The flap valves 22 and 23 then would be opened and thereafter the sleeve 14 would be actuated to move the tape 6 through the mastic chamber 3 and to the tape applying wheels 8. During passage of the tape through the mastic chamber 3 the tape would be covered with mastic either on one or both sides as desired, so that the tape when in contact with the tape applying wheels 8 would have sufficient mastic thereon for application to a wall surface.

If a flat wall joint were to be covered, the machine would be operated in standard fashion to roll the tape over the tape joint and the tape cutter would be actuated to cut off the tape at the desired point.

Should the tape be applied in a corner, the corner applying wheel 51 would then be moved forwardly on its arms 52 to depress the centre of the tape into the corner. Since the corner applying wheel 51 on arms 52 is of common construction it is not considered necessary of further description.

It will now be seen that I have provided a combined dry wall taper and mastic applicator wherein the tape may be coated on one or both sides as desired with mastic to facilitate the application of the tape to a flat wall surface or in a corner. Further, I have provided apparatus of this sort wherein the application of mastic to the tape is independent of rotation of the tape applying wheels and is governed by movement of the tape so that the tape will at all times have mastic thereon.

What I claim as my invention is:

1. A dry wall taper and mastic applicator comprising an elongated mastic-receiving barrel, a mastic-ejecting piston slidably mounted in said barrel, a housing mounted on one end of said barrel and having rear and forward walls, top and bottom walls, and side walls forming a mastic-receiving chamber communicating with the interior of said barrel, a pair of spaced parallel tape guide plates extending through said rear and forward walls and said chamber, said plates being spaced from said top and bottom walls and defining a lower portion of said chamber between said plates and said bottom wall and an upper portion of said chamber between said plates and said top wall, said plates having edges spaced from said side walls and defining mastic flow passages communicating with said chamber portions, one of said plates having tape-exposing openings therein adjacent said forward wall and communicating directly with said lower portion of said chamber, the other of said plates having tape-exposing openings therein adjacent said forward wall and communicating directly with said upper portion of said chamber.

2. A dry wall taper and mastic applicator as defined in claim 1, said upper chamber portion being in direct communication with the interior of said barrel, valve means in said housing actuatable to open and close said mastic flow passages and said plate openings, and means externally of said housing for actuating said valve means.

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