Nov. 8, 1949 W. C. MARSH 2,487,351

PORTABLE TAPE SEALER

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Fig. 1.

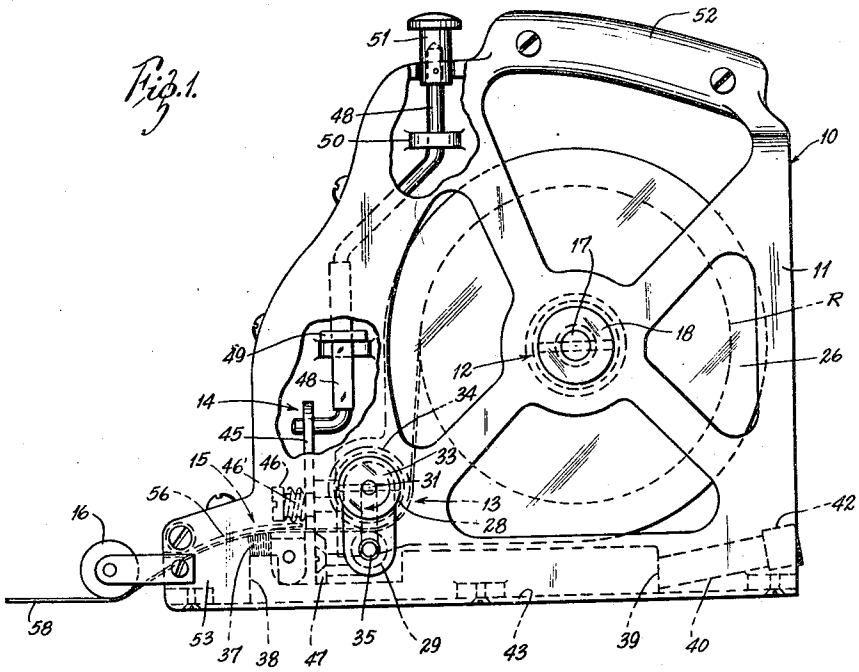


Fig. 2.

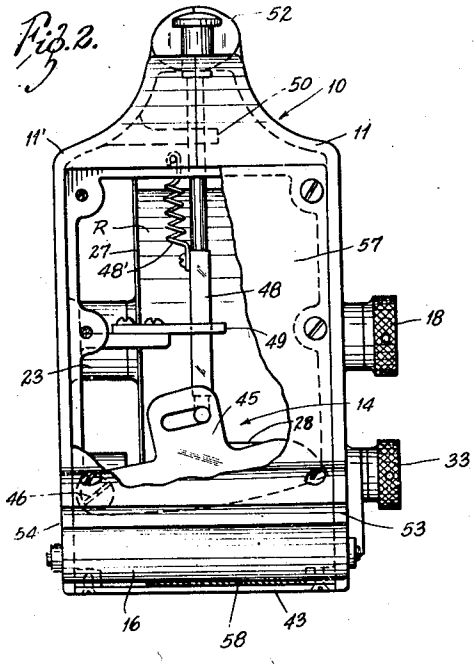
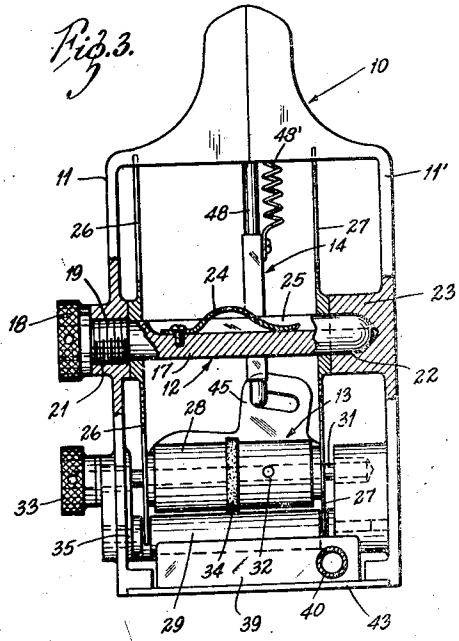


Fig. 3.



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Fig. 4.

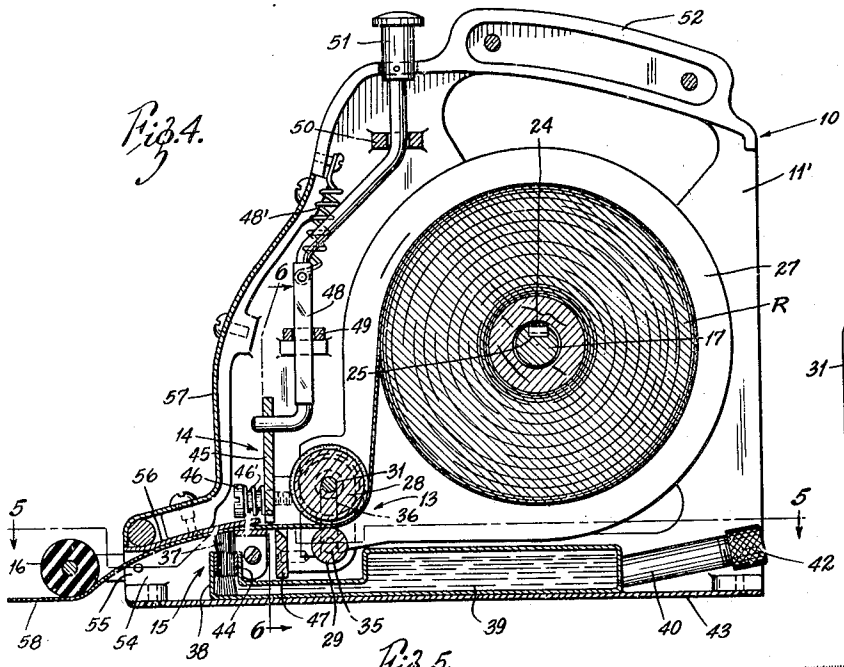


Fig. 7.

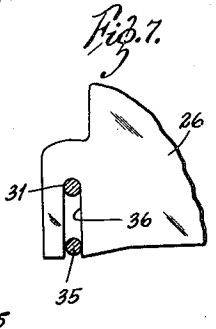


Fig. 8.

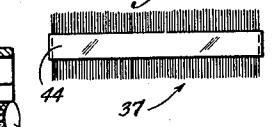


Fig. 5.

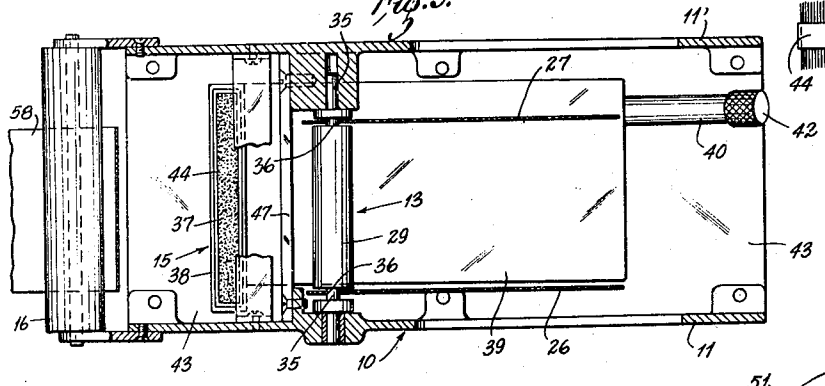


Fig. 6.

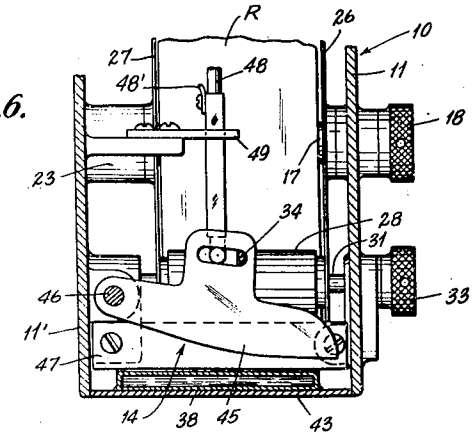
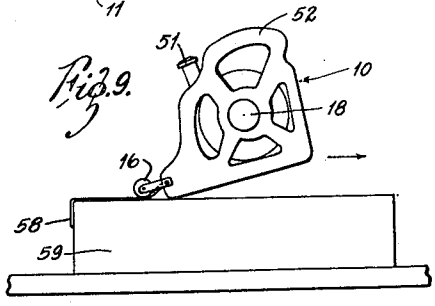


Fig. 9.



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Patented Nov. 8, 1949

2,487,351

UNITED STATES PATENT OFFICE

2,487,351

PORTABLE TAPE SEALER

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Application January 5, 1945, Serial No. 571,522

8 Claims. (Cl. 216—30)

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This invention pertains to tape sealing devices of a portable type.

Under present methods of sealing boxes or cartons by means of glued tape, a bench-type moistening device is used which supplies a length of moistened tape subsequently applied by the operator to the surface to be sealed. This method of moistening and applying the tape has several distinct disadvantages. In the first place, the handling of the moistened tape by the operator during a series of sealing operations deposits glue on his hands which require frequent washings for its removal. Furthermore, before the operator takes the length of tape from the moistening device, he must first estimate its length and cut the tape accordingly. Due to under- and over-estimates, a great deal of wasted tape results from this haphazard method. Also, several time-consuming operations are necessary in applying the tape, one of which is the unnecessary step of removing the tape from the moistening device and then applying it to the surface by hand. Possibly the greatest disadvantage resulting from this method, however, arises from the fact that, after the length of tape is removed from the moistening device and before it can be applied to the surface, the moistened glue dries in spots and an imperfect seal results. Furthermore, the cartons or boxes are oftentimes at a distance from the bench-type moistening apparatus, and, to prevent an exceptionally long drying period, it is necessary to move the cartons closer to the moistening device, which, of course, requires unnecessary handling of the article.

As a general aim of the present invention, it is desired to overcome the above difficulties, and this object is met by providing a portable tape sealing device which applies the moistened tape directly to the surface to be sealed.

More specifically, it is an object of the invention to provide a tape sealing device which has a glued tape supply source and a tape moistening brush contained in a light, compact unit which is movable to apply the moistened tape directly to a surface to be sealed.

It is also an object of the invention to provide a casing for a portable tape sealing unit having an outlet adjacent its lower front corner positioned in a manner to apply tape.

Still another object is to provide a casing for a portable tape sealing unit such as that described in the foregoing object with a handle for carrying the unit arranged with respect to the

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casing proper in a manner that the unit may be carried and also positioned for applying tape.

Still another object of the invention is to provide a casing for a portable tape sealing unit having a handle for carrying the same and a button positioned adjacent to the said handle for operating a cutting mechanism to sever an applied tape at any desired length.

Yet another object of the invention is to provide a portable tape sealing unit having a tape moistening supply means including an applicator and a reservoir which will not leak or discharge an excessive amount of moistening fluid.

A still further object of the invention is to provide a casing for a portable tape sealing unit having a front removable for access to the working parts of the unit.

A further object of the invention is to provide a casing for a portable tape sealing unit having a means associated therewith to press an applied tape against a surface.

Other objects and advantages of the invention will become apparent as the description proceeds.

In carrying out the objects of the invention above stated, a tape supply reel has been mounted in a portable framework supporting a tape feeding roll and a moistening brush together with a shearing element in a manner such that the whole assembly, arranged as a unit, can be moved by a suitable handle to supply a moistened tape of any desired length to a surface.

A more comprehensive understanding of the invention will be afforded from the following detailed description when considered in conjunction with the accompanying drawings in which:

Fig. 1 is a side elevation of a portable tape sealing unit embodying the invention with sections broken away to show the arrangement of its parts;

Fig. 2 is a front elevational view of the device with parts broken away to show the shearing mechanism of the device;

Fig. 3 is a rear elevational view showing the various tape supply and feeding mechanisms of the device partly in section;

Fig. 4 is a vertical cross section showing in detail the arrangement of all parts of the device;

Fig. 5 is a horizontal cross section taken along the line 5—5 of Fig. 4 and showing in a plan view the arrangement of the fluid reservoir, the lower feed rolls and the moistening brush;

Fig. 6 is a detailed view taken along the line 6—6 of Fig. 4 showing the tape shearing mechanism positioned at the end of its cut;

Fig. 7 is a broken part of one of the guide plates

associated with the tape supply reel showing a mounting arrangement for the plate;

Fig. 8 is a side elevation of the moistening brush; and

Fig. 9 is a diagrammatic sketch showing the portable tape sealing device in a position with respect to a carton or box for applying a sealing tape thereto.

With reference to Fig. 1 of the drawings, the frame 10 for the entire portable tape sealing unit is formed of two side plates 11 and 11' which are joined together by suitable means and support a tape supply roll mount 12, a tape feeding mechanism 13, a shearing mechanism 14, and a tape moistening assembly 15. Also supported by the frame 10 is a pressure roller 16 which presses against the moistened tape to apply it to a surface.

The tape supply mount 12 comprises a metal stud 17 which is terminated at one end by a knurled knob 18 and which has a threaded shank 19 for engagement with a threaded aperture 21 in the side plate 11. As this stud is screwed into position, its free end engages a bore 22 in a journal 23 of the side plate 11'. To prevent unwarranted unreeling of the tape roll, which is carried on this mount, a friction spring 24 is secured in a channel 25 in the stud. A surface of the spring 24 is urged against the internal bore of the spool on which the tape roll is wound and holds the roll against movement other than by forced feeding of the tape. A pair of guide plates 26 and 27 also form a part of the tape supply mechanism and each plate is supported in part by the stud 17. These plates, as viewed in Fig. 4, bracket the roll of tape and hold it in a position to guide it to the feed rolls 28 and 29. The feed roller 28 is secured to a rotatable shaft 31 by means of a setscrew 32 and, accordingly, rotates with the shaft upon rotation of the knurled knob 33 attached thereto. This roll also carries an elastic friction band 34 which bears against the tape and holds the same between it and the feed roller 29. Both the shaft 31 and a shaft 35 upon which the roller 29 is mounted are journaled for rotation in suitable journals provided in journal blocks forming parts of the side plates 11 and 11'. A free space between the ends of the feed rollers 28 and 29 and the respective journals allows the channeled portions 36 (Fig. 7) of the guide plates 26 and 27 to pass over and engage the shafts 31 and 35. In this manner, the guide plates are supported on the stud 17 and the shaft 31 and are movable against the end faces of different width feed rolls to adjust the supply reel to accommodate different widths of tape. These widths may range from one to four inches.

From the supply roll R, the free end of the tape is fed through the feed rolls 28 and 29 (Figs. 1 and 4) by turning the knob 33. This action passes the tape to a moistening brush 37 where the glued side thereof is moistened.

The brush 37 is contained in a well, or immersing tank, 38 which forms a part of a reservoir 39. Moistening fluid is admitted to the reservoir by a filling tube 40 extending to the back of the unit for convenient accessibility and provided with a cap 42. The reservoir is soldered to a base plate 43 secured to the frame plates 11 and 11' making it possible to remove the moistening device 15 as a unit when it is desired to clean the brush or insert a new one.

Proper construction of the brush 37 is important since it must present a moistened surface

to the tape at all times and still prevent excessive fluid discharge. As illustrated in Fig. 8, the brush comprises a mat of suitable bristles which is banded at its center by a strap 44. The bristles are bonded by a suitable medium, such as a lacquer cement, and supply the moistening fluid to the tape by capillary action. To seal the reservoir at the brush end, the metal strip 44 is fitted tightly into the well 38, and, in this manner, fluid from the reservoir 39 is continuously fed by contact to one end of the bristle mat and to the other end thereof by capillary attraction and gravity for application to the glued surface of the tape. The brush itself, together with the strap 44, retains the fluid in the reservoir regardless of the position given to the sealing device.

In order that its blades will not become fouled with glue and also that the entire length of the tape may be moistened, the shearing device 14 is placed to the rear of the moistening brush 37. This device comprises a movable blade 45 which is pivoted to the side plate 11 by a tensioning screw 46, and which cooperates with a fixed blade 47 to perform the severing operation. The face of the side plate 11 at the pivot point is at a slight angle with the fixed blade 47, and a spring 46' urges the blade 45 against this face to maintain the latter at an angle against the fixed shear to insure positive cutting action. For moving the blade 45, a bent arm 48 is slidably and non-rotatably retained in two brackets 49 and 50. A button 51 is fitted to one end of the arm 48 and is conveniently located with respect to a handle 52 for gripping the device. This button is depressed by the thumb at the end of an applying stroke to cut the tape. The blade 45 is continuously held in a raised position by a tension spring 48' attached to the arm 48.

An extension 53 and 54, respectively, of the side plates 11 and 11' forms a lip, or tape discharging, opening 55 from which the moistening tape is ejected. A guiding member 56 (Fig. 4) and a face plate 57 which serves to close the front of the frame are attached to lugs projecting inwardly from each of the casing sections 11 and 11'. The guiding member extends the width of the housing to hold the tape downwardly on the moistening brush and to guide the same through the opening 55 and underneath the pressure roller 16.

Operation

The portable sealer is prepared for operation by first filling it with a roll of gummed tape. The stud 17 is removed from the plate to a point where a roll of tape may be inserted into the apparatus and then is returned to its operating position. The feeding roll 28 is turned by rotation of the knob 33 to carry the free end of the tape through the shearing blades 45 and 47, over the moistening brush 37, out of the discharge opening 55 and underneath the roller 16. When the free end of the moistened tape 58 has been applied to the carton or box 59, as shown in Fig. 9, the unit is moved in the direction of the arrow until the top surface of the carton 59 has been sealed and until a sufficient amount of tape for making the end seal has been fed from the machine. The buttor 51 is then depressed by the thumb and the tape is cut to the desired length. By means of the roller 16, the free end of the tape is then applied to the carton to complete the sealing operation.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In a portable tape sealing device, the combination of a tape roll mount, a frame supporting said mount and having a handle and a lip as a part thereof cooperative to feed said tape onto a surface to be sealed, guiding plates supported on said mount in spaced substantially parallel relation for removably guiding the tape onto a surface, said plates extending forwardly beyond the zone of a roll on the mount to guide tape toward said lip, a movable tape severing knife rearwardly of said lip, means located with respect to said handle for hand operation to move said knife to cut said tape at any desired point, and means for moistening said tape comprising a liquid reservoir and a sealed brush communicating with said reservoir to receive a continuous supply of moistening liquid.

2. In a portable tape sealing device, a moistening device comprising a reservoir having a closable opening for admitting fluid to said reservoir, a brush immersing tank connected thereto and an elongated brush assembly mounted in said immersing tank in a manner such as to present the bristles thereof into contact with said fluid and to close said immersing tank to prevent flow of fluid therefrom or from the reservoir other than that amount supplied to the bristles of said brush assembly as a moistening medium.

3. In a portable tape sealing device having a fluid reservoir and an immersing tank connectable therewith, a moistening brush for immersion in said immersing tank comprising a plurality of bristles or hairs bonded together into a brush by a uniting medium, a metal band encircling said brush in a manner such as to present one end as a moistening surface and the other end thereof as a fluid receiving surface, said band being engageable with the internal walls of said immersing tank to form a fluid seal.

4. A lightweight, portable, sealing tape dispenser, including a support, formed of lightweight material, a tape supply holding means on the support for holding a supply of tape to be dispensed, gripping means on the support by which it may be lifted by one hand, non-leakable moistening means on the support over which the tape may be drawn, means on the support to guide the tape from the support over the moistening means, and means on the support to cut the tape at a desired point, said last-named means having an operating member projecting from the support adjacent the gripping means to be operable by the hand holding the gripping means.

5. A lightweight, portable, sealing tape dispenser, including a support, formed of lightweight material, a tape supply holding means on the support for holding a supply of tape to be dispensed, gripping means on the support by which it may be lifted by one hand, non-leakable moistening means on the support over which the tape may be drawn, including a brush of upstanding bonded bristles and a reservoir, the upper ends of said bristles being contactable by the glue side of a tape and the lower ends being disposed in said reservoir, means on the support to guide the tape from the support over the moistening means, and means on the support to cut the tape at a desired point.

6. A lightweight, portable, sealing tape dispenser, including a support, formed of lightweight material, a tape supply holding means on the support for holding a supply of tape to be dispensed, gripping means on the support by which it may be lifted by one hand, non-leakable moistening means on the support over which the tape may be drawn including a brush of upstanding bonded bristles and a reservoir, the upper ends of said bristles being contactable by the glue side of a tape and the lower ends being disposed in said reservoir, and means on the support to guide the tape from the support over the moistening means.

7. A lightweight, portable, sealing tape dispenser, including a support, formed of lightweight material, a tape supply holding means on the support for holding a supply of tape to be dispensed, gripping means on the support by which it may be lifted by one hand, non-leakable moistening means on the support over which the tape may be drawn including a brush of upstanding bonded bristles and a reservoir, the upper ends of said bristles being contactable by the glue side of a tape and the lower ends being disposed in said reservoir, means on the support to guide the tape from the support over the moistening means, and means on the support to cut the tape at a desired point, said last-named means having an operating member projecting from the support adjacent the gripping means to be operable by the hand holding the gripping means.

8. A lightweight, portable, sealing tape dispenser, including a support, formed of lightweight material, a tape supply holding means on the support for holding a supply of tape to be dispensed, gripping means on the support by which it may be lifted by one hand, non-leakable moistening means on the support over which the tape may be drawn, means on the support to guide the tape from the support over the moistening means, and means on the support to cut the tape at a desired point, said last-named means including a pivotally mounted blade and a reciprocable member connected thereto, said reciprocable member having an operating member projecting from the support adjacent the gripping means to be operable by the hand holding the gripping means.

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