

Aug. 17, 1943.

H. D. ALLEN

2,327,150

TAPING TOOL

Filed July 8, 1941

2 Sheets-Sheet 1

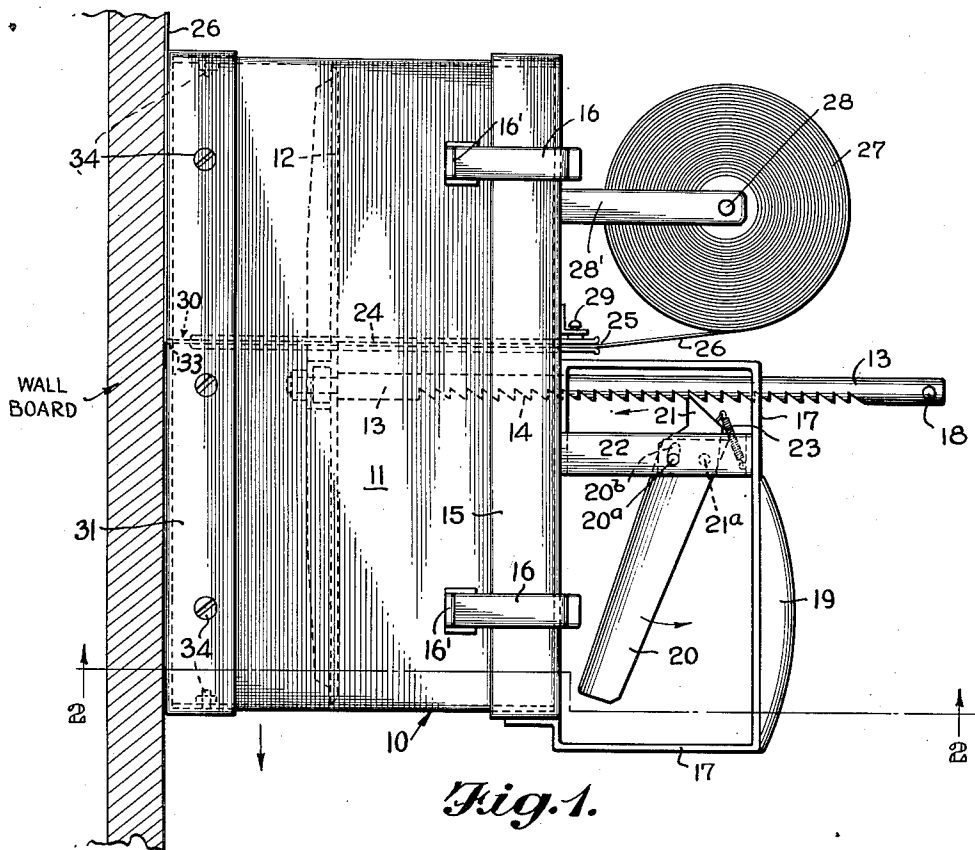


Fig. 1.

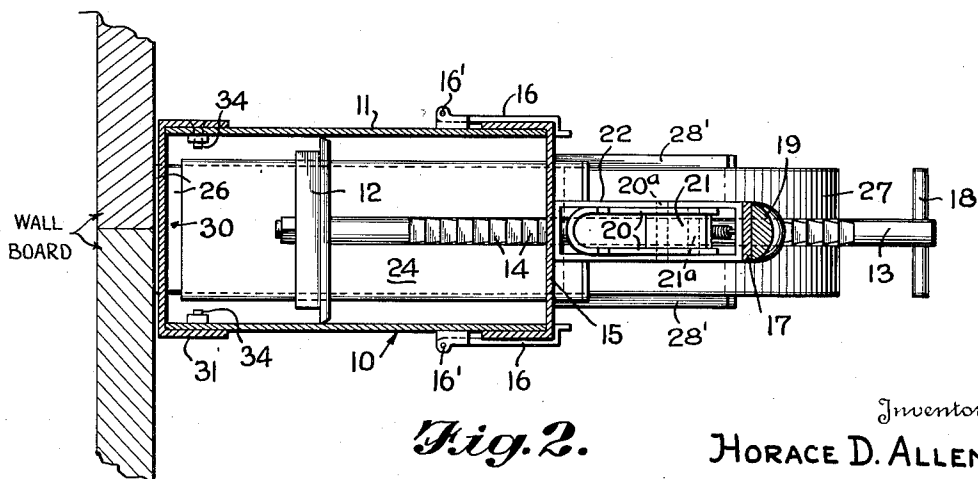


Fig. 2.

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2 Sheets-Sheet 2

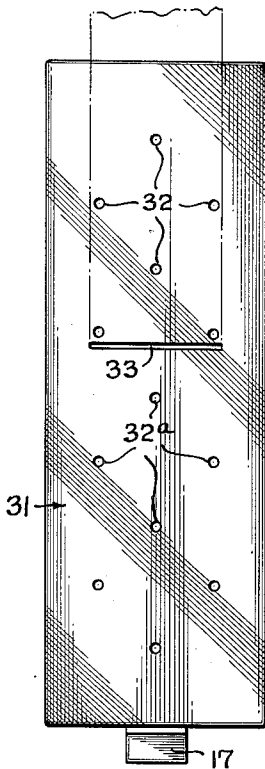


Fig. 3.

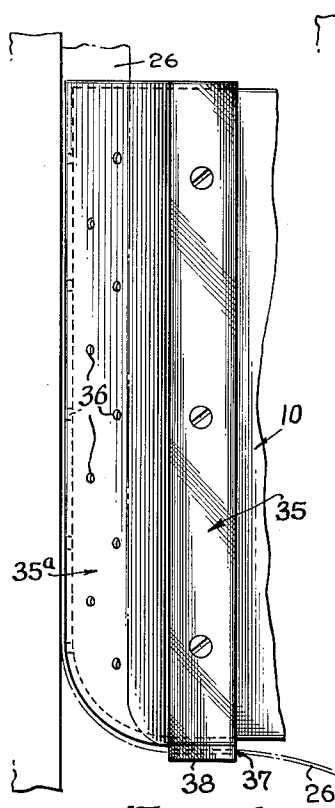


Fig. 4.

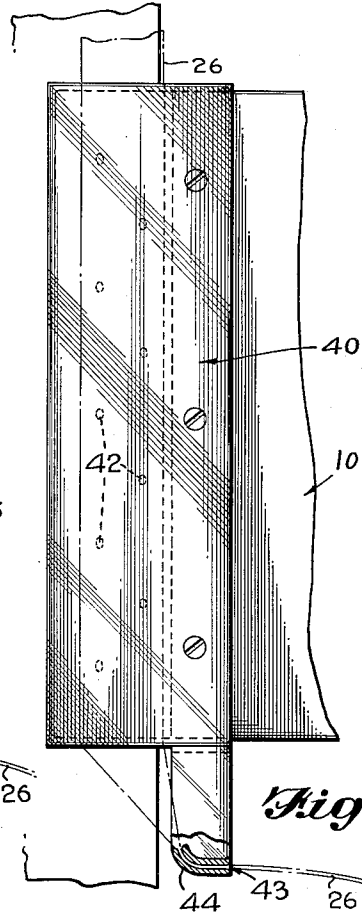


Fig. 5.

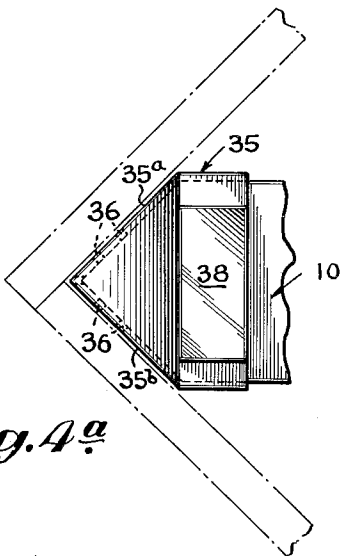


Fig. 4a.

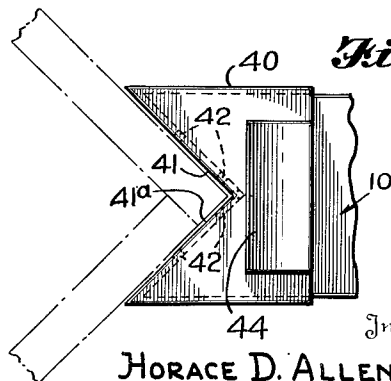


Fig. 5a.

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UNITED STATES PATENT OFFICE

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TAPING TOOL

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Application July 8, 1941, Serial No. 401,546

16 Claims. (Cl. 216—20)

This invention relates to a tool for taping and sealing wall joints in the construction of walls from wall board or analogous prefabricated units, and has for its object to facilitate the application of cement (adhesive) and tape to such joints.

The improved tool consists generally of a self-contained unit which may be manipulated by hand to feed strips of tape through a cement-containing chamber and into operative adjacency to a trowel-like member in the nature of an attachment which secures the tape to the wall and smooths the tape. The unit is relatively light and compact and easily manipulated to seal plain or flat joints as well as angle joints, such as inside and outside corners.

Additional objects incidental to the foregoing will become apparent from the following description taken in conjunction with the drawings, wherein:

Fig. 1 is a view in side elevation of a tool embodying the invention;

Fig. 2 is a section on the line 2—2, Fig. 1;

Fig. 3 is a plan view of the working face or trowel of the tool;

Figs. 4 and 4a and 5 and 5a are, respectively, elevational side and bottom end views of trowel attachments for taping joints in inside and outside corners or angles.

Referring to the drawings in detail, the tool comprises a main frame 10 defining a reservoir or chamber 11 for holding cement or other suitable adhesive. This chamber may be of any desired capacity, but for all practical purposes it is not necessary to make it of such size as will render the tool clumsy or awkward to handle. Within the chamber is mounted a plunger or piston 12 which is removably secured on the inner end of a ratchet stem or rod 13 provided with a series of ratchet teeth 14.

The chamber 11 is provided with a removable cover 15 which telescopes over the walls of said chamber and is removably secured in place by means of spring latches 16 which are hinged to the said walls at 16'.

The ratchet stem 14 projects outwardly through a hole formed in the cover 15 and thence through a handle bracket 17 and at its upper end is provided with a finger piece or handle 18 to facilitate turning of the stem and release thereof from its coacting ratchet mechanism, a description of which follows.

The bracket 17 has secured thereon a handle grip 19, and within easy finger reach of this grip is a hollow lever 20 adapted to manual operation to actuate a pawl 21 in engagement with the

ratchet teeth 14 of the stem 13. The lever 20 is journaled on a pin 20a which projects through a limit slot 20b formed in the pawl 21 and at its opposite ends is fixed to a yoke-shaped bracket 22, while the pawl 21 is journaled on a pin 21a also secured at opposite ends in bracket 22. A spring 23 functions to retract both the pawl and lever.

When lever 20 is grasped by the fingers and pulled to the right, it rocks pawl 21 to thereby impart a stroke to plunger 12. The slot 20b in pawl 21 limits the rocking movement of the pawl so that when the pawl is retracted by spring 23 it will still be in engagement with one of the ratchet teeth 14 and prevent back travel or rebound of plunger 12. In Fig. 1 the pawl is shown in retracted position.

Projecting forwardly through a slot formed in the cover 15 and into the chamber 11 is a tape guide 24 formed with an outwardly opening slot 25 through which tape 26 from a roll 27 may be fed, the said roll 27 being mounted on a spindle 28 forming part of a reel assembly including brackets 28' secured on the cover 15. The guide 24 also projects through a slot formed in the plunger or follower 12 and is adjustably secured in position within the chamber 11 by screw 29. It will be noted that a controllable space 30 may be left at the inner end of the guide, and that by adjusting the extent to which the guide projects to the left within the chamber, this space may be regulated to in turn regulate the amount of adhesive applied to the tape i. e., the amount of cement or adhesive which adheres to the tape is governed by the length of tape which is unshrouded by the guide 24.

The tape is applied to the joint between adjacent pieces of wall board primarily by a trowel-like attachment which is removably secured on the left-hand open side of the chamber 11, there preferably being three attachments for each tool, one for flat joints, one for inside corners or angles, and one for outside corners. In Fig. 1, the attachment, generally indicated at 31, is for flat joints and is formed with a series of extrusion openings 32 and 32a, note Fig. 3, and a slot 33 for the tape 26. The extrusion openings 32 and 32a should be of such size as to permit the extrusion of cement therethrough when a certain amount of pressure is applied by means of the follower or piston 12, but should not be of such size as to permit the cement to leak unduly when pressure is relieved therefrom. If necessary, the openings can be valve-controlled but in practice such control has not been found nec-

essary. The side walls of the trowel telescope over the walls of the chamber 11 and are adapted to receive screws 34, whereby the trowel may be removably secured in place.

The tool may be operated as follows:

A roll of tape may be mounted on the spindle 28 and the free end of the tape threaded through the slot 25 in the guide 24 and thence through the slot 33 in the trowel 31. The projecting end of the tape may then be held at the top of the joint and the tool moved downwardly with the trowel bearing against the joint, the lever 20 being worked to extrude sufficient cement through the openings 32 to moisten the outside surface of the tape and condition the latter and through the openings 32a to feed cement onto the joint area prior to application of the tape, and this acts to supplement whatever cement is applied to the two sides of the tape. The tape is evenly coated on both sides as it passes through the cement or adhesive in zone 30 within the chamber, the amount of cement applied to the tape in this zone being controlled by the positioning of the inner end of the tape-containing or shrouding guide 24. If the guide 24 is in its extreme left-hand position, little or no adhesive will be applied to the tape as it exits from the guide and through the slot 33; as the guide 24 is progressively positioned further to the right, the tape passes through an increasingly larger and more effective mass of adhesive. In addition to the cement which may thus be supplied to the tape within the chamber 11, a controllable amount of cement may be applied—by working the piston 12—through the apertures 32a to the as-yet-untaped wallboard joint, while the tape which has already been applied to the joint, i. e., the outer face thereof, may be further supplied with cement through the holes 32 as the tape is smoothed into jointing position by the passage of the trowel or face of the tool thereover. Ordinarily, one piston stroke is sufficient, but if desired additional strokes may be made by the trowel with the tape retracted sufficiently as not to interfere with the working of the trowel.

Whenever it is desired to reload the chamber with a fresh charge of adhesive cement, it is only necessary to release the latches 16 and remove the cover 15. If it should be found necessary or desirable to release the ratchet stem 13 from its coating ratchet mechanism, the said stem may be rotated by means of the finger bar or handle 18.

As heretofore noted, the amount of cement applied to the tape may be regulated by adjusting the extent to which the tape guide 24 extends to the left in the chamber 11; the pressure applied to the cement in the chamber 11 also regulates to some extent the amount of cement applied to the tape. If necessary, the extrusion openings in the working surface of the trowel may be omitted. However, it is found that these openings materially facilitate the taping operation and ensure a thorough job.

Figs. 4 and 4a show a trowel attachment for inside corners or angles, the attachment being generally indicated at 35. The trowel in this instance has walls 35a and 35b shaped to define an angle of approximately ninety degrees so as to fit within an inside corner, said walls being formed with a series of extrusion openings 36. In this instance, the tape is fed through a slot 37 formed in a guide 38 at the rear end of the trowel. In applying the tape, the joint area may be first given a coating of cement by moving the

trowel downwardly thereover, and thereafter the tape may be applied by an additional stroke of the trowel. However, the trowel may be formed with a slot intermediate of its length if desired and the tape fed therethrough in the same manner as in the trowel for flat joints shown in Figs. 1, 2 and 3.

In Figs. 5 and 5a, the trowel, generally indicated at 40, is for use on outside corners or angles and is formed with walls 41, 41a arranged at a converging angle of approximately ninety degrees, the said walls being formed with a series of extrusion openings 42. The tape is fed through a slot 43 in a guide 44 at the rear end of the trowel and thence adjacent the bottom of the trowel. In this instance also, it is preferred to first apply the cement by bringing the trowel downwardly over the joint and then apply the tape by another stroke of the trowel, although a tape slot may be provided in the trowel face as described in connection with the preceding trowels.

From the foregoing, it will be seen that I have provided a tool for taping joints between wall board which is simple to operate and at the same time will materially speed up this type of work and reduce the labor involved therein. The machine is simple to operate and may be taken apart for cleaning and refilling in a very short time. In practice, the chamber 11 has been given a capacity such as to tape a large-size room and carry a seventy-five foot spool of tape. Ordinarily, tape of the type used for wall board comes dry and when it is applied, it must be thoroughly conditioned or moistened to render it workable; and the construction of the trowel attachment is such as to take care of this phase of the operation.

It will be understood that certain limited changes in construction and design may be adopted without departing from the spirit or scope of the invention as defined by the appended claims.

What is claimed is:

1. A tool for taping wall board joints having a chamber for cement therein, a plunger movably mounted in said chamber, a trowel secured over said chamber and having a slot therein and a series of extrusion openings, a tape guide mounted in said chamber and spaced a predetermined distance from the working surface of said trowel, whereby tape threaded through said guide and through the slot in said trowel may be guided over the working surface of the latter, and means for actuating said plunger to extrude cement through said openings during the taping operation.

2. A tool for taping wall board joints having a chamber for cement therein, a plunger mounted for movement in said chamber, means supporting a roll of tape on said tool, a trowel secured over said chamber and having a tape slot therein and a series of extrusion openings, said openings being spaced on each side of said slot, a tape guide projected into said chamber and spaced a predetermined distance from said trowel slot, whereby tape may be fed from said roll through said guide and through said slot, and means for actuating said plunger to extrude cement through said openings during the taping operation.

3. A tool for taping wall board having a chamber for cement therein, a trowel removably secured over said chamber and having a series of extrusion openings formed therein, a tape guide having a slot therein mounted in said chamber,

the trowel being formed with a slot through which the tape from said guide is passed, and the one end of the tape guide terminating a predetermined distance from the slot, and means for adjusting said guide to determine the spacing of the end of the latter with respect to said slot.

4. A tool for taping and sealing wall board joints having a chamber for cement therein, a plunger mounted for movement in said chamber, a cover removably secured over said chamber, a handle carried by said cover, a plunger stem projecting through said cover, means within finger reach of said handle having an operative connection with said stem for actuating said plunger, a trowel secured over the said chamber and having a series of extrusion openings therein, actuation of said plunger causing cement to be extruded through said openings, and means for guiding tape over the working surface of said trowel.

5. A tool for taping wall board joints comprising a chamber for holding a supply of cement, a tape guide projecting a controllable variable distance into said chamber, and a trowel cooperating with said chamber and having a slot therein, whereby tape fed through said guide and through the slot of said trowel may be guided over the working surface of the latter.

6. A tool for taping wall board joints comprising a chamber for holding a supply of cement, a tape guide extending a controllable variable distance into said chamber, a trowel secured over said chamber, whereby tape threaded through said guide may be guided over the working surface of said trowel, and means for forcing cement from said chamber onto the already-applied tape and also onto the surface to which the tape is applied.

7. A tool for taping wall board joints comprising a chamber for holding a supply of cement, a trowel associated with said chamber, means for feeding tape over the working face of said trowel, and means for applying controlled variable amounts of cement from the chamber to said tape.

8. A tool for sealing and taping wall board joints having a chamber for holding a supply of cement, a trowel secured over said chamber and having a slot therein, means extending into said chamber a controllable variable distance for guiding tape toward said slot and thence over the working face of the trowel, and means for forcing cement from said chamber onto the surface to which the tape is applied.

9. A tool for sealing and taping wall board joints having a chamber for cement, a piston movably mounted in said chamber, a trowel secured over said chamber and having a series of extrusion openings in the working face thereof, means for feeding tape over the working face of said trowel, and means for actuating said plunger to extrude cement through said openings.

10. A tool for taping wall board joints having a chamber for cement, a plunger movably mounted in said chamber, a cover detachably secured over said chamber and having a hand grip for manipulating the tool, said plunger being provided with a stem projecting through said cover and having ratchet teeth thereon, a pawl mounted adjacent said stem, a lever for actuating

said pawl within finger reach of said grip, a trowel secured to the back of said chamber and being formed with a tape slot therein and a series of extrusion openings on opposite sides of said slot, a tape guide projecting through said cover into said chamber and thence through said plunger with its inner end terminating a predetermined distance from the slot in said trowel, means for supporting a roll of tape on said cover, whereby tape threaded through said guide and thence through the slot in the trowel may be guided over the working surface of the latter, actuation of said plunger through said lever causing cement to be extruded through said openings and onto the tape and the surface to which the tape is to be applied.

11. A taping tool having a chamber for cement, a trowel disposed over said chamber and having surfaces disposed at an angle of approximately ninety degrees with respect to one another, said surfaces being formed with a series of extrusion openings, means for guiding tape over the working surface of said trowel, and means for extruding cement through said openings.

12. A taping tool having a chamber for cement, a trowel secured over the bottom of said chamber and having working surfaces arranged at an angle with respect to one another and whereby the trowel may be used on angularly-disposed surfaces, said working surfaces being formed with a series of extrusion openings, the one end of said trowel being formed with a tape guide and whereby tape may be guided over the working surface of the trowel, and means for extruding cement through said openings.

13. A taping tool for wallboard joints comprising a container for adhesive, a follower for retaining a compact mass of adhesive in said container, means to cause said follower to snugly follow the adhesive in said container, a trowel on said container, and means to direct a tape through said container in intimate contact with said adhesive and over the face of said trowel in a position to be applied to a wallboard joint by movement of said tool over said joint.

14. A taping tool for wallboard joints comprising a container for adhesive, said container having a slot therein, a follower in said container, said container being constructed to enable tape to be passed through said adhesive and drawn from said container through said slot, and means to manually operate said follower to force adhesive through said slot.

15. A taping tool for wallboard joints comprising means for applying cement to the wallboard joint, means for applying jointing tape over said joint and presupplied cement, means for supplying a controlled amount of cement to both sides of the tape before the latter is positioned over the joint, and means for supplying cement to the outer face of said tape after the latter has been located in jointing position.

16. A tool for applying jointing tape to wallboard joints comprising means for presupplying cement to the joint, means for supplying both sides of said tape with cement, and means for supplying further cement on the outside face of the tape after the latter has been placed over the joint.

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