

United States Patent

Johnson

[15] 3,683,496

[45] Aug. 15, 1972

[54] WALLBOARD JOINT BLADE

[72] Inventor: Ray Johnson, 36 Strawberry Hill Road, Natick, Mass. 01760

[22] Filed: Jan. 13, 1971

[21] Appl. No.: 106,228

[52] U.S. Cl. 30/169, 30/320, 15/144 B

[51] Int. Cl. B26b 3/00

[58] Field of Search.....30/162, 163, 169, 171, 335, 30/339, 320; 15/143 B, 144, 144 B, 236 R, 236 A; 81/177 A

[56] References Cited

UNITED STATES PATENTS

930,406	8/1909	McDonald	81/177 A X
1,906,573	5/1933	Gits	30/162 X
2,349,252	5/1944	Douglass.....	30/162 X
2,864,110	12/1958	Bruger	15/144 B

Primary Examiner—Robert C. Riordon

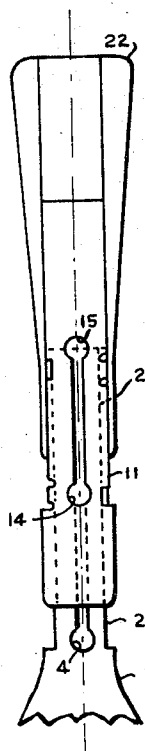
Assistant Examiner—J. C. Peters

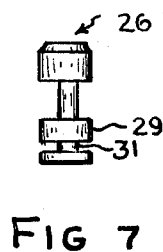
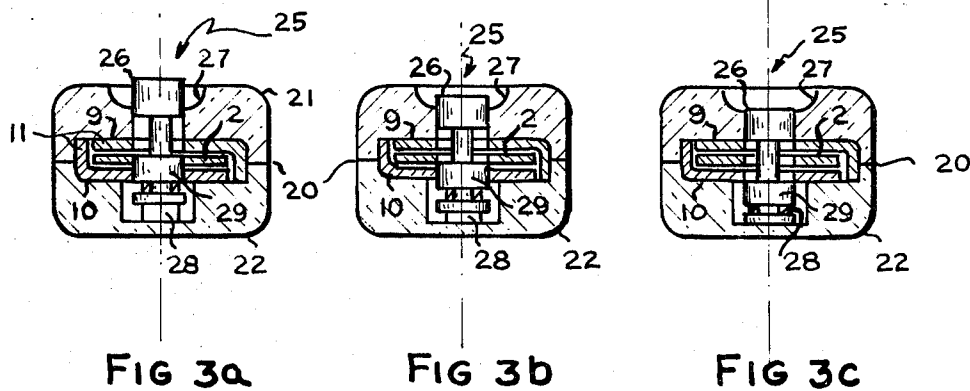
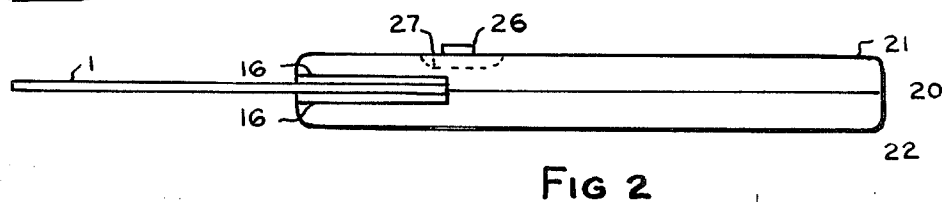
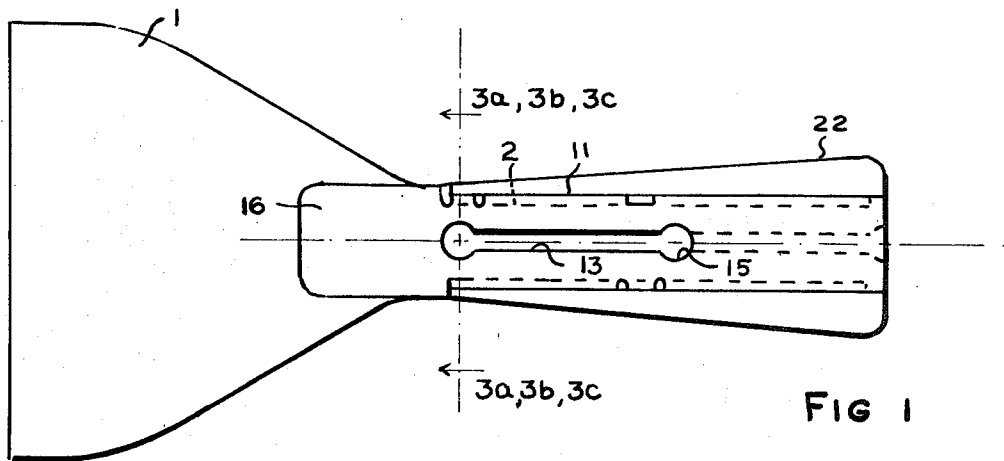
Attorney—Robert T. Dunn

[57] ABSTRACT

A broad blade for applying and trimming cement at the seams, corners, and nail holes in wallboard extends from a handle in telescope fashion, enabling the user to extend his reach to, for example, ceilings. The blade is an extension of one sliding member, which slides within a second, both contained within the handle and both engaged at stop holes along each sliding member by a pin, which the user manipulates with his thumb. The members extend from the handle, first one and then the other, in such a manner that substantial support is given to the blade, even when fully extended.

10 Claims, 11 Drawing Figures





INVENTOR.
RAY JOHNSON
BY *Robert T. Dumas*
ATTORNEY

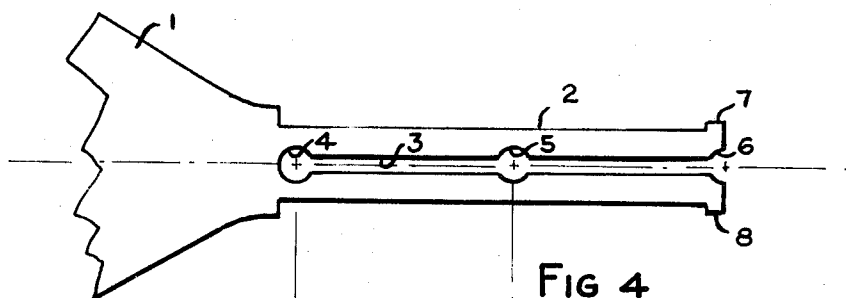


FIG 4

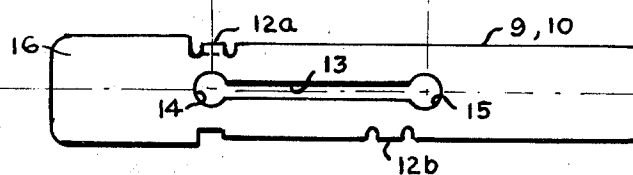


FIG 5

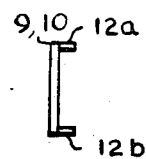


FIG 6

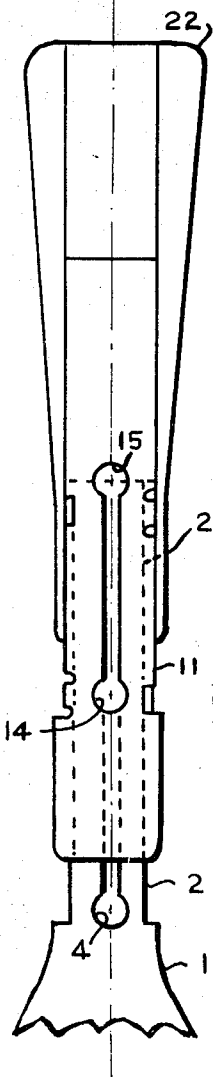


FIG 8

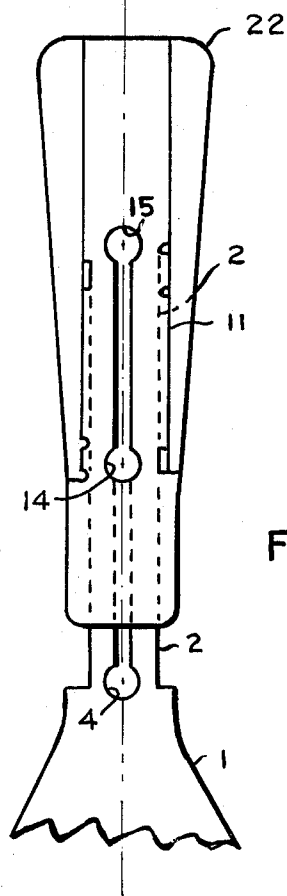


FIG 9

INVENTOR.
RAY JOHNSON
BY *Robert T. Johnson*
ATTORNEY

WALLBOARD JOINT BLADE

This invention relates to tools which extend variable distance from a handle, by which the user manipulates the tool, and more particularly to an extendable wallboard blade for applying cement to wallboards.

Wallboards are used commonly on the inside walls of buildings to provide a plaster-like wall. They are of gypsum material encased within coarse paper layers and are erected in large sheets with ends butting at wall studs. The abutting ends and nail holes in the boards are sealed with cement applied with a broad, flexible blade, extending from a handle. Both walls and ceilings in a room are made with the wallboard. Finishing the joint seams and nail holes in the ceiling is sometimes difficult because a workman cannot reach the ceiling with the blade. Ceilings in modern homes are commonly 7½ feet from floor and unless the workman is tall enough, he cannot readily reach the ceiling with the blade to apply and trim cement.

It is one object of the present invention to provide a tool with an extendable blade for applying cement to wallboard to finish a wall or ceiling.

It is another object to provide an extension mechanism for a tool, whereby the applied part of the tool may be extended from a handle by a relatively simple manipulation of the handle.

It is another object to provide such a tool with support means between the handle and tool, even when in the extended position.

It is another object to provide such an extendable tool and handle, made largely of simple stamped parts, so as to be economical to manufacture.

These and other objects of the invention will be apparent in view of the specific description of an embodiment of the invention taken in conjunction with the figures, in which:

FIG. 1 is a plan view of the handle with portions of the handle removed to reveal parts of the extension mechanism;

FIG. 2 is a side view of the handle;

FIG. 3a, 3b and 3c are end cross-section views of the handle showing the detent button locking both sliding members, locking only the second and releasing both, respectively;

FIG. 4 is a plan view of the first member, which is an integral part of the blade;

FIG. 5 is a plan view of the top or bottom halves of the second sliding member, which slides from the handle at the greatest extension of the blade;

FIG. 6 is an end view of the second member;

FIG. 7 shows the detent button or pin; and

FIGS. 8 and 9 show positions of the blade extended to the fully extended position, and middle position extended, respectively.

FIG. 1 shows a top view or plan view of the blade and handle, sometimes called a joint knife or wall scraper, which is used by workmen to apply and smooth cement to joints, seams and nail holes in wallboard. The blade 1 is rather broad, capable of spanning two to three inches on each side of a joint between abutting sheets of wallboards. Thus, the blade may be 4 to 6 inches wide. A first sliding member 2 extends from the blade and is an integral part thereof. This member is shown in FIG. 4. The blade 1 and first sliding member 2 form an integral piece which may be stamped from a sheet of metal. There are no projections transverse to the plane of this

stamping. The member 2 includes a track, which in effect splits it up to the blade, and three detent hole positions along the track, denoted 4, 5, and 6. Flat projections 7 and 8 at the end of the first member engage projecting parts of the upper and lower halves 9 and 10 of the second sliding member 11, shown in FIGS. 3 and 5. Member 2 is sandwiched between the halves 9 and 10.

The second member halves 9 and 10 are identical and may also be stamped from a sheet of metal. They are each substantially flat and each includes transverse projections such as 12a and 12b, which define a channel between them when they are assembled. The first member 2 slides in this channel. In addition, projection 12 provides a stop which is abutted by flat projections 7 and 8 on the first sliding member when the blade is extended from the handle. Each half of the second sliding member also includes a track 13 with detent positions 14 and 15 at each end of the track. The broadened end 16 of each half provides support directly to the blade in the retracted position and support against the first member extension of the blade in the extended positions. When the blade is flexed it bears against one or the other of these supports and so resistance against flexing increases.

The first and second sliding members 2 and 11 and the detent button assembly are shown assembled in a handle 20 in FIGS. 3a, 3b, and 3c. The handle 20 may be plastic, metal, or other suitable material of sufficient strength, preferably made in two pieces 21 and 22, as shown in FIG. 3. The view of the assembly in FIG. 1 is a top or plan view, shown with piece 21 of the handle removed to reveal the sliding members inside the handle in the fully retracted position. The two members of the handle 21 and 22 join together as shown in FIGS. 3a, 3b, and 3c and define a right parallelepiped cavity for slideably containing the assembly of the first sliding member inside the second, which nest together.

A hole drilled transverse to this cavity into the handle parts 21 and 22 accommodates a spring-loaded detent button assembly 25. This assembly includes a detent button or pin 26 which projects into the thumb detent 27 in the handle and leaf spring 28. At one end of the pin is the slotted detent ring 29. The pin is compelled out of the thumb detent 27 by the spring 28 in the handle part 22, which engages the pin at the slot 31. Thus, the ring 29 of the pin urged by the spring out of the thumb detent 27 fits into detent positions along the tracks in the sliding members, locking the members so they cannot slide. When the pin is in the position, shown in FIG. 3a, the ring 29 engages a detent position in track 13 of the bottom half 10 of the second sliding member and also engages a detent position along track 3 of the first sliding member. This is the locked situation, in any degree of extension from the fully retracted position shown in FIG. 1 to the fully extended position shown in FIG. 9. In the retracted position shown in FIG. 1, the ring 29 engages the detent position 14 in the second sliding member and detent position 4 in the first sliding member.

From the retracted position shown in FIG. 1, the handle is extended to the middle extension position, shown in FIG. 8. This is accomplished by depressing the pin 26 at the thumb detent in the handle to the position shown in FIG. 3b so that the ring 29 on the pin moves below the detent position 4 in the first sliding

member releasing the first member so that the blade can be moved out of the handle. After releasing the first sliding member, the blade is pulled out of the handle until the detent position 5 in track 3 of the first sliding member is in registry with the pin. When this occurs, the spring 28 urges the ring 29 of the pin into the detent position 5 on the first sliding member, locking both members at the middle extension position. This also brings the flat projections 7 and 8 on the first sliding member up to the transverse projections 12 on the upper and lower halves of the second sliding member and so the tool (blade) is in the locked middle extension position shown in FIG. 9.

In the middle extension position, the flat ends 16 of the upper and lower halves of the second sliding member add support to the first sliding member, just as they add support to the blade in the fully retracted position. The workman uses the tool preferably by exerting pressure on the blade so that the blade bends toward one or the other of the flat portions 16 of the second sliding member.

It is convenient for some uses of such a blade that the workman exert pressure on the blade by gripping the handle with his thumb near the thumb detent so that the thumb can readily control the detent button and then, exerting pressure on the handle from the same side, bring the blade hard against the work piece, such as the wallboard. Since the blade is flexible, it will bend back towards the workman's thumb and there needs to be added support at least on the thumb side of the blade or the thumb side of the first sliding member, depending upon the position of the extension.

The maximum extension position, shown in FIG. 8, is achieved by once again depressing the detent pin at the thumb detent 27, while pulling on the blade. This time the detent pin must be fully depressed so that the ring 29 clears the detent positions in both the first sliding member 2 and the lower half 10 of the second sliding member. This is shown in FIG. 3c. When so released, the blade may be pulled from the handle, bringing along with it both sliding members 2 and 11 because the flat projections 7 and 8 on the member 2 abut the transverse projections, such as 12, on sliding member 11. Together, both members are withdrawn from the handle until detent position 6 in the member 2 and detent positions 15 in the member 11 are in registry with the detent pin. At this point, the detent pin is urged by the spring to project the ring 29 into the detent positions, locking the sliding members in position, as shown in FIG. 8 at the maximum extension position.

The blade extension structure is strong and easily operated. The central sliding member (the first member) is an extension of the blade. In the process of extending the handle further and further from the handle, it is this member which is first to project from the handle. The blade extension is sandwiched within a channel sliding member (the upper and lower halves of the second sliding member) and so there are two principal members in the total assembly which move relative to each other; they are the blade extension and the channel and these permit three positions; the retracted position, the middle position and the maximum extension position. Clearly, the channel member could be enclosed or nest in a second channel member, operating in much the same fashion to provide still another

position of extension. Furthermore, the tracks along each sliding member could include additional detent positions between those which are shown. For example, an additional detent position could be included between positions 4 and 5 along track 3 of the first sliding member. This would permit the blade to be pulled from the handle to more than one position before the second sliding member is engaged by the first and pulled along with it. Also, additional detent positions could be located between positions 5 and 6 and between positions 14 and 15 in the second member for the same effect.

The invention is set forth in the claims.

What is claimed is:

1. A tool which extends from a handle to adjustable positions comprising,
 - at least two elongated sliding members contained slideably within the handle, the first member being fixedly attached to the tool,
 - said members being contained so that they slide relative to each other and relative to the handle longitudinally therein,
 - stops disposed longitudinally along each of said members,
 - means in the handle for engaging said stops whereby, when said means simultaneously engages a stop on each member, the tool is at a secured position.
2. A tool as in claim 1 wherein, said secured positions includes a fully retracted position and a fully extended position and at the fully retracted position all of said members are substantially totally contained within the handle.
3. A tool as in claim 2 wherein, at said fully extended position all of said members at least partially extend from the handle.
4. A tool as in claim 3 wherein, at the first secured position after the fully retracted position only said first member extends from the handle.
5. A tool as in claim 1 wherein, said stops are holes through the members at positions spaced along the members and said engaging means includes a pin which engages the stop holes at secured positions and disengages from said stop holes when the members are slideably moved between secured positions.
6. A tool as in claim 5 wherein, said pin is moveable transverse to the longitude of the members and manipulatable so as to engage stop holes of only those members which are not slideably moved between secured positions.
7. A tool as in claim 6 wherein, said stop holes are spaced along longitudinal slots in said members and are wider than the slots, the pin includes a narrow portion which fits easily in said slots and a wider portion which does not fit in said slots and a spring urges the wider portion toward the slots, whereby the wider portion moves into stop holes in registry therewith.
8. A tool as in claim 7 wherein, the sliding members nest together, all but the first defining a channel, the first being a strip which extends from the tool and each member engages the member next to it at a predetermined secured position so that each brings said next member with it when slideably moved from one secured position to the next further extended secured position.

5

6

9. A tool as in claim 8 wherein, each of said member channels are defined by upper and lower halves of the member and the wider portion of the pin fits into stop holes in the lower portions at the secured positions.

10. A tool as in claim 9 wherein, the members extend 5 from the handle from secured position to secured position in the order of said nesting.

* * * * *

10

15

20

25

30

35

40

45

50

55

60

65