United States Patent [19]

Curcio

[11] **3,782,235**

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[54] **MITER BOX**

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[52] **U.S. Cl.** **83/762,** 145/129, 83/821

[51] **Int. Cl.** **B27g 5/02**

[58] **Field of Search** 83/761, 762, 745, 83/743, 821; 145/129

[56] **References Cited**

UNITED STATES PATENTS

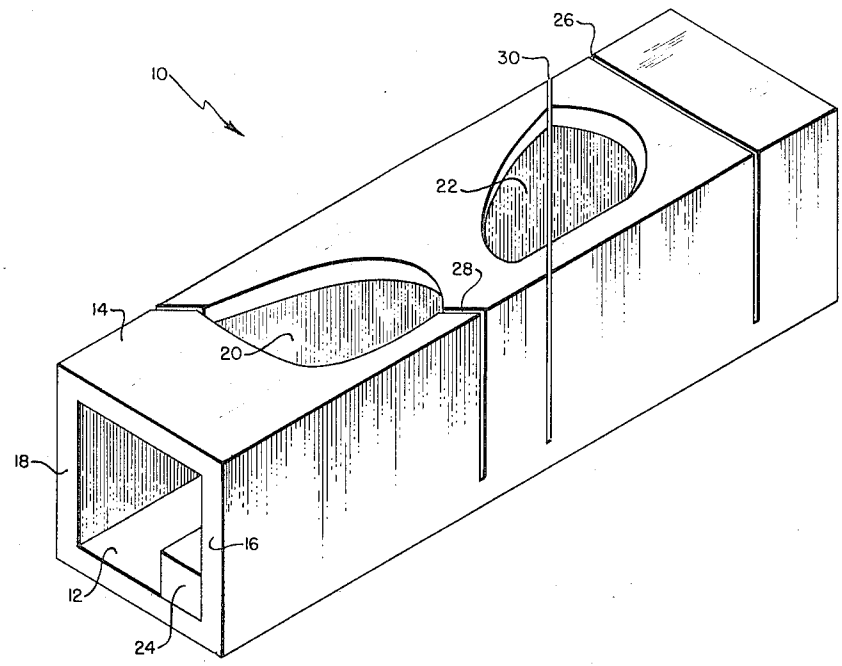
592,139	10/1897	Griffith	83/761
1,718,791	6/1929	Ludwig	83/762
3,397,722	8/1968	Long	83/762

Primary Examiner—Donald R. Schran
Attorney—James J. Cannon, Jr.

[57] **ABSTRACT**

The present invention relates to an improved miter box for use by carpenters and others in making miter joints, particularly for mitering picture, cove, casing and base mouldings. The general improvement lies in substituting a square-shaped box for the conventional U-shaped form, and making this miter box in the form of a single, integrally moulded, transparent plastic unit. This structure with its inherent rigidity gives durability, strength and precision to the box itself, all of which aid in achieving precision in the mitering of joints. A support bar is placed along one inside base edge to support hand-held, angularly disposed mouldings and L-shaped corner mouldings in particular at proper cutting angles. Cut-outs are provided in the top for holding work pieces in place. The use of a transparent plastic provides full visibility of the work piece to the user. It also improves the durability of the miter box and increases precision in the cutting or mitering because the saw will not cut easily into the saw cutting guides of its side walls.

2 Claims, 2 Drawing Figures



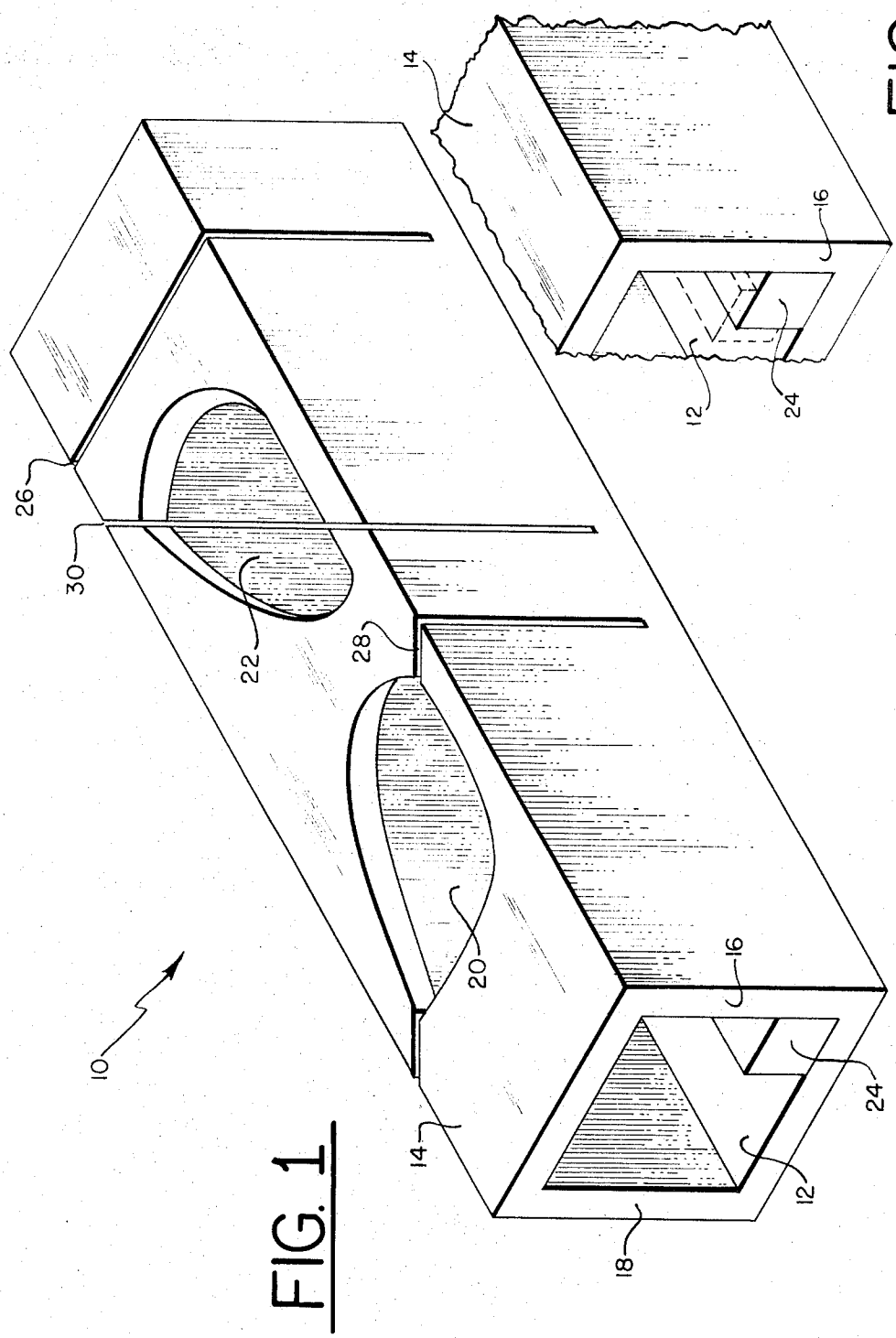


FIG. 1

FIG. 2

MITER BOX

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to improvements in a miter box for use by carpenters and others in making miter joints, particularly for mitering picture, cove, casing and base mouldings.

2. Description of the Prior Art

The most recent U.S. Pat. in this field, No. 3,397,722, is directed to the solution of a very common problem, i.e., that of making perfectly fitting miter joints from pieces of angularly extending mouldings. In place of the conventional method of laying such pieces flat on the bottom of the conventional U-shaped miter box, that patent disclosed an adjustable supporting means within a conventional U-shaped miter box for such mouldings; that is, a means to support the angularly extending pieces of moulding in an angularly disposed manner to increase the precision of mitering the joints. The means disclosed in this patent was adjustable to varying sizes and angles of inclination. The mechanical means of accomplishing this object included slotted 45° angles in the base of the conventional U-shaped miter box with adjustable support elements extending upward into the box to support mouldings and prevent their slippage. This patent also disclosed the removal of a semi-circular section of one side wall of the conventional U-shaped miter box to serve as a viewing window to improve the carpenter's view of his work within the miter box, and especially to improve his view of the adjustable supporting means and work piece.

However, the conventional U-shaped miter box of U.S. Pat. No. 3,397,722 has several disadvantages which materially impair its utility. The U-shaped, conventional miter box has inherent structural weaknesses which become accentuated through long and constant use. In particular, the side walls work loose from the base and become unstable in long constant use. The tops of the sidewalls have no substantial structural support and are inherently weak. The introduction of a semi-circular cut-out in one side wall increases the inherent structural weakness of the conventional U-shaped miter box and therefore is a distinct disadvantage.

The support elements held in place in the angular slots protrude upwards from the base of the miter box and become a distinct annoyance when sawing other boards or types of mouldings. Frequently they have to be removed to utilize fully the miter box for sawing base and case mouldings.

Carpenters prefer not to be bothered with clamping means such as that disclosed in this patent, preferring to hold the work piece in place with their hands. They believe that the use of clamps slows down their work.

The present invention combines improvements over the advantages of this prior patent while eliminating its disadvantages.

SUMMARY OF THE INVENTION

The present invention relates to an improved miter box for use by carpenters and others in making miter joints, particularly for mitering picture, cove, casing and base mouldings. The general improvement lies in substituting a square-shaped box for the conventional U-shaped form, and making this miter box in the form of a single, integrally moulded, transparent plastic unit. This structure with its inherent rigidity gives durability, strength and precision to the box itself, all of which aid in achieving precision in the mitering of joints. A support bar is placed along one inside base edge to support hand-held, angularly disposed mouldings and L-shaped corner mouldings in particular at proper cutting angles. This support bar enables the user to hold an L-shaped corner moulding in a rigid position, thus preventing twisting of the moulding and enabling the user to cut the moulding at the correct angle. Cut-outs are provided in the top for holding work pieces in place. The use of a transparent plastic provides full visibility of the work piece to the user. It also improves the durability of the miter box and increases precision in the cutting or mitering because the saw will not cut easily into the saw cutting guides of its side walls.

Accordingly, it is the principal object of the present invention to provide a simple, improved miter box for making miter joints which has structural strength throughout to aid in making precise joints.

It is a further object of this invention to provide an improved miter box which increases the visibility of the work piece to the user.

It is still another object of this invention to provide an improved miter box which is simple in construction, convenient and durable in use and helpful in achieving precision in work.

Other objects, features and advantages of this invention will become apparent from a study of the following description read with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top perspective view of the improved miter box embodying the principles of the present invention.

FIG. 2 is a fragmentary, three-dimensional view of a corner of miter box **10** showing an L-shaped corner moulding in place on the support bar.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing of FIG. **1**, the reference numeral **10** denotes generally the miter box of the present invention. Miter box **10** is preferably molded as one integral unit from a durable transparent plastic. For reference purposes the bottom or base will be designated by reference numeral **12**, the top or cover by reference numeral **14**, and the vertically extending side walls by reference numerals **16** and **18**. The cover **14** has two cut-outs **20** and **22** to provide a means for the user to place his hands within the miter box **10** in order to position and hold the work piece. An elongated small support bar of transparent plastic **24** having a cross-sectional area of approximately one square inch is fixably attached at the intersection of base **12** and front sidewall **16** and extended longitudinally the length thereof to serve as a support means for angularly disposed mouldings and in particular to serve as a rigid support means for L-shaped mouldings, as illustrated in FIG. **2**. This support bar **24** may also be integrally molded with the miter box **10**. Support bar **24** and cut-outs **20** and **22** enable the user of miter box **10** to position and hold a moulding in the proper position for precise mitering of a joint and in particular to support in a rigid position an L-shaped corner moulding for pre-

cise mitering. Support bar **24** may also be positioned along rear sidewall **18.**

Miter box **10** has located towards one end a vertical downwardly extending slot **26** made at a 90° angle to its longitudinal axis. This vertical slot **26** extends downward from and through cover **14,** front and rear vertical side walls **16** and **18,** through support bar **24** and partially through base **12** to a depth of approximately one-fourth of an inch. Vertical downward extending diagonal slots **28** and **30** are similar to slot **26** except that vertical slot **28** is disposed at a 45° angle to the longitudinal axis of the work piece and vertical slot **30** is disposed at a 135° angle to the longitudinal axis of the workpiece. All vertical slots **26, 28** and **30** serve as guides for a saw used in mitering joints.

Since miter box **10** is preferably constructed of a durable, hard, transparent plastic, the user is able to see the work piece and its location relative to support bar **24** and saw guide slots **26, 28** or **30.** This visibility of the work piece and the work process is a positive factor in improving the precision of the mitering of joints.

The construction of miter box **10** as a single integrally molded box eliminates the inherent weakness of the conventional U-shaped miter box at the points where vertical side walls **16** and **18** join the base **12.** In addition, the use of a cover **14** integrally molded with side walls **16** and **18** eliminates the inherent weakness of the conventional U-shaped miter box in which the tops of the side walls are substantially unsupported and also weakened because of multiple slots cut therein.

The utilization of a durable plastic in the construction of miter box **10** substantially adds to the durability of slots **26, 28** and **30.** It decreases the frictional loss between the saw and the slot and will resist the inaccurate sawing into the slots better than the conventional wooden box. This, in turn, increases the precision of mitering.

Thus it will be seen that this invention provides a simple, efficient, durable and useful improvement to the conventional miter box. It is so constructed as to provide greater structural strength than heretofore available, increased visibility of the work piece and mitering process and increased durability of the box and the saw guide slots. All these advantages are relevant to increased precision in use. Additional saw guide slots at varying angles may also be provided.

While there has been illustrated and described a single specific embodiment of the present invention, it will be understood that this is by way of illustration only, and that various changes and modifications may be made within the contemplation of my invention and within the scope of the following claims.

I claim:

1. A miter box for use in mitering picture, cove, casing and base mouldings comprising:

an elongated base;

two elongated side walls extending vertically upward and integrally formed with the longitudinal edges of said base at right angles thereto;

an elongated cover extending horizontally from side wall to side wall on a plane parallel to said base and integrally formed with the upper longitudinal edges of said side walls at right angles thereto;

an elongated support bar of relatively small cross-sectional area extending along the longitudinal intersection of one sidewall with said base and integrally formed therewith for rigidly supporting angularly disposed mouldings and L-shaped corner mouldings;

said base, side walls, cover and support bar being integrally molded of a transparent, durable plastic substance to permit viewing of the work piece and sawing process within said box;

a plurality of diagonally extending saw guide slots extending vertically downwards through and from the cover of said box, through said side walls and partially through said base;

a plurality of cut-outs in the cover of said miter box to enable the user to insert his hands therein to position and hold a work piece.

2. The miter box as defined in claim **1** further comprising:

a saw guide slot perpendicular to the longitudinal axis of said miter box extending downwards through and from said cover of said miter box, through said side walls and partially through said base for cutting straight joints.

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