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Ridenour

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[54] MULTI OR COMPOUND CUTTING MITER BOX

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[52] **U.S. Cl.** **143/88**
[51] **Int. Cl.** **B27b 27/06**
[58] **Field of Search** 143/88, 89, 87, 86

[56] **References Cited**

UNITED STATES PATENTS

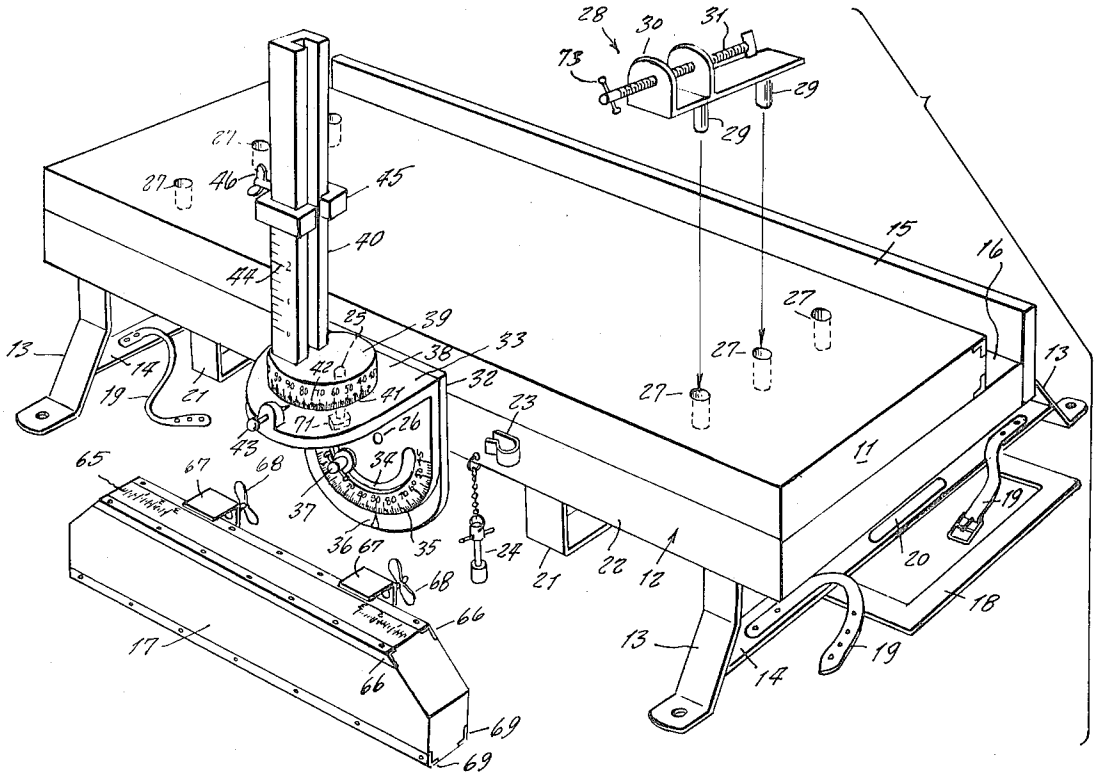
679,703	7/1901	Phelan	143/88
760,982	5/1904	Gordon	143/88
788,040	4/1905	Friend	143/88

Primary Examiner—Donald R. Schran

[57] **ABSTRACT**

A miter box for cutting multiple or compound angles, the device incorporating a construction whereby full angular adjustment is possible in all three planes, the device incorporating a table supporting a pivotable bracket about a first plane, the bracket supporting a tool post pivotable about a second plane, the tool post supporting a saw head holder pivotable about a third plane so to provide universal full adjustment.

8 Claims, 3 Drawing Figures



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SHEET 1 OF 2

Fig. 1

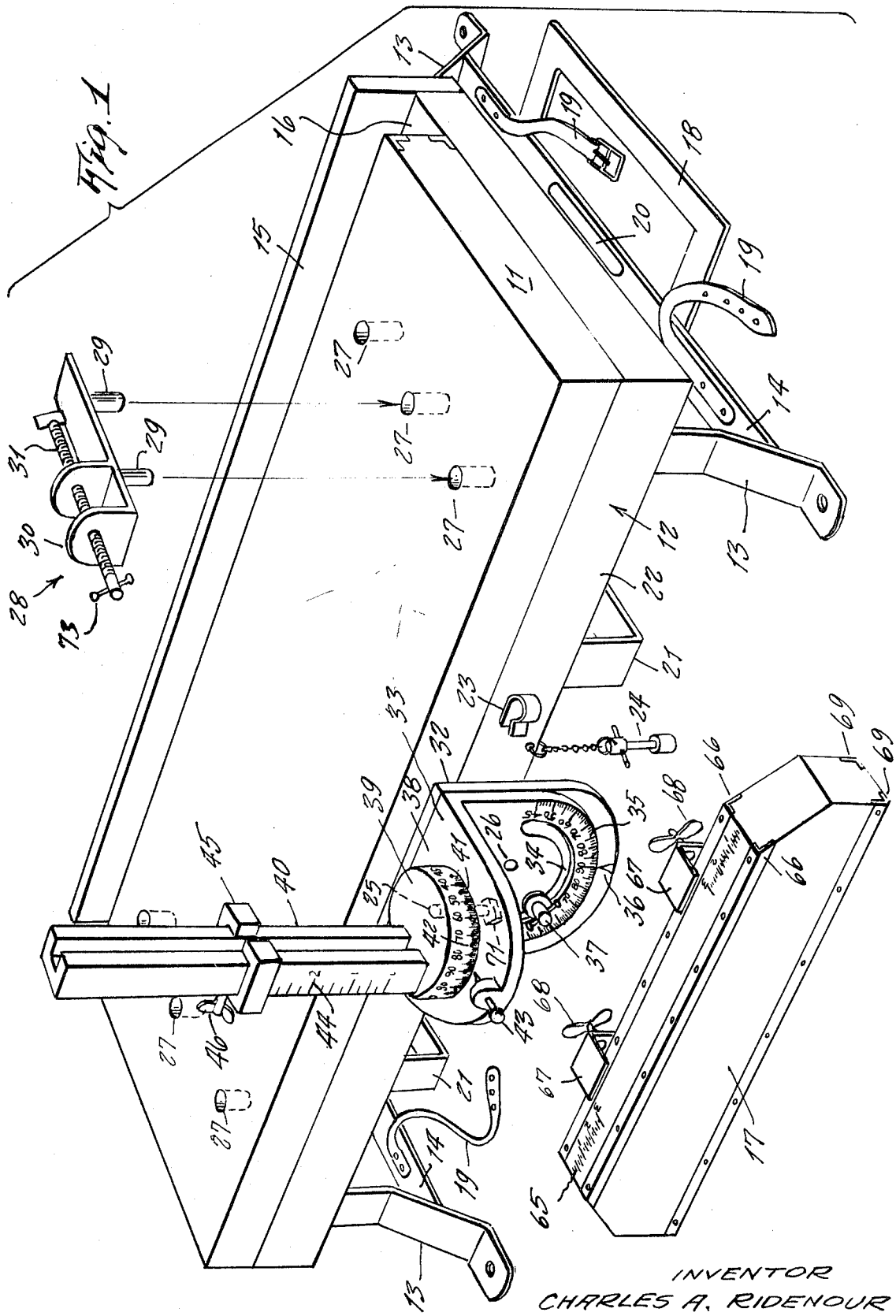

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Fig. 2

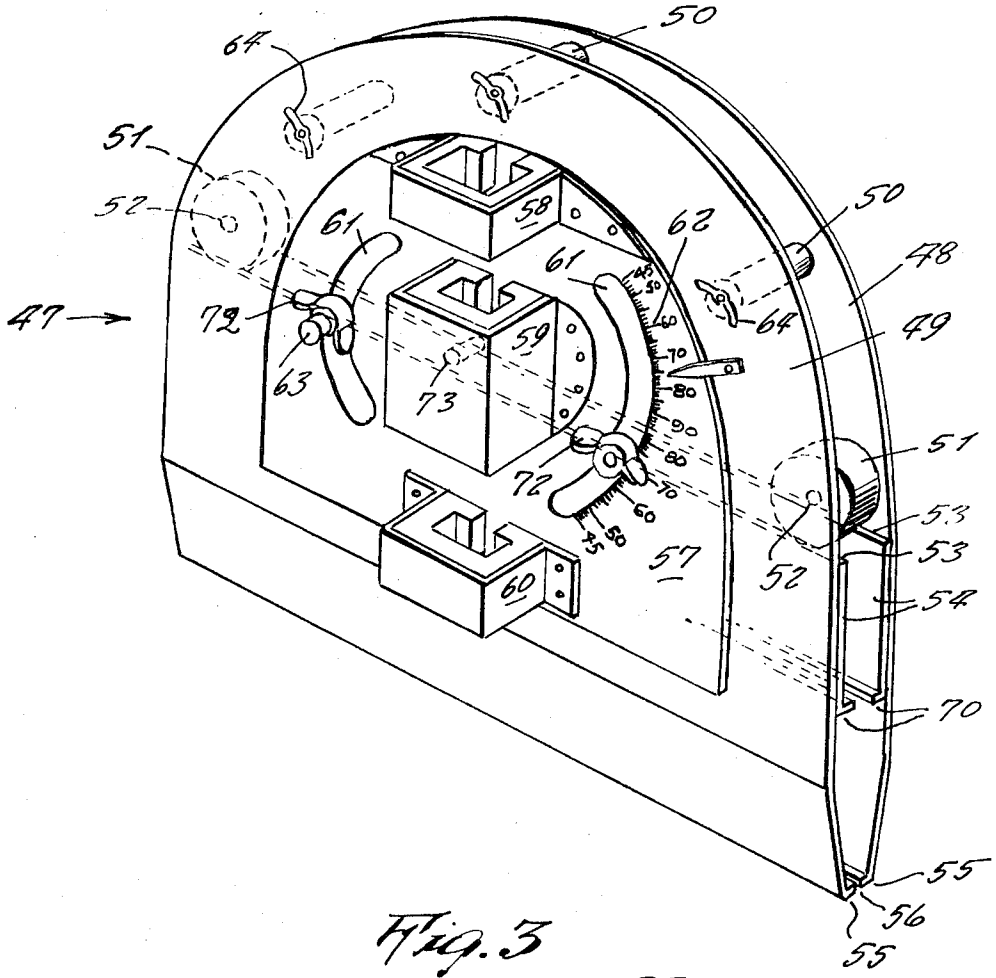
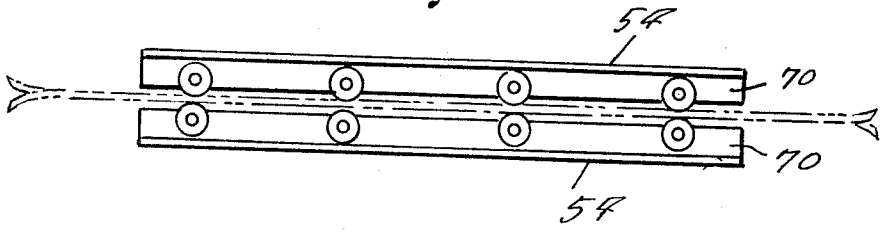


Fig. 3



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MULTI OR COMPOUND CUTTING MITER BOX

This invention relates generally to miter boxes.

A principal object of the present invention is to provide an improved miter box which overcomes the inadequacy of conventional miter boxes so that a craftsman can cut multiple or compound angles.

Another object of the present invention is to provide a multi or compound cutting miter box which is operative from 40°to 90°.

Still another object of the present invention is to provide a multi or compound cutting miter box which is designed particularly for unskilled craftsmen so that they can do complicated cutting of angles in a professional manner and without the necessity of employing other specific tools to accomplish the same.

Other objects of the present invention are to provide a multi or compound cutting miter box which is simple in design, inexpensive to manufacture, rugged in construction, easy to use and efficient in operation.

These and other objects will be readily evident upon a study of the following specification together with the accompanying drawings wherein:

FIG. 1 is a perspective view of the bed, front fence and molding clamp shown separate;

FIG. 2 is a perspective view of the saw head holder; and

FIG. 3 is a bottom plane view thereof and shown including a modified design wherein disk rollers may be incorporated in the holder so to form a friction free support guide means for the saw blade for an improved operation.

Referring now to the drawings in detail, the reference numeral **10** represents a multi or compound cutting miter box, according to the present invention wherein there is a wooden table **11** mounted upon a frame **12**, the frame **12** being supported upon downwardly extending legs **13** secured by leg bracket spreaders **14** therebetween. Along the rear edge of the frame **12** there is an upwardly extending backstop **15** for a fence. It is to be noted that there is a slot **16** between a rear edge of the wooden table **11** and the back stop **15** and to which the fence **17** is receivable.

A handle **18** for carrying the miter box is secured to the under side of the leg bracket spreader **14** as shown in FIG. **1**. Additionally a plurality of tool posts and saw holder straps **19** are also secured to the leg bracket spreaders, and there is a saw stabilizer block **20** centrally mounted upon the same spreader **14**. Beneath the frame there are a plurality of downwardly extending hanger brackets **21** for the saw and tool posts. Upon a front side **22** of the frame **12** there is a wrench holder **23** and also a depending wrence **24** for a tool post pivot and slotting pivot nut. The tool post pivot is identified with reference numeral **25**, and the slanting pivot nut is identified with the reference numeral **26**.

Upon the upper side of the wooden table **11** there are located a plurality of bushings **27** for holding clamps. The molding clamp **28** includes a plurality of downwardly extending pegs **29** receivable into the bushings **27**, the molding clamp including a bracket **30** threadingly supporting a horizontally extending threaded screw **31**.

Upon a forward side **22** of the wooden table **12** there is welded a bracket **32** which comprises a flat plate and which supports pivotably free an angle bracket **33** provided with arcuate slot **34** and with degree graduations **35** for alignment with an arrow **36** upon the plate **32**. A slanting lock **37** fitted through the slot **34** is secured to the plate **32**.

Upon the upper side **38** of the angle bracket **33** there is mounted rotatably free a circular base **39** integral with an upstanding vertical tool post **40**, the base **39** being graduated in degrees **41**, there being provided depressions **42** upon the calibrated degree scale and into which there is receivable an end of a post lock **43**.

The tool post **40** is of generally channel shaped configuration and is provided with a depth of cut scale **44** along the length thereof, and the tool post supports a generally U-shaped saw slot **45** fitted therearound and secured by means of a winged nut bolt **46**.

A saw head holder **47** is mountable upon tool post **40**, the saw head holder including a pair of spaced apart frames **48** and **49**, separated by means of the saw holder spacers **50**. The frames are parallel to each other and have a pair of grease slotted bearings **51** located therebetween, the bearings **51** mounted upon pins **52** and having a periphery edge thereof resting upon edges **53** of members **54** secured to each of the frames **48** and **49**. The lower ends of the members **54** are inwardly turned toward each other so to form brackets for holding a saw in the head of the saw holder as shown. Alternately these could be small disk rollers. The lower edges of the frame **48** and **49** comprise saw guide and saw blade stabilizers **55**. A slot **56** accordingly is provided therebetween.

A plate **57** on the saw head holder **47** is provided with bearing blocks **58**, **59** and **60** for fitting to the tool post **40**. The plate **57** is provided with arcuate slots **61**, each of which is graduated with a degree scale **62**. A lock **63** is fitted through each of the slots **61**. It is to be noted that the blocks **58**, **59** and **60** comprise saw head bushing guides. The plate **57** forms a saw head leveler or saw slanter when necessary. Winged nuts **64** fitted through frame **49** are secured to the saw holder spacers **50**.

The fence **17** is provided with a graduated scale **65** upon the upper side thereof and fitted between a pair of corner angles **66**. A pair of plant brackets **67** extend rearwardly from the fence for fitting over the back stop **15** and are provided with winged bolts **68** for securement thereto. The lower corners of the fence are likewise provided with metal angles **69**.

The present invention is operated in the following manner:

Place the sawhead holder on the tool post, the saw head bushing guides **58** to **60** allowing the saw head holder to slide up and down on the tool post **40**. When this is accomplished, place a miter saw or back saw in the bracket **70** at the lower end of numbers **54**, this making a sliding or rolling cradle for holding the saw. Next the saw stop **45** is set for the depth of cut. To cut right or left angle, loosen the tool post lock nut **71** on the post pivot **25** with the wrench **24** and pull out on the post lock **43**, turn the tool post **40** and the saw head holder **47** to the marked degree on the tool post as shown at **44**. This may be to the right or left which ever the case may be, when the degree of the angle is reached desired, the post lock **43** is released and it will seat itself in the post lock opening **42**.

Then with a wrench **24** tighten the tool post lock nut **71**, take the saw by the handle and push forward and then pull back to make a single cut. This is how a single angle is cut.

Now to cut multiple angle cuts, follow as a simple cut but these following operations must be followed:

Loosen the slanting pivot nut **26** with the wrench **24** and also loosen the slanting lock **37**, move the tool post down right or left to give the second angle after this angle is readied, tighten the slanting lock **37**. This will hold it in position until it can be possible to tighten the slanting pivot nut **26** with the wrench **24**. The next step is then to loosen the winged nuts **72** on the lock **63**.

The saw head holder **47** is then set to a desired degree on the graduated degree scale **62**, to keep the saw blade teeth parallel to the top of the miter box wooden table **11**, after which the winged nuts **72** are tightened.

In the front of the saw head holder bolt **73**, this should have been loosened and also tightened at the same time that the winged nuts **72** are manipulated.

Now the saw is set to cut compound angles and the fence is needed to hold the work against the same. Place the fence in the slot **16** and slide up close as possible to the saw, then tighten the winged nuts **68** against the back stop for the fence **15**. Now place molding clamp **28** in the bushing openings **27** to hold the molding clamp. Then tighten the handle **73** thereof so as it will hold the work against the fence firmly. Now the device is ready to cut compound miter cuts.

The average miter box when being moved is very cumbersome because of the two upright posts that hold the saw, and if the box is tilted backwards, the saw slides out of the post. Or if the saw is taken out of the post, it will slide on the saw table striking the back fence and this damages the saw teeth.

With the present miter box, this has been eliminated completely to make the saw completely ready for transporting.

First unscrew the tool post lock nut **71** with the wrench **24**, then remove the tool post **40** from its table and then screw on the tool post lock nut **71** so as it will not become lost. Loosen the winged nut bolt and then slide the saw holder head **47** off the tool post **40**, next remove the saw stop **45**, replace the saw head holder down on the tool post **40** and let it slide down the post. Next replace the saw stop **45** and then tighten the winged nut bolt, this keeping the saw head holder **47** from falling off the tool post. Now place the saw under the table with the hole in the saw handle placed over the saw stabilizer block **20**, this keeping the saw from sliding out from under the table. Next place the tool post **40** and the saw head holder **47** that is in a fixed position under the saw table and place the tool post and saw holder straps over them and tighten the straps **19** so as to hold them firmly down on the leg bracket spreader **14**. Now the wrench **24** is spring throated in the wrench holder **23** so as it will not be dangling loosely when the mitre box is picked up by the handle **18** or being carried.

What I now claim is:

1. In a mitre for multi cutting miter box, the combination of a wooden table mounted upon a frame secured upon a plurality of downwardly extending legs, said frame having along its rear edge an upwardly extending back stop, a slot being located between said back stop and rear edge of said wooden table, a fence being removably positioned within said slot, a forward edge of said table having a plate, said plate supporting a pivotable bracket so that said bracket may be slanted selectively to a desired angle, said angle bracket supporting thereupon a rotatable tool post, said tool post supporting a saw head holder.

2. The combination according to claim **1** wherein leg bracket spreaders are provided between said downwardly extending legs, a carrying handle being secured to one of said leg bracket spreaders, a saw stabilizer block being mounted upon said leg bracket spreaders, and each of said leg bracket spreaders being provided with a pair of tool post and saw holder straps, an intermediate portion of said wooden table frame being provided upon its under side with hanger brackets for said saw and tool post.

3. The combination as set forth in claim **2**, wherein said slanting angle bracket is provided with an arcuate slot and a graduated degree scale along side the same, said degree scale is in alignment with an arrow fixed upon said plate secured to a front edge of said frame, and a slanting lock being fitted through said slot.

4. The combination as set forth in claim **3**, wherein the lower end of said tool post is rigidly affixed to a circular base, said circular base being fitted on a central tool post pivot which at its lower end is secured by a tool post lock nut, and said circular base having around its circular edge a graduated degree scale, said graduated degree scale being provided with depressions, and a tool post lock mounted upon an upper side of said angle bracket having a slideable lock pin springly urged for engaging selectively within one of said depressions on said degree scale.

5. The combination as set forth in claim **4**, wherein said tool post comprises a vertical member provided with a linear scale along the length thereof, a stop collar being fitted around said tool post, said stop comprising a stop collar adjustably secured upon said post by means of a winged nut bolt.

6. The combination as set forth in claim **5**, wherein said saw head holder comprises a pair of parallel spaced apart frames spaced apart by means of saw holder spacers and secured by winged nuts, a pair of grease slotted bearings positioned between said frames positioned adjacent saw guide brackets secured to each of said frames, a saw blade being positioned between said brackets and the lower edge of said frames comprising saw guides and saw blade stabilizers, one of said frames being fitted around a plate being provided with a pair of arcuate grooves, each of said grooves being calibrated in angle degrees, each of said slots receiving a lock, said plate being pivotable about a central bolt being secured to the other said frame, and said saw head holder being provided with a plurality of saw head bushing guides, each of which has a central opening, said central opening being in alignment with each other for being fitted upon said tool post.

7. The combination as set forth in claim **6** wherein a fence fitted in said slot between a rear edge of said wooden table and said upstanding back stop is provided with a calibrated scale upon its upper edge, said fence having a pair of rearwardly extending clamps, each of which is fitted with a threaded screw and winged nut.

8. The combination as set forth in claim **7**, wherein an upper side of said wooden table is provided with a plurality of bushings each of which has a central opening, said openings being selectively engagable with vertically extending pegs on the under side of a molding clamp, said molding clamp including a bracket supporting a horizontally extending threaded screw which at one end is provided with a rotatable handle.

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