March 27, 1934. A. L. STOWELL 1,952,518

MITER BOX

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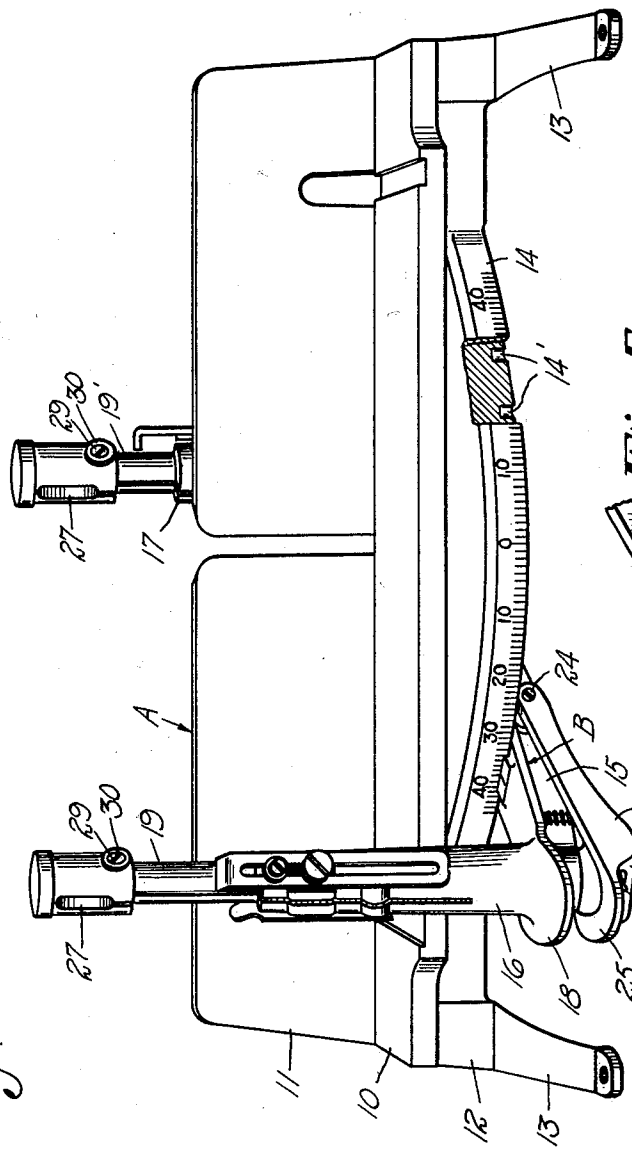


Fig. 1

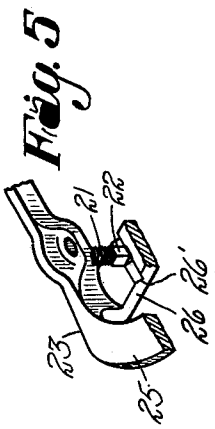


Fig. 5

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Fig. 2

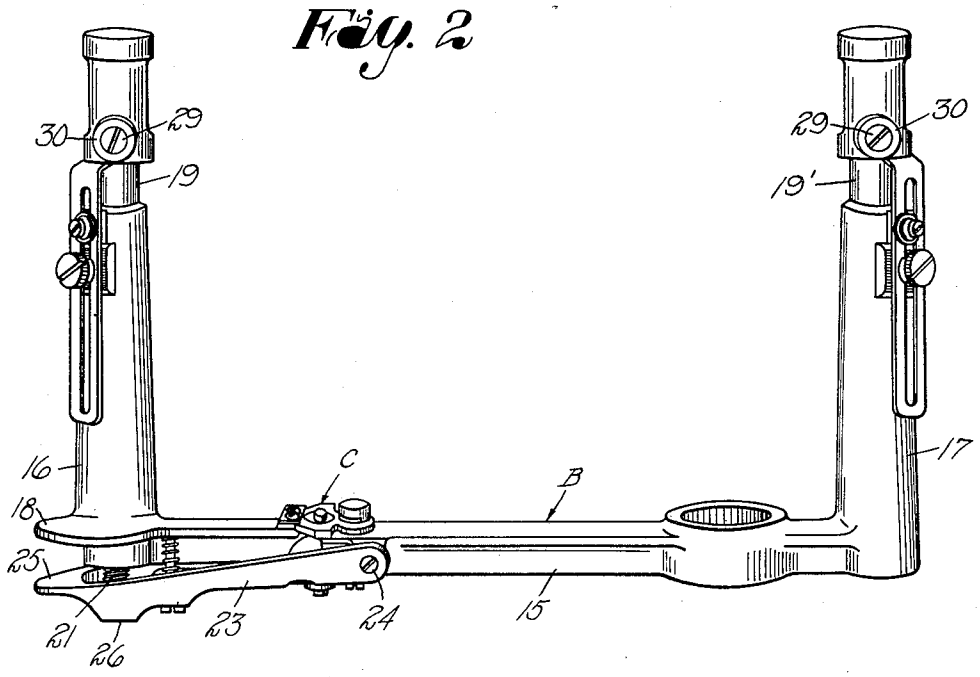


Fig. 3

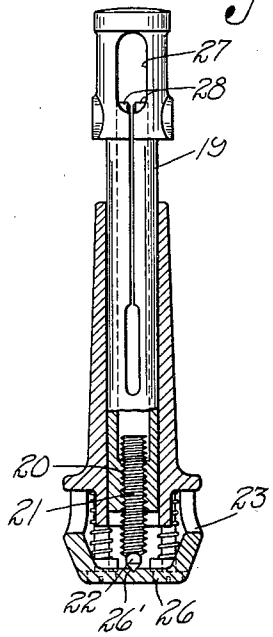
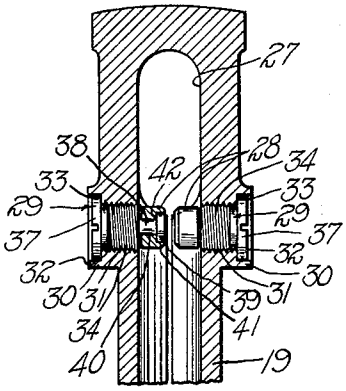


Fig. 4



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1,952,518

UNITED STATES PATENT OFFICE

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MITER BOX

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Application July 7, 1932, Serial No. 621,226

3 Claims. (Cl. 143—89)

The present invention relates to miter boxes, and has for an object to provide an improved device of this character in which the saw blade is automatically raised clear of the sawing table when the swivel is disengaged from the quadrant.

Another object of this invention is to provide an improved device of this character in which the swivel arm and the front and rear uprights are formed in one integral casting.

A further object of the present invention is to provide an improved device of this character in which smooth saw operation and the prevention of wearing away of the saw guides are provided for by means of roller bearings carried by the saw guides.

A still further object of the present invention is to provide a device of this character which is simple in construction, capable of withstanding the hard usage to which such devices are subjected, and one that is relatively cheap to manufacture.

Other objects will be in part obvious, and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the invention of which will be indicated in the appended claims.

In the accompanying drawings, wherein is shown, for illustrative purposes, one of the embodiments which the present invention may take,

Fig. 1 is a perspective view of my improved miter box;

Fig. 2 is a perspective view of my improved swivel;

Fig. 3 is a front view partly in section and partly in elevation of my improved swivel;

Fig. 4 is an enlarged view partly in section and partly in elevation of the head of one of the saw guides of my improved device; and

Fig. 5 is an enlarged detail view of the connection between the locking lever and the front saw guide with parts broken away.

Referring more particularly to the drawings, A generally indicates my improved miter box which is provided with the usual sawing table or platform 10 made of wood and which is replaceable, back 11, supporting frame 12, and legs 13. The miter box A is also provided with the usual quadrant 14 having sockets 14' in the under face thereof.

A swivel, generally indicated at B, is mounted on the miter box in the usual manner. This swivel B is formed from an integral casting comprising a swivel arm 15 upon the opposite ends of which are integrally formed a front upright 16 and a rear upright 17. The arm 15 is provided at its forward end and in front of the front upright 16 with a thumb piece 18. A saw guide 19 is disposed within the front upright 16 and is capable of having vertical movement therein, and a saw guide 19' is disposed within the rear upright 17. The front saw guide 19 is provided with a bore the lower end of which is screw threaded as at 20 and which is adapted to receive a screw 21 having a pyramid shaped head 22. This screw 21 is capable of vertical adjustment in the lower end of the saw guide 19.

Mounted upon the swivel arm 15 is a double swivel locking mechanism, generally indicated at C and which is adapted to cooperate with the quadrant 14 and the sockets therein to lock the swivel B to the quadrant 14 in any desired angular position. This locking mechanism C may be of a construction similar to that illustrated and described in the patent to Richards, No. 766,791, granted August 2, 1904. This locking mechanism includes an operating member or lever 23 which is pivoted to the arm 15, as at 24, and which is substantially U-shaped and has, at its closed end, a finger piece 25 adapted to cooperate with the thumb piece 18 on the swivel arm for disengaging the locking mechanism from the quadrant. The lever 23 is also provided with a depressed bar 26 which lies beneath and in alinement with the head of the screw 21. The bar 26 is provided with a transversely extending V-shaped groove 26' which is adapted at times to receive the pointed end of the head 22 of the screw 21.

In order to provide for the smooth working of a saw in the saw guides, each saw guide is provided with a pair of rollers disposed at the bottom of its saw back slot 27 in spaced opposed relation. These rollers are indicated at 28, each of which is mounted upon a screw 29 received by alined openings in bosses 30 of the saw guide. Each opening in the saw guide is substantially round and is provided with an inner reduced screw threaded portion 31 and an outer enlarged portion 32 whereby an outwardly facing annular shoulder 33 is formed. Each screw 29 is provided with an intermediate screw threaded portion 34 adapted to be received by the screw threads of the opening in the boss 30. Each screw is provided with an enlarged head 37 adapted to be received by the portion 32 of the opening in the boss 30. It will be noted that the inner face of this enlarged head of the screw will seat on the shoulder 33 and limit the inward movement

of the screw. Inwardly of the screw threads 31, each screw is provided with a reduced portion 38 and at its extreme inner end, each screw is provided with an abutment 39. Each roller is provided with a through opening having a reduced portion 40 adapted to loosely surround the portion 38 of the screw. The opening in each roller is also provided with a portion 41 of enlarged diameter and which receives the abutment 39 of the screw. By the provision of the enlarged portion 41, a shoulder 42 is provided in the roller, and this shoulder engages the inner face of the abutment 39 of the screw to prevent the roller from escaping from the screw. It will be noted that the portion 38 of the screw is longer than the opening 40 of the roller so that the roller will have a limited amount of end play on the screw. It is also clearly seen, from an inspection of Figs. 3 and 4, that the periphery of each roller extends into the slot 27 of the respective saw guides at the bottom thereof so that the under faces of the saw back on opposite sides of the saw blade will ride upon the rollers as the saw is moved back and forth in the saw guides. This will insure a smooth saw action and prevent the wearing away of the saw guides at the bottom of the saw back slot.

The operation of the device is as follows: When a piece of work has been sawed and the saw has traveled a slight distance into the wooden platform 10, the head of the screw 21 will be in contact with the bar 26, the pointed end of the head 22 being received by the groove 26'. If it is desired to change the angle of the saw with respect to the platform, the operator will place a thumb and finger upon the thumb piece 18 and the finger piece 25, respectively, and raise the lever 23 to disengage the locking mechanism from the quadrant. As the lever 23 is raised upwardly, the bar 26 thereof will move the screw 21 and the front guide post upwardly and the saw blade will be raised clear of the platform and the swivel may then be swung to the desired new position without any danger of bending the saw blade and without the necessity of the operator using one hand to hold the saw blade clear of the platform while he moves the swivel with the other hand. It is thus apparent that both hands of the operator are left free to move the swivel. As the saw wears down and the front saw guide is lowered to compensate for this wearing down of the saw blade, the screw 21 may be further screwed into the bottom of the saw guide so that the head thereof will not strike the bar 26 until the sawing operation has been completed. It is also apparent that by forming the swivel arm and the front and rear uprights integral that these parts may be formed in one casting operation, thereby lowering the expense of manufacturing these parts and, also, imparting rigidity and durability thereto.

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.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. In a miter box, an angularly adjustable swivel, a saw guide mounted in said swivel for vertical movement, means for locking said swivel in various positions of angular adjustment and including an operating lever, said lever having a depressed bar portion disposed below said guide and a transversely extending groove in said bar, and a screw carried by said guide and adapted to be engaged by said bar when the lever is move to unlock the swivel, whereby said guide is raised, the screw having a pointed end adapted to be received by said groove when the bar contacts the screw.

2. In a miter box, a saw guide having a saw back receiving slot, a pair of screws carried by said saw guide in spaced opposed relation at the bottom of said slot, each of said screws having an unthreaded inner end portion of reduced diameter and an abutment at its extreme inner end, a roller loosely mounted on each screw and having a through bore, a portion of said bore being of reduced diameter and adapted to embrace the unthreaded portion of said screw, and another portion of said bore being of enlarged diameter and adapted to receive the abutment on said screw, each of said rollers having a shoulder between its small bore and its enlarged bore and adapted to engage the inner face of said abutment of the screw.

3. In a miter box, a saw guide having a saw back receiving slot, a pair of screws carried by said saw guide in spaced opposed relation and extending into said slot, and a roller loosely mounted upon each screw and adapted to engage the under face of the back of the saw, said rollers being spaced apart so as to receive therebetween the blade of the saw, said rollers and screws having cooperating parts adapted to retain each roller on its respective screw.

AUSTIN L. STOWELL.