No. 731,794.

PATENTED JUNE 23, 1903.

J. LARSON.

MITER BOX.

NO MODEL.

APPLICATION FILED JULY 25, 1902.

2 SHEETS—SHEET 1.

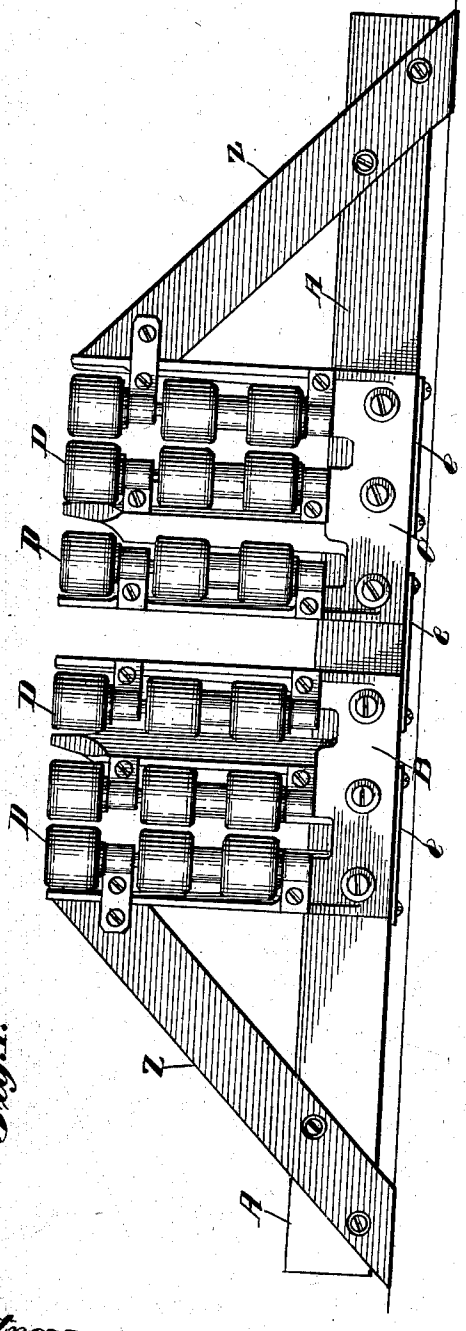


Fig. 1.

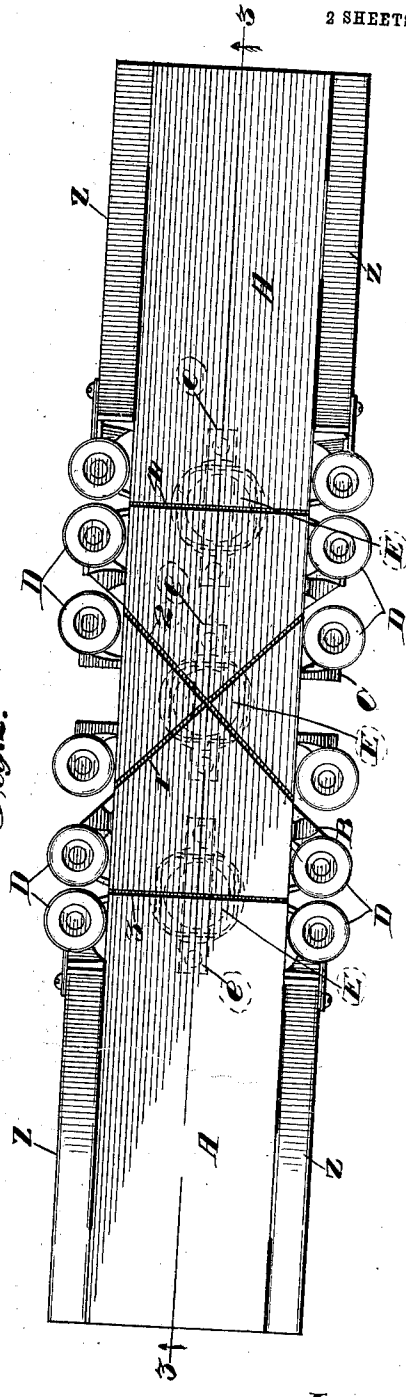


Fig. 2.

Witnesses:
[illegible] Weir
O. M. Kennick

Inventor:
John Larson
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

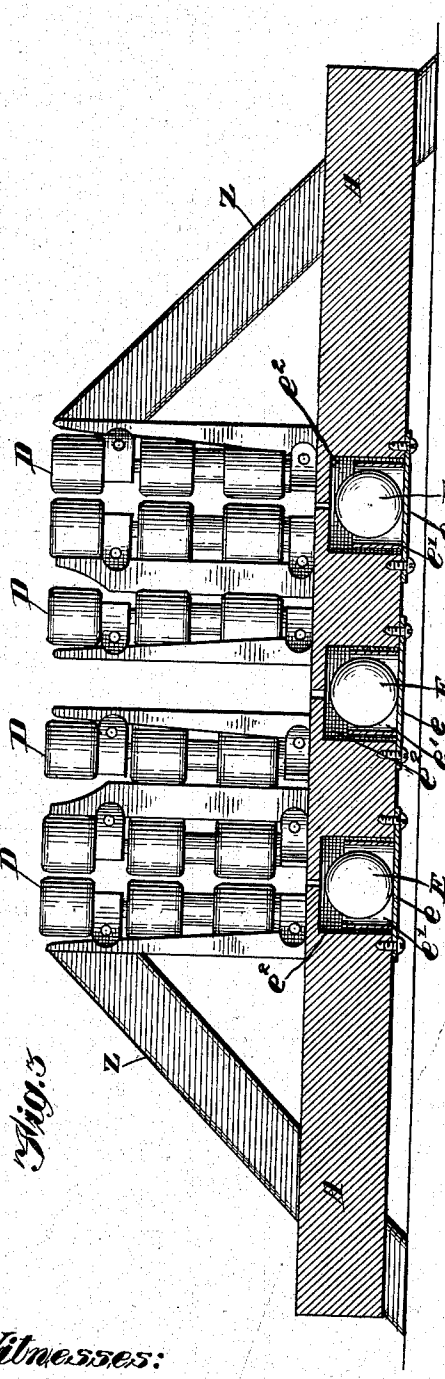


Fig. 3.

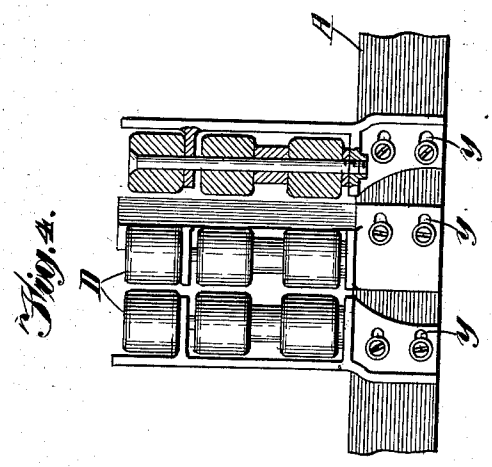


Fig. 4.

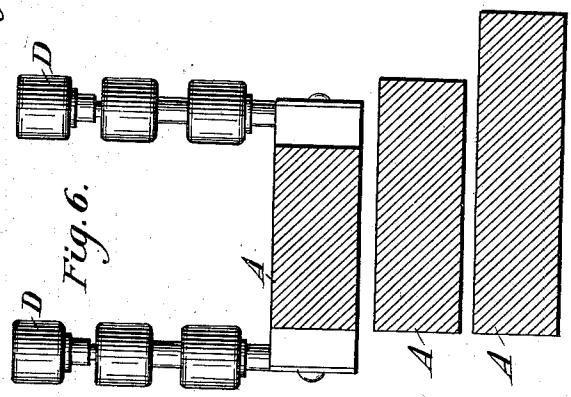


Fig. 6.

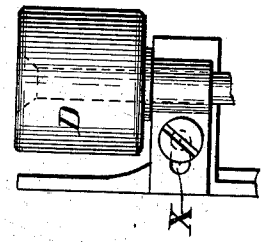


Fig. 5.

Witnesses:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 731,794. Patented June 23, 1903.

UNITED STATES PATENT OFFICE.

JOHN LARSON, OF CHICAGO, ILLINOIS.

MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 731,794, dated June 23, 1903.

Application filed July 25, 1902. Serial No. 117,045. (No model.)

To all whom it may concern:

Be it known that I, JOHN LARSON, a citizen of the United States of America, and a resident of Chicago, Illinois, have invented a certain new and useful Improvement in Miter-Boxes, of which the following is a specification.

My invention relates to miter-boxes adapted for use by carpenters in sawing up lumber.

Generally stated, it is the object of my invention to provide a simple, inexpensive, and highly-efficient miter-box.

A special object is to provide a novel and effective arrangement of antifriction-rolls for reducing and practically eliminating all friction between the saw and the box.

Another object is to provide a form of saw-guide which can be employed in connection with the bases or bottom boards of different widths.

A further object is to provide a novel and effective arrangement for stopping the saw as soon as the latter has passed through the timber or piece of lumber held within the box.

Another object is to provide a form of saw-guide which can be adjusted to fit saws of different thicknesses.

It is also an object to provide certain details and features of improvement tending to improve the general efficiency and serviceability of a device of this character.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a miter-box constructed in accordance with my invention. Fig. 2 is a plan of the miter-box shown in Fig. 1. Fig. 3 is a longitudinal section on line 3 3 in Fig. 2. Figs. 4 and 5 illustrate different ways of adjustably mounting the antifriction-rolls. Fig. 6 is a cross-section of the miter-box and of a couple of bases which are interchangeable with each other and with the one shown in the miter-box.

The construction thus illustrated is simple and inexpensive and has several advantages. For example, by providing each side of the base or bottom board A with a pair of guides B and C the said base or bottom board can be of any desired width. Thus it can be seen that the members of each pair of guides can be arranged close together or far apart, according to the width of the base or bottom board. With a base or bottom board twice as wide as the one shown in Fig. 2 the cuts or grooves 1 and 2 would of course be much longer, but of the same angle. In such case the same guides shown in Figs. 1 and 2 can still be employed, it being only necessary to arrange them a little farther apart, so as to bring the guide-spaces opposite or in line with the said cuts or grooves 1 and 2. Again, and as a special and important feature or advantage of my invention, the said guides can be provided with antifriction-rolls D. In order to reduce friction and secure less resistance to the saw, the rolls are preferably made short and arranged one above the other, as shown in Figs. 1 and 3. In this way the saw only rotates the rolls with which it may be in contact at any particular time and moves freely back and forth with a mininum of friction and without danger of cramping or binding in the guide-spaces. Another important feature of my invention consists in making the said rolls adjustable toward and away from each other, so as to vary the size of the guide-spaces in the guides. This can be accomplished in various ways—as, for example, by providing slotted connections X between the rolls and the upright castings forming the guides or guide-blocks. Again, each guide or guide-block can be divided into three sections, as shown in Fig. 4, each section being slotted, as at Y, so as to permit the various sections of each guide-block to be adjusted toward and away from each other. In either case, however, it will be seen that the slots or guide-grooves of the different guides or guide-blocks can be readily varied to accommodate saws of different thicknesses.

As another advantage of my improved construction the freely-rotating balls E are arranged so as to stop the downward movement of the saw as soon as the latter passes entirely through the timber or piece of lumber in the box. These balls are, it will be seen, preferably supported by cross-pieces e and held against lateral displacement by the rings e', which are sufficiently squared to have their corners engage the sides of the chambers or recesses e^2. Thus it will be seen that as soon as the saw-teeth enter one of the

grooves 1, 2, 3, or 4 the saw will be stopped and prevented from cutting into the base or bottom board A by reason of the rotary action of one of the balls. It will be observed that there is sufficient space around each ball to permit the sawdust to fall through and escape readily from the recesses or cavities in which the balls are held. Each guide or guide-block is preferably braced and connected with the base or bottom board by means of an inclined bar Z. The lower ends of these bars Z are, as will be observed, of such character as to serve as feet for the miter-box.

Thus it will be seen that I not only provide a construction which tends to eliminate all friction between the saw and the guides, but also that I provide a form of guide or guide-block which is applicable to any width of base or bottom board. In other words, the side or guide pieces of my improved miter-box are made in sections, which can be separated more or less according to the width of the base.

With my improved construction it will be seen that the base of the miter-box is thickened sufficiently to permit of its being formed with recesses adapted to receive the freely-rotatable wooden balls. As explained, the guide-openings across the top of the base intersect these recesses, and in this way the balls are enabled to stop the saw before it cuts into the base. Furthermore, each side of the miter-box is, as stated, preferably composed of a plurality of blocks having guide-openings adapted to register with the guide-openings extending across the top of the base. These blocks, which are preferably in the nature of castings carrying the antifriction-rolls, are preferably secured to the sides of the base by screws, as illustrated. This division of each side of the miter-box into a plurality of independent blocks has a peculiar advantage. With this arrangement it will be observed that the sides are applicable to bases of different widths, the blocks being adapted for more or less separation longitudinally of the base, according to the width of the latter. Thus, although the cuts or guide-openings in both the blocks and the bases are of a fixed angularity, these sides can be secured to a base of any width. By "adapted for more or less separation longitudinally of the base" I mean that the blocks constituting each side can be arranged either near together or some distance apart, according to the width of the base. If the base is comparatively narrow, then the blocks at each side will be brought nearer together, and if, on the other hand, the base is of considerable width then the blocks at each side will be located at some distance apart. In either case, however, it will be seen that the blocks are secured flatwise to the sides of the base, and are consequently always parallel—that is to say, the blocks at one side are always parallel with the blocks at the other side, regardless of the width of the base. With a plurality of rolls mounted for independent rotation and arranged one above the other at each side of the guide-openings the saw can work across the miter-box with considerable less friction and with greater facility than would be the case should only one long roll be arranged at each side of the guide-openings. There are also other advantages which will be readily apparent to mechanics and carpenters and those skilled in the art.

With my improved sides and with a plurality of interchangeable bases the width of the miter-box can be readily varied, so as to suit the requirements with respect to different widths of lumber. In other words, the combination of miter-box sides each composed of a plurality of sections with a plurality of interchangeable bases enables me to provide a miter-box of a variable width, and it will be observed that this variation in width is obtained by simply substituting one base for another and without at all adjusting or changing the sides, except that the wider the base the farther apart the sections of each side are located. In Fig. 6 I have shown a number of bases which are of different widths and which are interchangeable with the base shown in Fig. 2. It will be readily understood that the cuts or guide-grooves in the top of the base can be made with a saw after the sectional sides have been applied. In other words, the sides can be applied to a base of any particular width, and the cuts or guide-grooves can then be made in the top of the base with a saw. After the sides have once been applied to all of the bases each base will of course then have cuts or guide-grooves of the desired character, and consequently after this the bases can be interchanged without the necessity of making the cuts or grooves.

What I claim as my invention is—

1. A miter-box comprising a thickened base having recesses formed on its under side, and guide-openings on its upper side, sides secured to said base, said sides being provided with guide-openings registering with the guide-openings extending across the top of the base, said latter guide-openings intersecting said recesses, and freely-rotatable wooden balls held in said recesses, said balls being adapted to prevent the saw from cutting into the base.

2. A miter-box comprising a base having recesses formed on its under side and guide-openings on its upper side, sides secured to said base, each side being provided with guide-openings registering with the openings extending across the top of said base, the guide-openings in the base intersecting said recesses, and freely-rotatable wooden balls held in said recesses, the latter being polygonal in shape, so as to provide corners or openings through which the sawdust may pass.

3. A miter-box comprising a thickened wooden base having its top provided with guide-openings, a plurality of metal castings secured to each side of said base and provided

with guide-openings registering with the guide-openings in said base, the castings at each side of the base being adapted for more or less separation longitudinally of the latter, according to the width of the base, and each casting being provided with a number of anti-friction-rolls, said rolls being mounted for independent rotation and arranged one above the other at each side of the guide-openings, together with one or more bases which are of different widths and interchangeable with said first-mentioned base.

4. A miter-box comprising a suitable base having its top provided with guide-openings, sides secured to said base and provided with guide-openings registering with the said guide-openings in the base, all of said guide-openings being of fixed angularity, and each of said sides being composed of a plurality of independent blocks, the said blocks being adapted for more or less separation longitudinally of the base, according to the particular width of the latter, together with one or more bases which are of different widths and interchangeable with said first-mentioned base.

5. A miter-box comprising a suitable base, said base being provided with a plurality of guide-openings, sides secured to said base, each of said sides being composed of a plurality of independent blocks, each block being provided with guide-openings adapted to register with the guide-openings in the base, each block being also provided with screw-openings, and screws extending through said openings to fasten said blocks to the sides of said base, the said blocks being adapted for more or less separation longitudinally of said base, according to the width of the latter, together with one or more bases which are of different widths and interchangeable with said first-mentioned base.

6. A miter-box comprising a suitable base having its top provided with guide-openings, sides secured to said base and provided with guide-openings registering with the guide-openings in the base, each of said sides being composed of a plurality of independent blocks, a plurality of rolls mounted on each block and arranged one above the other at each side of said guide-openings, the blocks thus provided with antifriction-rolls being adapted for more or less separation longitudinally of the said base, according to the width of the latter, together with one or more bases which are of different widths and interchangeable with said first-mentioned base.

7. A miter-box comprising a suitable base and a plurality of guide-blocks secured to each side of said base, each guide-block having one or more guide-openings, and the different guide-blocks being adapted for more or less separation longitudinally of the said base, according to the width of the latter, together with one or more bases which are of different widths and interchangeable with said first-mentioned base.

8. A miter-box comprising a base provided with a plurality of recesses, sides attached to said base, and freely-rotatable wooden balls arranged in said recesses and adapted to stop the downward movement of the saw, said balls and recesses being located substantially midway between the said sides, and plates secured to and flush with the bottom of said base, each plate being adapted to support one of said balls and partially close the bottom of one of said recesses.

9. A miter-box comprising a base, sides secured to the said base, and antifriction-rolls mounted on said sides, said rolls being arranged one above the other at each side of the guide-openings in said sides.

10. A miter-box comprising a suitable base, sides secured to the said base, the base having recesses, balls in said recesses, and anti-friction-rolls mounted on said sides at each side of the guide-openings therein, sections of said sides being adjustable toward and away from each other for the purpose of varying the size of the guide-openings, and plates secured to and flush with the bottom of said base, each plate being adapted to support one of said balls and partially close the bottom of one of said recesses.

11. A miter-box comprising a suitable base provided with a recess, sides secured to said base, and a freely-rotatable ball arranged in said recess and adapted to stop the downward movement of the saw, said ball and recess being located substantially midway between said sides, a plate secured to and flush with the bottom of said base, said plate being adapted to support said ball and partially close the bottom of said recess.

12. A miter-box comprising a suitable base, and a plurality of separate and independent guide-blocks secured to each side of said base, each block having one or more guide-openings of fixed angularity, the blocks being adapted for more or less separation longitudinally of the base, according to the width of the latter, together with one or more bases which are of different widths and interchangeable with said first-mentioned base.

13. In a miter-box, the combination of a pair of miter-box sides, each side being composed of a plurality of separate and independent sections, each section having one or more guide-openings of fixed angularity, and a plurality of interchangeable bases of different widths.

14. A miter-box comprising a suitable base, sides for said base, each side consisting of a plurality of independently-mounted and suitably-separated castings provided with guide-openings of fixed angularity, and each casting being provided with a plurality of anti-friction-rolls, said rolls being mounted for independent rotation and arranged one above the other at each side of the guide-openings.

15. A miter-box comprising a suitable base, sides for said base, each side consisting of a

plurality of independently-mounted and suitably-separated guide-blocks, and each guide-block being provided with one or more guide-openings of fixed or permanent angularity, the sides thus divided into independent sections permitting, within limits, a variation in the width of said base.

Signed by me at Chicago, Illinois, this 14th day of July, 1902.

JOHN LARSON.

Witnesses:
ARTHUR F. DURAND,
WM. A. HARDERS.