(No Model.)

H. A. RIEMANN.

MITERING MACHINE.

No. 521,769. Patented June 19, 1894.

Fig. 1.

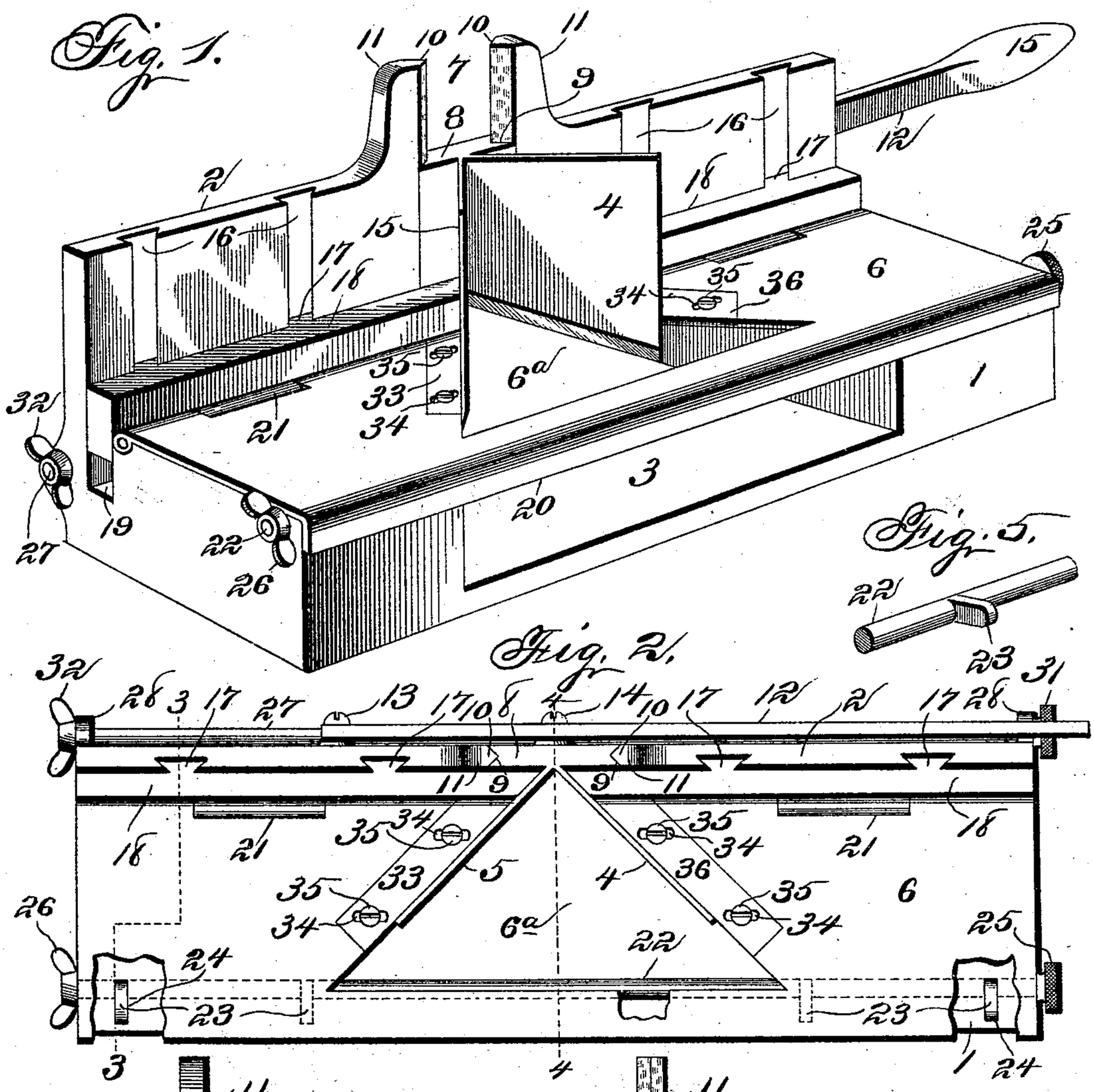


Fig. 5.

Fig. 2.

Fig. 3.

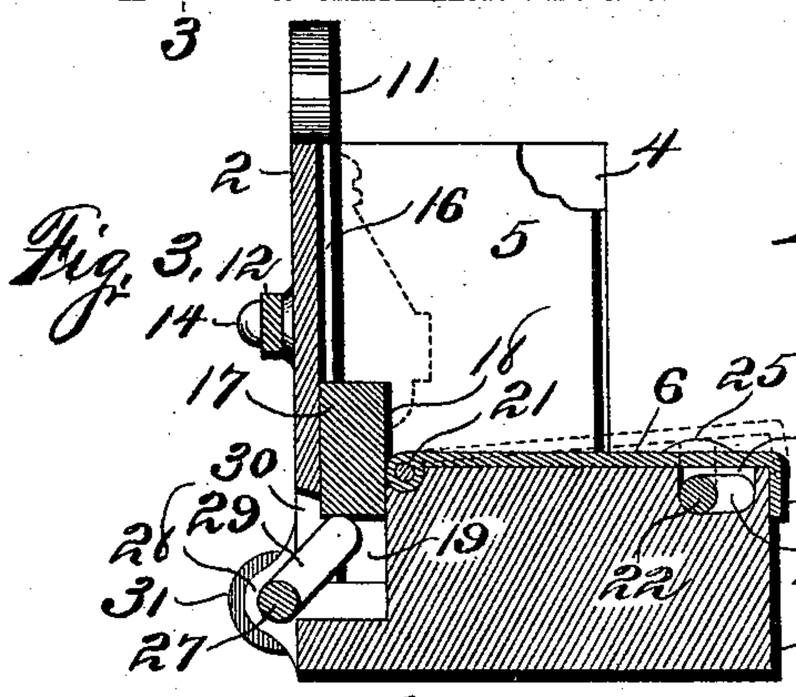
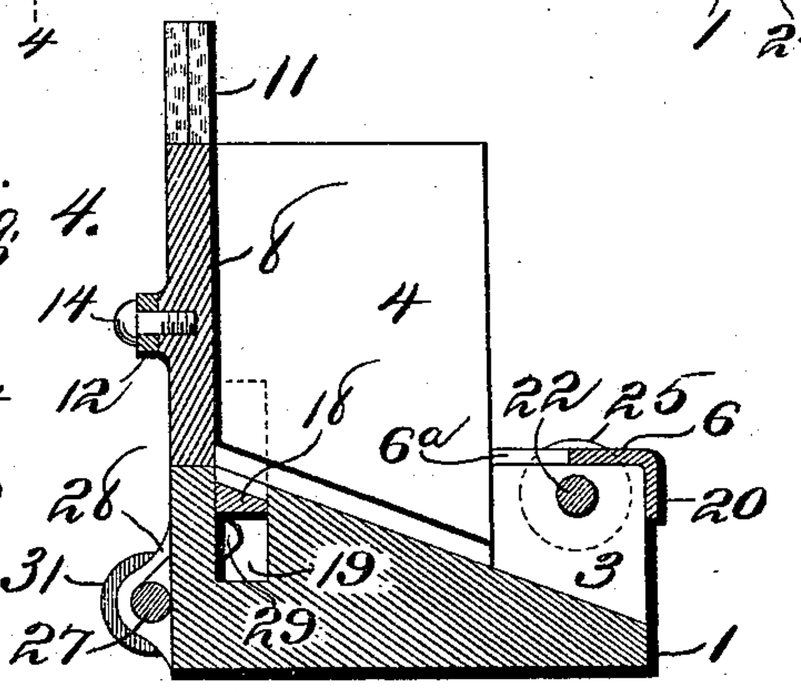


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY A. RIEMANN, OF HANNIBAL, MISSOURI.

MITERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 521,769, dated June 19, 1894.

Application filed January 15, 1894. Serial No. 496,882. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. RIEMANN, of the city of Hannibal, Marion county, State of Missouri, have invented certain new and useful Improvements in Mitering-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved mitering machine, and consists in the novel construction, combination and arrangement of parts hereinafter described and designated in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the improved machine. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse section of the improved mitering machine, showing the manner in which the table and a block is adjusted, said section being taken on the line 3—3 of Fig. 2. Fig. 4 is a like section, taken on the line 4—4 of Fig. 2, more clearly illustrating the construction of the machine. Fig. 5 is a detail view in perspective of a rock-shaft and a lug, which is made use of in carrying out my invention.

The object of my invention is to construct an improved mitering machine with an adjustable table, so that a miter can be cut on moldings that will fit when the side thereof is placed at an angle relative to the edge.

A further object of my invention is to construct a mitering machine with an adjustable block for holding moldings that have a groove in one edge.

Referring to the drawings: the numeral 1 designates the base, which is preferably constructed of cast iron. The back 2 is also cast iron, and cast integral with said base. Formed in the upper side of the base is a cut-away portion 3, which terminates about the center of the base adjacent the back and projects both ways toward the front edge of the base at an angle of about forty-five degrees, it extending at a greater depth into said base at the front edge than at the terminating point. This cut-away portion is to allow cutting knives 4 and 5 to project down therein below the upper surface of the plate 6, a suitable opening 6^a being formed in said plate to allow the cutting knives to pass through. Formed approximately in the center of the back 2 is a vertical cut-away portion 7, in which the block 8, which carries the cutting knives, is located. Each edge of said block is provided with a groove 9, which engages the tongue 10 formed on the adjacent ends of the back. By the construction of these grooves in the block 8, said block can readily reciprocate vertically in the cut-away portion 7. The back 2 not being the required height to give the block 8 the required vertical movement, a projection 11 is formed on the adjacent ends of the back, and said projections are provided with the tongue 10 to guide said block when it is vertically moved in the space 7.

For manually manipulating the cutting knives 4 and 5, a lever 12 is brought into use, one end being fulcrumed at 13 to the rear side of the back 2, and said lever passes across said back to the block 8, it being pivoted to said block at 14. Said lever 12 extends a suitable distance beyond the end of the machine, so that the operator can grasp the handle 15 thereof for manipulating it.

Formed in the front side of the back 2 is a series of vertical grooves 16 with receding sides, in which is located dovetailed lugs 17, which are formed on or fixed to a block 18, which extends longitudinally across the upper edge of the base 1 adjacent the back thereof, and a groove 19 is formed in said base of suitable depth that said block can be inserted therein, and so that the upper edge thereof will be in alignment with the upper side of the plate 6. The plate 6 is preferably constructed of cast or malleable iron, and is approximately the same in length and width as the upper surface of the base 1. The front edge of said plate 6 is provided with a downwardly pending flange 20, which projects over the front edge of the base 1. This plate 6 is hinged, by means of a hinged joint 21, to the base 1 adjacent its rear edge, so that the front edge of the plate 6 can be raised or lowered.

For raising the front edge of the plate 6, I have provided a longitudinal horizontal rock-shaft 22, which is provided with its bearings in the base 1 adjacent the upper edge thereof, and said shaft is provided with a series of

lugs 23, which operate in suitable cut away portions 24 formed in said base. Said lugs are of suitable length that when the shaft is turned in the position illustrated by dotted lines in Fig. 3, the free ends of said lugs will engage the lower surface of the plate 6 and raise it. For operating said rock-shaft, I have constructed one end of said shaft with a head 25, the circumferential periphery of which is roughened so that it can readily be operated by the hand. For retaining said shaft in the required position, and for holding the free edge of the plate 6 as illustrated by dotted lines in Fig. 3, I have constructed the free end of said rock-shaft with a thumb-nut 26. After said shaft has been turned in the required position by the head 25, the thumb-nut can be readily tightened, which will draw the lugs 23 against one side of the opening 24 in which they are located, which will cause said shaft to retain the required position. For operating the horizontal block 18, a similar device is brought into use. It comprises a horizontal rock-shaft 27, which is mounted in suitable bearings 28 formed on or fixed to the rear side of the back 2 in such a position that the shaft 27 will be in horizontal alignment and parallel with the lower end of the groove 19. This shaft 27 is provided with a series of lugs or projections 29, they being of suitable length that they will project transversely of the groove 19. A suitable opening 30 is formed in the back 2 to allow said lugs to pass through said groove. One end of the rock-shaft 27 is provided with a head 31, the circumferential periphery of which is roughened, so that it can readily be manipulated by the hand of the operator. The opposite end of said shaft is constructed with a thumb-nut 32, so that said shaft can be made to retain the required position. This is done by the shaft first being turned to the position desired, and then the thumb-nut is tightened, which will cause the lugs 29 to engage one side of the opening 30, which will create friction and cause the shaft to retain said position until the thumb-nut has been released.

Returning now to the cutting knives 4 and 5, it will be observed, by inspecting Figs. 1 and 4, that the lower cutting edges thereof are at an angle relative to the upper surface of the base 1. The purpose of these knives being at an angle is to make the cutting operation easier. Connected to the upper surface of the plate 6 is an adjustable block 33, which is so located that one edge thereof will be in alignment with the adjacent side of the cutting knife 5. This block is located in a suitable depression formed in the plate 6, so that its upper surface will be in alignment with the upper surface of said plate. Two transverse slots 34 are formed in the block 33, through which screws 35 pass. These slots are so formed that the heads of the screws 35 will be countersunk therein, and the upper ends will be in alignment with the upper surface of the block 33. Connected to the upper surface of the plate 6, adjacent the cutting knife 4, is a block 36, the same in construction and operation as is the block 33.

Having described the operation of each part along with the mechanical description, I will now proceed to describe it as a whole.

When the block 18 is in the position illustrated in Figs. 1, 3 and 4, a molding such as that illustrated by dotted lines in Fig. 3, can be placed on said block, and when the cutting knives are brought to bear upon the upper edge of said molding, the lower edge thereof will not be disfigured by said molding being pressed against the hard surface of the mitering machine, as would otherwise be the case. When it is desired to cut a miter on a piece of wood describing a parallelogram in cross-section, the block 18 is lowered until the upper edge thereof is in alignment with the upper edge of the plate 6. When this is done the free edge of said plate 6 is raised until it assumes the angle of the parallelogram, which will cause the piece to fit against the back 2 and also fit upon the plate. The machine is also adapted for cutting moldings to fit around the panels in doors, &c.

It is well known to those versed in the manufacture of doors that it is difficult to cut a miter on a piece of molding that will make a tight joint when placed upon the angle of the panel. By the construction of the plate 6 it can be adjusted, as hereinbefore described, so that when the flat surface of the molding is placed thereon, the required pitch will be given to the miter for making a tight joint when the molding is placed upon the angular portion of the panel of a door. When the free edge of the plate 6 is elevated, as illustrated by dotted lines in Fig. 3, the edges of said plate adjacent the cutting knives 4 and 5 will be thrown away from said knives. To close the space between said edges of the plate 6 and the cutting knives, the adjustable blocks 33 and 36 are placed adjacent said knives, so that when the plate 6 is elevated, said blocks can be adjusted in such a manner that they will fit snugly against the knives when they are reciprocated.

What I claim is—

1. In a mitering machine, a base having a back cast integral therewith, a block located in a suitable groove formed between said back and base, a rock-shaft mounted in suitable bearings located on the rear of the back, lugs formed on or fixed to said rock-shaft, which project through suitable openings in the back so they can engage the block for raising and lowering the same, and means for retaining said rock-shaft in the required position, substantially as set forth.

2. In a mitering machine, a base, a plate hinged to the upper surface of said base adjacent one corner thereof, a rock-shaft located on said base and having its bearings adjacent the upper edge thereof, and lugs or projections formed on or fixed to said rock-shaft

which engage the lower surface of said plate, for raising the same, substantially as set forth.

3. In a device for cutting miters, a base, an adjustable plate having an opening therein, mounted on said base, said opening constructed to allow cutting knives to pass through, and blocks 33 and 36 connected to said plate adjacent the cutting knives, said blocks being so constructed that they can be adjusted when the plate 6 is adjusted, substantially as set forth.

4. A mitering machine, comprising the following elements, to-wit: A base 1, a back 2 cast integral therewith, a cut away portion 3 formed in the upper side of said base to allow cutting knives 4 and 5 to pass below the upper surface of said base, an adjustable plate 6 having an opening 6ª therein, hinged to the upper surface of said base adjacent the rear edge, a block 8 located in a cut away portion 7 and having its bearings in the back 2, a lever 12 fulcrumed to the rear side of the back and pivoted to said block 8, a block 18 located in a groove 19 formed in the upper surface of the base adjacent the front side of the back, said block constructed with a series of dove-tailed projections 17 which engage a like number of receding grooves 16 formed in the front side of the back, a rock-shaft 27 having a head 31 at one end and a thumb-nut 32 at the opposite end, and a series of lugs or projections formed on or fixed to said shaft intermediate said head and nut, said lugs constructed to engage the block 18, a shaft 22 having a head 25 at one end and a thumb-nut 26 at the other end, and a series of lugs or projections 23 formed thereon intermediate the head and nut, said projections 23 constructed to engage the lower surface of the plate 6 adjacent its free end for adjusting the same, all arranged and combined to operate in the manner set forth and for the purposes stated.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY A. RIEMANN.

Witnesses:

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