May 12, 1953 W. T. KEARNEY 2,638,134

ADJUSTABLE MITER RULE ATTACHMENT

Filed Dec. 23, 1949 2 Sheets-Sheet 1

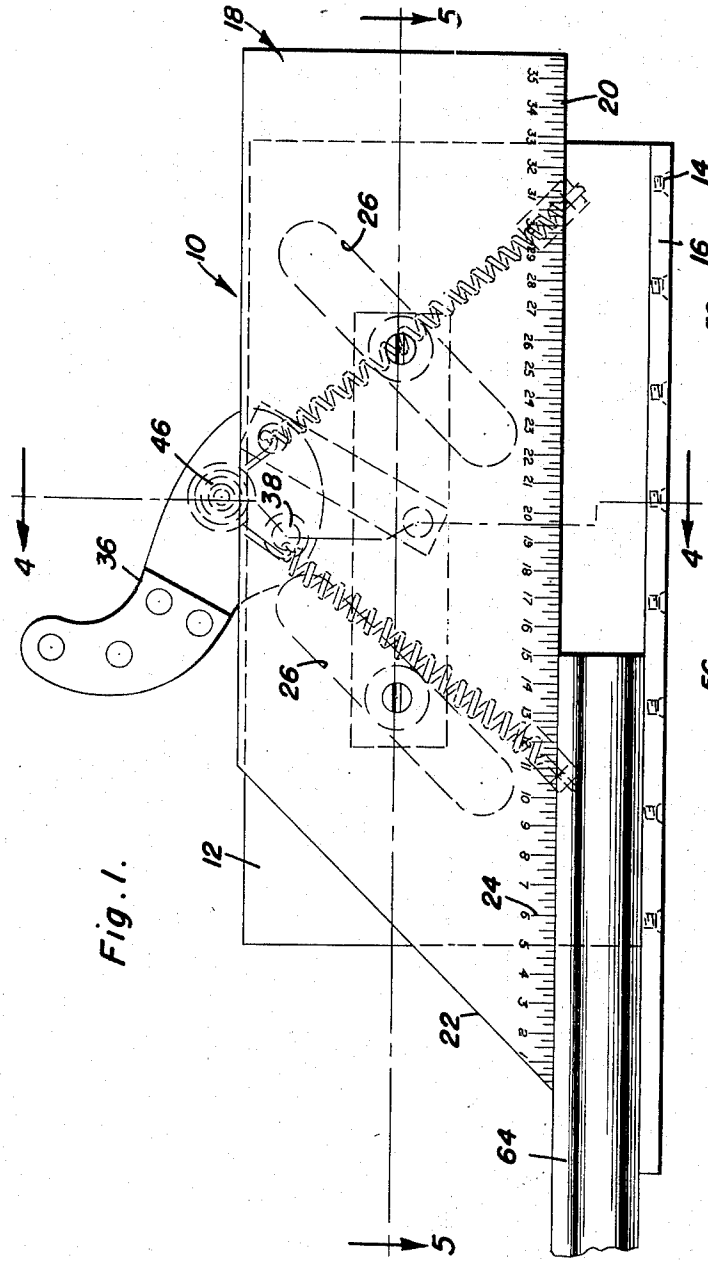


Fig. 1.

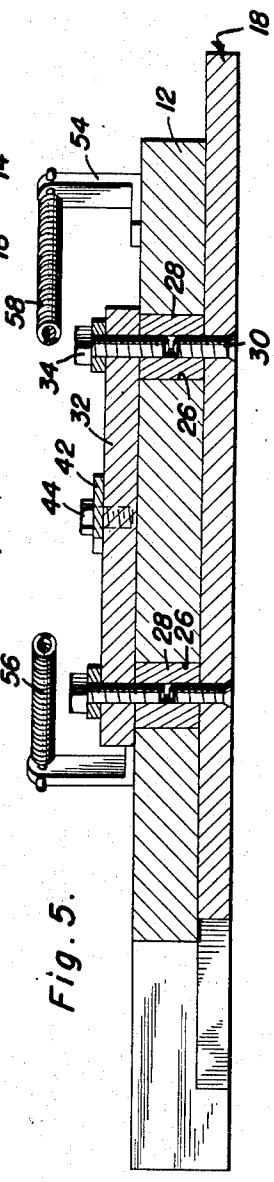


Fig. 5.

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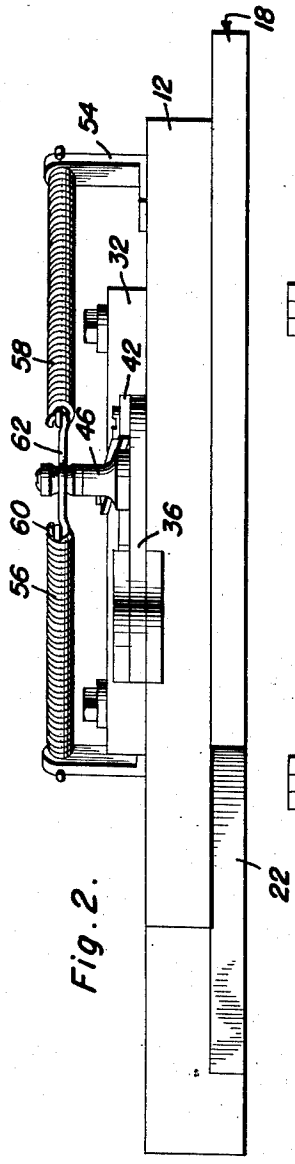


Fig. 2.

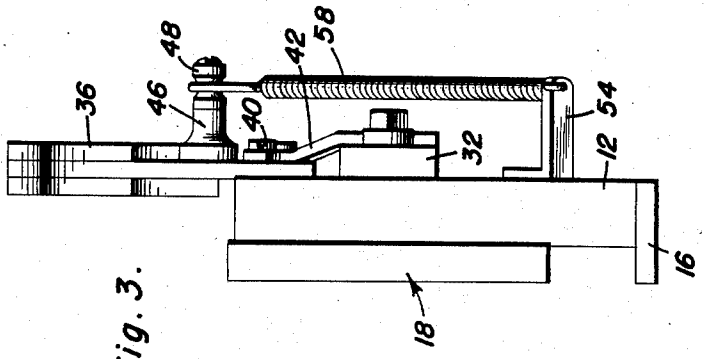


Fig. 3.

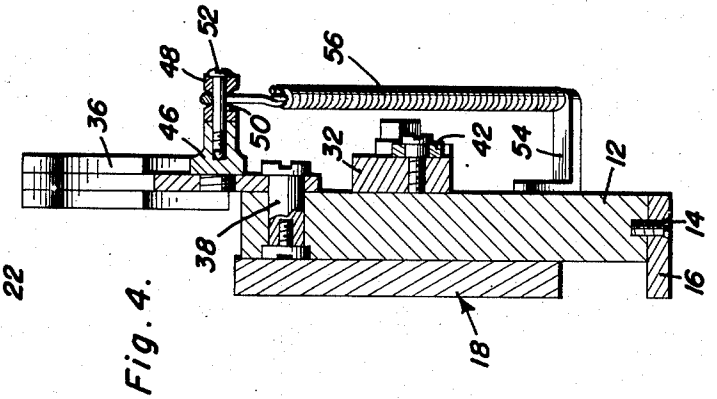


Fig. 4.

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UNITED STATES PATENT OFFICE

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ADJUSTABLE MITER RULE ATTACHMENT

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5 Claims. (Cl. 143—86)

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This invention relates to new and useful improvements in mitre rules, and more particularly pertains to a combination mitre rule and vise wherein novel means are provided for guiding oblique movement of the mitre rule and for moving the same.

The primary object of this invention is to enable an operator to perform precise mitering while permitting his hands to be free from having to hold the work piece.

Another important object of this invention is to provide a mitre rule which is automatically adjusted for different sizes of work and which will securely grip the same during mitering.

Still another important object of this invention, in conformity with the foregoing objects, is to provide a mitre rule which is efficacious in operation, simple and inexpensive in construction, and which is durable and efficient for the purposes intended.

A meritorious feature of the present invention resides in the means provided for guiding oblique movement of the mitre rule which will positively retain the same in parallel relation with the side rail.

Another important feature of the present invention resides in the means provided for manually opening the rule and the spring means provided for urging the same into the closed position.

A final important feature to be specifically enumerated herein resides in the entire actuating mechanism being disposed below the base, and with the exception of the hand lever, being concealed from view from above.

These, together with various ancillary features and objects of the invention which will later become apparent as the following description proceeds, are attained by the present invention, a preferred embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a top plan view of the present invention, concealed portions being indicated in dotted outline, and showing the same engaging a piece of work;

Figure 2 is a front elevational view of the present invention;

Figure 3 is a side elevational view of the present invention, being taken from the right-hand side as seen in Figure 1;

Figure 4 is a vertical transverse sectional view of the present invention, being taken upon the plane of the broken section line 4—4 of Figure 1; and

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Figure 5 is a vertical longitudinal sectional view, being taken upon the plane of the section line 5—5 of Figure 1.

Reference is now made more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views and in which the mitre rule is indicated generally by the numeral 10.

The mitre rule 10 comprises a base 12 along one edge of which is secured, by means of fasteners 14, a vertical guide rail 16, which, as will be seen hereinafter, also serves the function of being a fixed jaw.

A mitre rule, indicated generally at 18, is slidably mounted upon the base 12 and has one edge 20 parallel to the side rail 16. The mitre rule 18 has a second edge 22 that intersects the edge 20, being preferably at a forty-five degree angle thereto, and the edge 20 is provided with suitable indicia 24 having its zero point at the intersection of the edges 20 and 22. It will also be noted that the edge 22 is substantially in alignment with one end of the rail 16.

The base 12 is provided with a pair of parallel guide slots 26, which are parallel to the edge 22, and which slidingly receive guides 28, the mitre rule 18 being secured to the latter by means of fasteners 30. It will be understood that this arrangement limits sliding movement of the mitre rule 18 on the base 12, to being parallel to the edge 22, and that the edge 20 will be retained in parallel relationship with the guide rail 16.

Mitre rule 18 is retained on the base 12 by means of a tie bar 32 which is disposed on the opposite side of the base 12 and secured to the guides 28 by means of fasteners 34.

A hand lever 36 is disposed beneath the base 12 and opposite the edge to which the guide rail 16 is secured, and is pivoted to the base 12 for horizontal movement as by pinion bearings 38. Eccentrically to its own pivot, the hand lever 36 is pivoted at 40 to one end of an offset connecting link 42, which in turn has its other end pivoted to the tie bar 32, as at 44. As thus far described, it will be evident that oscillatory movement of the hand lever 36 about its pivot 38 will, through the connecting link 42, the tie bar 32, and guides 28, cause the mitre rule 18 to move toward and away from the guide rail 16.

Means is provided for normally urging the edge 20 of the mitre rule 18 into engagement with the guide rail 16. These means include a spring mount 46 threadedly engaging the hand lever 36 and extending downwardly therefrom. The mount 46 carries at its lower end a pivoted

member 48 having an annular groove 50 by means of a fastener 52. A pair of longitudinally spaced brackets 54 are secured to and depend from the base 12, the arrangement being such that the brackets 54 and the mount 46 are disposed substantially at the apices of an imaginary equilateral triangle. A pair of coiled tension springs 56 and 58 are secured to the brackets 54 and have their other ends engaging the hooked ends 60 of a V-shaped spring-engaging element 62, the apex of which is received in the groove 50.

As shown in Figure 1, it will be evident that clockwise rotation of the hand lever 36 will cause the mitre rule 18 to move toward the guide rail 16, and it is to be noted that the spring mount 46 is disposed eccentrically with respect to the pivot 38, whereby the springs 56 and 58 tend to cause clockwise rotation of the lever 36 and closure of the mitre rule 18 with the guide rail 16. It will be appreciated that two springs have been provided in the preferred construction in order that a sufficient couple will act on the hand lever 36 throughout its angular oscillations to exert a considerable clamping force between the mitre rule 18 and the guide rail 16.

The operation of the present invention will be readily understood. The operator, after trimming first mitre, pulls the hand lever 36 into a position opening the mitre rule 18 and the guide rail 16, and then inserts material 64 to the required dimension on the mitre rule and the operator then releases the lever, allowing the rule to grip the material automatically between the mitre rule 18 and the guide rail 16, regardless of the dimensions of the material 64. With the work 64 thus positioned as desired, the edge 22 of the mitre rule constitutes a guide edge for a saw, not shown, for cutting or mitering the work 64, as will be understood. It is to be noted that by virtue of the edge 22 being parallel to the guide slots 26, the guide edge 22 remains substantially in alignment with one end of the rail 16, so that the opposite sides of the work 64 are securely clamped immediately adjacent the plane at which the work will be cut by a saw guided by the edge 22, irrespective of the adjustment of the device for the width of the work. Inasmuch as the end of the rail 16 terminates in substantial alignment with the guide edge 22, a saw may be guided in cutting the work 64 by both the end edge of the rail 16 and the edge 22.

It is believed that the advantages of the present invention will be readily appreciated by those skilled in the art in that the same permits flexibility and ease for the operator, increases production, as the same automatically grips the work, it decreases the hazards of this operation because both hands of the operator are free during mitering, and the arrangement of the parts of the device permit the same to be readily used on shears or saws.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art after a consideration of the foregoing specification and accompanying drawings, it is not desired to limit the invention to the exact construction shown and described, but all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A combined mitre rule and vise, comprising a base having a fixed upstanding guide rail along one edge thereof, a mitre rule movably mounted on said base and having an edge parallel to and engageable with said rail, said rule having a second edge intersecting the first edge at an oblique angle and substantially aligned with an edge of the rail, means for guiding movement of the rule on the base in a direction parallel to said second edge with the first edge being maintained parallel to said rail, and means connected to said base and operatively connected to said rule for yieldingly urging said rule towards said rail for engaging a piece of work therebetween.

2. The combination of claim 1, wherein said first means includes the base being provided with a pair of guide slots, a pair of guides on said rule guidedly received in said slots.

3. The combination of claim 1, wherein said first means includes the base being provided with a pair of guide slots, a pair of guides on said rule guidedly received in said slots, said last means including a hand lever pivoted to the base and operatively connected to the guides.

4. The combination of claim 3 including, a tie bar connecting said guides, said hand lever being disposed on the under side of the base, and a link having one end pivoted to the lever and the other pivoted to the tie bar.

5. The combination of claim 4, wherein said last named means also include tension springs arranged in V formation with corresponding ends secured to said hand lever eccentrically with respect to pivotal connection between the lever and base, the other ends of said springs being secured to said base.

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