Nov. 25, 1952 M. CRAIN 2,619,173

TILE CUTTER WITH GAUGING MEANS

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Fig. 1.

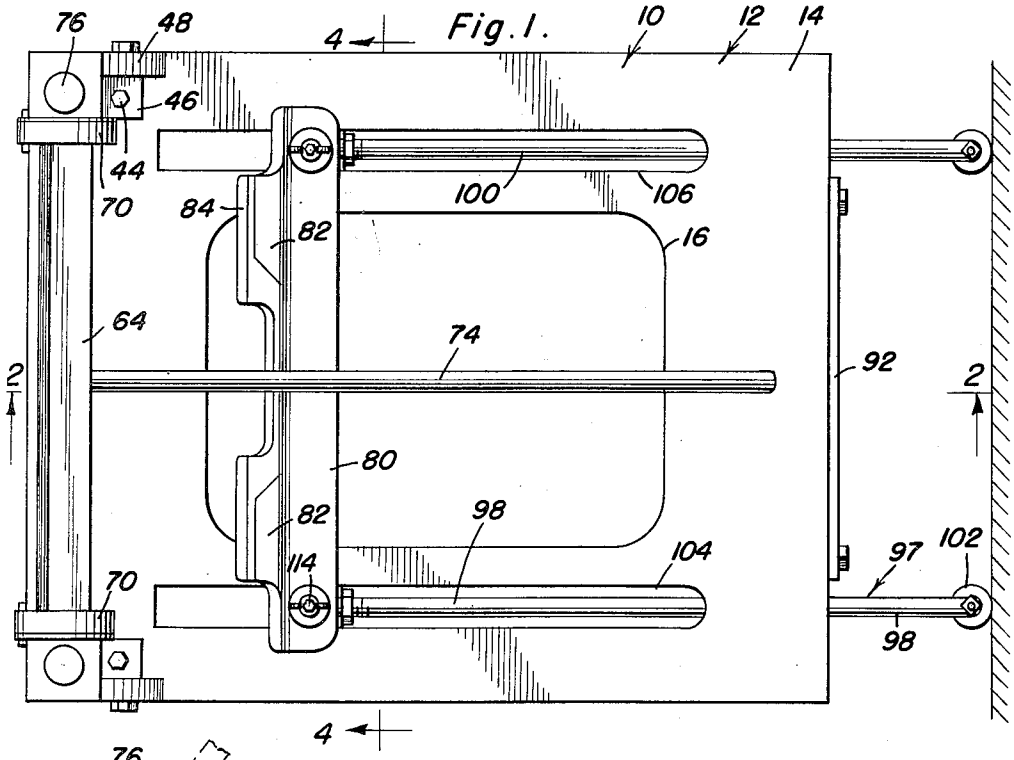
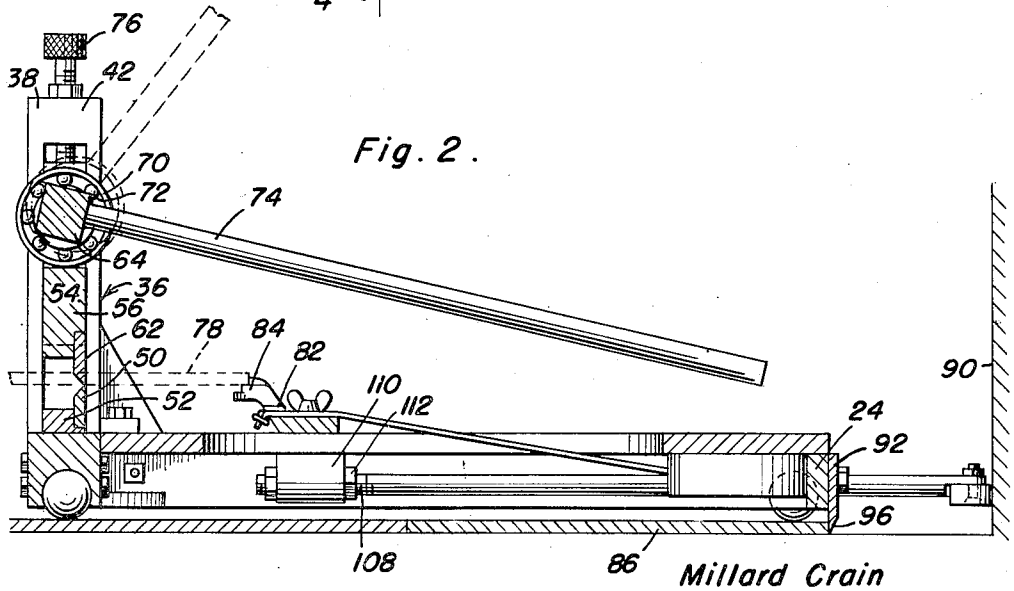


Fig. 2.



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Fig. 3.

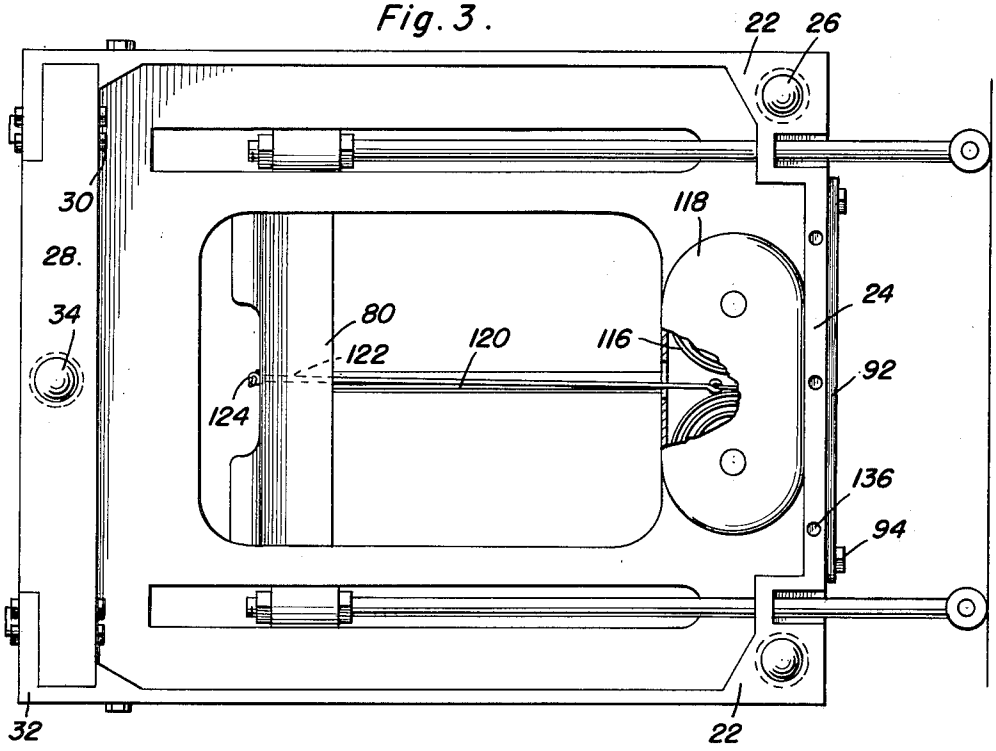


Fig. 4.

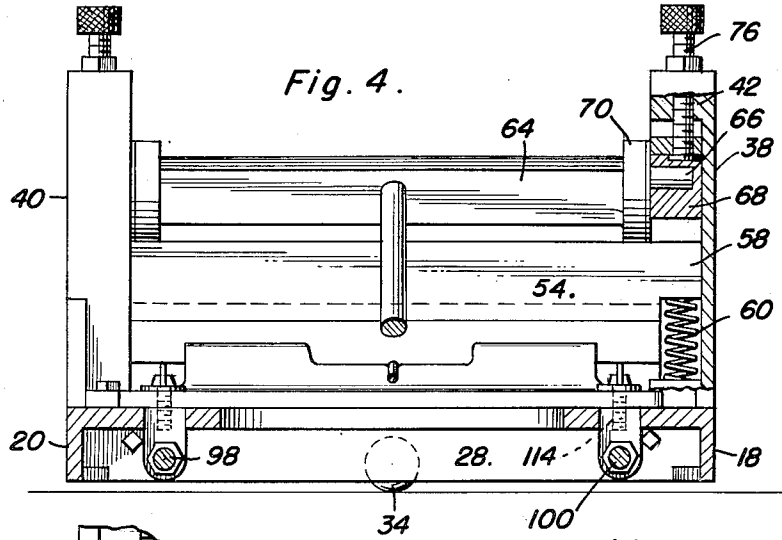
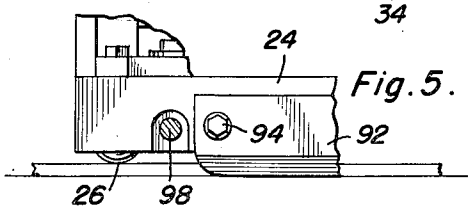


Fig. 5.



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Fig. 6.

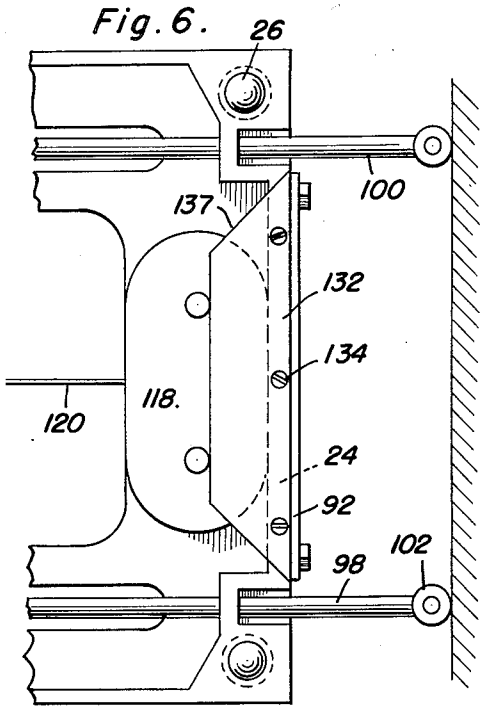


Fig. 9.

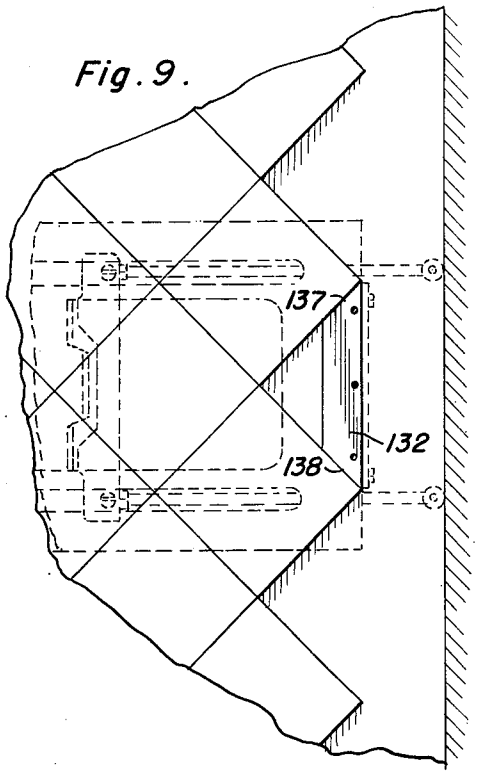


Fig. 7.

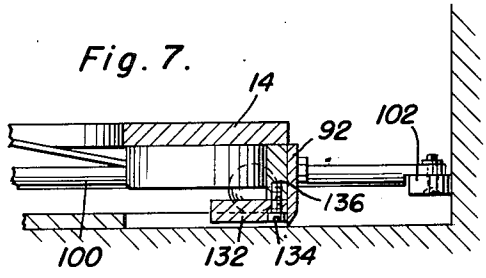


Fig. 10.

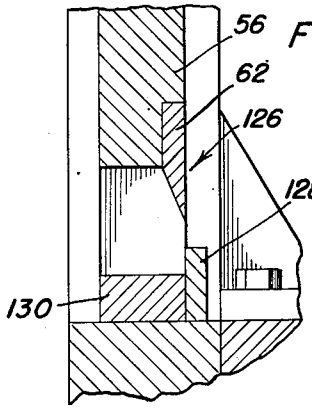
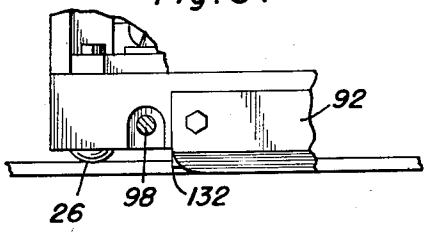


Fig. 8.



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UNITED STATES PATENT OFFICE

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TILE CUTTER WITH GAUGING MEANS

Millard Crain, San Jose, Calif.

Application October 13, 1949, Serial No. 121,145

11 Claims. (Cl. 164—57)

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This invention relates to cutting devices and particularly appertains to a gauge and cutter adaptable for laying out linoleum and for cutting tile blocks and the like.

The primary object of this invention is to simultaneously measure and cut a tile block or linoleum strip.

Another important object of this invention is to gauge the space between the edge of laid tile or flooring and the wall and to simultaneously cut a tile or flooring block to conform to the measurements of the space.

Another important object of this invention is to reduce the time required for laying a parqueted block flooring or tile floor by providing a combination gauge and cutter, whereby various spaces may be gauged and simultaneously the blocks may be cut to a dimension in conformity with the space.

These and ancillary objects are attained by employing a preferred embodiment of this invention, which consists of a base having surface-engaging means, whereby the base is rendered movable over various surfaces, cutting means being mounted on one end of the base and a tile block or flooring block supporting member being slidably mounted on the base for feeding a block relative to the cutting means, the block being cut to conform to the dimensions of a space gauged by a movable gauge member connected to the flooring block supporting member and a fixed gauge member carried by the base and adapted to abut against the edge of the laid flooring.

The preferred embodiment of this invention is set forth in the following description and is illustrated in the accompany drawings, wherein:

Figure 1 is a top plan view thereof;

Figure 2 is a longitudinal vertical sectional view taken on line 2—2 of Figure 1;

Figure 3 is a bottom plan view thereof;

Figure 4 is a transverse sectional view taken on line 4—4 of Figure 1;

Figure 5 is an enlarged fragmentary front elevational view, illustrating the fixed gauge member carried by the base frame;

Figure 6 is a fragmentary bottom plan view, illustrating a fixed gauge member which is employed for use in laying diagonal lines of blocks;

Figure 7 is a vertical sectional view thereof;

Figure 8 is a fragmentary front elevational view thereof;

Figure 9 is a diagrammatic showing of the device, illustrated in Figure 6, in use; and

Figure 10 is a detail sectional view of another

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form of cutter, which employs a shearing action.

In the accompanying drawings, attention being first directed to Figures 1 to 5, inclusive, the combination block cutter and gauge 10 includes a frame 12 consisting of a base plate 14 having a center opening 16. Longitudinal side walls 18 and 20 depend from the marginal edges of the base plate and are integral therewith, the side walls having horizontally disposed flanges or corner shields 22 formed at their opposing ends. A front wall 24 extends between the side walls and ball bearings 26 are mounted in the corner shields or posts 22. A bar 28 is secured by transverse bolts 30 to depending flanges 32 formed on the rear edge of the base and a ball 34 is mounted in the bar.

Cutting means 36 is vertically mounted on the rear end of the base plate, the cutting means including a pair of vertically disposed opposing channel bars 38 and 40 having blocks 42 integrally formed on their upper ends. The channel bars are seated on the base and bolted thereto by means of bolts 44 disposed through lateral flanges 46 on the lower ends of the bars, the bars being rigidified by brace means 48. A fixed cutter blade 50 is mounted transversely between the opposing bars and held therein by means of a wedge block 52. A movable cutter 54 is slidably mounted between the bars, the cutter including a block 56 having opposing reduced ends 58 slidably mounted in the channels of the bars, the ends 58 being mounted on coil springs 60 disposed in the channels. A cutter blade 62 is anchored in the lower end of the block and is disposed in vertical alignment and in cutting engagement with the fixed blade.

Means is provided for moving the movable blade, against the urge of the spring 60, into cutting relation with the fixed blade and includes a square block 64 mounted parallel above the movable cutter 54 and formed with off-center journaling ends 66 rotatably journaled in bearing blocks 68 mounted in the channels. Rings 70 are disposed concentric about the opposing ends of the blocks and mounted on ball bearings 72, the rings being engageable on the upper face of the cutter block 56. A handle 74 projects laterally from the center of the block and vertical swinging movement of the handle results in a rotary movement of the block, the block being eccentrically mounted between the channel bars, thereby producing a downward movement of the movable cutter relative to the fixed cutter.

Means is provided for adjusting the cutters

and relaxing the tension on the movable cutter, the means including adjusting screws **76** threadingly disposed through the upper ends **42** of the bars and having their inner or lower ends bearing on the journaling blocks **68** slidably mounted in the channels.

Means is provided for supporting a flooring block, such as tile or the like, **78** and includes a supporting member or bar **80** transversely disposed across the open center **16** of the base, the bar having an upstanding flange or lip **82** terminating in a horizontally disposed flange **84**. The flange **84** is formed with outwardly facing shoulders, constituting a stepped flange, the edges of the floor blocks **78** being adapted to abut the shoulders and being supported thereby, as seen in Figure 2, it being noted that the flange **84** is coplanar with the upper cutting edge of the fixed cutter blade **50**, so that the block is supported on the fixed cutter blade and on the flange **84**. Means is provided for moving the bar **80** relative to the cutter, to enable the correct portion of the block to be sheared or cut off, so that the block is cut to the proper dimensions of the space between the outer edge of the laid blocks **86** and the wall **90**, as seen in Figure 2. This means preferably includes a fixed gauge member or bar **92**, which is bolted by bolts **94** or otherwise securely affixed to the front bar **24**, the fixed gauge member having a lower beveled end **96** terminating below the supporting balls **26** and **34**. As seen in Figure 2, the lower edge **96** of the fixed gauge member is adapted to engage the edge of the floor block adjacent to the wall, while movable gauge means **97** is provided and is operatively connected to the supporting member **80**, so that the member is moved relative to the cutters, until the length of the block **78** between the supporting flange **84** and the cutter is workably equal to that between the edge of the block **86** and the wall **90**. This means preferably includes a pair of elongated rods **98** and **100**, which are slidably disposed through the front of the base and have rollers **102** rotatably journaled on vertical axes to their outer ends. Elongated slots **104** and **106** are formed in the base, parallel to the sides of the center opening, the rods being vertically aligned with the slots. The inner ends **108** of the rods are externally threaded and are disposed through axial passages formed in blocks **110**, nuts **112** being disposed on the opposite sides of the blocks to secure the rods therein. The blocks project upwardly through the slots and the opposing ends of the bar **80** are attached to the blocks by means of set screws **114**.

Means is provided for yieldingly retaining the supporting bar adjacent to the front of the base and away from the cutter, the means preferably including twin springs **116** which are horizontally mounted in a housing **118** on the under side of the base adjacent to the front wall **24**, the springs being mounted on rotatably journaled hubs and being connected by means of a flexible connecting member **120** to the bar. In one embodiment, as seen in Figure 3, the flexible member extends through a transverse opening **122** in the bar and is knotted, as at **124**.

In use, it can be seen, with respect to Figure 2, that the supporting member will be moved on the base relative to the cutter by means of the rods **98** and **100**. It is to be particularly noted that the rods **98** and **100** can assume independent positions with respect to the bar **80**, through the pivotal connection **114**, so that the bar **80** can be inclined relative to the axis of the cutters. Furthermore, the springs constantly urge the supporting member away from the cutters so that when the rods are positioned against the wall **90**, the fixed member abutting the edge of the block **86**, the supporting member is held in a substantially fixed position and the block **78** is therefore uniformly and evenly cut responsive to the outline formed by the gauge means.

Attention is directed to Figure 10, wherein another type of cutting means **126** is provided, the same including the movable cutting assembly **56** and the movable cutter blade **62** but having a fixed block **128** anchored between the channel bars by a wedge block or supporting block **130**. Thus, a shearing action is obtained as the blade **62** is brought downwardly into shearing engagement of the fixed block **128**.

For the purpose of forming and cutting blocks which are to be laid in diagonal lines, attention is directed to Figures 6 through 9. It will be noted that the same is similar to Figs. 1–5, but an attachment block **132** is provided. The block **132** is secured by screws **134** to the lower edge of the front wall **24**, the wall having vertical bores **136** formed therein to accommodate the screws. The block **132** is horizontally disposed and extends rearwardly from the front wall, the block being parallel with the base. As seen in Figure 9, the block is provided with opposing inwardly and rearwardly directed end walls **137** and **138**, the walls being adapted to abut against the inner slanting walls of adjacent floor blocks or panels.

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

1. A tile cutter including a base having front and rear ends and adapted to be moved forwardly and rearwardly toward and away from a wall over tile laid on a floor and spaced from the wall, a fixed gauge member on the front end of said base for engagement with the edge of the laid tile to limit movement of said base away from the wall, cutter means on the rear end of said base for cutting a tile block to be laid in said space, and gauge means extending forwardly of the base and slidable rearwardly thereon toward said cutter means by engagement with said wall to space said gauge means from said cutter means in accordance with the space between the edge of the laid tile and the wall whereby to gauge the size to which the tile block shall be cut by the cutter means.

2. A tile cutter according to claim 1, said gauge means being spring tensioned against rearward movement to urge the base rearwardly into its limit of movement away from the wall.

3. A tile cutter according to claim 1, said gauge means including a tile block supporting member extending transversely of said base and slidable rearwardly thereon.

4. A tile cutter according to claim 1, said gauge means including a tile block supporting member transverse to said base and slidable rearwardly thereon and having a stepped flange for engagement with and supporting of an edge of the tile block to be cut.

5. A tile cutter according to claim 1, said gauge means including a tile block supporting member transverse to said base and slidable rearwardly thereon, and a pair of rods slidably mounted on opposite sides of the base with wall engaging rollers on one end thereof and the other ends pivoted to said tile lock supporting member adjacent opposite ends of the member.

6. A tile cutter according to claim 1, said fixed gauge member comprising a bar fixed to and depending from the front end of said base.

7. A tile cutter comprising a base, cutting means mounted adjacent one end of the base, a tile block supporting member slidably mounted on the base for movement relative to said cutting means, means for yieldingly retaining said member adjacent the end of said base opposed to that to which said cutting means is attached, a fixed gauge member on said last base end for engagement with the edge of a laid tile, a movable gauge member slidably mounted on the base and connected to the tile supporting member, said movable gauge member projecting from said last mentioned end of said base for contact with the wall adjacent the laid tile.

8. The combination of claim 7, wherein said base is provided with surface-contacting ball bearings.

9. The combination of claim 7, wherein said movable gauge member includes a rod connected to the member and slidably mounted on the base transverse to the fixed gauge member, said

rod having a roller on its outer end for contacting a vertical support.

10. The combination of claim 7, wherein said supporting member includes a plate mounted on the member parallel with the cutting means and having supporting shoulders on its upper face for receiving the edges of a tile block.

11. A tile cutter according to claim 1, said fixed gauge member comprising a block mounted on and beneath said front end and having inwardly and rearwardly disposed end walls for fitting against slanting edges of the tile block.

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