Sept. 25, 1951 E. MARUS 2,568,816

TILE CUTTING DEVICE

Filed Jan. 26, 1950

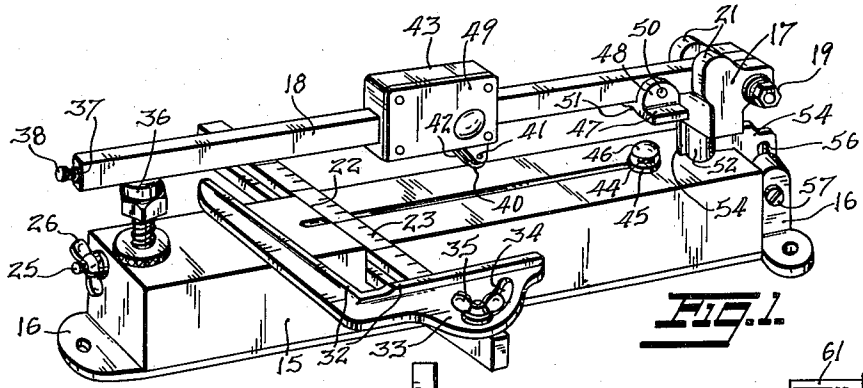


FIG. 1.

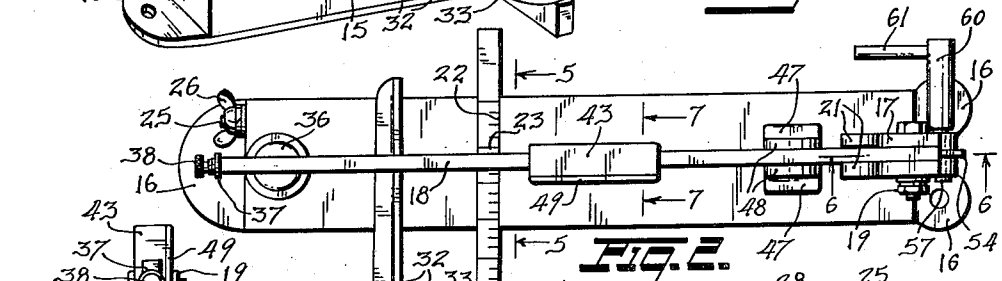


FIG. 2.

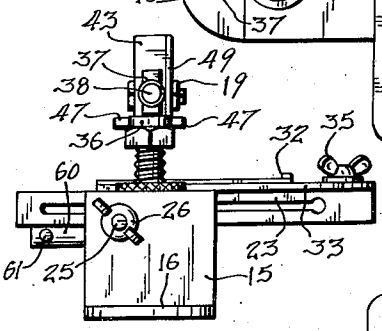


FIG. 3.

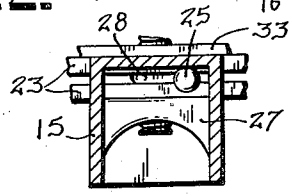


FIG. 5.

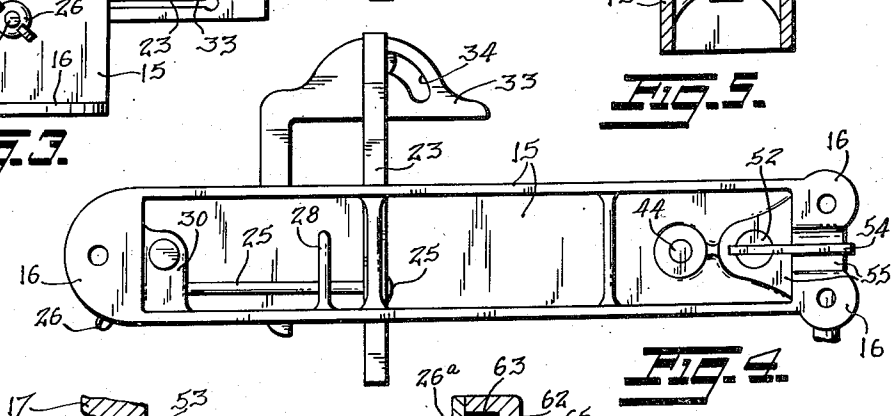


FIG. 4.

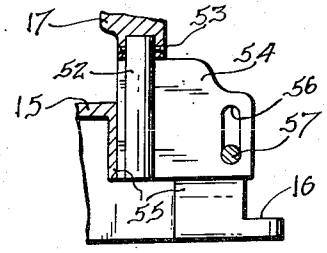


FIG. 6.

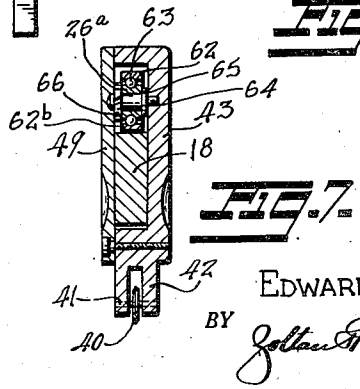


FIG. 7.

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Patented Sept. 25, 1951 2,568,816

UNITED STATES PATENT OFFICE

2,568,816

TILE CUTTING DEVICE

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Application January 26, 1950, Serial No. 140,645

4 Claims. (Cl. 125—23)

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This invention relates to new and useful improvements in tile cutting and breaking devices especially those of the type described in my prior copending application for patent, Serial Number 758,125, which issued as Patent No. 2,541,708, dated February 13, 1951.

The machine described in that application comprises a base having an upward extension at one end thereof, a beam pivoted to said extension and a carriage including tile cutting means slidably mounted on said beam. In operation, the tile piece was laid atop said base, the beam lowered thereover and the cutter pushed back and forth across the top surface of the tile. This device has been found extremely efficient in cutting tiles of one thickness. However, it often is desired to cut tiles of varying thicknesses, and in such instances it was found that the beam, when used with thicker tiles, would rise at one end forming a half cut and retain the carriage from being slid the full length of the tile forming a full score line.

The object of the present invention thereof is to provide for vertical adjustment of the pivoted end of the beam to take into account the range of tile thicknesses.

Another object of the invention is so to construct the adjustment means as to provide for the rapid and facile adjustment of the beam and the back stop.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is perspective view of the device of the invention.

Fig. 2 is a plan view of the device.

Fig. 3 is an end view of the device.

Fig. 4 is a view of the device from beneath.

Fig. 5 is a sectional view on line 5—5 of Fig. 2.

Fig. 6 is a fragmentary sectional view on line 6—6 of Fig. 4.

Fig. 7 is a sectional view on line 7—7 of Fig. 2.

The tile cutter, with the exception of those parts thereof improved by the present invention, is substantially identical with that disclosed in my prior application, Serial Number 758,125, and comprises a box-like base 15 having end projections or ears 16 through which screws can be passed for fixing the same to a work bench or other supporting surface. Extending upwardly

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from the rear end of the top surface of the base 15, there is a support 17 to which a beam 18 extending longitudinally over the top of the base 15 is pivoted by a bolt 19. According to the present invention, the support 17 is adjustable vertically, it is deemed desirable before describing the adjustment means to complete the description of the overall device.

The support 17 has upwardly extending projections 21 to retain the beam 18 against lateral displacement and in a rigid manner when the beam is lowered onto a tile rested on the top face of the base 15.

In the top of the base, there is a transverse opening 22 through which there is extended an elongated gauge bar 23 having indicating grooves or indicia in its top face. The gauge bar is retained in its adjusted position by a bolt 25 (see Figs. 3, 4 and 5) extending longitudinally through the interior of the base 15 and through the end of the same to receive a wing tightening nut 26.

Interiorly of the base 15, there is provided a transverse member 27, between which and the top of the base, the gauge bar 23 is positioned. Also provided are a second transverse member 28 and a boss 30, both of which serve to guide the bolt 25 and the latter of which serves also for another purpose to be mentioned hereinafter. The gauge bar 23 is formed with an elongated slot 31 through which the bolt 25 is passed, said bolt having a large head for cooperation with the bar 23 and the transverse member 27. By loosening the bolt 25 the gauge bar 23 can be adjusted to the proper setting.

On the gauge bar 23, at one side of the base 15, there is an upwardly extending square 32 for receiving the corner of the tile. This square has a protractor portion 33 with an arcuate slot 34 therein, through which is extended a tightening bolt 35. The square 32 can, accordingly, be adjusted to any angle so that the tile engaged therewith can be cut diagonally at any desired angle.

At the end of base 15, adjacent the free end of beam 18, is an adjustable stop 36, with a knurled locking nut. This adjustable stop is supported in the boss 30, and will prevent the cutter which is carried on the beam 18, in a manner to be described hereinafter, from hitting the base 15 and marring the cutting edge when scoring and breaking the tile. A stop 37 is provided to prevent the cutter carriage from running off the beam, said stop being held in place by a bolt 38.

The cutting element or wheel 40 (Fig. 1) is journalled on a pin 41 in a support 42 depending

from a cutter carriage 43 slidably mounted on the beam 18. Carriage 43 is in the form of a box having slots in either end to admit beam 18, the box being closed by a cover 49 (Fig. 7). Bearing rollers 62 are provided in the box, said rollers being located above and resting on the beam 18 to ensure smooth gliding movement of the carriage on the beam and prevent wearing out of the beam 18 and the carriage 43 from direct metal to metal frictional contact.

The bearing rollers 62 are located in each end of the top portion of the carriage 43 above the beam 18 and each is comprised of an inner race 62^a and an outer race 62^b (see Fig. 7) with ball bearings 63 between the races. Each of the rollers 62 is rotatively supported on a spindle 64 having one end projected into a complementary recess in the adjacent wall of the carriage 43. That one end of spindle 64 is formed with a projecting flange 65, between the inner race 62^a and the wall of the carriage 43 for holding the outer race 62^b out of frictional contact with the wall of the carriage 43 to be freely rotatable. The other end of the spindle 64 is received in a complementary recess formed in the inner wall of the cover 49 and positioned on that other end of the spindle between the roller 62 and the cover 49 there is a split washer 66. The split washer 66 has a diameter slightly less than the diameter of the inner race 62^a and the arrangement is such that the washer 66 is compressed between the inner race 62^a and the cover 49, when the cover is mounted in position, for causing the inner race 62^a to be frictionally gripped between the adjacent faces of the flange 65 and the split washer 66 to retain the inner race 62^a against rotating on the spindle 64. However, the outer race 62^b will be free to rotate on the balls 63 relative to the inner race 62^a as the carriage 43 is pushed on the beam 18.

The construction is such that a tile is placed on the top of base 15, the beam 18 lowered to bring the cutting wheel 40 into contact with said tile and the carriage 43 pushed to and fro on the beam. The cutting wheel thus cuts a line through the surface of the tile, thereafter, the tile piece is lifted and disposed within the breaking device wherein it will be divided into two parts. This breaking device comprises an adjustable support 44 disposed near the upright support 17 and beneath the beam 18 and having a locking nut 45 to retain an anvil-like head 46 thereof in elevated or adjusted position. On the beam 18 there is a transversely extending member 47, see Figs. 1 to 3, having separated upwardly extending portions 48 by which the same is pivoted by means of a pin 50 to the beam 18. Within the bottom surface of member 47 there is a longitudinally extending groove 51, aligned with and of generally the same curvature as the anvil head 46. Accordingly, when the beam is brought down over the tile which is then resting on the anvil head 46, great pressure will be applied to the top surface of the tile so as to apply pressure to opposite sides of the line cut therein. When sufficient pressure has been applied the tile will snap into two parts and a clean break will have been effected.

The machine as thus far described is extremely efficient for breaking tiles of the same thickness but some difficulty is encountered when it is desired to break tiles of varying thicknesses.

To overcome this difficulty the invention provides for adjusting the height of the beam 18 above the base 15 for tiles of various thicknesses.

To this end the upright support 17 is not secured to the base 15 but rather to a post 52 by means of a pin 53, see Fig. 6. The post 52 is slotted below the support 17 to receive a guide plate 54 extending longitudinally of the base 15, and being slidably mounted in a boss 55 of the base 15. The plate 54 and post 52 are secured together, preferably by a force fit of the former in the slot in the latter. The boss 55 extends rearwardly of the base 15 and is slit to the rear edge thereof. The portion of plate 54 extending beyond the base 15 is provided with a vertical slot 56 through which a bolt 57 (see also Figs. 1 and 2) is passed, said bolt also passing through the projecting portions of the boss 55. The projecting end of bolt 57 is provided with one or more washers 58 and is threaded into a crank-nut 60 having a handle 61 (Fig. 2).

The construction is such that by loosening nut 60 through handle 61, the post 52 and plate 54 can be slid up or down to adjust the beam 18 to the size tile to be cut and broken. When the nut 60 is again tightened on the bolt 57 the post 52 and plate 54 are secured in their adjusted position by compressing the projecting portions of boss 55 together.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a tile cutting device the combination of a base, a vertically adjustable support at one end of said base, comprising a block, a post fixed in said block and depending therefrom, a vertical slot in said post, a guide plate fixed in said slot, a boss on said base slotted to receive said post and plate for vertical sliding movements, a vertical slot in said guide plate, a bolt passing through the last said slot and through said boss and a nut for said bolt to squeeze said boss and secure said plate and post vertically relative to said base.

2. In a tile cutting device the combination of a base, a vertically adjustable support at one end of said base, comprising a block, a post fixed in said block and depending therefrom, a vertical slot in said post, a guide plate fixed in said slot, a boss on said base slotted to receive said post and plate for vertical sliding movements, a vertical slot in said guide plate, a bolt passing through the last said slot and through said boss and a crank-nut for said bolt having a handle to squeeze said boss and secure said post and plate vertically relative to said base.

3. In a tile cutting device the combination of a base, a vertically adjustable support at one end of said base, comprising a block, a post fixed in said block and depending therefrom, a vertical slot in said post, a guide plate fixed in said slot, a boss on said base slotted to receive said post and plate for vertical sliding movements, a vertical slot in said guide plate, a bolt passing through the last said slot and through said boss and a crank-nut for said bolt having a handle to squeeze said boss and secure said post and plate vertically relative to said base whereby said beam and the cutter depending therefrom can be adjusted vertically to provide horizontal travel of the cutter over tiles of various thicknesses.

4. Means for vertically adjustably mounting the pivoted end of a tile cutter arm on the base

of a tile cutting device, comprising a block to which the end of the cutter arm is pivotally attached, a boss in the base beneath said block, a post depended vertically from said block, said post having a vertically extended slot, a vertical guide plate in said slot, said boss having a vertically extended slot into which said post and plate are engaged for vertical sliding movements, said plate having an elongated slot extended vertically along one side of said post, said boss being formed with a transverse hole aligned with the slot of said plate, a bolt extended through said hole and the slot of said plate, and a nut threaded into said bolt for securing said plate, said post and

said block in desired vertically adjusted positions relative to said boss.

EDWARD MARUS.

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