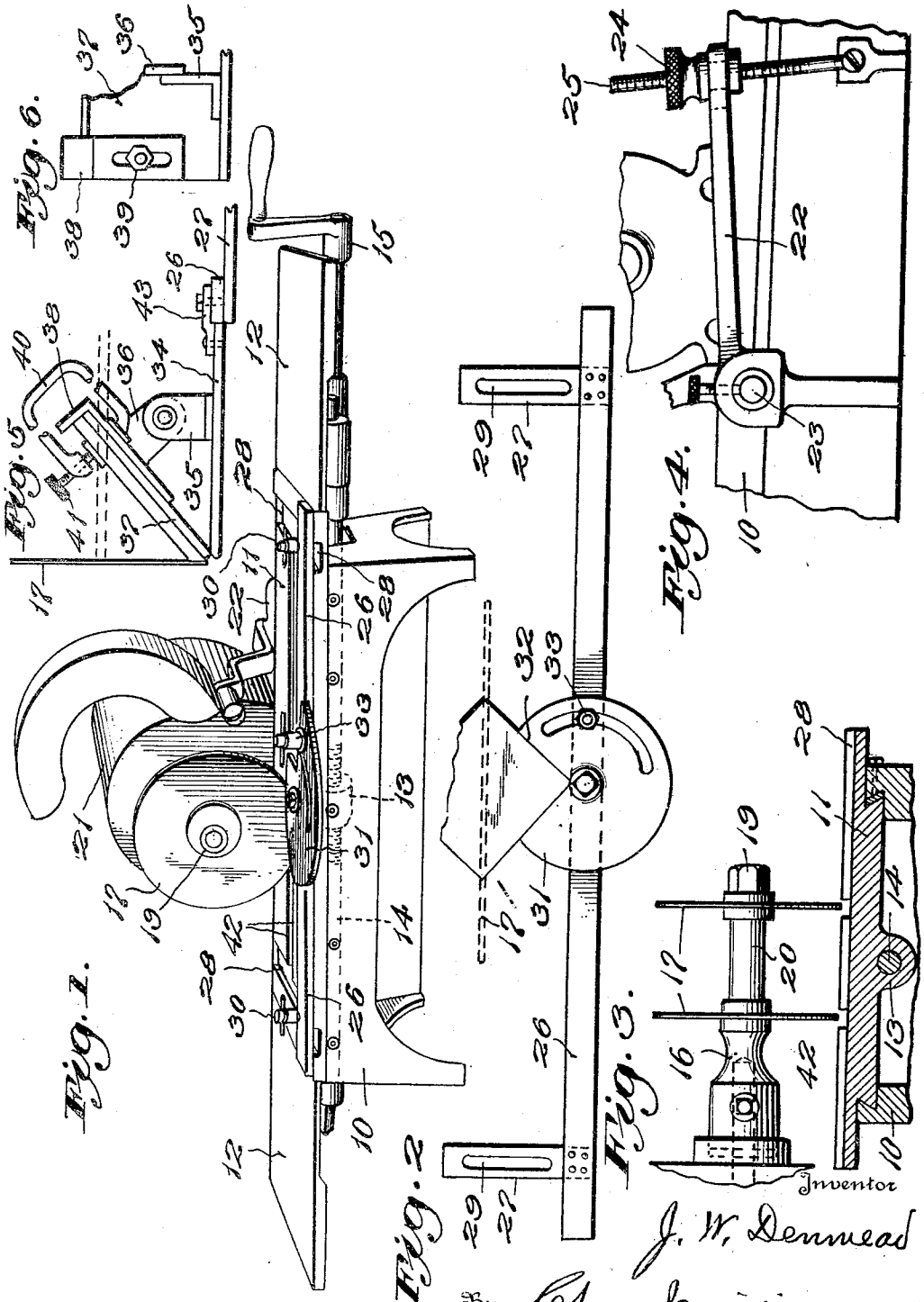
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TILE CUTTING MACHINE

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TILE CUTTING MACHINE

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The object of my invention is to provide a simple, compact machine for performing efficiently and expeditiously various operations upon building tiles such as those used for bathrooms, mantels, etc., such operations as cutting, beveling and notching, and my invention consists in such a machine when having the characteristics of construction described by or included within the terms or scope of the appended claims.

In the drawings:

Fig. 1 is a perspective view of a machine embodying my invention for cutting tiles in two;

Fig. 2 is a top plan view of the gage;

Fig. 3 is a transverse section;

Fig. 4 is a detail view in side elevation of the adjustable support for the motor and cutter;

Fig. 5 is a detail view in end elevation showing the attachment for supporting a tile for beveling and notching;

Fig. 6 is a side elevation thereof.

Briefly described, the embodiment of my invention shown in the drawings is a machine of such size that though motor-driven it is readily portable and may be used upon a bench, and it comprises a base-frame, an electric motor-driven disc-form saw or cutter, that is a thin emery wheel mounted above the top of the base, a table horizontally slidable in ways in the base top by which the tile to be cut or operated on is supported and moved beneath or to the cutter, and fixtures applied to said table for holding or supporting the tile while being operated on, the fixtures being such that the tile may be supported flatwise so as to be cut into two pieces either on oblique lines or lines parallel with the side edges of the tile or at an angle for beveling an edge or corner thereof to make a miter joint, or for notching the edge to provide for placing the tile adjacent a pipe, the motor and cutter being mounted for vertical movement to enable adjustment to compensate for wear of the cutter, and the table being traversed with reference to the cutter by a screw and nut arrangement.

Describing now in detail what is shown in the drawings, the base, 10, has short legs on its under side that rest upon a bench or other suitable support, and in its upper side has a longitudinal dove-tail slot or way extending from end to end to form a guide for a horizontal table, 11, with a dove-tail projection on its underside that fits said way, the table having a width greater than the width of the base so that at front and back it overhangs the base and thus serves to prevent dust finding its way between the table and the top of the base. And for a like reason, there is at each end of the table a horizontally extending protector plate, 12, which assures the covering of the ways in the base top at all times so that access of dust from the cutting operation of the cutter will be prevented.

On its under side substantially at mid-length, the table has a nut, 13, engaged by a horizontal screw, 14, extending the length of the base, and having a suitable bearing at each end which prevents longitudinal movement of the screw when revolved and beyond the bearing at each end has a coupling member for engagement by the corresponding member of a detachable crank handle, 15, so that the latter may be applied to the screw at either end to enable the same machine to be used by either a right-handed man or a left-handed man.

At the rear side of the base I place an electric motor whose armature shaft extends forward over the top of the table and to it is secured a gudgeon, 16, for the attachment and support at either of two points along the gudgeon of a thin disc-form cutter, 17, preferably a very thin emery wheel, the gudgeon having a shank, 18, threaded at its outer end to receive a clamping nut, 19, and also having a sleeve or thimble, 20, upon it of a length corresponding to the spacing apart over the table, it is desired to locate the rotary cutter, the latter being clamped between one end of the thimble and the nut, and between the other end of the thimble and a shoulder where the shank begins. This provision of two locations for the cutter is to enable tiles of different size to be cut on the same machine.

Pivotally secured at one end to the side of

a dust-hood, 21, that protects the motor, is a semi-circular wheel-guard which when the emery wheel is cutting extends over and at each side of the upper half thereof.

The motor carrying the rotary cutter is mounted on a bar or base, 22, which is pivoted at one end at the rear of the base by a horizontal hinge, 23, and the other end of said bar is engaged by a thumb nut, 24, which by a slot in the end of the bar has a swiveled connection with the bar, and through said nut passes a screw, 25, which at its lower end is pivoted to a bracket cast on the base. Thus, the motor with the emery wheel may be vertically adjusted to compensate for reduction of the diameter of the emery wheel from wear.

Referring to Figs. 1, 2 and 3 which show the machine arrangement for cutting tile lying flatwise on the table, there is shown a longitudinally extending bar, 26, with straight edges to form a gauge and which near each end has fixed to it a laterally extending arm, 27, that fits a transversely extending groove or slot, 28, in the upper side of the table, said arm having a longitudinally extending slot, 29, for the passage of the shank of a clamp screw, 30, by which the position of the gauge towards and from the rotary cutter may be adjusted to suit the requirements of the tile to be cut. At the longitudinal center of the gauge bar is pivotally secured a disc or protractor, 31 with a segment removed to provide a notch, 32, with right-angled edges to receive the corner of a tile to be cut, and by rotatably adjusting the protractor as by means of a slot and clamp device, 33, the tile to be cut may be placed so that the cut will be in any desired direction across the tile. That side of the notch in the disc which is at the rear edge of the tile will be the means for feeding the tile beneath the cutter by exerting forward pressure thereagainst, as the feed screw is revolved to move the table. The gauge bar may be situated at either side of the cutter.

Referring to Figs. 5 and 6, a fixture or attachment is shown for holding tile either in the position shown in full lines in Fig. 5 where it stands at an angle of 45° to the plane of the emery wheel for beveling or mitering the edge of the tile, or in the position shown in dotted lines where the tile is supported horizontally and substantially in lines with a plane passing horizontally through the center of the rotary cutter so that the edge of the tile may be presented to the cutter for cutting a notch in the tile edge to accommodate a pipe adjacent the place where the tile is installed. Said fixture comprises a base plate, 34, that rests upon the top of the table with a straight edge to engage the side of the gauge bar, 26, and which upon its upper side has a bracket, 35, to which is pivoted a bracket, 36, on the under side of a tile supporting plate, 37, which tile supporting plate may be adjusted at the incline position shown in full lines in Fig. 5 or the horizontal position shown in Fig. 5 in dotted lines. To engage and support the tile being operated on at its edge opposite the rotary cutter, there are two spaced apart similar L-shaped fingers, 38, each secured by a slot and screw clamp, 39, to the tile supporting plate so that it may be adjusted to the proper tile engaging position, and to securely hold the tile, it is clamped on its outer side against said supporting plate by a U-shaped clamp, 40, which straddles the tile supporting plate and tile, and at the end of one arm is secured to the under side of said plate and has its other arm above the tile provided with a clamp screw, 41.

For the proper action of the rotary cutter, the bed has in each of the two positions above which the rotary cutter may be placed, a longitudinally extending groove, 42, to give clearance to the cutter when it cuts through the tile.

The fixture may be held by hand, but preferably it is attached to the table to be held so as to move with it by being secured by a clamp 43, to the gage bar, 26, whose position is shifted from that shown in Fig. 1, to the one shown in Fig. 5.

What I claim is:

1. A tile cutting machine comprising a portable base, a motor mounted on the base having a shaft, a thin rotary cutter connected with said shaft, a reciprocal table mounted to slide horizontally at the top of the base, a gauge bar adjustable transversely on said table and a notched tile-engaging plate mounted on said gauge bar.

2. A tile cutting machine comprising a portable base, a motor mounted on the base having a shaft, a thin rotary cutter connected with said shaft, a reciprocal table mounted to slide horizontally at the top of the base, a gauge bar adjustable transversely on said table, and a notched tile engaging plate rotatably connected to the gauge bar.

In testimony whereof I hereunto affix my signature.

JOHN W. DENMEAD.