Oct. 23, 1951 F. I. WHITE 2,572,791

ASPHALT TILE CUTTER

Filed Feb. 6, 1950 2 SHEETS—SHEET 1

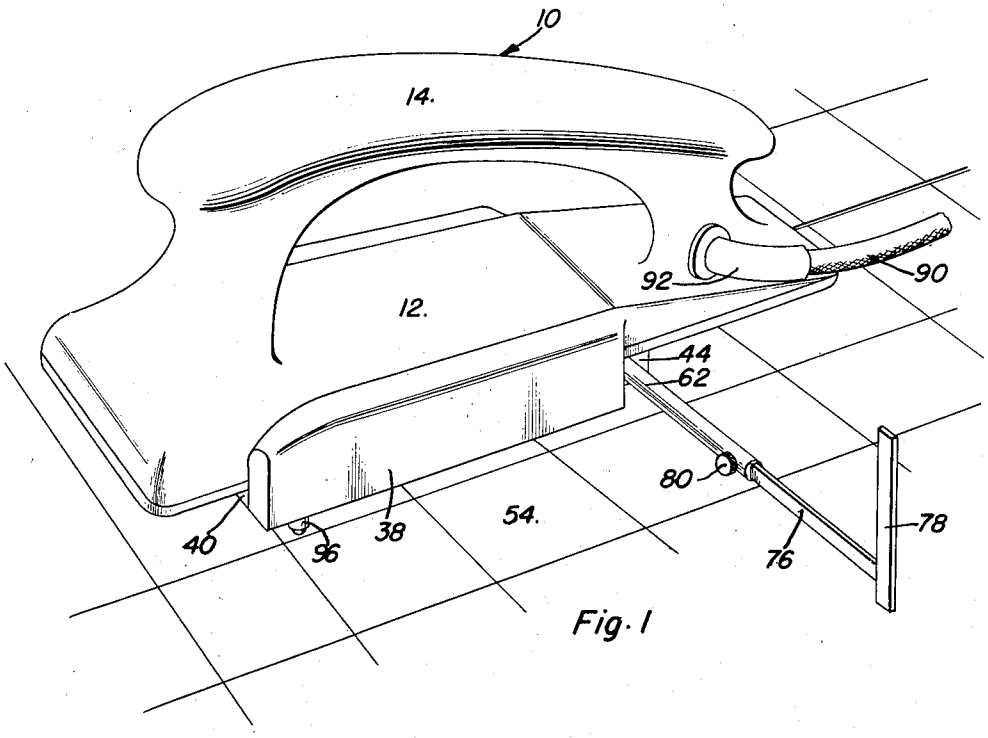


Fig. 1

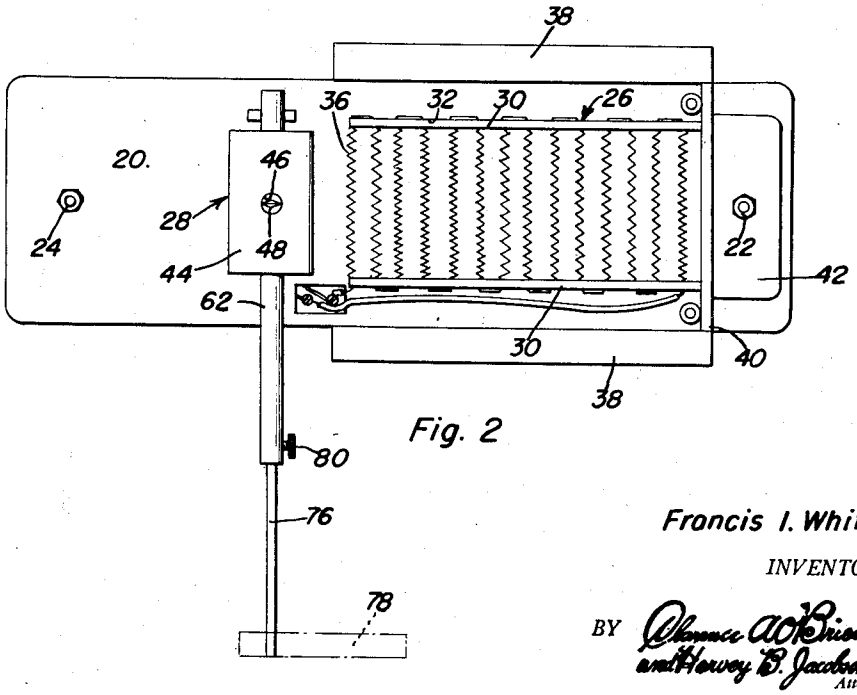


Fig. 2

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ASPHALT TILE CUTTER

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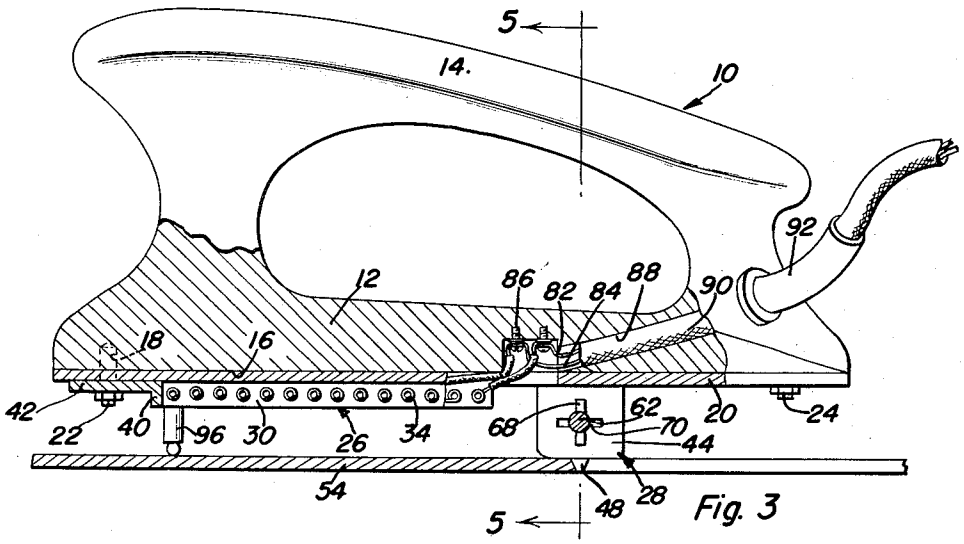


Fig. 3

Fig. 4

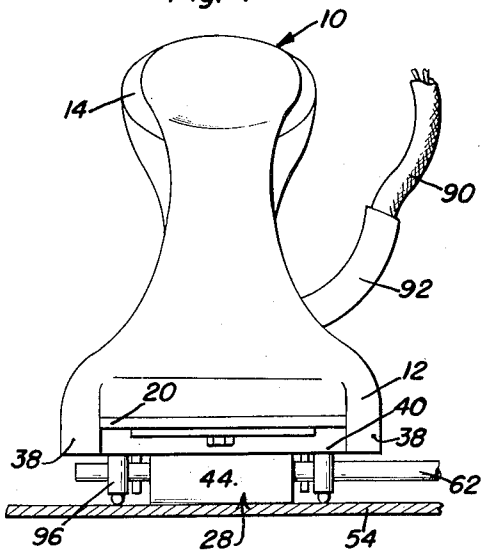
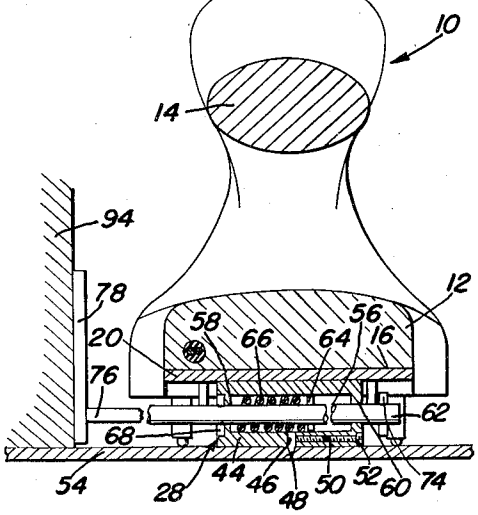


Fig. 5



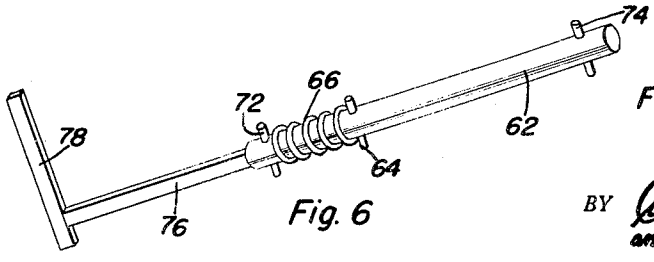


Fig. 6

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ASPHALT TILE CUTTER

Francis I. White, Little Rock, Ark.

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2 Claims. (Cl. 30—140)

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This invention comprises novel and useful improvements in cutting devices, and more particularly pertains to a device for cutting thermoplastic materials.

An important object of this invention is to provide a device for cutting sheet materials which are, at normal room temperatures, brittle and difficult to cut.

Another important object is to provide a cutting device which will cut one sheet of material without cutting or marring a second sheet of material positioned below the first sheet.

A further object of this invention is to provide a cutting device in which the cutting blade is adjustably guided parallel to a vertical guide surface along which the cut material is to be laid.

An important feature of this invention resides in the provision for a heating unit which heats the sheet material forwardly of the cutting blade to a plastic state to permit the cutting blade to pass therethrough.

A further feature of this invention resides in the provision for a combined supporting and smoothing block in which is mounted a vertically adjustable cutting blade.

Yet another feature of this invention resides in the provision of a horizontally extending guide arm having a transversely extending projection thereon, which guide arm is pivotally mounted in vertical alignment with the cutter blade so that the projection may be selectively pivoted into either a vertical position for guiding the blade parallel to an uneven vertical surface, or a horizontal position for guiding movement of the blade and cutting device parallel to a flat vertical surface.

These, together with various ancillary objects and features, are attained by this device, a preferred embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a perspective view of the cutting device;

Figure 2 is a bottom plan view of the cutting device showing the heating unit, and guide arm;

Figure 3 is a side elevational view of the cutting device, parts being broken away and shown in section for purposes of illustration;

Figure 4 is a front elevational view of the cutting device;

Figure 5 is a transverse sectional view showing the pivotally mounted horizontal guide arm and the means for selectively locking it in predetermined angular positions; and

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Figure 6 is a perspective detail view of the guide arm.

Referring now more specifically to the accompanying drawings wherein like numerals designate similar parts throughout the various views, it can be seen that there is provided a cutting device indicated generally by the numeral **10**, which cutting device is particularly adaptable to the cutting of asphalt tiles and the like, wherein it is necessary to heat the tiles prior to the cutting thereof, in order to prevent chipping or uneven breaking.

The cutting device **10** consists generally of a base portion **12** upon which is supported a handle **14**, which handle may conveniently be formed of wood or plastic in any desired shape.

For purposes which will later become apparent as the following description proceeds, the base **12** is provided with a preferably flat under surface **16**, with vertically extending internally threaded bores **18** in the forward and rear portions of the base. A plate **20** is secured to the under surface **16** of the base **12** as by stud bolts **22** and **24** which are receivable respectively in the bores **18** in the forward and rear portions of the base.

The heating unit indicated generally by the numeral **26** is attached to the under surface of the plate **20**, and preferably forwardly thereon so as to permit the guiding and cutting unit, indicated generally by the numeral **28**, to be similarly attached to the plate **20** adjacent the rear portion thereof, so that the tile or similar material that is to be cut will be heated prior to the passing of the cutting unit thereover.

The heating unit **26** includes preferably strips **30** of electrically insulating material which extend through longitudinally extending slots **32** in the plate **20**, which strips are provided with flanges (not shown) on their inner edge which retains the strips in position when the flanges are engaged by the under surface **16** of the base. Obviously, the base may be suitably recessed to permit the flanges to be received therein so that the plate **20** will be flatly on the under surface of the base. The strips **30** are provided with transversely extending longitudinally spaced bores **34**, which bores receive an electrical resistance wire or coil **36** which is laced through the bores to provide a heating grid which preferably extends along the longitudinal medial axis of the plate **30**, the length of the grid and the heating capacity thereof being proportioned to heat the asphalt tile or similar material sufficiently to permit the tile to be cut. Obviously,

the greater the length and/or heating capacity of the grid, the more rapidly may the heating unit be passed over the tile and still heat it sufficiently to be cut.

In order to shield the heating grid from damage, the base 12 may be provided with aprons 38 which depend from sides of the base adjacent the edges of the plate 20. A shield 40 extends between the forward edges of the aprons 38 and further protects the heating grid from damage due to obstructions which lie in the path of travel and also serves to reinforce strips 30. This shield has a flange 42 thereon which underlies the forward stud bolt 22 and is secured thereby to the base 12.

A block 44 is secured, as by welding, screws or the like, transversely of the plate 20, and preferably rearwardly of the heating grid. The block 44 is provided with a vertical bore 46 in its lower surface, with a cutting blade 48 being vertically adjustably received in the bore. A longitudinally extending, internally threaded bore 50 intersects the bore 46, and receives a set screw 52 which engages and locks the blade 48 in its vertically adjusted position. As it is customary in cutting one piece of tile to place it on a row of tile which has already been laid, it is imperative that a blade adjusting means be provided to permit cutting of the upper tile without marring that which lies therebelow. As is readily apparent from a consideration of Figure 5 of the drawings, the under surface of the block 44 glides over the tile 54 and positively limits the depth of cut of the blade 48.

As it is the general practice, in laying tiles, to start from the center of the room and work towards the walls thereof, it is apparent that the cutting and fitting of the tiles will be about the periphery of the room. There is, accordingly, provided a guiding device. For this purpose, the block 44 is provided with a longitudinally extending bore 56, with annular flanges 58 and 60 being formed on opposite sides of the block coaxial with the bore. Slidably and rotatably received on the flanges 58 and 60 and extending through the bore 56 is a rod 62. A first pin 64 is secured to that part of the rod 62 which lies in the bore 56, and a compression spring 66 is mounted coaxially of the rod between the first pin and the annular flange 58. For purposes which will later become apparent, the flange 58 is provided with a radially extending vertical keyway 68 and a horizontal keyway 70. A second pin 72 is diametrically attached to the rod 62 adjacent the keyways 68 and 70, which pin is retained in its seat in the keyways by the spring 66. A third pin 74 is attached to the rod, externally of the flange 60, to prevent accidental removal of the rod from the bore 56.

The rod 62 is provided with an internally splined bore, which may be of the rectangular cross-section shown, and which bore slidably receives a rectangular or otherwise keyed extension 76. The extension has secured thereto a perpendicularly extending guide bar 78. A thumb screw 80 or the like is threadedly received in the rod 62 and selectively locks the extension 76 thereto, in predetermined adjusted positions.

Suitable conductors 82 and 84 are connected as by contact screws 86 to opposite ends of the resistance wire 36 that makes up the heating grid. The conductors 82 and 84 then extend through a bore 88 in the handle 14 of the tile cutting device, the conductors being encased in a suitable insulating casing 90, a conventional resilient ferrule 92 being attached to the outer surface of the handle, coaxial of the bore 88, to prevent sharp bends in the conductors.

Downwardly depending legs 96 are secured to the forward end of plate 20 to vertically space the heating grid from the tile 54.

In operation, as previously discussed, the tiles are laid from the center of the room outward, it being generally necessary to cut the last row of tiles adjacent the walls 94. The tile to be cut is then superimposed on the last full row of tile which was laid, and the distance between the outer end of the guide bar 78 and the blade 48 being adjusted to equal the width of the tile before cutting. Then, by guiding the device so that the outer surface of the guide bar engages the wall 94, there will be cut a strip of correct width and shape. As the heating unit is positioned forward of the cutting blade, the tile 54 will be heated so as to be sufficiently plastic to be readily cut.

When cutting along flat walls, or other plane vertical surfaces, the guide bar 78 is pivoted to its horizontal position so as to guide the cutting device parallel to the wall. However, when cutting around door frames and the like, the guide bar is pivoted to its vertical position. In order that the contour of the door frame may be accurately traced and cut out of a tile that is laterally shifted along a line perpendicular to the wall from the position it will assume when finally laid, it is intended that the rod 62 and the blade 48 lie in a common vertical plane.

Obviously, the plate 20 could be attached directly to the under surface of a conventional iron as by the stud bolts 22 and 24, in which instance the aforementioned heating grid 26 would be supplanted by the heating unit of the iron. In order to enhance the heating of the tiles by the iron, the plate 20 may be suitably apertured in that portion which underlies the heating surface of the iron to permit the heat to radiate directly from the under surface of the iron.

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

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

1. A tile cutting device comprising a base, a heating unit attached to the under surface of said base, means vertically spacing said heating unit from the surface to be cut, said spacing means including a smoothing block having a vertically extending bore in its lower surface, a cutting blade vertically adjustably received in said bore, means including a set screw selectively locking said blade to said block, said block having a horizontal bore therein, said bore extending transversely of the longitudinal axis of said cutting device, a longitudinally expansible guide rod pivotally mounted in said bore, a guide finger attached transversely of said guide rod, keyways on said block extending radially from said horizontal bore, key means on said rod selectively receivable in said keyways, means yieldingly urging said key means into locking engagement with said keyways in said block.

2. A tile cutting device comprising a base hav-

ing an under surface, a heating element attached to said under surface of said base, a supporting and smoothing block also attached to said under surface of said base, said block having a bore therein extending transversely of the longitudinal axis of said base, inwardly extending annular flanges in said bore, a guide rod slidably and rotatably received in said bore and supported by said flanges, horizontal and vertical keyways formed in the external face of one of said flanges, a transversely extending key on said rod selectively receivable in said keyways, a transversely extending pin on that portion of said rod which lies in said bore, a spring disposed in said bore between said pin and the inner surface of said one flange to yieldingly urge said key into said keyways, a guide member attached transversely of said guide rod, pivotal movement of said guide

rod causing rotation of said guide member, said key and keyways selectively locking said guide member in either a horizontal or vertical position, a cutter bar attached to and depending from said block in vertical alignment with said guide rod.

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