Jan. 29, 1957 O. J. BECKER 2,779,409

CUTTING DEVICE FOR SHINGLES

Filed Sept. 16, 1955 2 Sheets-Sheet 1

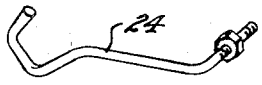


FIG. 4.

FIG. 1.

FIG. 6.

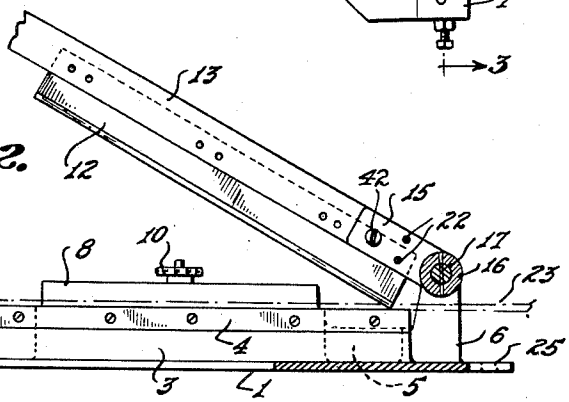


FIG. 2.

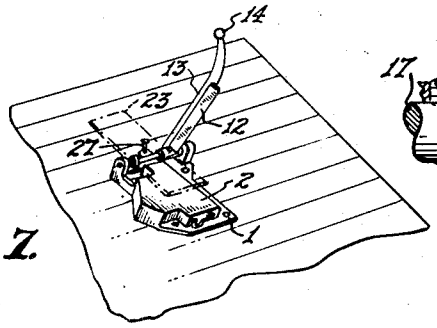


FIG. 7.

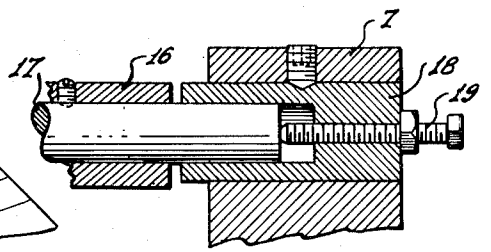


FIG. 3.

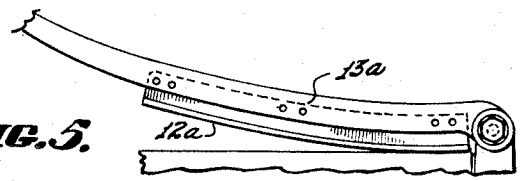


FIG. 5.

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CUTTING DEVICE FOR SHINGLES

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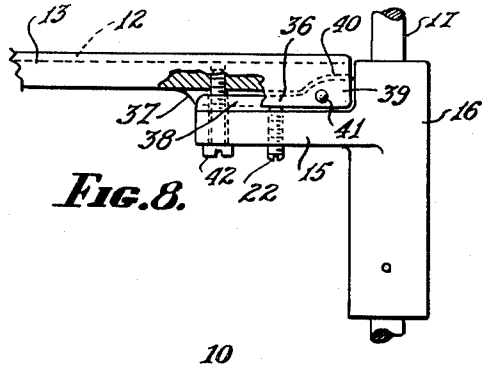


FIG. 8.

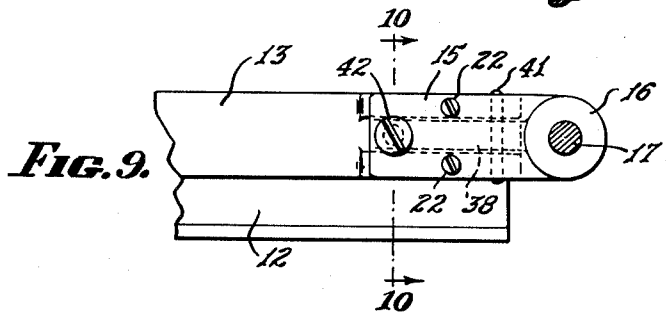


FIG. 9.

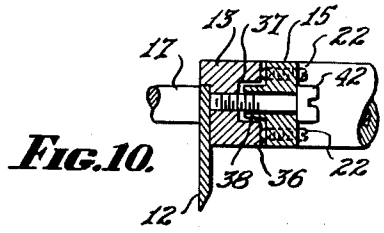


FIG. 10.

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2,779,409

CUTTING DEVICE FOR SHINGLES

Otto J. Becker, Cincinnati, Ohio

Application September 16, 1955, Serial No. 534,735

10 Claims. (Cl. 164—44)

My invention has to do with cutting devices and more particularly with a portable shingle cutter for use in the cutting of asphalt shingles and the like.

A roofer in laying up courses of shingles on a roof is required to cut the shingles to size, particularly at the edges of the roof where the shingles must coincide with the eaves of the roof. Similarly, slantwise cutting of the shingles is generally required where hips, valleys and the like are encountered. Most roofers cut the shingles to the required size using hand shears, the amount and degree of cutting being determined either by sight or by first scoring the shingle along the desired line of cut. These methods are not only inaccurate but in addition the continuous use of hand shears is tiring and often results in discomfort or injury to the roofer's hand.

In accordance with the instant invention I have provided a portable cutting device which may be secured to the roof being shingled to quickly and accurately cut the shingles to proper size.

It is, therefore, a principal object of my invention to provide a cutting device on which a shingle to be cut may be aligned and severed along a predetermined line by means of a pivoted lever mounting a cutting knife.

A further object of my invention is the provision of a cutting device having a shingle supporting surface to which a base knife is fixedly secured, the supporting surface being provided with adjustable guide means by means of which the shingle may be accurately aligned with respect to the base knife, whereupon the shingle may be severed along the line established by the base knife by means of a coacting movable knife carried by a pivoted lever.

A further object of my invention is the provision of a shingle cutting device of the character described wherein the lever carrying the movable cutting blade is so mounted that a shingle positioned on the supporting surface may be moved rearwardly beyond the pivot point of the lever arm.

Still a further object of my invention is the provision of a cutting device of the character described in which the base of the device, including the lever arm supports, may be formed as a single casting including a well or receptacle for cleaning fluid for the cutting knife.

Yet another object of my invention is the provision of a cutting device which is capable of cutting diverse materials other than shingles, such as floor tile, plastic tile and the like.

These as well as other objects of my invention which will appear hereinafter or which will be apparent to the skilled worker in the art upon reading these specifications, I accomplish by that construction and arrangement of parts of which I shall now describe an exemplary embodiment.

Reference is now made to the accompanying drawings wherein:

Figure 1 is a plan view of a shingle cutting device in accordance with my invention.

Figure 2 is a vertical sectional view taken along the line 2—2 of Figure 1.

Figure 3 is an enlarged vertical sectional view taken along the line 3—3 of Figure 1.

Figure 4 is an enlarged perspective view of a latch member for securing the lever arm in closed position during transportation of the device.

Figure 5 is a partial side elevational view illustrating an alternative form of movable cutting knife.

Figure 6 is an enlarged fragmentary sectional view illustrating the notching of the base knife to receive plastic tiles and the like.

Figure 7 is a perspective view illustrating the manner in which the device may be used while shingling the roof of a house.

Figure 8 is an enlarged fragmentary plan view with parts broken away illustrating the adjustable mounting of the lever arm to the supporting sleeve.

Figure 9 is an enlarged fragmentary elevational view of the parts illustrated in Figure 8.

Figure 10 is a vertical sectional view taken along the line 10—10 of Figure 9.

Referring now to Figures 1 and 2 of the drawings, I have therein illustrated a cutting device having a base 1 formed to provide a shingle supporting surface or platform 2 elevated with respect to the remainder of the base. The platform 2 terminates along one side edge in a planar wall 3 to which is secured a base or fixed knife 4 the upper edge of which is preferably in alignment with the surface of the supporting platform.

The base 1 and the platform 2 may be conveniently cast as an integral unit, aluminum or other light weight metal or alloys thereof being preferred. In casting the base and platform it is also contemplated to provide a well or receptacle 5 at one corner of the base; and, if desired, the upstanding lugs 6 and 7 for supporting the movable knife may be provided as an integral part of the casting.

It will be understood that the shingle to be cut will be supported on the platform 2 and aligned with respect to the base knife 4. Exact alignment of the shingle may be obtained by means of a guide member 8 slidably and pivotally engaged in the trackway 9 by means of a thumb screw 10 and sliding block 11, the thumb screw and block coacting to secure the guide member to the platform in the position desired. An alternate position of the guide is shown in dotted lines in Figure 1.

A movable knife blade 12 adapted to coact with the base knife 4 is secured to a lever arm 13 terminating at its free end in a handle or gripping member 14. At its opposite end the lever arm is secured to a lateral extension 15 of an elongated collar or sleeve 16. The sleeve 16 is, in turn, fixedly secured to a shaft 17 rotatably journaled at its ends in the upstanding lugs 6 and 7. As best seen in Figure 3, the lub 7 is provided with a recessed bushing 18 which receives an end of the shaft 17, the shaft being axially adjustable by means of the threaded adjustment screw 19 extending through the end of the bushing for contact with the end of the shaft. At its opposite end the shaft 17 (see Figure 1) is slidably received in the lug 6 and spring pressed toward the bushing 18 and adjustment screw 19 by means of a spring member 20 compressed between the lug 6 and a collar 21 secured to the shaft. By this expedient the movable knife 12 may be conveniently brought into shearing contact with the base knife 3.

The mounting of the lever arm 13 is such that lateral adjustment of the knife 12 relative to the base knife 4 may be readily made. As best seen in Figures 8, 9 and 10, the arm 13 terminates rearwardly in an enlarged portion 36 having a channel 37 which receives a mating projection 38 formed integrally with the lateral extension 15. The projection 38 is enlarged at one end, as at 39, and the channel 37 is similarly enlarged, as at

40, to receive the enlarged end 39. The lever 13 is fixed to the extension 15 by means of a vertically disposed pivot pin 41 passing through the parts in the manner best seen in Figure 9. The lever arm is thus mounted for pivotal movement normal to its length so as to accurately align the blade 12 with the blade 4.

Lateral adjustment of the lever arm 12 is effected by means of set screws 22 which bear inwardly against the enlarged portion 36, as best seen in Figure 10, and tend to move the arm 13 away from the extension 15. A locking screw 42 passing through the extension 15 and entering into threaded engagement with the lever 13 serves to draw the lever toward the extension 15 and hence bring it into abutting relationship against the set screws 22. This arrangement permits accurate alignment of the blades.

It will be noted that the lugs 6 and 7 are spaced outwardly from the plane of the base knife 4 and the shaft 17 which permits pivoting movement of the lever arm and movable knife is spaced upwardly from the plane of the platform 2, so that a shingle supported on the platform may be moved rearwardly beyond the shaft 17 with parts of the shingle lying to either side of the base knife. This is an important feature of the invention in that it permits the size of the entire device to be maintained at a minimum and yet the shingles may be cut lengthwise by simply moving them along the platform from front to rear, the severed portions of the shingle passing beyond the rearmost end of the movable knife. This is illustrated in dotted lines in Figures 2 and 7 of the drawings and indicated by the reference numeral 23.

Since the device is intended to be carried from place to place, I have found it desirable to provide a latch member 24 which may be conveniently pivoted to the base and adapted to engage the lever arm 13 to secure it in the closed position. I also prefer to provide the base with a projecting ear 25 having an opening 26 therein by means of which the device may be temporarily secured to the roof, as by means of a roofing nail 27 in the manner illustrated in Figure 7. Additional openings, such as the openings 28, 29 and 30 may be provided in the base for use if it is desired to firmly secure the device to a support.

In Figure 6, I have illustrated a modification of my invention particularly suited for the cutting of plastic tiles, such as the tile 31, which have downturned or inturned annular flanges 32. Where such tiles are to be cut, I prefer to elevate the base knife 4*a* above the level of the platform 2 by a distance substantially equal to the depth of the flanges 32 and then notch the knife 4*a* at spaced apart points, as indicated at 33 and 34, so that the flanges 32 may be received therein, in the manner illustrated in dotted lines in Figure 6. Additional notches, such as the notch 35, may be provided to accommodate tiles of different sizes. I have found that the notches, which are generally of a width of approximately 1/16" to 1/8", do not interfere with the normal cutting operation when the device is used for materials other than flanged plastic tiles.

Where relatively heavy shingles or like material having thicknesses in the nature of 1/2" are encountered, I prefer to replace the straight edge knife blade 12 with a curved blade 12*a*, as illustrated in Figure 5 of the drawings, the curved blade 12*a* being secured to the pivoted lever arm 13*a*.

From the foregoing description it will be apparent that my device will be highly useful to roofers in cutting shingles on the job, i. e. while working on the roof, in that it eliminates the difficulty inherent in the use of hand shears and also enables the roofer to quickly and accurately cut the shingles to exact size. The well or receptacle 5 is intended to be filled with kerosene, benzine or other fluid which may be used on a rag to wipe collected asphalt and the like from the cutting blade, since it has been found that repeated use of the knife for cutting asphalt shingles results in an asphalt accumulation on the blade.

Modifications may be made in my invention without departing from the spirit of it.

Having thus described my invention, what I desire to secure and protect by Letters Patent is:

1. A cutting device comprising a base including a work supporting surface and a fixed knife secured to said base and extending from front to rear thereof, a shaft extending across the rear of said base, mounting means on opposite sides of said base supporting the ends of said shaft at points spaced outwardly from the plane of said fixed knife, said shaft being spaced upwardly from the plane of said work supporting surface to provide an open space between the plane of said work supporting surface and the lowermost surface of said shaft, a lever arm mounted for pivotal movement about the axis of said shaft, and a second knife carried by said lever arm, said lever arm and the knife carried thereby being in position to coact with the said fixed knife.

2. A cutting device comprising a base including a work supporting surface and a fixed knife secured to said base and extending from front to rear thereof, a shaft extending across the rear of said base and supported at its ends by mounting means extending upwardly from opposite sides of said base, said mounting means lying on opposite sides of said fixed knife and spaced outwardly therefrom, said mounting means being of a size to space said shaft upwardly from the plane of said work supporting surface to provide an open space between the plane of said work supporting surface and the lowermost surface of said shaft, a lever arm mounted for pivotal movement about the axis of said shaft, and a second knife mounted on said lever arm, said lever arm and the knife mounted thereon being positioned to coact with said fixed knife to sever a piece of work, whereby a piece of work on said work supporting surface having portions thereof lying on opposite sides of said fixed knife may be moved rearwardly as it is cut, passing between said spaced apart mounting means and beneath said shaft and the lever arm mounted thereon.

3. A cutting device comprising a base including a work supporting surface and a fixed knife secured to said base and extending from front to rear thereof, the upper edge of said fixed knife being elevated above the plane of said work supporting surface, a plurality of spaced apart notches in the elevated upper edge of said fixed knife, a shaft extending across the rear of said base and supported at its ends by mounting means extending upwardly from said base, said mounting means lying on opposite sides of said fixed knife and spaced outwardly therefrom, said mounting means being of a size to space said shaft upwardly from the plane of said work supporting surface, a lever arm mounted for pivotal movement about the axis of said shaft, and a second knife mounted on said lever arm, said lever arm and the knife mounted thereon being positioned to coact with said fixed knife to sever a piece of work.

4. A cutting device comprising a base including a work supporting surface and a fixed knife secured to said base and extending from front to rear thereof, adjustable guide means on said base for aligning a piece of work relative to said fixed knife, a shaft extending across the rear of said base and supported at its ends by mounting means extending upwardly from opposite sides of said base, said mounting means lying on opposite sides of said fixed knife and spaced outwardly therefrom, said mounting means being of a size to space the said shaft upwardly from the plane of said work supporting surface to provide an open space between the plane of said work supporting surface and the lowermost surface of said shaft, a lever arm mounted for pivotal movement about the axis of said shaft, and a second knife mounted on said lever arm, said lever arm and the knife mounted thereon being po-

sitioned to coact with said fixed knife to sever a piece of work, whereby a piece of work on said work supporting surface having portions thereof lying on opposite sides of said fixed knife may be moved rearwardly as it is cut, passing between said spaced apart mounting means and beneath said shaft and the lever arm mounted thereon.

5. A cutting device comprising a base including a work supporting surface and a fixed knife secured to said base and extending from front to rear thereon, a shaft extending across the rear of said base and supported at its ends by mounting means extending upwardly from said base, said mounting means lying on opposite sides of said fixed knife and spaced outwardly therefrom, said mounting means being of a size to space said shaft upwardly from the plane of said work supporting surface, a lever arm mounted for pivotal movement about the axis of said shaft, and a second knife mounted on said lever arm, said lever arm and the knife mounted thereon being positioned to coact with said fixed knife to sever a piece of work, said base including at least one outwardly extending portion having an opening therein by means of which said device may be secured to a support by means of a nail or the like passed through said opening.

6. A cutting device comprising a base including a work supporting surface and a fixed knife secured to the said base and extending from front to rear thereof, a shaft extending across the rear of said base, mounting means on said base supporting the ends of said shaft at points spaced outwardly from the plane of said fixed knife, said shaft being journaled in said mounting means and spaced upwardly from the plane of said work supporting surface, a recessed bushing carried by one of said mounting means slidably receiving an end of said shaft, an adjustment screw extending through the end of said bushing for contact with the end of said shaft, spring means urging said shaft toward said adjustment screw, a collar fixed to said shaft, a lever arm mounted on said collar for pivotal movement about the axis of said shaft, and a second knife carried by said lever arm, said lever arm and the knife carried thereby being positioned to coact with the said fixed knife.

7. In a cutting device comprising a base including a work supporting surface and a fixed knife secured to said base and extending from front to rear thereof, a shaft extending across the rear of said base, mounting means on opposite sides of said base supporting the ends of said shaft at points spaced outwardly from the plane of said fixed knife, said shaft being spaced upwardly from the plane of said work supporting surface to provide an open space between the plane of said work supporting surface and the lowermost surface of said shaft, a collar fixed to said shaft, an extension projecting outwardly from said collar, a lever arm pivotally connected to said extension for limited pivoting movement relative thereto, and adjustment means for effecting relative adjustment between said lever arm and said extension.

8. The cutting device claimed in claim 7 wherein said adjustment means comprises a set screw threaded through said extension for surface contact with said lever and a locking screw extending through said extension and in threaded engagement with said lever.

9. The cutting device claimed in claim 8 wherein said lever has a channel therein, and wherein said extension has a projection received in said channel.

10. In a cutting device having a base including a work supporting surface and a fixed knife secured to said base and extending from front to rear thereof, a lever arm mounting a second knife, means mounting said lever arm for pivotal movement relative to said fixed knife, said mounting means comprising a shaft spaced upwardly from the plane of said work supporting surface, said shaft extending across said base at substantially right angles to said fixed knife, a collar on said shaft, a lateral extension projecting outwardly from said collar to which said lever arm is connected by means of a pivotal connection, and adjustment means for effecting relative adjustment between said extension and said lever.

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