July 8, 1924. 1,500,402

E. LEWIS

KNIFE

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Fig. 1.

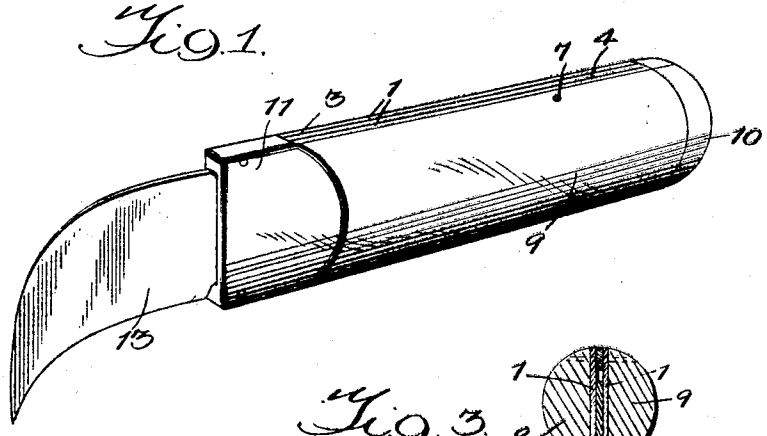


Fig. 3.

Fig. 2.

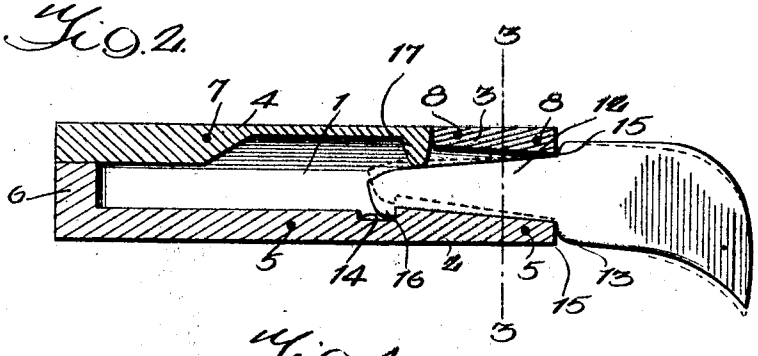


Fig. 4.

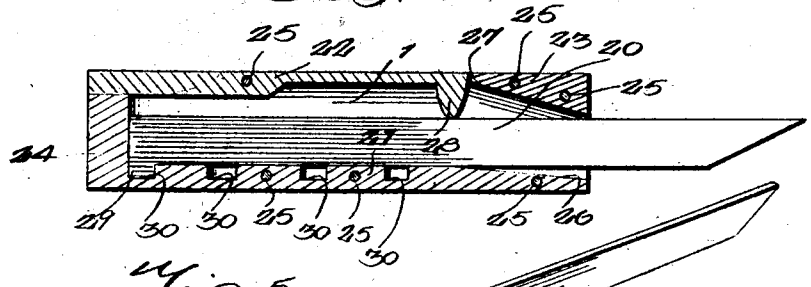
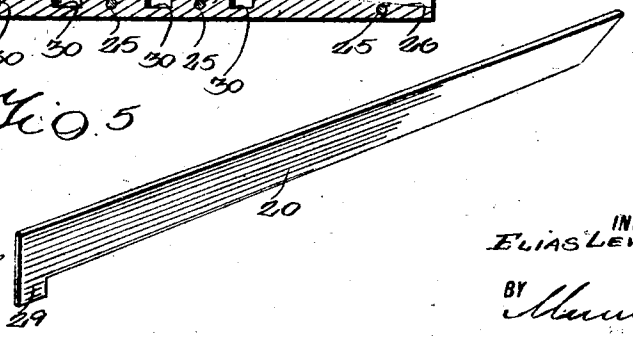


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

ELIAS LEWIS, OF TERRE HAUTE, INDIANA.

KNIFE.

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To all whom it may concern:

Be it known that I, ELIAS LEWIS, a citizen of the United States, residing at Terre Haute, in the county of Vigo, State of Indiana, have invented certain new and useful Improvements in Knives, of which the following is a specification.

This invention relates generally to improvements in knives, more particularly to knives of that type of construction in which the blade is detachable from the handle and it consists in the combination, constructions and arrangements herein described and claimed.

An object of my invention is to provide a knife of the character described which is extremely simple in construction and which embodies means for effectively holding detachable blades adapted for use in various operations.

A further object of the invention is to provide a knife of the character described which is designed primarily, although not necessarily, for use in marking, splitting, trimming and cutting operations, particularly for composition roofing, beaver board, leather, pasteboard, rubber, felt, and the like, and as a pruning knife.

A still further object of the invention is to provide a knife of the character described which can be manufactured at a relatively low cost and which is thoroughly practical commercially.

Other objects and advantages will be apparent from the following description considered in conjunction with the accompanying drawings, in which:

Figure 1 is a perspective view of a knife embodying the invention and comprising one form of handle and one form of blade therefor,

Figure 2 is a longitudinal section through the knife shown in Figure 1,

Figure 3 is a section along the line 3—3 of Figure 2, and

Figure 4 is a view similar to Figure 2 showing a knife embodying the same invention and comprising a handle and a blade therefor slightly different from like parts included in the knife exhibited in the preceding views, and

Figure 5 is a perspective view of the blade included in the knife shown in Figure 4.

In carrying out my invention I provide a handle, which in the form of the device illustrated in Figures 1 to 3 inclusive, includes a blade-holding frame which consists of a pair of precisely identical side plates 1—1 spaced apart by relatively arranged filler plates 2 and 3, respectively, and by a clamping spring 4. The filler plate 2 is angular in form and comprises a relatively long arm or portion interposed between the side plates 1—1 along one longitudinal edge of the handle and extending the entire length of the latter, being secured to the side plates by rivets 5 or the like so that the outer edge of the relatively long arm or portion of the filler plate 2 and the similar edges of the side plates 1—1 are flush with one another. The filler plate 2 also includes a shorter arm or portion 6 which extends at right angles to the longer arm or portion at one end of the latter and is disposed between the side plates 1—1 at the one end of the handle to extend transversely of the latter into abutting relation to the inner edge of the spring member 4 which is pivotally or rigidly supported intermediately at 7 to extend between the longitudinal edge portions or side plates 1—1 opposite the edge portions of the latter which flank the filler plate 2. The spring member 4 is arranged with one end thereof flush with the outer side edge of the shorter portion or arm 6 of the filler plate 2 and terminates at its other end in adjacent relation to one end of the filler plate 3 which extends between the second-named side edge portions of the side plates 1—1 to the adjacent end of the handle and is secured to the side plates by rivets 8 or the like.

The handle also includes a pair of similar grip or face plates, blocks or pieces 9—9, each of which has the cross sectional contour of a segment of a circle and is provided with a flat inner face substantially co-extensive in area with one of the side plates 2 so that the handle as a whole will have the cross sectional contour of a circle when the face plates, blocks or pieces 9—9 are held against the outer faces of the side plates 1—1 by a cap 10 at one end of the handle and by a ferrule or collar 11 at the opposite end of the handle, or by other suitable securing means.

The pivot or securing pin 7 may have the ends thereof extended through the face plates, blocks or pieces, as illustrated in Figure 1, and thereby aid in securing the latter to the side plates.

With the organization described, it will be obvious that a space is provided within

the blade-holding frame of the handle in which the shank or tang portion 12 of a blade 13 may be inserted. The portion of the filler plate 2 at the open end of the handle, which will be hereinafter referred to as the front end thereof, is fashioned with the inner edge thereof inclined inwardly from the adjacent end of the filler plate to a notch 14 which is provided in the inner edge of the filler plate at an appreciable distance from the front end of the handle. The filler plate 3 is fashioned with the inner wall thereof inclined outwardly from the front end of the handle so that the distance transversely of the handle between the outer ends of the filler plates 3 and 2 is less than the distance between the inner end of the filler plate 3 and an opposite point on the inner edge of the filler plate 2. The shank or tang 12 of the blade 13 tapers toward its end so that the filler plates 2 and 3 will embrace the tang or shank at the juncture of the latter with the cutting portion of the blade and will also abut beveled shoulders 15—15 which merge the tang or shank of the blade into the cutting portion thereof to prevent lateral bodily movement of the blade relatively to the handle and to also prevent inward movement of the blade in respect to the handle. The tang or shank 12 of the blade has a lateral projection 16 adjacent to its ends which is adapted to enter the notch 14 co-incidentally with the engagement of the filler plates 2 and 3 with the beveled shoulders 15—15. The spring plate 4 has a lateral projection 17 at its forward end which extends into contact with the edge of the tang or shank opposite that provided with the projection 16 and thus tends to hold the tang or shank 12 pressed against the filler plate 2 and to thereby prevent the projection 16 from disengaging the notch 14. It will be observed that the notch 14 is located rearwardly of the projection 17 and the latter will, therefore, engage the tang or shank 12 at an appreciable distance from the extremity of the latter.

From the foregoing description of the various parts of the device the operation thereof may be readily understood.

As stated, the end of the shorter portion 6 of the filler plate 2 is in abutting relation to the spring plate 4 and thus constitutes a stop for holding the spring 4 against such movement about the axis of its pivot or securing pin as would swing the rearward end of the spring plate inwardly. The spring plate 4 is of reduced width from the projection 17 to a point adjacent to the pin 7, and the forward portion thereof may therefore be swung outwardly under stress to permit rocking of the plate from the position indicated by the full lines in Figure 2 to the dotted lines in the same figure so that the projection 16 will disengage the notch 14 and the blade may be detached from the handle. Because of the engagement of the spring plate 4 with the portion 6 of the filler plate 2, the outwardly sprung portion of the spring plate will spring inwardly when the pressure thereon is removed and will thus be urged at all times into position to hold the shank of the blade in engagement with the blade-holding frame, as indicated by the full lines in Figure 2. Therefore, in order to replace the blade 13 in the handle, it is only necessary to insert the shank until the projection 16 is forced into engagement with the notch 14 which will be attended by an audible click.

The blade 13 is adapted for use in cutting prepared roofing, beaver board, leather and for pruning operations, but it will be obvious that other blades and tools may be applied to the handle, it only being essential that each of such blades or tools have a tapered tang or shank portion and shoulders or stops at the outer end of the tang or shank portion, as shown.

In Figure 4 I show a form of handle different from that hereinbefore described, in that the blade-holding frame is adapted to receive bar-like blades or tools, such as indicated at 20, and as best seen in Figure 5. In the form of the handle shown in Figure 4, the side plates 1—1, only one of which is shown, are spaced apart by a filler plate 21, a spring member 22 and a filler plate 23. The filler plate 21 is angular and includes a relatively long portion or arm extending longitudinally of the handle and a shorter portion 24 extending transversely of the handle at the rearward end of the latter into abutting relation to the inner edge of the spring member 22 and constituting a stop for limiting the inward movement of the rear portion of the latter, as shown in the form of handle hereinbefore described. The filler plates 21 and 23 and the spring plate 22 are attached to the side plates 1 by rivets 25 or the like. The longer portion or arm of the filler plate 21 is formed with the front end portion thereof inclined outwardly toward the front end of the handle, as indicated at 26, and the filler plate 23 is formed with the inner edge thereof inclined outwardly toward its rear end, as indicated at 27. A projection 28 extending inwardly from the forward end of the spring member 22 presses against the straight rear edge of the blade 20 and tends to hold the blade against the inner edge of the filler plate 21 so that a lateral projection 29 at the rearward end of the blade 20 will be disposed in one of a plurality of similar spaced-apart notches 30 provided in the inner edge of the filler plate 21. Since the filler plate 23 is inclined outwardly toward its rearward end, the wider front end thereof is in engagement with the rear edge of the blade when

the latter is positioned within the handle, as illustrated in Figure 4 and swinging movement of the projecting portion of the blade toward the spring plate 22 is thus prevented. The blade 20 will, therefore, be held rigid with the handle for cutting operations, but the projecting portion thereof may be swung away from the filler plate 23 to disengage the projection 29 from the notches 30 and to permit of the blade being partially or entirely withdrawn from the handle to vary the length of the projecting portion of the blade or to permit replacement of the blade. It will thus be obvious that the effective length of the blade 20 may be varied as desired and that the blade may be extended from the handle to present new portions of the cutting edge thereof if the exposed portion becomes worn and the sharpness thereof is impaired.

The blade 20 is adapted for use in cutting rubber and like materials or fabrics, but it will be understood that blades adapted for other purposes and conforming in essential respects to the blade illustrated may be employed as desired.

Obviously, my invention is susceptible of embodiment in forms other than those in which illustrated in the accompanying drawings and I, therefore, consider as my own all modifications and adaptations thereof which fairly fall within the scope of the appended claims.

I claim:

1. A knife comprising a handle including a pair of side plates, filler plates spacing the side plates apart and extending between longitudinal edge portions of the latter, one of said filler plates being co-extensive in length with the side plates and having a right angular portion extending transversely of the side plates at an end thereof, the other of said filler plates having a length less than that of the side plates, and a spring member secured between the side plates in alignment with the shorter filler plate and being in abutting relation adjacent to one of its ends with the right angular portion of the first filler plate, said spring member having an inwardly extending projection at its other end, said first filler plate having a notch in its inner edge, and a blade having a shank insertible between said filler plates into engagement with the projection on the spring member, said shank having a projection adapted to be forced into the notch of the first filler plate by pressure of the spring projection on the shank.

2. A knife comprising a handle having a pair of side plates, filler plates spacing the side plates apart and extending between longitudinal edge portions of the side plates, one of said filler plates being less than one-half the length of the other, and the second filler plate having a plurality of spaced-apart notches in its inner edge, a spring member secured between said side plates in alignment with said shorter filler plates and being held against inward movement at its outer end, said spring member having a projection at its inner end extending toward said longer filler plate, and a blade insertible between said filler plates and having a lateral projection at its inner end, said blade being adapted to be clamped between the projection on said spring member and the opposite filler plate to releasably hold the blade with the projection thereon in engagement with the notches in said filler plate selectively.

3. A knife comprising a handle including a pair of side plates, filler plates spacing the side plates apart and extending between longitudinal edge portions of the latter, one of said filler plates having a right angular portion extending transversely of the side plates at an end thereof, the other of said filler plates being relatively short, and a spring member secured between the side plates in alignment with the relatively short filler plates and in abutting relation adjacent to one of its ends with the right angular portion of the first filler plate, said spring member having an inwardly extending projection at its other end, said first filler plate having a notch in its inner edge, and a plate having a shank insertable between said filler plates into engagement with the projection on the spring member, said shank having a projection adapted to be forced into the notch of the first filler plate by pressure of the spring projection on the shank.

ELIAS LEWIS.