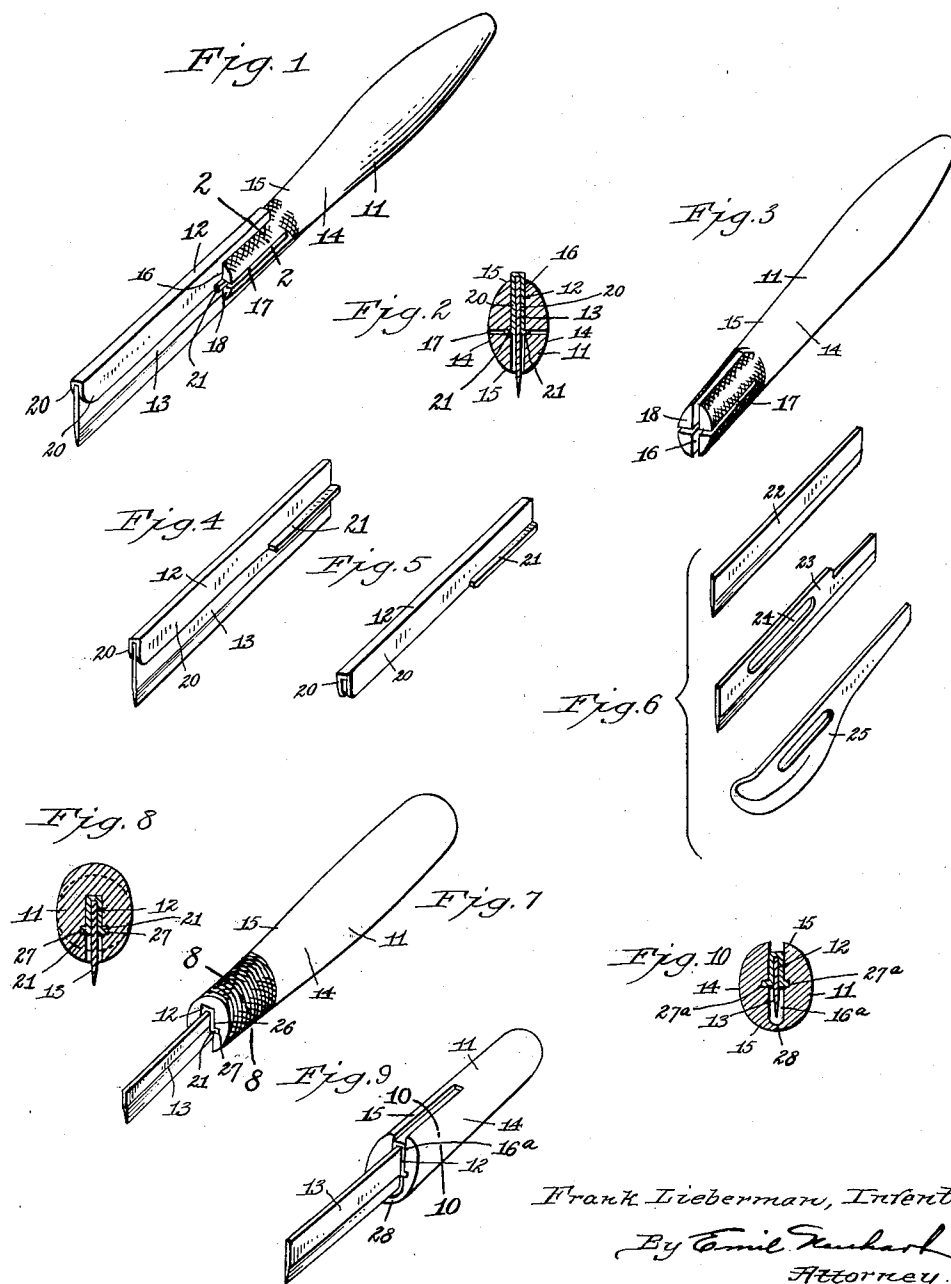


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CHIROPDIST'S KNIFE
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CHIROPODIST'S KNIFE

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My invention relates to a chiropodist's knife and it has for one of its objects to provide a knife in which conventional razor and other blades may be interchangeably used for the purpose of cutting or otherwise treating calluses, bunions, etc.; the knife, considered as a whole, being so constructed that the knife blade can be quickly changed with confidence that regardless of the knife blade selected for use, the necessary rigidity required for the blade will be provided and when dull or worn, a quick replacement of the blade can be made and a firm and unyielding connection between the blade and the handle of the knife be assured.

Another object of this invention is to provide a knife which comprises a handle capable of being easily gripped between the forefinger and thumb of the hand so as to direct the blade projecting therefrom along the course or in the direction desired and full control be had to enable the user to cut off or shave a corn, bunion or the like, or the desired thickness of the affected region of the epidermis, and effect other minor operations to provide relief and eventual cure.

The invention embodies the use of an adapter insertable into and removable from the handle and a blade carried by the adapter, the latter being designed to clamp and reinforce the blade as well as prevent movement of the adapter and blade in a direction at an angle to the axis of the handle, the blade being insertable with the adapter, or blade-reinforcing device as it may be termed, into the handle so as to clamp the blade from opposite sides and hold the same in balanced position on the handle as well as to provide the necessary rigidity for the blade.

This invention also has for its object to enable any of several conventional razor blades, as well as detachable blades manufactured especially for chiropodist's use, to be interchangeably applied to the handle of the knife.

In the drawings:

Fig. 1 is a perspective view of a chiropodist's knife constructed in accordance with this invention, disclosed in this Fig. in preferred form and including in its structure an ordinary razor blade such as used in one well known make of razors, an ejector razor, and many other types of razors.

Fig. 2 is an enlarged cross section taken on line 2—2, Fig. 1.

Fig. 3 is a detached perspective view of the handle of the knife as used in the preferred form of my invention.

Fig. 4 is a view of the razor blade and the blade adapter and reinforcing device in which the blade is held; the parts being positioned to be entered into the handle of the knife.

Fig. 5 is a detached perspective view of the adapter.

Fig. 6 are perspective views of different types of razor blades and of a blade made especially for chiropodist's use, all capable of use with the adapter and handle of the knife.

Fig. 7 is a perspective view of a chiropodist's knife embodying my invention in modified form.

Fig. 8 is a sectional view taken on line 8—8, Fig. 7.

Fig. 9 is a perspective view of my invention in a still further modified form.

Fig. 10 is a cross section taken on line 10—10, Fig. 9.

Although chiropodists and podiatrists are able to purchase knives made especially for their use and even knife blades attachable to handles of knives, the knives and the blades have been found to be inferior in their ability to retain a keen cutting edge and invariably are found

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too flexible to enable the user of the knife to control the degree of thickness of the callused or other ailing skin portion of a foot to be properly removed and the ailment treated as required. Conventional or integral chiropodist's and podiatrist's knives have been found to be less flexible than chiropodist's or podiatrist's knives constructed with detachable blades but insufficiently rigid, and even though originally provided with keen edges, such as required for expert work upon corns, calluses, bunions and other like portions of the epidermis of a foot requiring treatment, they failed to meet all requirements of such a tool or instrument. I have found the edges of ordinary interchangeable razor blades to be far superior; their edges keener and sharper and longer lasting than conventional chiropodist's knives or even knives of that type in which the blades were interchangeable, especially since no provision was made for reinforcing the blade to provide rigidity.

Chiropodist's knives heretofore used and provided with detachable knife blades were therefore found to be too flexible and devoid of some of the qualities above mentioned, and because of the peculiar handle required for the use of detachable blades and the manner in which the blades were fastened to the handle, such knives were found difficult to manipulate and more difficult to control by hand under actual use.

My improved knife comprises a handle 11, an adapter 12 attachable to and detachable from said handle and a knife blade 13 clamped within said adapter and adapted to be thrust into the handle from one end thereof to position the knife blade in a relationship similar to the cutting blade of an integral knife used by chiropodists and podiatrists.

The handle is preferably made non-cylindrical in cross section, assuming what may be termed a somewhat oval or elliptical formation so that when grasping the same it will not have a tendency to roll in the hand while using the knife.

In the various modifications illustrated in the accompanying drawing I have shown the handle with convex sides 14 and rounded edges 15 which may also be referred to as convex sides of the handle. Because of such cross-sectional formation, the centers of the convex sides 14 may be considered as the major axes of the handle while the centers of the rounded edges 15 may be considered the minor axes thereof. So constructed, the handle may be easily grasped and retained in balanced position in the hand to enable the cutting edge of the knife blade to be effectively applied to a corn or bunion or other ailing and callused part of a foot which requires removal and treatment after reducing the thickness of the callused part.

In the preferred construction I have provided the outer end of the handle with a slot 16 formed transversely through the handle and particularly through the minor axis thereof so as to open at opposite edges 15 thereof, and also with a slot 17 arranged at a right angle to the slot 16 and extending transversely through the handle, and particularly the major axes thereof, from one side 14 to the other. The slots 16 and 17 open to the outer end 18 of the handle and may in their broader aspect be considered spaces to receive therein elements forming parts of my invention, in some instances grooves may be substituted for slots and serve the same purpose, and when using the term "slot" or "space" may therefore be considered in such broader aspect.

The adapter is preferably formed of a strip of sheet metal bent transversely upon itself to provide two elongated clamping members 20 which are spaced apart and frictionally receive between them the knife blade 13, the cutting edge of the blade extending out beyond the longitudinal edges of said clamping members and each clamp-

ing member having at its inner end an outstanding flange 21 disposed at a right angle to the other face of said clamping member. The adapter, with the knife blade positioned therein, is designed to be inserted into the handle of the knife from the outer end 18 thereof; at least a portion of the slot 16 being slightly less than the thickness of the adapter 12 with the knife blade therein, so that when the adapter and blade clamped therein is inserted into the handle, the clamping members will be flexed and exert greater pressure against opposite sides of the blade and thus assure a rigid connection and absolute retention of the blade within the adapter and of the latter in the handle. When inserted into the handle, the outstanding flanges 21 at the inner ends of the clamping members will be entered in parts of the slot 17 at opposite sides of the slot 16, which slot 17 may be referred to as flange-receiving spaces, and thus prevent movement of the adapter and knife blade therein relative to the handle. So constructed and connected together, the parts constituting the knife form a rigid structure without permitting the knife blade to flex, since the adapter is utilized as a blade-reinforcing member as well as a means to secure the blade to the handle.

The adapter, by reason of its sharp right-angled flanges 21, enables knife blades of various types to be utilized and entered by merely inserting the adapter over the blunt edge of the knife blade and then entering both endwise into the handle, utilizing the slots in the latter to receive the inner end portion of the adapter, as well as the knife blade in the latter, while leaving the cutting edge of the blade exposed and in free cutting position, at least along the portion of the blade extending outwardly from the outer end of the handle. It will also be apparent that the adapter with a knife blade entered therein may be reversed end for end and thus the blade should require less sharpening and acquire longer life.

In Fig. 6 of the drawings, the knife blade designated 22 is a razor blade of a type commonly used in several makes of razors. 23 designates a razor blade of a special type having a slot 24 therein for cooperation with a part of a razor to hold the blade within the handle of the razor. 25 designates a blade constructed solely for use with a chiropodist's knife and constructed to be attached to the handle of the knife. These blades, as well as several others having flat sides with or without slots in the blades, are capable of being used with the handle on my improved knife since the clamping members 20 at opposite sides of the razor blade are frictionally engaging the blades and hold them rigidly within the adapter and when so arranged are capable of being inserted into the slotted outer end 18 of the handle 11.

In Figs. 7 and 8 a handle similar to that shown in Figs. 1 and 3 is illustrated as a modification of my invention and in this modification the handle is slotted lengthwise from its outer end inwardly, the slot designated 26 being of a width to receive within it the adapter 12 and opposite sides of the slot having grooves or spaces 27 which receive the flanges 21 of the adapter and thus prevent movement of the adapter and the knife blade therein in a direction at an angle to the axis of the handle.

In the modification shown in Figs. 9 and 10, a slot 16^a is formed in the handle from its outer end inwardly. This slot opens to one of the sides, or more particularly to one edge of the handle and terminates short of the opposite edge of the handle so as to form a sheath wall 28. In opposite side walls of the slot 16^a grooves 27^a are formed, the slot receiving the adapter and the knife blade clamped therein with the cutting edge of the knife blade confronting and being protected by the sheath wall 28 while the flanges 21 of the adapter are entered in the grooves 27^a formed in opposing side walls of the slot 16^a in the handle.

In this modification, as well as in all forms of my invention illustrating the cutting edge of the blade, the blade extends outwardly from the outer end of the handle and

is exposed so that it can be conveniently brought into contact with the ailing part of the foot and the callused skin or other portion of the foot being worked upon without any play between the handle and the knife and with assurance of a rigid knife structure which will not flex and the ability to use any of various razor blades procurable in the open market.

It is, of course, to be understood that the handle of the knife may be variously formed while embodying the non-rolling principle of the handle structures described, but in all instances it is non-cylindrical in cross section, at least along the finger-gripping region thereof, so as to prevent rolling in the hands and thus positioning the blade at the angle to the surface of the part of the foot treated to prevent the removal of less and at times more of the callused substance intended to be shaved or pared from the foot.

While I have shown the handle of oval formation in cross section to provide two narrow or edge sides and two convex wide sides, any other formation, at least along the length of the handle, serving the same purpose may be given the latter, but in all instances for the purpose of aiding in gripping the handle in a firm manner so as to assure that the proper angle is given to the knife blade and its position firmly maintained. When in use, the peripheral surface at the outer end of the handle is knurled or roughened along the region into which the adapter and the knife within the adapter is clamped.

The preferred construction of my invention shown in Figs. 1, 2 and 3 is designed for the advantages it offers in reducing the cost of production, since only simple machine operations are required and no special tools needed beyond those found available in any fairly well equipped machine shop.

Having thus described my invention what I claim is,

1. A chiropodist's knife, comprising a handle having a slot extending lengthwise inwardly from one end and opening to one side of the handle, said handle having grooves formed therein at opposite sides of said slot and opening into the latter, each of said grooves having its opposing walls parallel and at right angles to the walls of said slot, an adapter formed of a strip of metal bent longitudinally upon itself to provide spaced apart clamping members, flanges extending outward laterally from the longitudinal edges of said clamping members and entered in said grooves, and a knife blade inserted between said clamping members and having its cutting edge exposed at least along the greater portion of its length and rendered rigid by the clamping members of said adapter when disposed at opposite sides of said knife blade; the thickness of said adapter being such that when entered into said slot, said clamping members will be forced toward each other and clamp the knife blade firmly within said slot.

2. A chiropodist's knife having a slot extending lengthwise therein from one end thereof and grooves formed in said slot at opposite sides of the latter and opening into the same, an adapter fitted into said slot and having means to clamp a knife blade therein and flanges extending laterally outward at a right angle therefrom, said flanges extending along the longitudinal free edges; and fitted snugly into said grooves, said adapter carrying a knife blade having its cutting edge exposed at least outwardly from said handle, the thickness of said adapter being such as to cause the same to be clamped against opposite sides of said knife blade and thus clamp the latter firmly within said slot.

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