

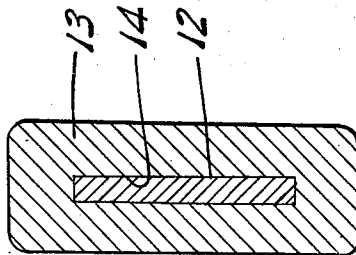
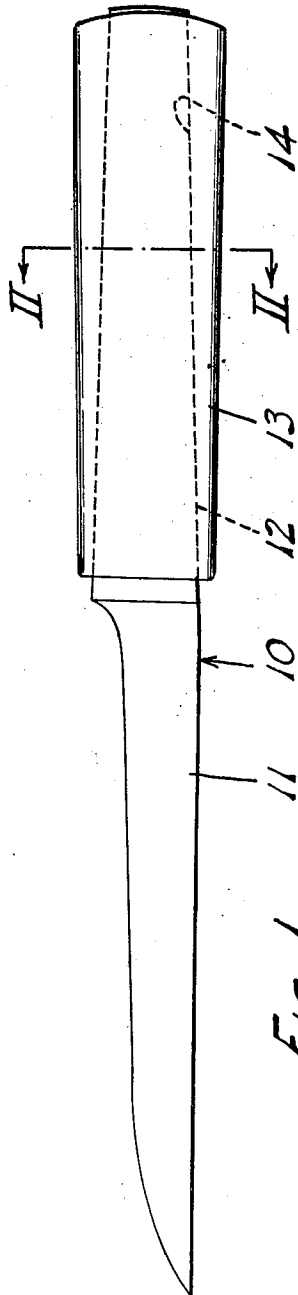
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J. O'KAIN

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KNIFE ASSEMBLY

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INVENTOR.

JOHN O'KAIN

BY

Bean Brooks Buckley & Bean
ATTORNEYS

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KNIFE ASSEMBLY

John O'Kain, 725 E. Main St., Bradford, Pa.

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2 Claims. (Cl. 30—329)

This invention relates to the art of cutlery and more particularly to a novel knife construction.

In certain fields of use it is highly desirable that knives be available which are so constructed that the blades are readily interchangeable in or with the handle. The present invention relates more particularly to a construction wherein the blade is a more or less permanent resharpenable component, as distinguished from hobby types of knives wherein thin throwaway blades of the safety razor blade type are employed.

The knife of the present invention has its uses particularly in industrial fields and an especially important field of use is in the slaughter-house industry. In de-hiding, boning and dismembering carcasses knives are subjected to unusually severe service and must, for efficient operation, be kept in very sharp condition. Resharpening of these knives at the slaughter-house is required so frequently that knife sharpening is an important cost item, requiring considerable time, space and equipment. Nevertheless, sharpening carried on in slaughter houses and other industrial plants wherein knives are used is never effected with the same perfection and efficiency as at a plant devoted primarily to the manufacture of cutlery.

The provision of a knife handle and blade combination wherein the blade is detachable from the handle is not broadly new but the special requirements of a detachable blade knife for the purposes of the present invention are such that proposals of the prior art are not usable in the fields of industrial uses for which the knife of the present invention is intended.

The construction of the knife of the present invention is such that the blade and handle are absolutely rigid with respect to each other whenever the parts are in relatively assembled position and wherein there are no parts in addition to the handle and blade themselves. The absence of moving parts or any other extraneous parts provides a foolproof assembly and the construction is such that, when the parts are assembled, there are no notches, crevices or other openings for admitting foreign matter which might render the knife unsanitary or interfere with proper assembly and disassembly. In addition to the foregoing, the handle and blade construction are such that the parts are securely assembled without any slots, notches or other openings in the blade member which would tend to weaken the latter or complicate its manufacture.

Disassembly of the blade from the handle of the knife in the manner contemplated in the present invention places the blade in the identical condition of its initial manufacture so that it may be sharpened by use of the same mass production machinery as at the time of its manufacture.

Stated generally, the handle and blade of the knife of the present invention are provided with inclined plane wedging surfaces whose relative angles are so calculated as to provide a secure assembly by simple wedging action

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but which may be disassembled in an extremely simple manner and without the use of tools of any kind.

An embodiment of the knife construction of the present invention is illustrated in the accompanying drawing and described in detail in the following specification. However, it is to be understood that such embodiment is set forth by way of example only and that the principles of the invention are not limited precisely thereto, excepting as defined in the appended claims.

10 In the drawing:

Fig. 1 is a general elevational view of one form of the knife of the present invention; and

Fig. 2 is a cross-sectional view on the line II—II of Fig. 1.

15 The blade member of the knife is designated generally by the numeral 10 and comprises a blade or cutting portion 11 and a tang portion 12. The tang portion 12 preferably has parallel side surfaces which will generally define a thickness equal to the thickness of the stock from which the blade is fabricated. The edge portions of tang 12 are tapered as shown and in the illustrated instance the included angle between the side edges is approximately 3 degrees.

25 The handle member in the present instance comprises a metal block 13 having a longitudinal aperture 14 extending therethrough. In the alternative, relatively hard molded plastic or other materials may be employed. The side walls of aperture 14 are parallel and are spaced a distance only slightly greater than the thickness of the tang portion 12, sufficient only to provide what is known in the art as a slip fit.

30 The edge portions of the aperture 14 are tapered at the same angle as the edge portions of the tang 12. Tang 12 and aperture 14 are so proportioned that a very slight portion of the end of tang 12 protrudes through handle 13 at the right-hand end as viewed in Fig. 1.

35 For accomplishing the purposes of the present invention the taper of the edge portions of tang 12 and the aperture 14 are moderately critical. In practice it is found that an included angle of from 2½ degrees to about 8 degrees is operable for the purposes of the invention. The taper illustrated in the drawing by way of example is about 3 degrees and an included angle of from 3 to 4 degrees is ideal. If the angle is too great there is insufficient wedging action and holding power and if the angle is too small the parts will bind to a degree that renders disassembly difficult. Further, with too small an angle the amount that the tang 12 projects through the handle 13 cannot be maintained within desired limits.

40 In the instance set forth herein as a preferred embodiment the tang 12 projects through the handle 13 ¼" when the parts are firmly and securely assembled. This projection should, for satisfactory results, come within a range of from ½" to ⅜".

45 With the construction described above and with a taper angle of three degrees, the blade member 10 may merely be dropped into the handle aperture or moved quickly therein by a user and a firm and secure frictional engagement will be achieved. To disassemble the parts it is merely necessary for the user to grasp the handle and strike the butt end against a surface whereupon the wedging action is released, the blade is dislodged, and the blade may be manually withdrawn from the handle.

50 The fact that the protrusion of the end of the tang through the handle is of relatively small degree, produces two additional useful results. First, in the disassembly operation, banging of the knife on a surface to release the handle merely effects release by a slight relative

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movement of the blade and handle so that, while dislodged from its wedged condition, there is no probability of the blade being projected from the knife to a dangerous degree. Furthermore, when the handle and blade are in securely assembled condition the projection is not sufficient to be noticeable in normal use of the knife and will not catch onto things or form recess angles large enough to provide a lodging place for foreign matter.

I claim:

1. In a knife construction, a handle member and a blade member, the blade member including a blade portion and a tang portion, said tang portion being of generally rectangular cross section with flat parallel sides and edge portions tapering at an included angle of approximately three degrees with the larger end of the taper adjacent to the blade portion, and said handle having a longitudinal aperture therethrough likewise of generally rectangular cross section, said aperture being complementary to said tang portion and so proportioned that the end of the tang portion opposite to the blade portion projects through said aperture an amount less than one eighth of an inch when the tang portion is seated firmly in said aperture whereby force may be applied to the projecting end of said tang to release the same from the handle.

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2. In a knife construction, a handle member and a blade member, the blade member including a blade portion and a tang portion, said tang portion being of generally rectangular cross section with flat parallel sides and edge portions tapering at an included angle between two and one-half and eight degrees with the larger end of the taper adjacent to the blade portion, and said handle having a longitudinal aperture therethrough likewise of generally rectangular cross section, said aperture being complementary to said tang portion and so proportioned that the end of the tang portion opposite to the blade portion projects through said aperture an amount less than one eighth of an inch when the tang portion is seated firmly in said aperture whereby force may be applied to the projecting end of said tang to release the same from the handle.

References Cited in the file of this patent

UNITED STATES PATENTS

20	281,361	Hart	July 17, 1883
	541,862	Lohlein	July 2, 1895
	693,123	Fairchild	Feb. 11, 1902
	1,037,759	Haskins	Sept. 3, 1912
25	1,602,891	Everett	Oct. 12, 1926