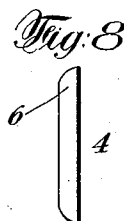
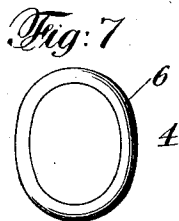
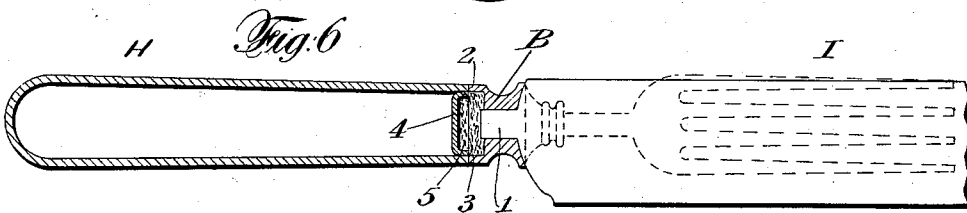
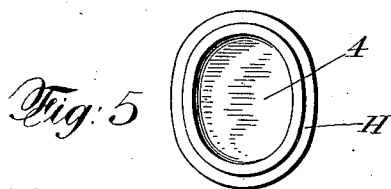
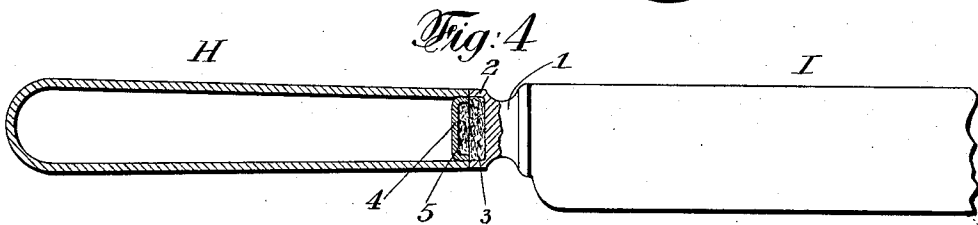
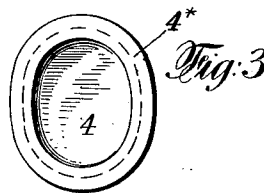
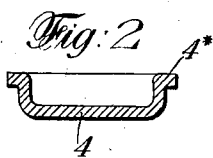
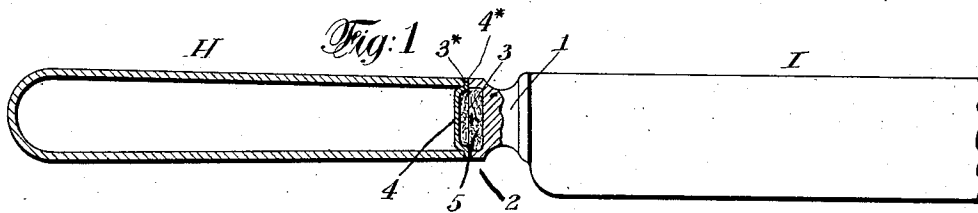


W. W. LEE.
HOLLOW HANDLED KNIFE, FORK, AND OTHER IMPLEMENT.
APPLICATION FILED JUNE 13, 1911.

1,012,088.

Patented Dec. 19, 1911.



Witnesses:

F. E. Nares.
G. Blake

William Milton Lee
By *Edmond J. Beach* Attorney

UNITED STATES PATENT OFFICE.

WILLIAM W. LEE, OF NORTHAMPTON, MASSACHUSETTS; HELEN LEE ADMINISTRATRIX
OF SAID WILLIAM WILSON LEE, DECEASED.

HOLLOW-HANDLED KNIFE, FORK, AND OTHER IMPLEMENT.

1,012,088.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed June 13, 1911. Serial No. 632,887.

To all whom it may concern:

Be it known that I, WILLIAM WILSON LEE, citizen of the United States, residing at Northampton, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Hollow-Handled Knives, Forks, and other Implements, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to hollow metal-handled implements of various kinds, but particularly to table cutlery, and is herein illustrated in such connection.

Hollow metal handles are very frequently electrically welded either directly to the butt ends of implements or implement-forming blanks; or, to so-called bolsters, which are secured to the tangs of implements such as knives and forks or blanks from which knives and forks are made. A common effect of such electrical welding is that a small projection is formed within the chamber of the hollow handle at the time of the fusion at the joints. Frequently these projections do not become detached, and in such cases are unobjectionable; but very frequently, in actual practice, they do become detached to a very considerable extent; and extensive observation shows that these little projections become detached in about one out of every three hollow-welded handled knives and forks. The articles in which the projections referred to so become detached are known in the trade as "rattlers," because the small detached portions of metal commonly form a single pellet which very perceptibly rattles in the chamber of the handle of the implement, knife or fork, when it is used. These "rattlers" are classed and sold as "seconds," and constitute a material loss in manufacturing operations.

The object of this invention is to eliminate the objectionable rattling, and therefore to eliminate the so-called "rattlers" or "seconds" from the factory production.

My invention is susceptible of embodiment in hollow-handled knives, forks and the like of various constructions, and in the accompanying drawings I show two different well known forms of hollow, welded-handled implements, each form being an example of an embodiment of this invention.

In Figures 1, 3, 4, 5 and 6 I show the parts in assembled but unwelded condition;

and in the drawings, Fig. 1 is a lengthwise, central section of a hollow metal handle with a knife blade in full lines, assembled for welding in accordance with this invention. Fig. 2 is a transverse, central section, enlarged, of a concavo-convex cup provided with a flange, the structure being the diaphragm hereinafter referred to. Fig. 3 is an inner end view of a hollow handle provided with a flanged cup diaphragm in its inner or normally open end. Fig. 4 shows another form of diaphragm in the inner or normally open end of a hollow handle; this figure, except for the shape of the diaphragm, being the same as Fig. 1. Fig. 5 is a view of the inner or normally open end of the hollow handle with a diaphragm such as shown in Fig. 4 in place. Figs. 1 and 2 indicate the construction of a knife having a steel handle and a steel blade. Fig. 6 is a partial sectional view similar to Fig. 1, but relates particularly to an implement of German silver the tang of which is firmly secured to a steel bolster, the bolster being welded to the hollow handle. In this figure, the implement is partially shown by full lines as a knife blade, and by the dotted lines as a fork. Fig. 7 is a plan and Fig. 8 an edge view of a diaphragm having parallel faces instead of being concavo-convex.

Referring to the drawings, H is a hollow handle of steel or other weldable material, and I is an implement of steel or other metal that is weldable to handle H.

1 represents the neck or shank of the implement, and 2 the flange of its chambered tang. As is well known, the purpose of so chambering the butt end of the tang is that the flange 2 may be formed to facilitate the welding to the hollow handle, the flange 2 and the hollow handle being substantially of the same cross section and of the same thickness.

The well-known joint is indicated in the drawing by 3. This joint, of course, does not show in the finished article, but line 3 indicates the old and well-known line of electric weld. As above indicated, a protuberance or projection is commonly formed at this line of weld when the parts are pressed together and subjected to the electric welding operation; and in a very large proportion of electrically welded articles this protuberance becomes detached and rattles as a pellet in the chamber of the

handle. To overcome and eliminate this objectionable rattling,—to minimize the sound and reduce it to a negligible condition,—I insert in the mouth or front end of the hollow handle a transverse diaphragm of any suitable shape, 4, preferably formed with a flange 4*. This diaphragm I preferably make of metal that is thinner than the metal of which the handle is formed, and form its body or main portion into the shape of a cup, or concavo-convex as shown. In assembling these diaphragms they may be laid with the convex surface upward and the open ends of the handles be speedily forced over them so as to take them up and hold them sufficiently tightly in place for assemblage preparatory to welding and during the welding operation. Therefore flange 4* facilitates the accuracy of such assemblage, the flange abutting against the open or inner end wall of the handle.

The welded joint at 3 is formed by the fusion of the edge of flange 2 with the outward wall of flange 4* of the diaphragm, and the wall around the open end of the handle is welded to the inward side wall of flange 4*. These two welded joints do not appear in the finished article, and the reason for preferring the flanged diaphragm illustrated in Figs. 1, 2 and 3 to the other forms of diaphragms illustrated is that the flange 4* insures the proper positioning of the diaphragms in the open ends of the handles when the parts are assembled rapidly. It is not intended to weld the edge of the diaphragm to the inner wall of the handle, but merely to cause the diaphragm to remain fixedly in its position. In a sense it is slightly welded. Prior to the welding operation, the edge of diaphragm 4 is merely a snug fit for the inner wall of the handle; and electrically considered, the thickness of the side wall of the cupped diaphragm does not become a perfect contact with the inner wall of the handle. Therefore the diaphragm 4 does not interfere with the proper welding of the abutted edges of the flange 2 and mouth of handle H, as would be the case if the side wall of the cupped diaphragm 4 were an integral part of the handle, for then the rim of the handle mouth would be thicker than the flange 2, with the result that flange 2 would be raised to too high a heat relatively to the abutted mouth of the handle. The diaphragm 4 may be placed a little farther back than is indicated in the drawing, if found to be necessary to facilitate the welding operation of the handle and implement. It will be observed that the diaphragm and the thereto opposed wall of the implement form a chamber which will hold the excrescence or projection formed in the welding operation if it becomes detached; but the pellet may rattle in this small chamber, in fact, without

forming an appreciable rattler, and the rattling in such a small chamber would be entirely negligible. Where the detached pellet is free to rattle around in the entire chamber of the handle, it is found to audibly ring in the long handle as the knife or fork is handled in use; but in the small chamber formed by the use of the diaphragm the rattling is practically inaudible and unobjectionable. By this simple expedient I am enabled to greatly increase the profits of manufacture by the elimination of "seconds," due to the rattling, and to make a more desirable article of manufacture of this class than has hitherto been produced. The objection to these "rattlers" is so marked that many have attempted to solve the problem in various ways, and the matter is one of recognized vexation and difficulty in the trade at the present time. If desired, a mass of asbestos or other material that is practically indestructible at the welding heat may be introduced into the small chamber formed by the use of the diaphragm.

Referring to Fig. 6, German silver can not be welded to steel (commercially, at least), and therefore the tang or neck 1 of the German silver blade supposedly shown in Fig. 6 is anchored in any proper way, usually by compression, in bolster B of steel that forms a coupling or connection between the implement and the hollow steel handle H. The bolster is formed with the flange 2, which is welded to the steel handle H. In Figs. 7 and 8, the diaphragm 4 is of flat metal formed with a sloping edge or margin 6.

When any forms of the diaphragms are placed on a table with the face of larger area downward, operators may readily assemble the hollow handles by plunging them endwise upon the diaphragms. The slope of the perimeter of the outward surface, whether the diaphragm be concavo-convex, and with or without a flange, or of flat metal, serves to guide the handle and to facilitate speedy assemblage of the handles and diaphragms.

What I claim is:—

1. As a new article of manufacture, an implement having a hollow handle welded in place and a transverse diaphragm in the handle chamber adjacent to the mouth thereof.

2. As a new article of manufacture, an implement having a hollow handle welded in place and a transverse diaphragm in the handle chamber adjacent to the mouth thereof; and a wad of welding-heat-resisting material between the diaphragm and opposed part of the implement.

3. As a new article of manufacture, an implement having a hollow handle welded in place and a transverse diaphragm provided with a marginal flange and located in the handle chamber adjacent to the mouth thereof.

4. The combination with a hollow weld-
able-metal handle having an open inner end,
of a transverse weldable metal diaphragm
formed with a peripheral surface that slopes
5 from the outward face of the diaphragm
inwardly toward the inward face thereof
and also toward the butt end of the handle.

In testimony whereof I have affixed my
signature in presence of two witnesses.

WILLIAM W. LEE.

Witnesses:

CHAUNCEY H. PIERCE,
ROBERT N. MARSHALL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
