2 Sheets—Sheet 1.

R. WALLACE.

Spoon and Fork.

No. 220,003. Patented Sept. 23, 1879.

Fig. 1.

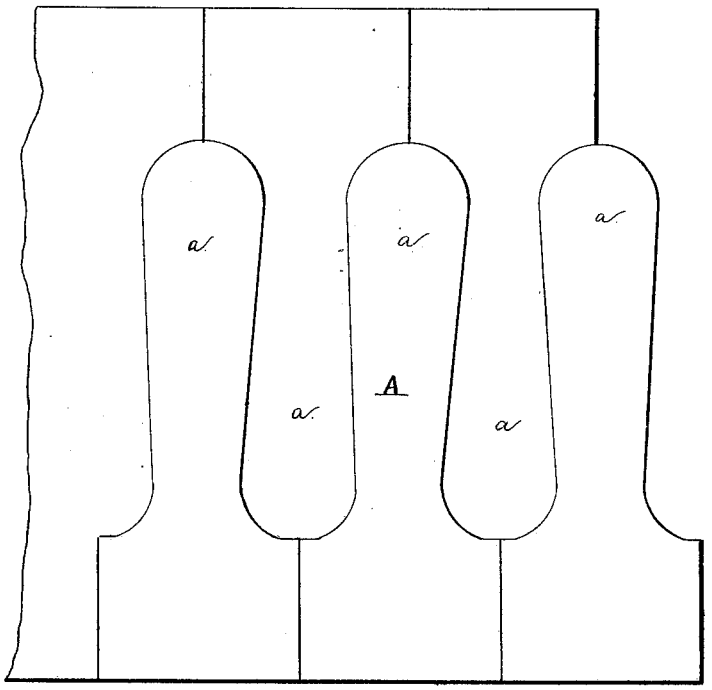


Fig. 2.

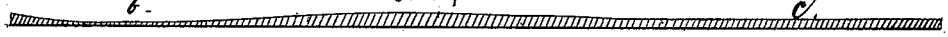
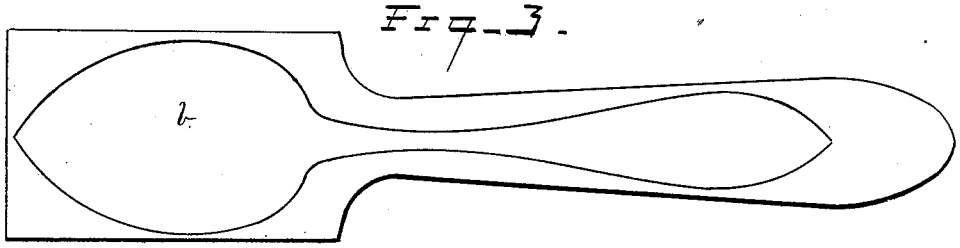


Fig. 3.



WITNESSES

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Fig. 4.

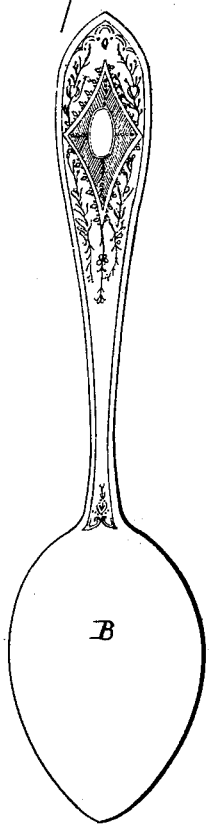


Fig. 5.

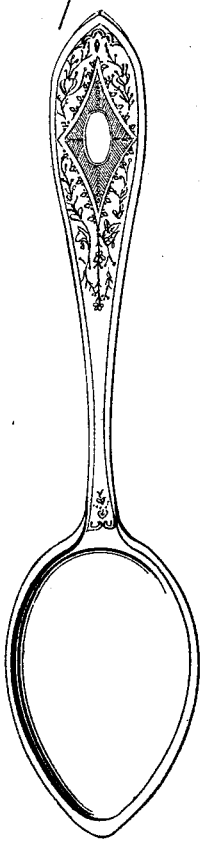
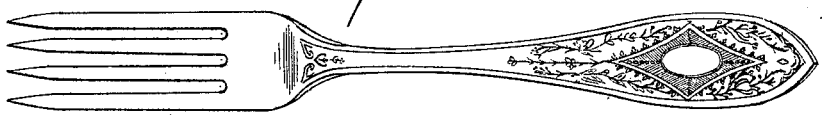


Fig. 6.



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UNITED STATES PATENT OFFICE.

ROBERT WALLACE, OF WALLINGFORD, CONNECTICUT.

IMPROVEMENT IN SPOONS AND FORKS.

Specification forming part of Letters Patent No. **220,003**, dated September 23, 1879; application filed January 14, 1879.

To all whom it may concern:

Be it known that I, ROBERT WALLACE, of Wallingford, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Spoons and Forks; and I do hereby declare that the following is a full, clear, and exact description of the same, which will enable others skilled in the art to which it relates to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Heretofore spoons and forks have ordinarily been made of German silver or other composite metals having similar characteristics. This kind of table-ware is costly, owing to the initial cost of the material employed; and again, the ware is defective, owing to the lack of requisite stiffness and resiliency of the metal to withstand the usage to which it is subjected.

Again, spoons and forks have been made of cast and wrought iron; and they have also been stamped from ordinary sheet-steel; but the articles were defective for various reasons. The cast or wrought iron articles were not susceptible of having a smooth finished surface imparted to them, and hence the production was limited to a very cheap and coarse class of article.

When the articles were stamped from ordinary sheet-steel they would be of uniform thickness throughout, and hence, if the desired thickness of material was embodied in the handle, near the bowl of the spoon or tines of a fork, the remaining portions of the ware would be of too great thickness to meet the wants of the trade; and, on the other hand, if the sheet-steel was of proper thickness for the bowl of the spoon or the extreme end of the handle, the article would lack the required strength, stiffness, and resiliency at the junction of the bowl and handle, and hence would soon become bent and broken when used.

Another defect in ware of the character last mentioned was that the surface of the spoon or fork was of too rough and uneven finish to admit of a highly-finished plated surface. The sheet-steel, being slightly rough and uneven, presented numerous points which nearly or quite protruded through the plating, and thus allowed the steel to become attacked by the atmosphere or oxidized in places, and thereby rapidly wear away the plating.

The object of my invention is to obviate the defects above noted; and to that end it consists in table-cutlery manufactured from homogeneous or cold-rolled steel, whereby the desired thickness is imparted to the different parts of a spoon or fork by rolling the blank of steel to the desired thickness and then stamping the forks or spoons therefrom.

This process not only insures the proper disposition of metal to secure the desired proportion of parts consistent with strength, stiffness, and resiliency, but also condenses the fiber of the metal, thereby producing a perfectly smooth and even finish to the entire surface of the article, which is necessary for two reasons—first, that the surface of the ware may be of uniform density, so that sharp and well-defined ornamentation may be stamped thereon; and, second, that the ware may be provided with a highly-finished plated surface, which will burnish evenly without danger of presenting raw spots or points over the surface of the article.

In the accompanying drawings, Figure 1 represents the blanks cut from a strip of homogeneous steel. Fig. 2 is a longitudinal section taken through one of the spoon-blanks. Fig. 3 shows one of the rolled spoon-blanks, a spoon being cut therefrom. Fig. 4 is a plan view of the cut spoon-blank with its handle stamped and ornamented. Fig. 5 represents a finished spoon, and Fig. 6 a finished fork.

The sheet A of homogeneous steel is rolled into sheets of the desired length, width, and thickness, and from which the blanks are cut in a manner designed to economize stock, one method being shown in Fig. 1, wherein *a* *a* are the outlines of the blanks to be stamped from the plate. These blanks are then rolled and the metal disposed in the manner illustrated in Fig. 2, wherein it will be observed that the portion *b* thereof from which the bowl of the spoon is formed is rolled down comparatively thin, while the opposite end, *c*, composing the end of the handle, is also of decreased thickness.

The central portion, *d*, of the blank, or that portion of the blank at the juncture of the handle with the bowl is of greater thickness

than any other portion of the article, for the reason that it is the narrowest portion of the spoon or fork, and the article is subjected to the greatest strain at this particular point.

By rolling the blank of homogeneous steel in the manner above described the proper thickness of metal is imparted to the different portions of the spoons or forks, and also the fibers of the metal are condensed or consolidated, rendering the surface of uniform density and smoothness.

In rolling articles of irregular section the blank must enter the rolls at a fixed point, as the slightest slip or variation in the position of the blank not only ruins the blank, but also injures the rolls. As homogeneous steel has a smooth surface, and necessitates the expenditure of much greater pressure to roll the same into different forms than is the case with German silver, the process applicable to the latter is not adapted to the former, and to overcome the difficulties incident to the manipulation of the homogeneous steel blanks I employ the following process: To prevent the blanks from slipping in the rolls they are first placed in a tumbling cask or mill with a quantity of pumice-stone or equivalent substance, and thoroughly scoured, and the surface of the blanks roughened to a slight degree. In order that the rolls may have a firm hold upon the blanks, the rolls or the blanks, or both, are coated with turpentine, and then, by subjecting the blanks to the action of the rolls, the latter will take prompt hold of the blanks and reduce them to the desired form in section, as shown in Fig. 2. The spoon-blank *b* is now stamped from the rolled blank, as illustrated in Fig. 3. In order to stamp or ornament the blank it is necessary to soften the metal, as the process of cold rolling operates to condense the fiber of the metal to such density that it will not yield to the dies. For this purpose the blanks are annealed; but it is impracticable to perform this operation in an open furnace, as is the case ordinarily, as the cold-rolled steel will blister, and thus prevent the proper ornamentation of its surface. Hence the blanks are tightly packed in close-fitting iron boxes, which latter are closed air-tight by luting the joints with clay or similar material. The boxes are then placed in a furnace and heated to the desired degree of temperature, and then removed and allowed to cool. When cold, the boxes are opened and the blanks properly protected from direct contact of the atmosphere for a time by a coating of unslaked lime. Great care and skill are requisite in the proper annealing of the blanks, as it is impossible to produce the fine and delicate ornamentation on steel spoons when their surfaces are either blistered or coated even slightly with scales. The surface of the blank is now drawn down, and the burr on the edge thereof removed by grinding. The handle of the spoon or fork is then subjected to the action of suitable dies in a drop-press, and any desired ornamental figure formed thereon, as illustrated in Fig. 4. The bowl is then formed, (or, in case of a fork, the tines are formed,) the edges are trimmed, and the spoon completed, as shown in Fig. 5.

By reason of the perfect uniformity and density of the metal composing the blanks of cold-rolled homogeneous steel the ornamentations are not ragged, broken, and indistinct, as in the case with some kinds of metal, but the lines are brought out with a sharpness and distinctness which is readily distinguishable to the trade, and is an incident peculiar to table-cutlery of the character described.

After the ware has been stamped it is ready for plating, which process is effected by first depositing on the surface thereof a coating of copper, then a coating of nickel, and lastly a coating of silver, which latter is then burnished and polished.

By reason of the perfectly smooth hard surface of cold-rolled homogeneous spoons and forks they are susceptible of having the most perfect finish imparted to the silver-plating.

Table-ware of the character above described is highly finished in appearance, (the ornamentation being sharp and distinct,) of great strength, elasticity, and durability, of light weight, and of small material cost.

I make no claim in this application to the process for manufacturing table-cutlery as heretofore set forth, as the process constitutes subject-matter of a separate application for a patent.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A spoon or fork made of cold-rolled homogeneous steel, substantially as and for the purpose described.

2. A spoon or fork made of cold-rolled homogeneous steel, the metal being disposed to insure increased strength at the junction of the handle with the bowl or tines, substantially as and for the purpose described.

3. A spoon or fork made of cold-rolled homogeneous steel, and having raised ornamentations formed thereon, substantially as and for the purpose described.

4. As a new article of manufacture, a spoon or fork composed of cold-rolled homogeneous steel having raised ornamental figures formed thereon, and coated with silver, substantially as and for the purpose described.

ROBERT WALLACE. [L. S.]

Witnesses:
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GEORGE P. COOK.