Sept. 8, 1925. 1,552,747

A. KLUMPP

PROCESS OF FINISH STAMPING METALLIC ARTICLES SUCH AS SPOONS, FORKS, AND THE LIKE

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Fig. 2.

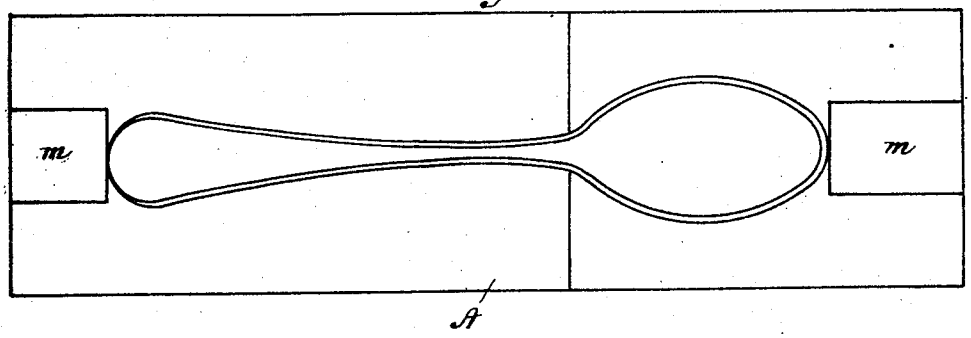
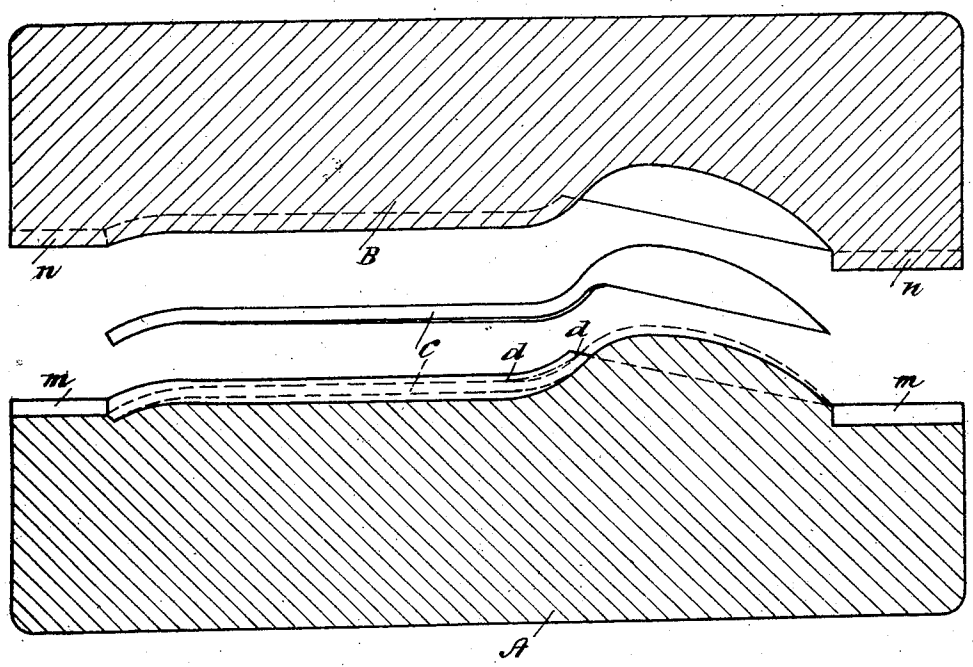


Fig. 1.



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Fig. 3.

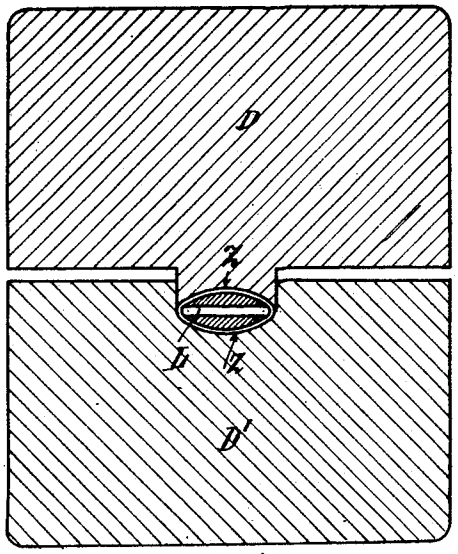
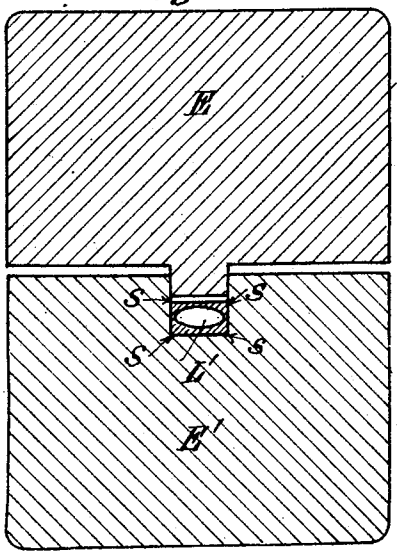


Fig. 4.



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UNITED STATES PATENT OFFICE.

ADOLF KLUMPP, OF DESENZANO AL SERIO, ITALY.

PROCESS OF FINISH STAMPING METALLIC ARTICLES SUCH AS SPOONS, FORKS, AND THE LIKE.

Application filed March 21, 1924. Serial No. 700,976.

To all whom it may concern:

Be it known that I, ADOLF KLUMPP, a citizen of the Republic of Germany, residing at Via Palazzi 7, Desenzano al Serio, Italy, have invented certain new and useful Improvements in a Process of Finish Stamping Metallic Articles such as Spoons, Forks, and the like, of which the following is a specification.

In the known processes of stamping spoons, forks and the like it is not possible to smoothly stamp the entire surface, as there always remains at some places of the surface either burrs or rough places, so that the expensive subsequent treatment (filing or grinding off the burr and so forth) is unavoidable. Further by means of the known processes it is not possible to smoothly stamp the entire surface of spoons, forks and the like which are coated with tin or are provided with any other metal coating, and moreover it is impossible to distribute this coating by stamping in such a manner, that the said coating will be thicker at the places which are subjected to a greater wear than the other places of the spoons, forks and the like. Further hitherto it has not been possible to compress by the stamping operation some parts of the spoon or the like harder than other places thereof.

The drawbacks above mentioned are overcome by the stamping process according to the present invention, which is carried out in closed dies.

Taking a spoon by way of example, the invention may in practice be carried out as hereinafter described with reference to the accompanying drawings wherein—

Fig. 1 illustrates in section a top- and a bottom-die and a blank in the shape of a spoon.

Fig. 2 is a plan view of the bottom-die.

Figs. 3 and 4 illustrate in section dies for providing an article with a tin or other metal coating.

In Figs. 1 and 2, A designates the bottom-die and B the top-die, the dies fitting into one another in such a manner that the material of the spoon to be subjected to a finish stamping cannot pass out at any place between the two dies and with such dies if the necessary pressure is applied it is possible to stamp smoothly the entire surface to such a degree that any subsequent treatment of the spoon can be dispensed with. If it is desired to have certain places of the finished spoon of a particular hardness or strength, the spoon blank will be made somewhat thicker at these places. During the stamping operation the pressure will be correspondingly harder at these places and therefore the metal will be more compressed at the latter as the same cannot escape laterally, so that this part of the spoon will be harder and stronger than the other parts thereof. The same effect may be obtained by making the raised part of the die slightly higher. Also in that case the pressure will be harder or stronger at that place and consequently the metal will be more compressed and therefore the stamping is harder at that place than at the other places. When placing the blank C into the bottom-die which is provided with recesses *m* and pressing the top-die B, which is furnished with projections *n* adapted to pass into the recesses *m* of the bottom-die and to be guided by them, onto the inserted blank, the latter will rest at all sides against the walls of the dies if a corresponding pressure is applied and therefore all sides, e. g., also the lateral faces of the blank will become or be formed just as smooth and glossy as the dies. An appreciable burr cannot be formed if all sides of the die B fit properly into the die A. If the blank C is thicker between *d*—*d* as at the ordinary blanks, the pressure will be stronger at that place and as the metal cannot escape, this part will be more compressed and therefore is harder and stronger.

If the spoons and the like, which consist of iron or any other hard metal and are of a cross-sectional area L (Fig. 3) or L′ (Fig. 4), are provided with a coating of a softer metal such as for example tin and are pressed between dies D, D′ or E, E′ respectively, the softer coating-metal will be pressed into the form enclosed by the top- and bottom-dies. The metal-coating can be made heavier or thicker at the bearing surfaces Z of the spoon or at its edges or corners S or at all places which are subjected to the greatest wear, in that the free space between the top- and bottom-dies is correspondingly larger at those places. Hitherto for instance the coating of tin on iron could not be made thick enough, as it would have been too rough. According to the invention this is possible without any difficulty as in the completely closed dies all parts of a rough coating of

any desired thickness will be stamped quite smoothly. Thus by the process according to the present invention not only far nicer but more durable spoons, forks and the like are produced than by the known processes.

It is to be remarked that the essential feature of that part of the invention relating to the smooth stamping consists in that spoons, forks and the like, which have already been provided with the final shape, are subjected to a last or final operation, in which by means of stamping in dies, closed at all sides, such a smoothness is attained that the hitherto necessary, expensive and troublesome subsequent filing and grinding operations are not necessary.

I claim:—

1. A process of finish stamping metallic articles, such as spoons, forks and the like which consists in subjecting the blank to a single stamping operation in a pair of dies the two dies tightly fitting into one another, so that the material of the article is fully enclosed at all sides and cannot escape at any side during the stamping operation to cause all sides of the article to be provided with a smooth finish without the possibility of the formation of any burr, so that any subsequent filing or grinding of the stamped article can be dispensed with.

2. A process of finish stamping metallic articles, such as spoons, forks and the like which consists in forming the blank somewhat thicker at a place at which it is desired that the finished article shall be particularly strong subjecting the blank to a single stamping operation in a pair of dies the two dies tightly fitting into one another, so that during the stamping operation the blank is fully enclosed at all sides and will be more compressed at the said place than at the other places and cause all sides of the article to be provided with a smooth finish without the possibility of the formation of any burr, so that any subsequent filing or grinding of the stamped article can be dispensed with.

3. A process of finish stamping metallic articles, such as spoons, forks and the like which consists in subjecting the blank to a single stamping operation in a pair of dies the two dies tightly fitting into one another and at a place at which it is desired that the finished article shall be particularly strong one of the said dies is slightly higher, so that during the stamping operation the blank is fully enclosed at all sides and will be more compressed at the said place than at the other places and cause all sides of the article to be provided with a smooth finish without the possibility of the formation of any burr, so that any subsequent filing or grinding of the stamped article can be dispensed with.

4. A process of finish stamping metallic articles, such as spoons, forks and the like which consists in subjecting the blank provided with a softer metallic coating to a stamping operation in a pair of dies, the two dies tightly fitting into one another so that during the stamping operation the coating metal is distributed over the entire surface of the article and cannot escape at any side to cause all sides of the article to be provided with a smooth finish without the possibility of the formation of any burr, so that any subsequent filing or grinding can be dispensed with.

5. A process of finish stamping metallic articles, such as spoons, forks and the like which consists in subjecting the blank provided with a softer metallic coating to a stamping operation in a pair of dies, the two dies tightly fitting into one another and at the place at which in use the finished article is subjected to a greater wear the free space between the dies is larger than at the other places, so that during the stamping operation the coating metal is distributed over the entire surface of the article but will be thicker at the place disposed between the enlarged free space of the dies and the said coating metal cannot escape at any side of the dies during the said stamping operation, whereby all sides of the article are provided with a smooth finish without the possibility of the formation of any burr, so that any subsequent filing or grinding can be dispensed with.

In testimony whereof I affix my signature.

ADOLF KLUMPP.