

(No Model.)

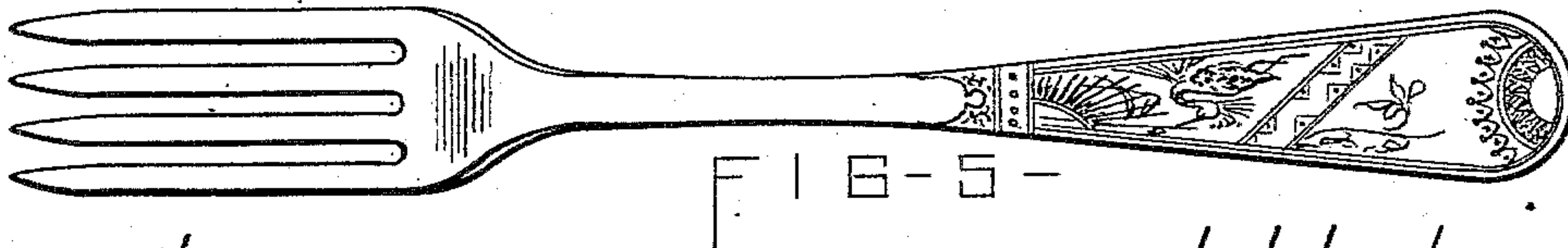
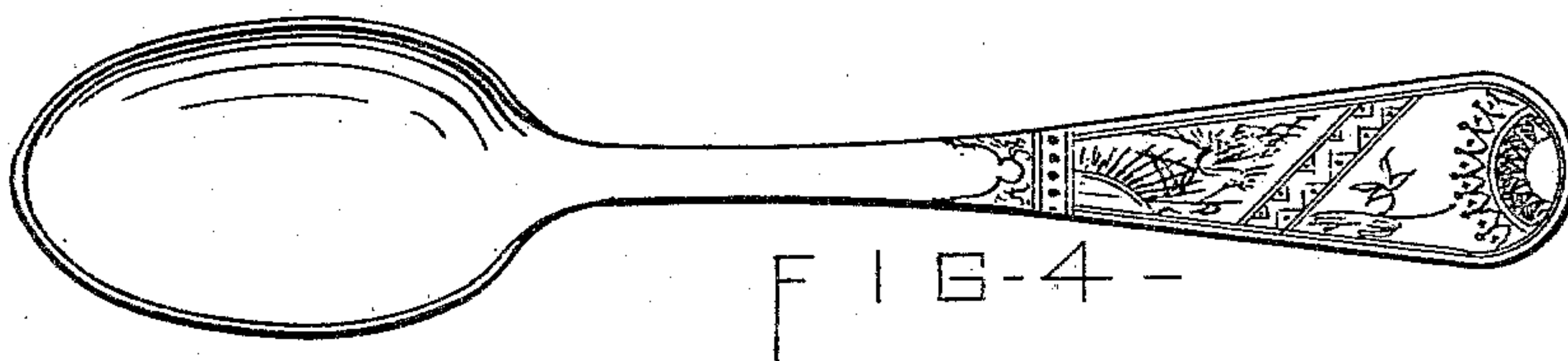
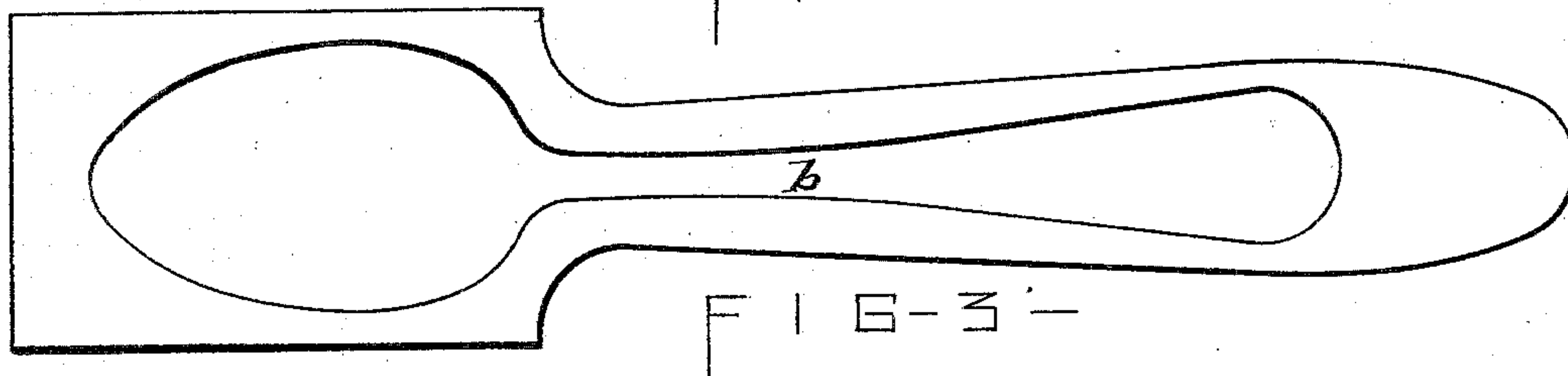
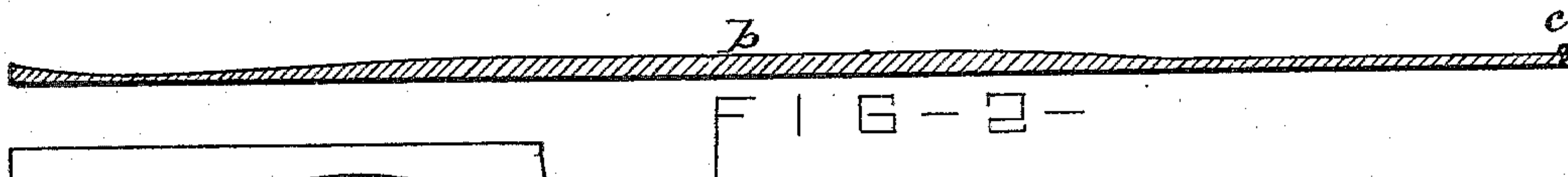
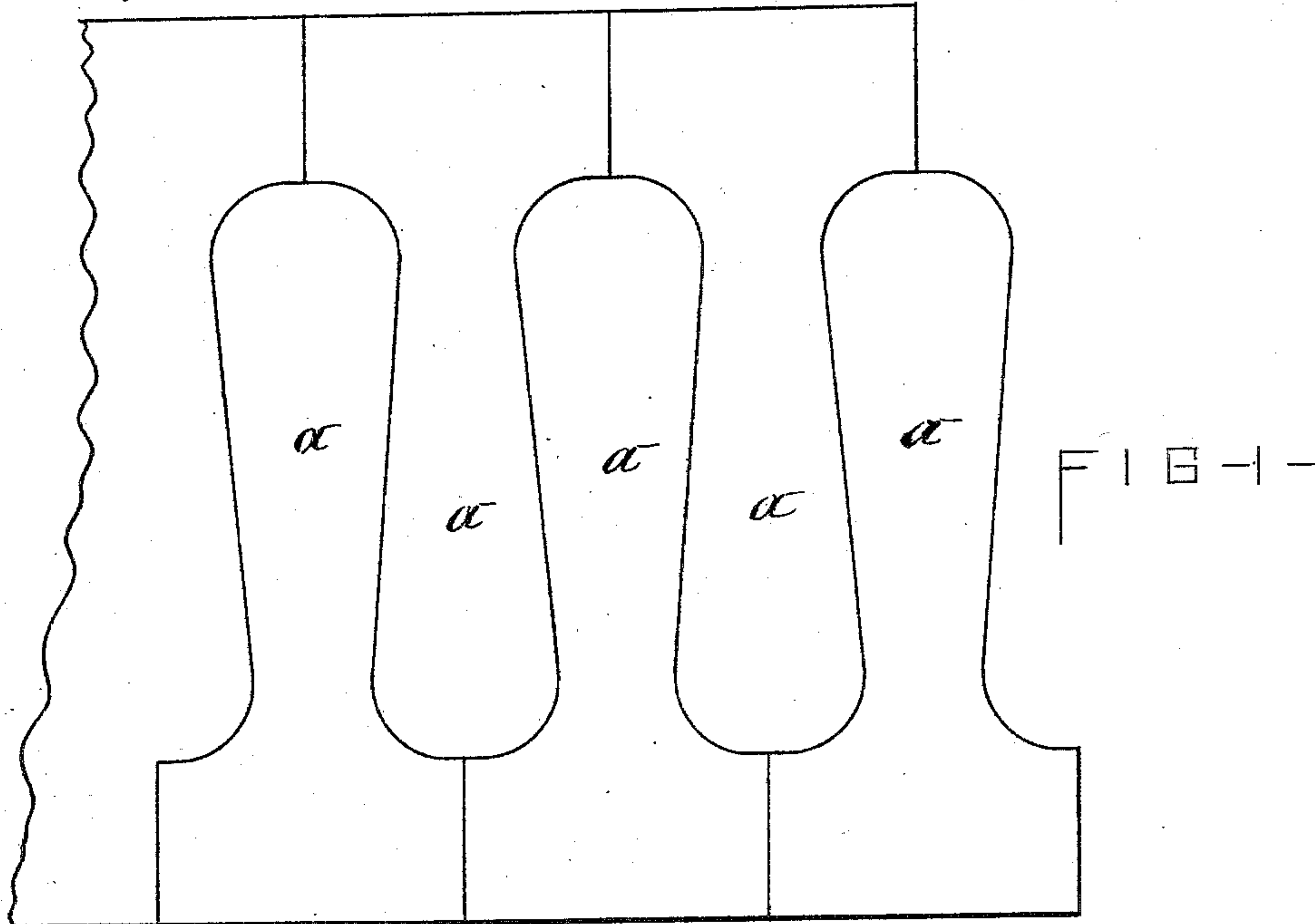
2 Sheets—Sheet 1.

L. F. DUNN.

MANUFACTURE OF SPOONS AND FORKS.

No. 280,918.

Patented July 10, 1883.



WITNESSES

*C. Bendixon*  
*Geo. L. Raymond*

INVENTOR

*Leonard F. Dunn*

*per Russell, Laessle & Hay*  
*his attys*

(No Model.)

2 Sheets—Sheet 2.

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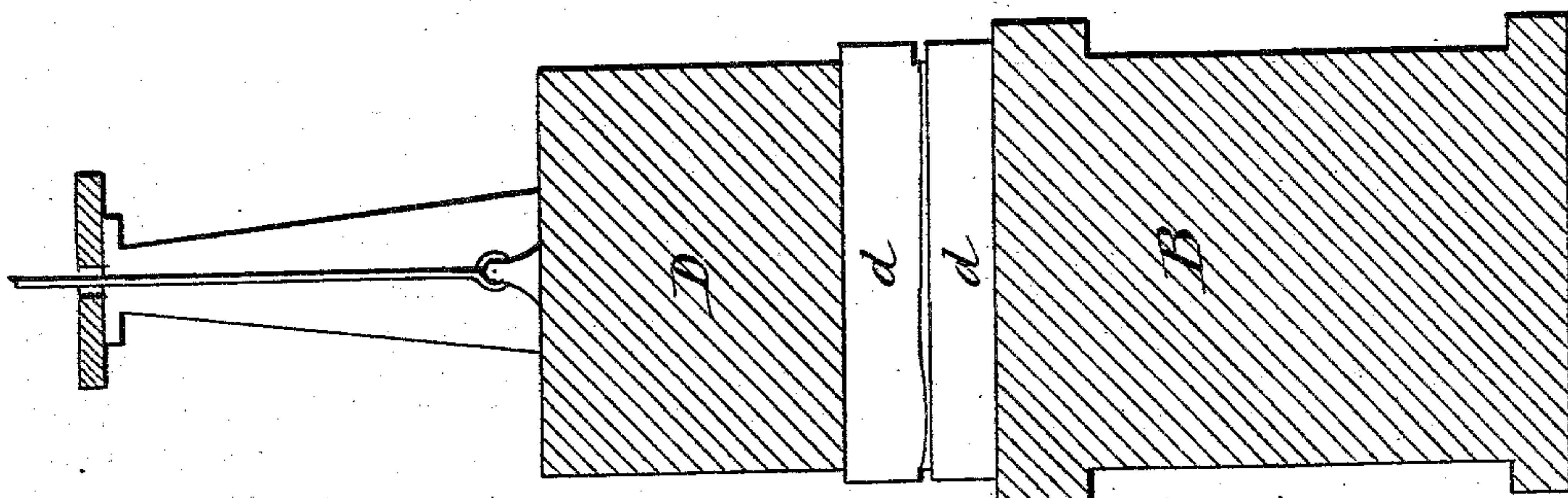


Fig. 7

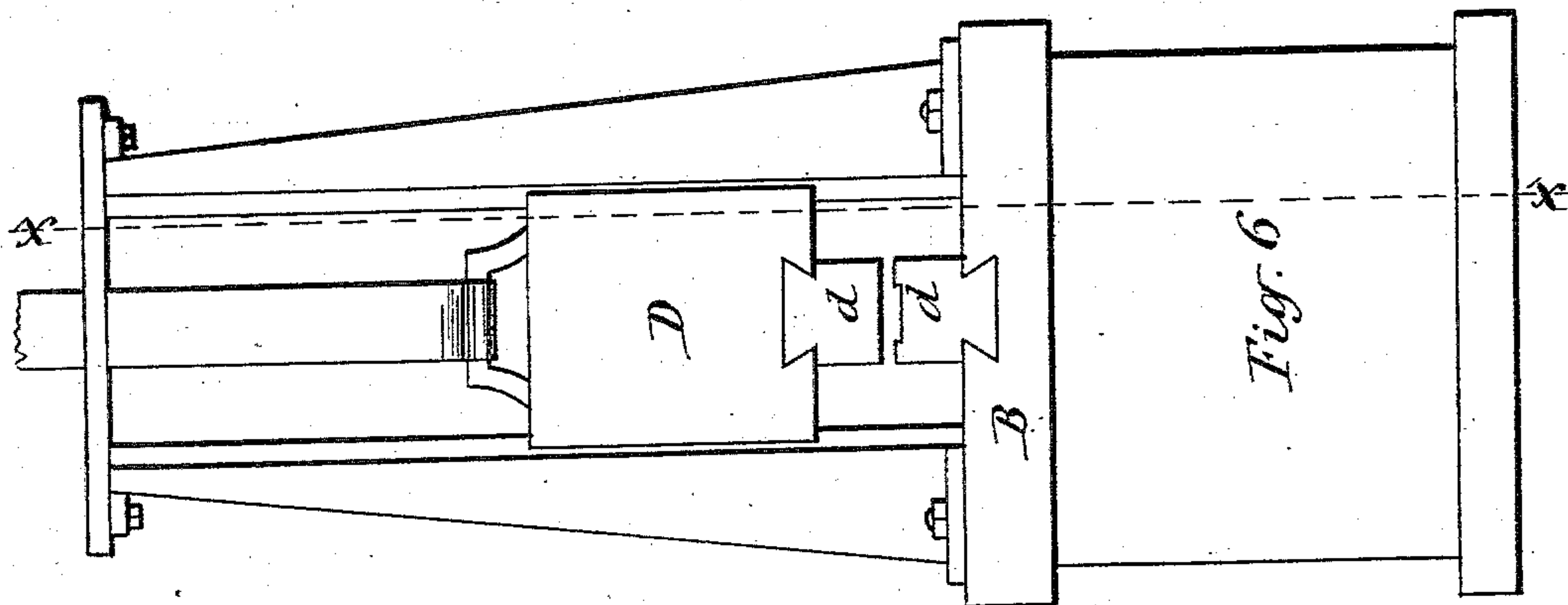


Fig. 6

WITNESSES

C. Bendixon

Wm. L. Raymond

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# UNITED STATES PATENT OFFICE.

LEONARD F. DUNN, OF ONEIDA COMMUNITY, NEW YORK.

## MANUFACTURE OF SPOONS AND FORKS.

SPECIFICATION forming part of Letters Patent No. 280,918, dated July 10, 1883.

Application filed November 17, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, LEONARD F. DUNN, of Oneida Community, in the county of Madison, in the State of New York, have invented new and useful Improvements in the Mode of Manufacturing Spoons and Forks, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

10 This invention consists in a novel process of forming from malleable or wrought iron, or from ingot-iron, which is sometimes called "homogeneous steel," forks, spoons, and analogous table-ware designed to be plated with silver or other precious or desirable metal, as hereinafter more fully explained, and specifically set forth in the claim.

15 In the annexed drawings, Figure 1 illustrates the manner of cutting the blanks from a sheet of malleable or wrought or ingot iron. Fig. 2 is a longitudinal section of a blank after it has been subjected to the action of graded rollers. Fig. 3 illustrates the formation of the spoon from the blank. Figs. 4 and 5 are plan views of opposite sides of a completed spoon; and Figs. 6 and 7 represent a front view and a vertical section on line *x x* of a press adapted for imparting the ornamentations to the surfaces of the spoon.

20 Heretofore it has been deemed impracticable to form of malleable iron or wrought-iron a fork or spoon susceptible of a perfect plating of silver or other precious metal, owing to the porosity or want of compactness of the base upon which to apply the plating, and in cases where the attempt has been made it was found necessary to first apply to the surface of the article a coating of tin to fill the pores and form a compact and smooth surface. To obviate this expense resort has been had to the use of steel as the material for the blank; but in the employment of this material great difficulties have been encountered in cold-rolling out the blanks into the requisite length and shape. The smooth and hard blanks offered such resistance to the impingement of the rolls as to cause the blanks to slip and receive the wrong impression from the rolls, which effect ruins the blank, and also injures the roll. Even when said blank is successfully passed between the aforesaid rolls, it generally presents an uneven surface, and requires grind-

ing or other smoothing operation. Furthermore, the steel blank, after undergoing the compressing process in passing through the forming-rolls, becomes so hard and compact as to resist the impressions to be subsequently made by the usual dies by which the surface of the article is to receive its ornamentation, and therefore has to undergo an annealing process before the finishing of the surface can be effected. Attempts have also been made with ingot-iron, which is sometimes erroneously termed "homogeneous steel;" but after thorough and practical tests and personal experience in the use of said material, I have found that the same possesses the same defects as wrought-iron, and requires my newly-invented process to put it in a proper condition for being plated; and this process consists in the following successive steps in forming and treating the blanks for the spoon or fork.

25 I form the blanks *a*, Fig. 1 of the drawings, in any suitable manner, from malleable or wrought iron or ingot-iron, though preferably from wrought-iron, by punching said blanks, in the usual manner, out of sheets of such metal, as shown in Fig. 1 of the drawings, which sheets I cleanse or scale, by a scratch-brush or other suitable means, beforehand, so as to save the extra time and labor of so treating the blanks individually. The blanks *a* are made of a form to avoid a waste of material in punching them out, as aforesaid, and consequently are generally shorter than the spoon to be formed. Said blanks are therefore passed cold between graded rollers, which distend said blanks and impart to them the various thicknesses required at different parts of the spoon, as illustrated in Fig. 2 of the drawings.

30 Although the soft-iron blank is not so liable to slip while passing between the rolls, yet I effectually guard against said accidents by providing the rolls with a transverse crease, which forms across the front end of the blank a bead, *c*, and thereby obtains a firm hold thereon. The blank thus rolled I cut into the shape of a spoon or fork blank, as represented by the letter *b* in Fig. 3 of the drawings, and introduce the same, together with either or both charcoal and cyanide of potassium, into an air-tight muffle and subject it to sufficient heat to partly or wholly carbonize the blank,



which, by the aid of the cyanide, is effected so rapidly as not to change the form of the blank, and while producing a surface thereon which is less liable to corrode than that of iron or soft steel, it still leaves the blank sufficiently soft and in proper condition to receive the subsequent impressions of the dies by which the surfaces are to be ornamented, as shown in Figs. 4 and 5 of the drawings, and at the same time impart to the blank the requisite tenacity and elasticity. After it has undergone the aforesaid treatment I thoroughly cleanse it, and then smooth and further compact or solidify the surfaces thereof by subjecting the same to the strokes or impingements of polished planishing-dies *d d*, secured to the bed B and drop D of a suitable press, as illustrated in Figs. 6 and 7 of the drawings, which represent a front view and a vertical section on line *x x*, respectively, of said press. The dies *d d* are finely graded to correspond to the various thicknesses required at different parts of the spoon or fork. The blank thus planished receives a perfectly smooth and solid surface, and after trimming and finishing the edges thereof it is converted into a spoon or fork by stamping the same in the usual manner—viz., by subjecting the blank to the impingement of suitable dies of a drop-press, said dies being formed with cameo configurations, by which they impress on the spoon the desired ornamentation, as illus-

trated in Figs. 4 and 5 of the drawings. The spoon is thus prepared to receive the plating of precious metal by any of the well-known methods, and is susceptible of a high finish or polish.

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

The process of manufacturing spoons, forks, and analogous table-ware designed to be plated, from wrought or ingot iron, consisting, essentially, in forming the blank from said material, and after cleaning the surfaces cold-rolling the blank, and condensing, planishing, and finishing the surfaces thereof, and imparting to the blank its final shape, and at a proper stage of said process carbonizing or partly carbonizing the blank by heating it in an air-tight box or muffle containing charcoal or other substance capable of absorbing oxygen and imparting carbon, substantially as set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 6th day of November, 1882.

LEONARD F. DUNN. [L. s.]

Witnesses:

F. H. GIBBS,  
WM. C. RAYMOND.