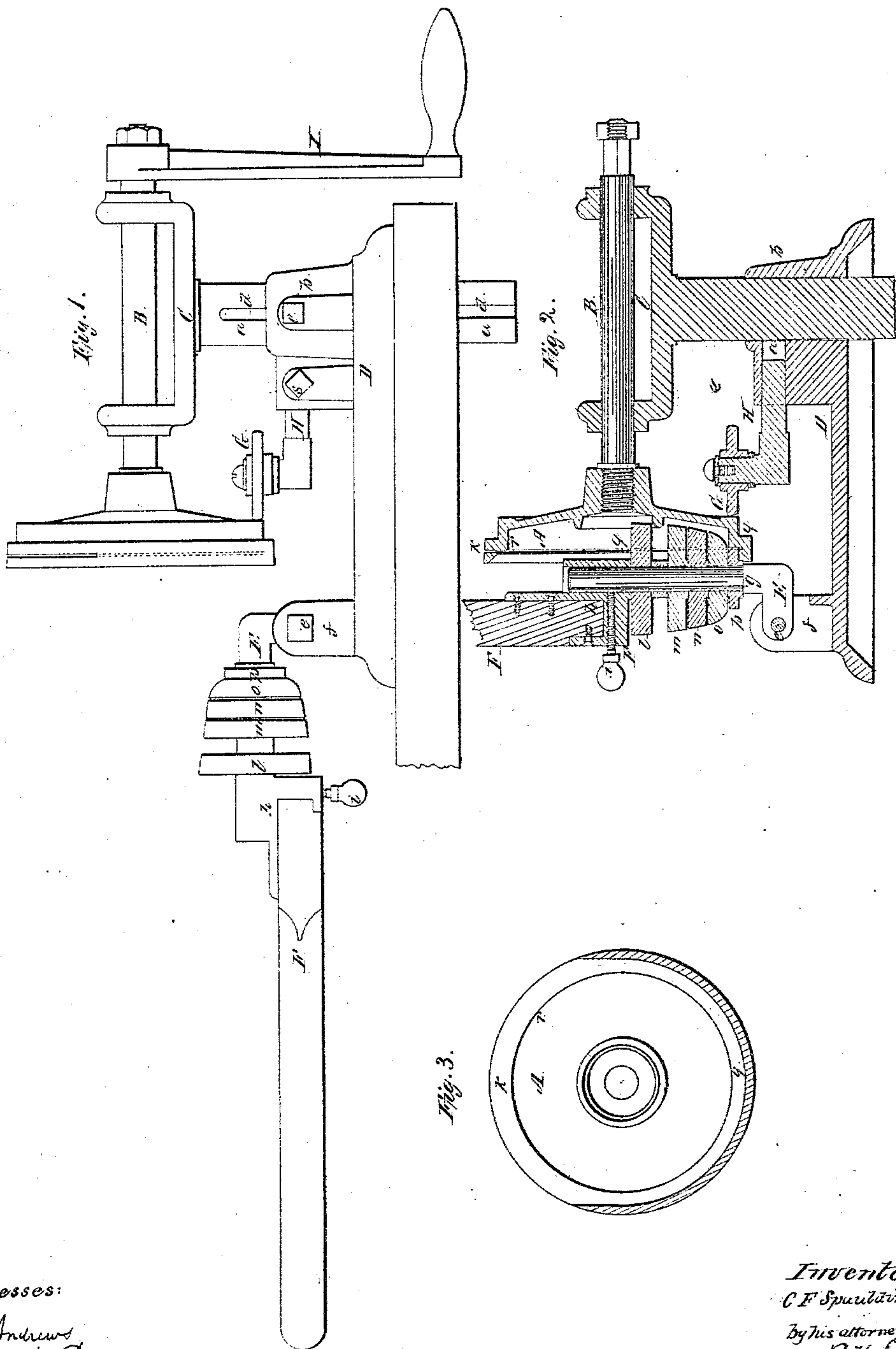


*C. F. Spaulding,
Spinning Metal.*

N^o 70,281.

Patented Oct. 29, 1867.



*Witnesses:
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By his attorney
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United States Patent Office.

CHARLES F. SPAULDING, OF ST. JOHNSBURY, VERMONT.

Letters Patent No. 70,281, dated October 29, 1867.

IMPROVED MACHINE FOR SPINNING METALS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, CHARLES F. SPAULDING, of St. Johnsbury, in the county of Caledonia, and State of Vermont, have invented an Improved Machine for Spinning Metal; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a side elevation, and

Figure 2 a longitudinal and vertical section of such machine.

My present invention has special reference to that patented by me, and described in Letters Patent No. 54,621, dated May 8, 1866. The purpose of my present machine is the same as that of the patented one, viz, the reduction of a plane disk or circular plate of tin or sheet metal to a concavo-convex form, or to impart to it a series of concentric corrugations, whereby it may be made to take the shape of the concave face of the rotary die-wheel of the machine or other shape to be given it by the spinning-wheels, the same being to convert the plane-plate either into a cover suitable for a pot or vessel, or to give to it the shape of a common dinner-plate or dish.

In the drawings, A denotes the rotary die-wheel of the machine, such wheel being mounted or screwed on one end of a rotary shaft, B, duly supported in, and so as to be capable not only of being revolved in, but of being slid lengthwise in a puppet-head or frame C. The said frame C is to be so supported by the main frame or base part D of the machine as to be capable of being adjusted with respect to its altitude. For this purpose a shank, *a*, projecting down from the frame C, extends into a tubular standard, *b*, of the base D, such standard being provided with a clamp-screw, *c*, which screws into it, and against the shank, or into a vertical groove, *d*, made therein, and for the purpose of preventing the puppet from revolving. The vertical adjustment of the frame C is to enable the shaft B to be properly elevated for holding a die-wheel of any size in its correct position with reference to the spinning-wheel or wheels, a series of which is represented at *l m n o p*, in figs. 1 and 2, as applied to or upon an arm of a bent or right-angular lever, E, whose fulcrum-pin *e* goes through its shorter arm and two standards *f f*, between which such shorter arm is arranged. These standards are extended up from the base-plate or frame. The longer arm of the lever E is to be cylindrical, and at or near the shorter arm is to be provided with a shoulder, *g*, for supporting the lower of the series of spinning-wheels. A handle, F, provided with a socket, *h*, to fit on the longer arm of the lever E, and also with a set-screw, *i*, to clamp the arm and socket together, is to be applied to and so as to extend from the lever E in manner as represented.

The above-described construction of the lever E, and application of the handle to it, enable the spinning-wheels to be removed from the lever, and one or more others of different forms and sizes to be substituted for them, as circumstances may require.

The die-wheel I form with a narrow opening, *k*, on its periphery, such, at its extremities, leading into a semicircular groove, *q*, made in the wheel, the same being as shown in figs. 1 and 2, and also in fig. 3, which is a cross-section of the die-wheel taken at right angles to its axis, and through the opening *k* and groove *q*. The purpose of the opening *k* is to enable a disk of metal to be introduced into the die-wheel, and into the semicircular groove, and against the annular shoulder *r* formed in the wheel, such shoulder being for supporting the disk at or near its circumference during the process of rendering the disk concave. The internal or lesser diameter of the groove should be equal to or a little greater than the diameter of the disk after having been spun, such being to enable the disk to readily separate from the wheel when such disk is drawn out of it in the direction of its axis. For supporting the die-wheel A near its circumference, and keeping it in its due relation to the spinning-wheels while it may be in the act of being revolved, I provide it with an adjustable sustaining-roller, G, arranged as represented in the drawings, and applied to a slider, H, which is held in a standard of the base-frame by a clamp-screw, *s*, the whole being as represented in figs. 1 and 2. A crank, I, is fixed on the outer end of the shaft B. By revolving the shaft by means of such crank, and by forcing the spinning-wheels by means of their levers up to a disk or plate of metal held in the die-wheel, such disk may be spun or converted into a concavo-convex plate.

In my patented machine the spinning-wheels were supported by a horizontal mandrel, provided with a hand-wheel and screw for moving it longitudinally, so as to force the spinning-wheels toward the die-wheel. In my present machine the spinning-wheels are applied to a lever having its fulcrum arranged about on a level with or

below the lower edge of the die-wheel. The lever, with its handle, not only enables the spinning-wheels to be worked or moved toward and away from the die-wheel more expeditiously than they can by the means employed for such purpose in my patented machine, but causes the spinning-wheels first to act on the plate at a point about midway between its centre and circumference. The spinning of the plate, while being performed, is thus caused to take place in two directions, that is, toward the centre and circumference of the plate. This renders the plate not so liable to "gather or pucker" as when the spinning of it progresses wholly in one direction, viz, from its centre to its circumference, or the reverse; besides, the bent levers enable the spring-rollers or wheels to be quickly moved to such a distance from the die-wheel as to carry them out of the way of the application of a clamp-ring to or its removal from the die-wheel. In my patented machine the series of spring-wheels were adjustable vertically to admit of their being arranged in their proper relation to the die-wheel, but in my present machine the die-wheel supporting-puppet is provided with means for adjusting it in vertical directions so as to bring the die-wheel into its proper elevation with respect to the bent lever and its spinning-wheels.

I herein make no claim to the mechanism, combination, or devices covered by or represented in the patent hereinbefore mentioned.

I claim as improvements the following, that is to say—

I claim the arrangement and combination of a lever, E, with the spinning-wheel or wheels and die-wheel, substantially as set forth.

I also claim the die-wheel, as constructed, with the peripheral opening *k* and the groove *q* arranged in it, substantially as and for the purpose hereinbefore set forth.

I also claim the combination and arrangement of the supporting-roller G and its adjustable devices, as described, with the die-wheel and its shaft movable lengthwise, as set forth.

I also claim, in combination with the spinning-wheel, supporting-lever, and the die-wheel shaft, arranged as described, the devices, by which the vertical adjustment and longitudinal movements of the said shaft may be effected, as set forth.

I also claim the arrangement and combination of the separate handle F, and its fixtures, substantially as described, with the lever E and the spinning and die-wheels, arranged as explained.

CHAS. F. SPAULDING.

Witnesses:

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SAMUEL N. PIPER.