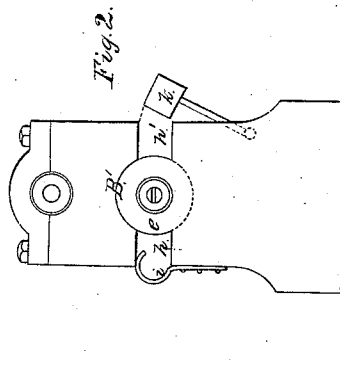
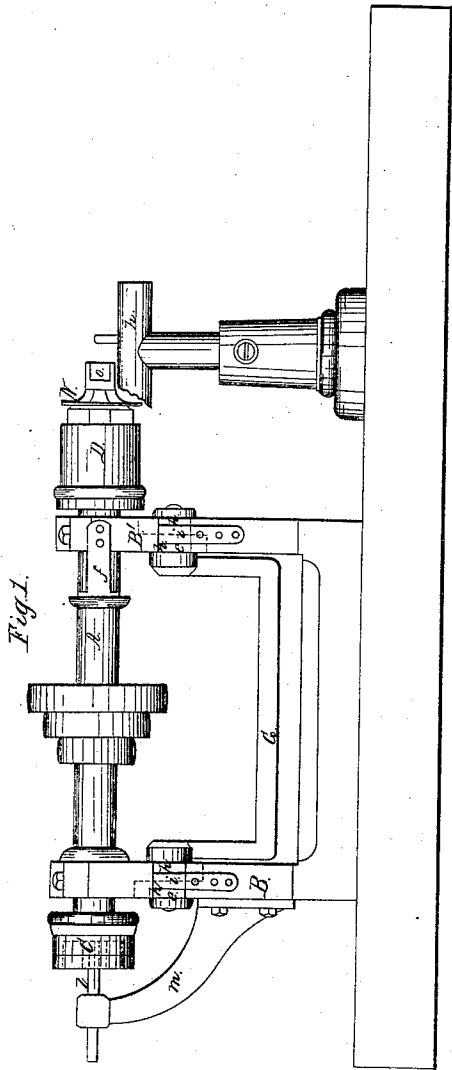


A. Conradt,

Making Sheet Metal Vessels.

N^o 27,351.

Patented Mar. 6, 1860.



Witnesses:
Wm. Morrison
George Pfeiffer

Inventor:
Augustus Conradt

UNITED STATES PATENT OFFICE.

AUGUSTUS CONRADT, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN FORMING HOLLOW ARTICLES OF SHEET METAL.

Specification forming part of Letters Patent No. 27,351, dated March 6, 1860.

To all whom it may concern:

Be it known that I, AUGUSTUS CONRADT, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Mode of Forming Angular or Prismatic and other shaped Hollow Articles of Sheet Metal; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the construction of an apparatus, to operate in the manner hereinafter described, for forming up the angular or prismatic and other shaped hollow ornamental or useful articles deviating in their circumferences from the circular form of sheet metal by the process of "spinning;" and to enable others skilled in the art to which it belongs to understand and make or practice my invention, I will proceed to describe its construction and operation.

The art of spinning up sheet metal over a pattern-chuck fixed on a mandrel rotating in stationary bearings is well known; but the various forms or ornamentations producible by such practice are necessarily confined to circles, and in order to produce angular or prismatic shapes the hammer and dies must be resorted to. To obviate this difficult and in some cases inefficient process I construct the bearings of the mandrel of a spinning-lathe so that they may vibrate laterally under spring-pressure from the action of a guide-pattern fixed on the rear end of the mandrel, so as to bear against a stationary edge or point of what I call the "governor," and so that the said mandrel may also, when required, have a longitudinal motion given to it under spring-pressure and the action of the guide-pattern thereon against the fixed governor.

In the drawings, Figure 1 represents a side elevation of the apparatus which I use for the purpose specified; Fig. 2, a front view of the front bearing thereof; Fig. 3, an end view of the guide-pattern and a transverse section of the governor, and Fig. 4 an end view of a (hexagonally-shaped) chuck over which the sheet metal is formed up.

The same objects, when in the different figures, are indicated by like letters, A being the mandrel; B and B', the bearing-supports; C, the guide-pattern, and D the pattern-chuck.

This apparatus is constructed similarly to the

common spinning-lathe, its difference therefrom consisting in its having its two bearing-supports, B B', jointed at *e*, so as to allow a lateral motion to the mandrel A, and in the application to the rear end of the said mandrel of the guide-pattern C, and, near its opposite end, of the spring *f*. The upper or vibrating parts of the bearing-supports B B' are united together rigidly by means of the bent coupling G, a space, *h h*, being left on each side edge of the joints *e e*, as shown in Figs. 1 and 2. A spring, *i*, is inserted in each of the spaces *h* of one side of the supports B B', and near the others, *h'*, a block, *k*, which can be inserted therein as occasion may require. The guide-pattern C is made hollow at its outer end, and its inner perimeter formed into any configuration desired. It is then secured upon the rear end of the mandrel A, as shown in Fig. 1. The governor *l* is fixed in an arm, *m*, which projects from the stationary part of the supporter B, so as to bear against that side of the inner perimeter of the guide-pattern C which will be next to the workman, and consequently it will produce pressure upon the springs *i i*. The pattern-chuck D is screwed onto the front end of the mandrel A, and rotary motion being given to the same the said chuck is shaped by means of any suitable cutting-tool in hand—as in turning—into the general form required, it being controlled for the purpose by the operation of the guide-pattern C on the said mandrel. It is then taken off and "dressed up" accordingly by hand, and afterward replaced. I now take the perforated disk of sheet metal N which is to be "formed up" and fix it on the end of the said chuck D by means of the headed screw *o*, and, giving rotary motion to the mandrel A in the usual manner, hold the usual forming hand-tool upon the rest *p* and against the rotating disk N, and so cause the same to conform to the configurations of the pattern-chuck beneath it, the governor *l* causing the said disk to approach and recede toward and from the hand-tool in precise accordance with the configurations; and should the pattern desired require a longitudinal motion in the mandrel the outer end of the guide-pattern C must be first shaped accordingly, as in the other case, when by securing the governor *l* in the arm *m* so that it shall constantly bear with its edged end against the said guide-pattern the required

longitudinal motion of the mandrel A will be produced during its rotary motion, the spring *f*, of course, acting and reacting in accordance therewith; and should circumferential circles be required on the same article of manufacture their construction is provided for by inserting the appropriate block, *k*, in each of the spaces *h*, and thereby suspending the lateral vibratory motion of the mandrel A. Almost any angular, prismoidal, or other form deviating from a circumferential circle may be formed on the sheet metal by this mode of spinning, and in a more cheap, expeditious, and perfect manner than can be produced by hammering or stamping.

Having thus fully described the construction and mode of operation of my improved apparatus for spinning-up sheet metal, I wish it to be understood that I do not confine the different described parts of the machine to the particular forms or modes of construction set

forth, as the same may in these respects be modified in various ways without altering the general result; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Causing the mandrel A while rotating to vibrate or move laterally under the combined influence of the governor *l*, pattern C, and springs *i i*, or their substantial equivalents, in the manner and for the purpose set forth and described.

2. Giving the said mandrel A while rotating a longitudinal motion, when required, by means of the governor *l*, pattern C, and spring *f*, or their equivalents, substantially as and for the purpose set forth and described.

AUGUSTUS CONRADT.

Witnesses:

BENJ. MORISON,
GEORGE PFEIFFER.