(No Model.) 2 Sheets—Sheet 1.

E. POLTE.

APPARATUS FOR SPINNING METAL.

No. 491,188. Patented Feb. 7, 1893.

Fig. 3.

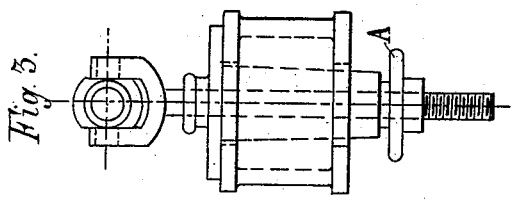


Fig. 2.

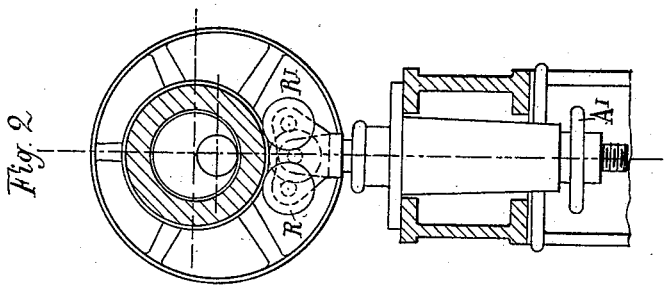
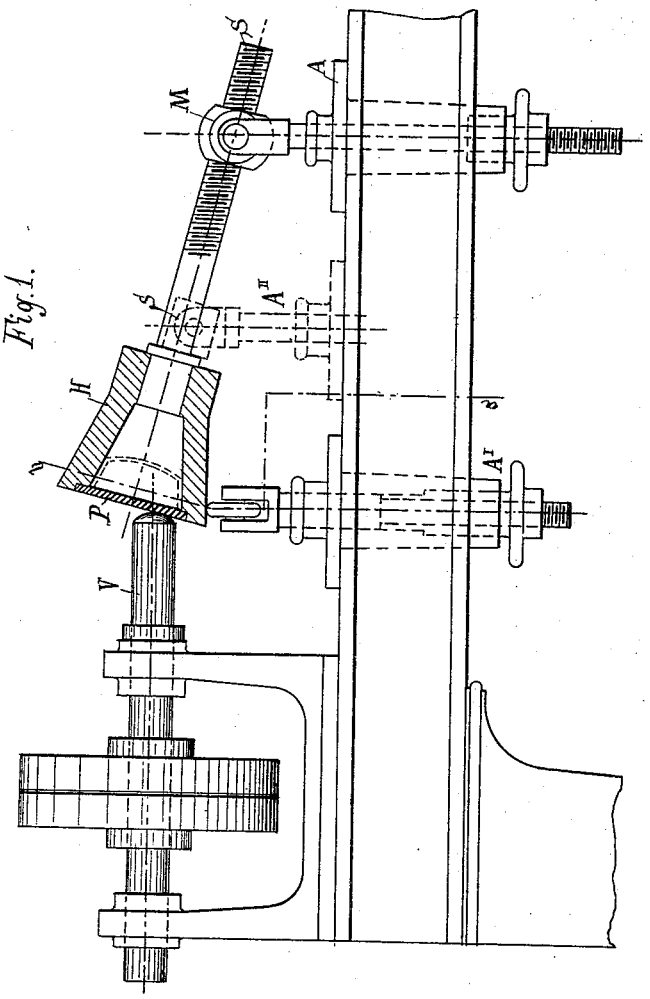


Fig. 1.



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by his attorneys
Mosler & Briesen

(No Model.) 2 Sheets—Sheet 2.

E. POLTE.

APPARATUS FOR SPINNING METAL.

No. 491,188. Patented Feb. 7, 1893.

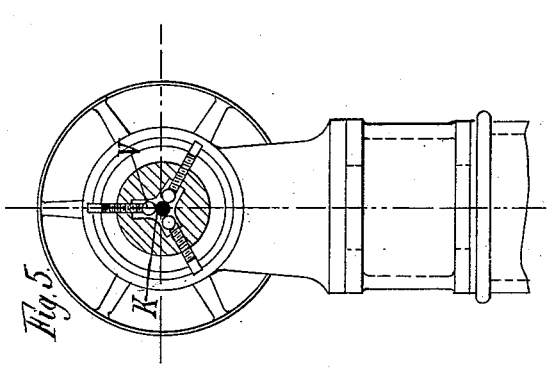

Fig. 5.

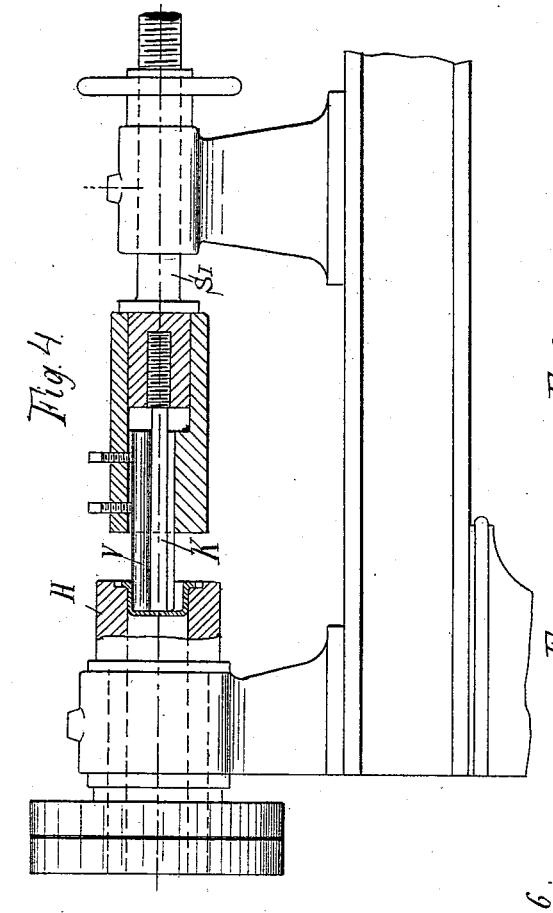

Fig. 4.

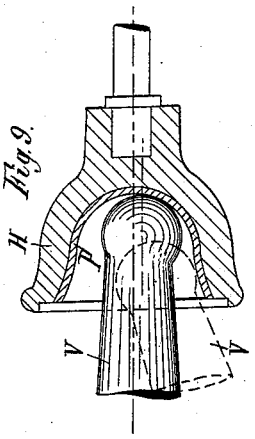

Fig. 9.

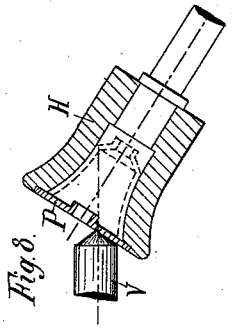

Fig. 8.

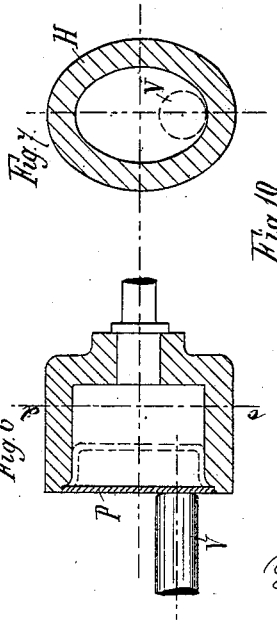

Fig. 7.

Fig. 6.

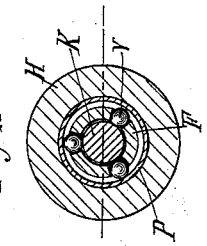

Fig. 11.

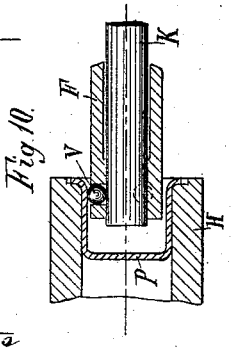

Fig. 10.

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Inventor
E. Polte
by his attorneys
Roeder & Briesen

UNITED STATES PATENT OFFICE.

EUGEN POLTE, OF SUDENBURG, MAGDEBURG, GERMANY.

APPARATUS FOR SPINNING METAL.

SPECIFICATION forming part of Letters Patent No. 491,188, dated February 7, 1893.

Application filed August 6, 1891. Serial No. 401,857. (No model.)

To all whom it may concern:

Be it known that I, EUGEN POLTE, a subject of the King of Prussia, residing at Sudenburg, Magdeburg, in the Kingdom of Prussia, German Empire, have invented an Improved Apparatus for Spinning Metal, of which the following is a specification.

This invention relates to an improved apparatus for rolling metals in which a matrix having a pivoted screw shank is entered into by a mandrel or solid spindle that shapes the work.

The object of the invention is to produce hollow bodies *i. e.* bodies with a bottom and walls of considerable depth, from plates or blocks by a new method of rolling the blanks between the outer surface of a mandrel and the inner surface of a matrix. The matrix by means of its pivoted shank may be set to any desired inclination in relation to the mandrel.

The invention consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings: Figure 1 is an elevation partly in section of my improved machine for rolling metal. Fig. 2 is a cross section thereof taken through the matrix. Fig. 3 a front view of the adjusting device A. Fig. 4 an elevation partly in section through a modification of the machine. Fig. 5 a cross section thereof taken through the matrix. Figs. 6–9 are longitudinal sections of different forms of the matrix. Fig. 10 is a longitudinal section and Fig. 11 a cross section of the matrix shown in Fig. 4.

The letter V, represents a mandrel the rounded end of which is adapted to engage the work. The mandrel is free to revolve in suitable fixed bearings and it receives its motion from a power pulley, which is mounted on the mandrel.

Opposite to the working end of the mandrel V, there is secured to the machine frame, a matrix H, the open end of which faces and is adapted to be entered by the mandrel. The edge of the matrix is grooved to constitute a seat for the reception of the work P. The matrix is provided with a screw spindle S, engaging a nut M, and by turning the spindle, the matrix H, may be made to approach or recede from the mandrel V. The nut M, is pivoted to a vertically adjustable frame A, and thus the spindle S, with matrix H, may be set to any desired angle. The matrix H, is supported upon the friction rollers R, R′, (or upon a single one of such rollers) which are secured to a vertically adjustable frame A′. In place of rollers R, R′, the matrix H, may be supported by a vertically movable post A^2. The inner surface of mandrel H, is such as is to be given to the outside surface of the work, Figs. 6–9, showing different configurations, though, of course any other shapes may be adopted.

In Figs. 4, 10 and 11 the matrix H, is not vertically adjustable and is revolved by a power pulley. Three more or less mandrels V, are employed arranged around a central core K. These mandrels are advanced against the work by a screw spindle S′, secured to core K, or by a suitable guide F.

The operation of the machine is as follows: The pivoted nut M, by means of its height-adjusting device A, is moved to the desired position. The sheet, block or plate P, to be acted upon, is fitted into the groove or recess provided at the edge or mouth of the matrix. The matrix is then screwed against the revolving mandrel. When the mandrel touches the plate fixed in the matrix it causes this plate to revolve in the same direction with it, together with the matrix and screw, by which means is obtained the longitudinal displacement of the matrix, while at the same time, the inner shape of the matrix is gradually assumed by the blank. The shaping of the work is performed by the mandrel acting with lateral pressure against the inner side of the matrix to press or roll the work against the same. At the same time the matrix advances forwardly so as to virtually spin and roll at the same time. The arrangement of an additional mandrel adapted to move in Fig. 1, for instance against the upper edge of the blank so as to prevent it from bending outward at this part, may be desirable to improve the form of rather deep articles, though it is immaterial, as regards the principle of the process, whether it is employed or not. After having once undergone this rolling or spinning operation and been heated or made incandescent or otherwise treated or annealed, the article may be again submitted to the action of the machine, so as, if required,

to increase its depth or in the case of cylindrical matrices to reduce its diameter or increase its length. The walls of the hollow blank may be made thicker or thinner and provided, if necessary, with shoulders or collars, screw threads, ribs, beads or the like by means of additional mandrels of suitable shape fitted within the matrix, and if required divisible into sections, the mandrel in this case presenting a corresponding shape. It will be understood that it is possible to impart any desired shape and section to the blank P, before rolling and to provide it with openings (see Fig. 8. &c.) So also may the thickness of a hollow partially completed body be changed by changing the relative positions of the mandrel and matrix and the line of pressure. The operation may be commenced by a forward rolling and may be continued or finished by a backward rolling of the work. Matrix H, may if preferred, be cylindrical and open at both ends so as to afford a passage for the mandrel V, for which an additional support should be provided.

This invention is especially intended for the manufacture of fittings for machines or electric plants, oil cups, cans, pots, coppers and the like.

What I claim is:

1. The combination of matrix H, the inner shape of which corresponds to the outer shape of the work to be produced, with oscillating spindle S, secured to the matrix, a nut M, engaging the spindle and with a mandrel adapted to be received by and rotating in the matrix, substantially as specified.

2. The combination of matrix H, with oscillating spindle S, pivoted nut M, and with the mandrel V, adapted to engage the matrix and with the adjustable friction rollers R, for supporting the matrix, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EUGEN POLTE.

Witnesses:

TH. BRELUWRATLY,

G. WESIMEYER.