

A. BALL.

FORMERS FOR METAL SHAPES.

No. 171,642.

Patented Jan. 4, 1876.

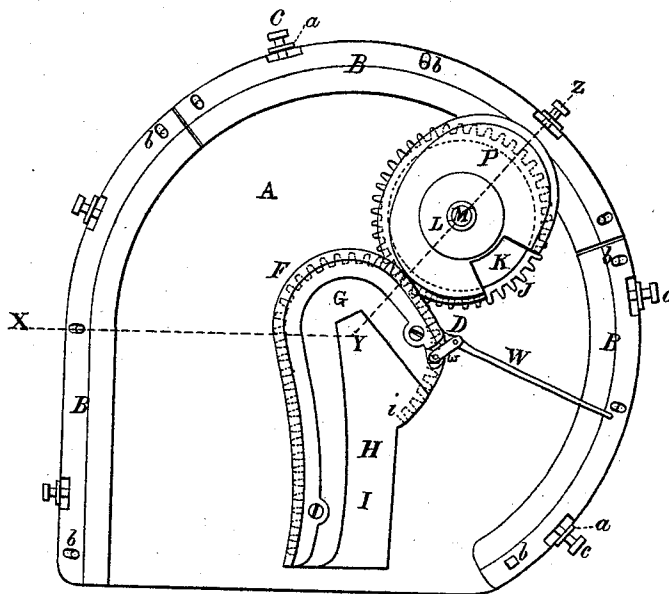


Fig. 1.

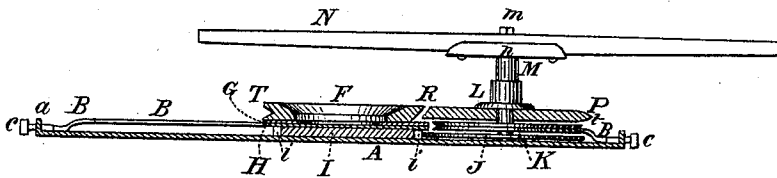


Fig. 2.

Ruth H. Abbott
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Albert Ball, Inventor
by Jobabson Attorney.

UNITED STATES PATENT OFFICE.

ALBERT BALL, OF CANTON, OHIO.

IMPROVEMENT IN FORMERS FOR METAL SHAPES.

Specification forming part of Letters Patent No. **171,642**, dated January 4, 1876; application filed July 31, 1875.

To all whom it may concern:

Be it known that I, ALBERT BALL, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Formers for Metal Shapes; and that the following is a full, clear, and exact specification thereof, which will enable others skilled in the art to make and use the said invention.

My invention relates particularly to an improved former for making the wrought-iron plow-beam, described in Letters Patent No. 110,722, granted to me on the 3d day of January, 1871; but I do not confine my invention to the manufacture of said beams, as said former may be used for making other irregular metal shapes. Said invention consists in the combination of a fixed former-bed, irregular shaping-disk, pressure-wheel, and adjustable guide-rail; said shaping-disk and pressure-wheel having a common axis, and the several parts being arranged so that the pressure-wheel shall roll on the guide-rail, and thus carry the shaping-disk around the former-bed and against the metal to be shaped, thus forcing said metal into the desired form, as is hereinafter more fully shown. Said invention also consists in the combination of a gear-rim and gear-wheel with the former-bed and shaping-disk, whereby the rotary motion of the shaping-disk is secured without danger of "drawing" the metal to be shaped, as is hereinafter more fully shown.

In the accompanying drawing, Figure 1 is a plan view of my improved former. Fig. 2 is a cross-section of the same, taken through the line *xyz* in Fig. 1.

A is the foundation-plate of the machine. B is the guide-rail, made in sections, and secured to the plate A by clamp-bolts running down through slots *b* in the back part of the rail. CC are set-screws inserted in ears *a* on the plate A, and bearing at their front ends against the rail B, thus serving as a means of moving the rail toward the former-bed F whenever required. I is the gear-plate, around the edge of which are formed gear-teeth *i*, in the manner of the ordinary gear-rack. H is a cover-plate extending out over and protecting the teeth on the plate I. G is the base of the former, and F is the former-bed proper, having its outer face of the configuration and section desired

for the inner face of the plow-beam or other article to be formed. M is the main shaft of the movable part of the former, and is made with a square upper end, *m*, on which is placed the working-lever N, which is conveniently made of wood for lightness, and strengthened by plate *n*. J is a gear-wheel rigidly secured on the shaft M, and meshing into the gear-rim I. K is the pressure-wheel, which revolves loosely on the shaft M, and is made with a grooved-rim, which runs on the rail B. P is the shaping-disk, made with a strong collar, L, by which it is solidly secured on the shaft M, and having its outer edge made of the section desired for the upper face of the beam or article to be formed. W is a clamp-lever, attached by links *w* to a lug at the inner end of the former F, and serving as a means of holding the rear end of the beam after the disk P has been started forward, as shown in drawing, so as to prevent the metal being formed from being slid forward by the action of the shaping-disk. The form of the shaping-disk P is such that on revolving the shaft M by means of the lever N, and thereby causing the pressure-wheel K to roll along the rail B, the edge of the disk P will be rolled around the former-bed F at a distance therefrom equal to the thickness of the metal to be shaped, from which it will be seen that by starting the disk P from the end D of the former-bed F, the metal placed between the former and disk will be first forced down into the groove in said former-bed, where it can be clamped by the lever W as soon as the disk P has moved out of the way, when, by continuing the movement of the shaping-disk, the metal will be forced down onto the former-bed along its whole length, in a manner readily understood. The gear-wheel J and gear-rim I serve to keep the disk P revolving in exactly the proper position with respect to the former-bed F, and prevent any tendency of the disk to turn without moving ahead, which would tend to draw the metal being formed back, while the wheel K, acting against the rail B, keeps the disk P constantly pressed up to its work with a moderate amount of friction due to such pressure.

It will be seen that by proper pressure on the lever N the disk P could be revolved around the former-bed F without the aid of the gear-

wheel J and rim I, which could be omitted; but the operation of the former is much more certain and less laborious when said wheel and rim are used, as shown.

What I claim herein as new and of my invention is—

1. The combination of the former-bed F, shaping-disk P, pressure-wheel K, and guide-rail B, the several parts being constructed, arranged, and operating substantially as and for the purpose specified.

2. The combination of the gear-rim I, former-bed F, shaping-disk P, and gear-wheel J, the several parts being constructed, arranged, and operating substantially as and for the purpose specified.

3. The guide-rail B, made in sections, and arranged to be adjusted with respect to the former-bed F by means of screws C, or equivalent devices, substantially as and for the purpose specified.

4. The clamp-lever W and links *w*, in combination with the former-bed F, substantially as and for the purpose herein specified.

As evidence of the foregoing, witness my hand this 26th day of August, 1874.

ALBERT BALL.

Witnesses:

JOB ABBOTT,
P. POWERS.