

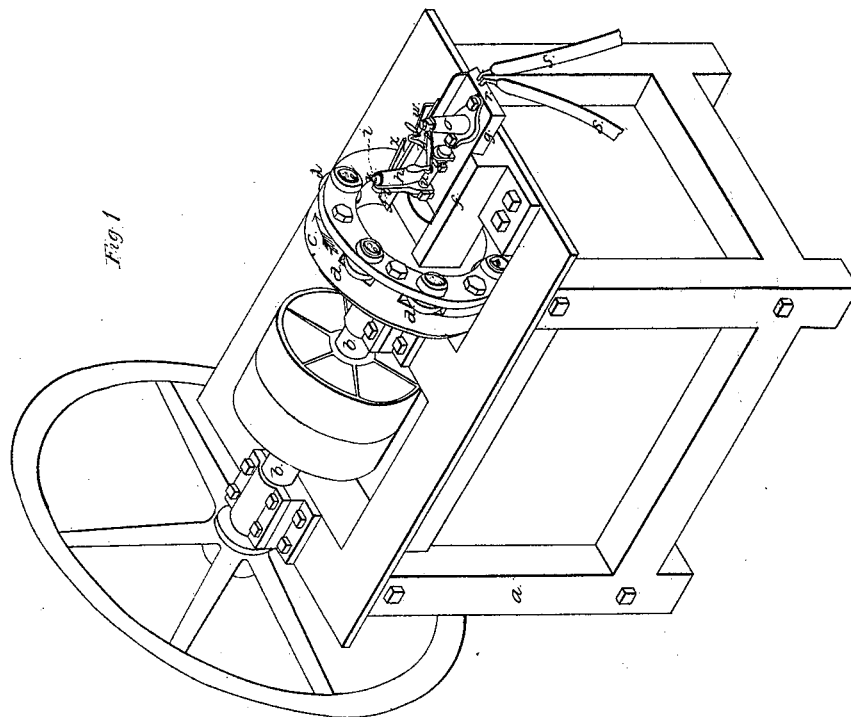
Sheet 1-A, Sheets.

W. Field,

Beveling Clinch Rings,

Patented Sep. 3, 1850.

N^o 7,615.



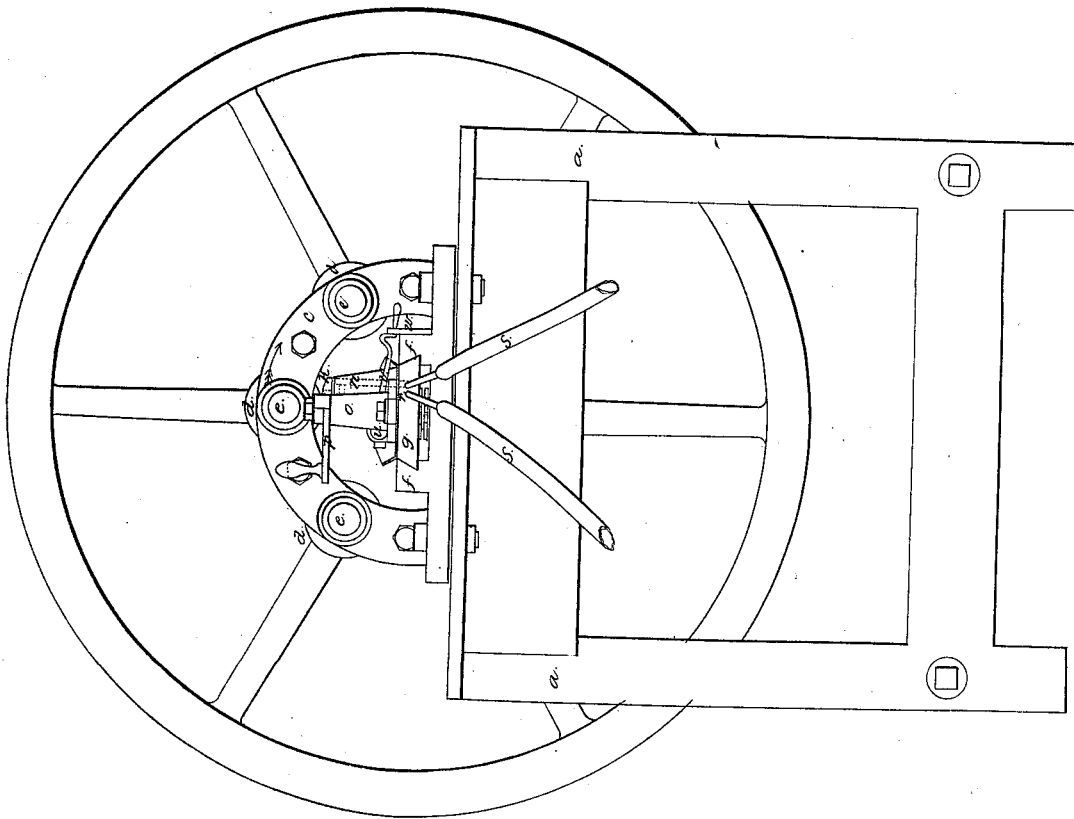
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Fig. 2.



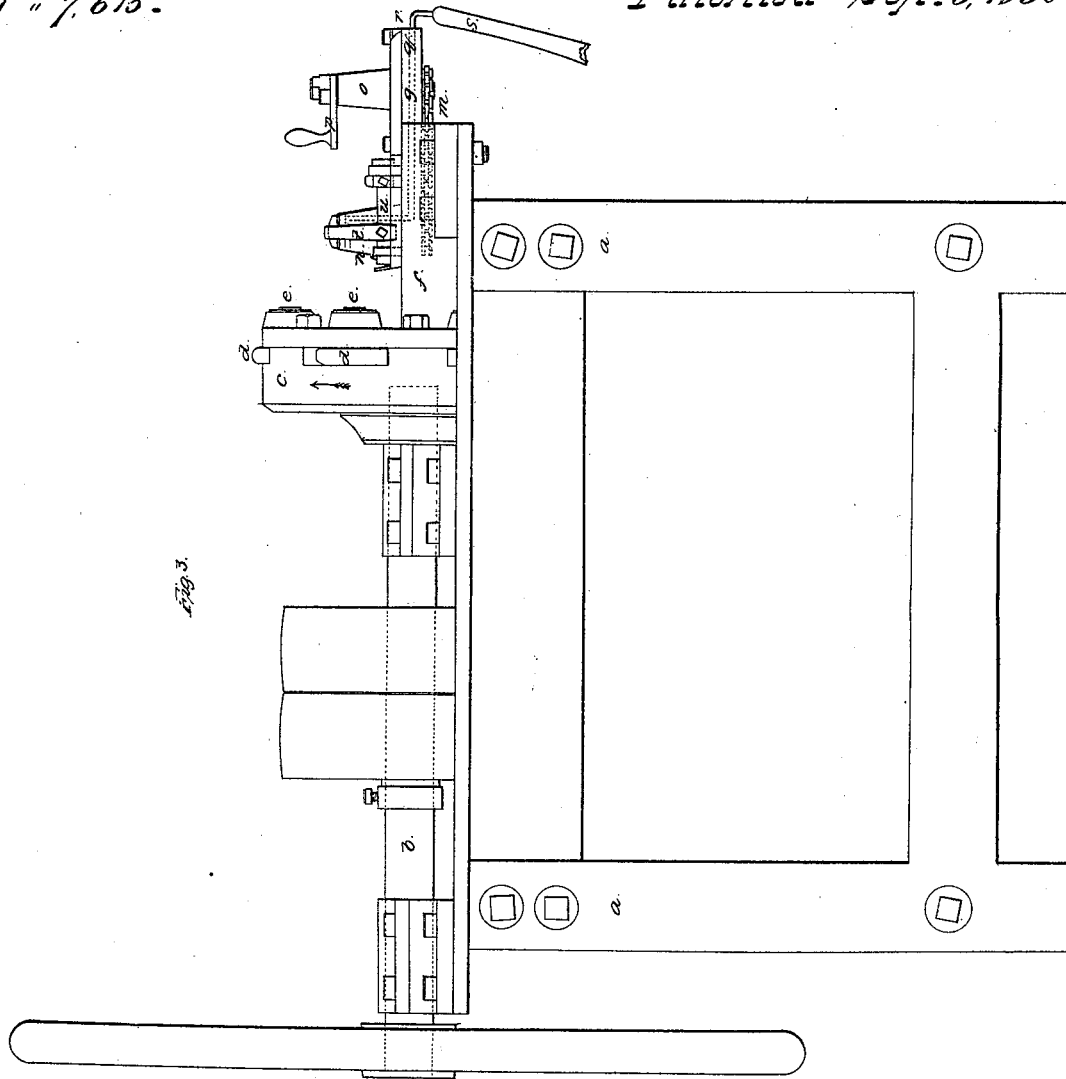
W. Field,

Sheet 3-4 Sheets.

Beveling Clinch Rings,

Patented Sep. 3, 1850.

N^o 7,615.



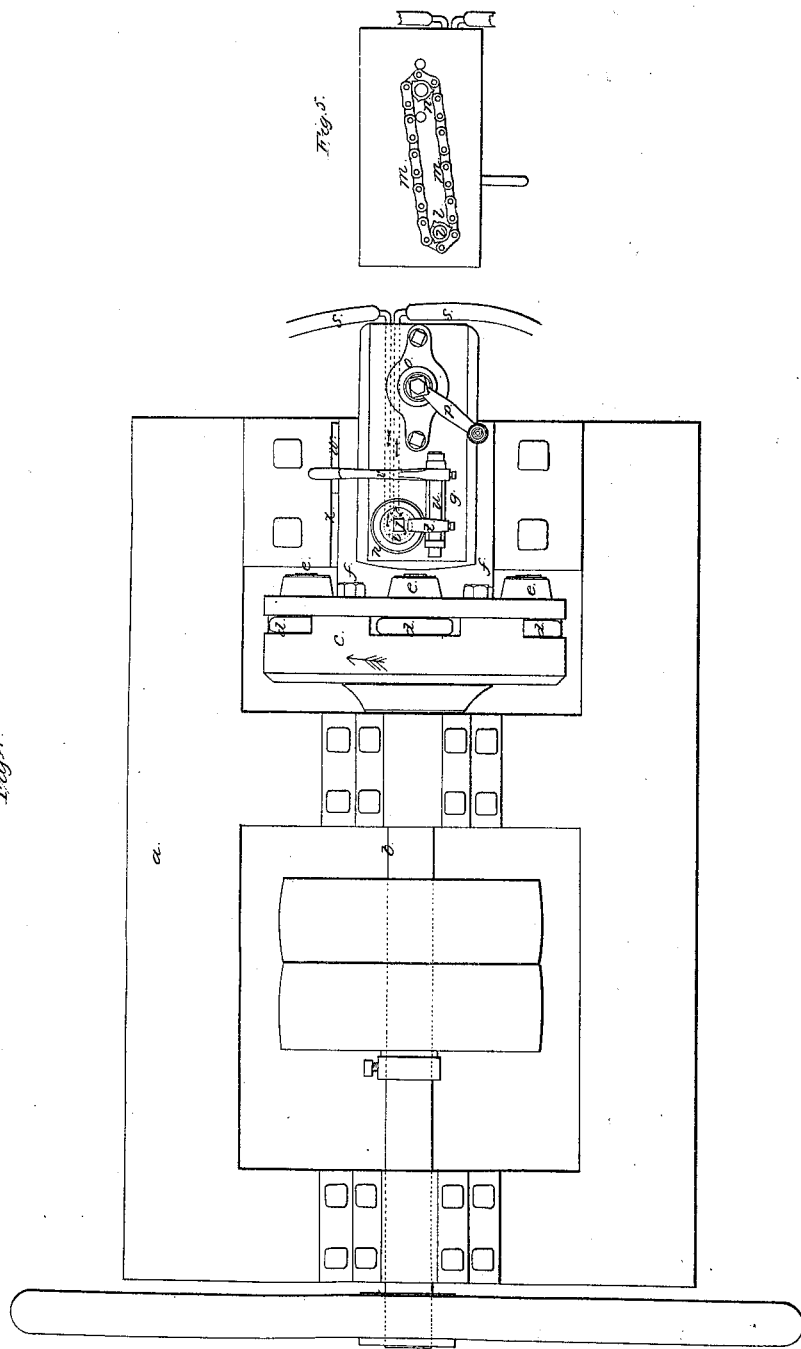
W. Field,

Sheet 4-4, Sheets.

Beveling Clinch Rings,

Patented Sep. 3, 1850.

No. 7,615.



UNITED STATES PATENT OFFICE.

WM. FIELD, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR BEVELING THE SURFACE OF WASHERS, &c.

Specification of Letters Patent No. 7,615, dated September 3, 1850.

To all whom it may concern:

Be it known that I, WILLIAM FIELD, of the city and county of Providence, in the State of Rhode Island, have invented a new and useful Machine for Beveling the Surface of Clench-Rings, but Applicable to other Purposes, and that the following is a full, clear, and exact description of the principle or character which distinguishes my invention from all other things before known, and of the method of making, constructing, and using the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a perspective view of the said machine; Fig. 2, an end elevation; Fig. 3, a side elevation, Fig. 4 a plan, and Fig. 5 a horizontal section of the carriage and spindle. Figs. 2, 3, 4, and 5, are on a larger scale than Fig. 1.

The same letters indicate like parts in all the figures.

The principal object of my invention is to give the beveled or curved form to the surface of iron wheels called clench rings; but the principle of the first part of my invention is applicable to other purposes.

The principle or character of the first part of my invention consists in drawing out and giving the level form to metal clench rings &c by the action of the surfaces of traveling rollers turning on bearings arranged about a common center of rotation that the surface of the said rollers may in succession be made to pass over the surface of a piece of metal and thus draw out or give it the form required as a substitute for the action of a hammer when this is combined with a spindle or mandrel to which are fitted the holes in the clench rings or washers to be operated on, the said spindle being provided with the necessary means for turning it, that the clench ring or other article, when put thereon, may be turned to present in succession every part of the circle to the action of the rollers.

The second part of my invention consists in combining with the spindle for presenting the ring to the action of the rollers a grip for gripping and holding the ring or washer onto the spindle while being acted upon.

In the accompanying drawings (a) represents a frame properly adapted to the purpose, and (b) a shaft properly mounted in

boxes on the frame, the said shaft being provided with a pulley or other means by which it can be rotated. On the forward end of the said shaft is mounted a hollow cylindrical hub (c) provided with a series of apertures in which are hung rollers (d, d), that turn on journal pins (e, e,) fitted to the said hub, and in lines parallel with the axis of the shaft, and each passing through one of the apertures, so that the periphery of the rollers project inward within the inner periphery of the hub. The periphery of the rollers is cylindrical but slightly rounded off at the edges.

Attached to the forward end of the frame and extending into the hollow of the hub are ways (f, f,) to which is fitted a sliding carriage (g) so that it can be pushed into, or drawn out of the space in the hollow hub. Near the inner end of this carriage there is a standard (h) pierced with a vertical hole to which is fitted a spindle (i) with a flanch or plate at top, resting on the standard, and with a square central pin (j) projecting above it to fit the hole in the ring or washer (k) to be operated on. The lower end of this spindle extends down below the bottom of the carriage, and there it is provided with a spur pinion (l) around which pinion passes a chain (m) which extends to, and also passes around a like pinion (n) on the lower end of an arbor fitted to a hole in a second standard (o) in the carriage, the said arbor being provided with a crank handle (p), by the turning of which, the spindle (i) carrying the ring or washer (k) can be turned.

A hole (q) (represented by dotted lines) commences at the front end of the carriage, passes along to, and up into the standard (h), around the spindle (i), down again to, and along through, and out at the front end (r) of the carriage. To the two ends of this hole are fitted two tubes or hose (s, s,) one of which leads either to a pump or a reservoir of water, so that a current of water can be made to pass through one of the hose (s) around the spindle, and be discharged through the other hose (s) into any appropriate receptacle.

The ring, washer, or other article to be operated upon, is placed onto the spindle and there held down by the jaw of an arm (t) on an arbor (u) which has its bearings in standards on the carriage. And the said

arbor is provided with another arm (*v*) the end of which rests on an inclined plane (*w*) attached to the frame.

When the carriage is drawn out, the jaw 5 of the arm (*t*) is elevated, the attendant puts onto the spindle a ring or washer just as it comes from the punching machine, that is with its two faces parallel, and pushes the carriage in toward the hollow hub, and, 10 in doing this, the arm (*v*) descends the inclined plane (*w*) which permits the gripping arm (*t*) to descend onto the ring or washer, and then the arm (*v*) passes under another inclined plane (*x*) by the action of 15 which the ring or washer is forcibly gripped onto the face of the flanch of the spindle.

The axis of the spindle does not coincide with the line of the radius of the hub which carries the rollers within which it is placed, 20 but is at the side of, and parallel thereto, so that when the carriage is moved in and the hub is turned in the direction of the arrow the peripheries of the rollers will in succession pass over the ring or washer on the 25 spindle on one side of the axis of the spindle, and will therefore draw out the iron of the ring or washer from the center toward the periphery thereof giving it a form the cross section of which in the line of the radius 30 will be the segment of a circle. So soon as the carriage has been pushed in so far that the axis of the spindle is in a plane passing through the middle of the thickness of the rollers, the attendant by turning the crank 35 handle gradually presents every part of the circle of the ring or washer to the action of the rollers. And when this has been done, the carriage is drawn back for a repetition of the operation. In the meantime the 40 spindle is kept down to the proper temperature by the current of water, the flexibility of the hose admitting of the free motions of the carriage. The rings or washers to be

thus formed may be worked either hot or cold; but when made of iron (which is the 45 metal generally used) they should be put on the spindle in a heated state.

It will be obvious to the mechanical engineer that although I have given a description and representation of a particular form 50 and arrangement of parts, that these may be greatly varied without departing from the whole or part of the principle of my invention. And it will also be readily seen that, although I have described my invention as 55 applied to the forming of the surfaces of what are called clench rings, it may be applied to other articles which are to be beveled.

What I claim as my invention and desire 60 to secure by Letters Patent is—

1. The method substantially as herein described of drawing out and giving a bevel form to metal clench rings, washers &c. by the action thereon of the surfaces of a series 65 of traveling rollers turning on bearings arranged about a common center of rotation and combined with a spindle or mandrel adapted to the reception of the clench rings or washers to be formed, and provided with 70 the means, substantially as herein described, for turning it to present in succession every part of the periphery to the action of the rollers, substantially as described.

2. I also claim, in combination with the 75 spindle or mandrel for presenting the clench rings or washers to the action of the traveling rollers, a grip, substantially as described, for gripping and holding the said rings or washers onto the spindle or mandrel, while passing under the action of the 80 traveling rollers as described.

WILLIAM FIELD.

Witnesses:

RUFUS WATERMAN,
CHARLES W. JENCKS.