2 Sheets—Sheet 1.

J. N. SMITH.

Machine for Dressing the Bearing-Caps of Railway-Carriage Journals.

No. 212,754. Patented Feb. 25, 1879.

Fig.2.

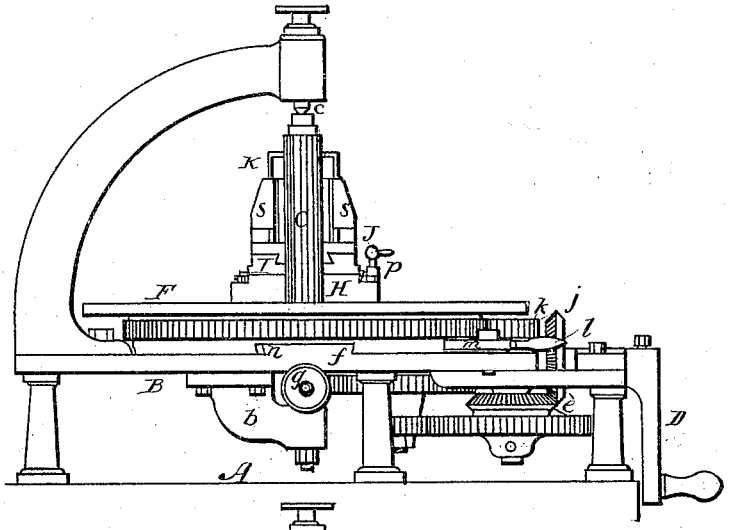
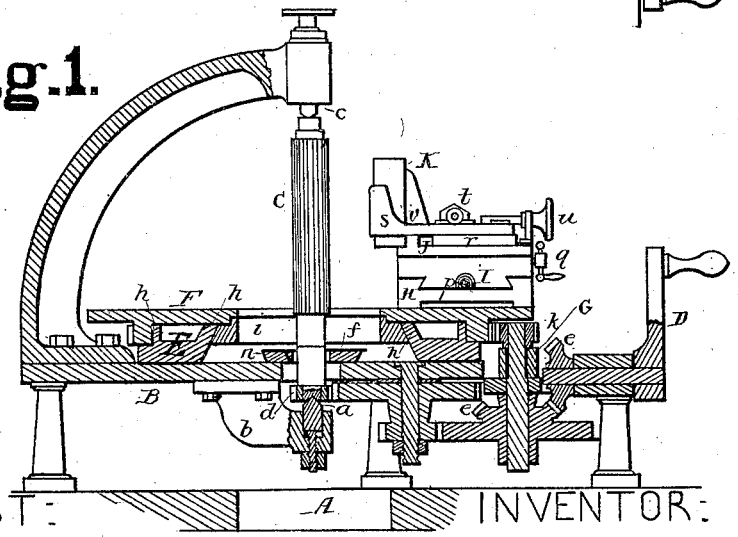


Fig.1.



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2 Sheets—Sheet 2.

J. N. SMITH.

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Fig.3.

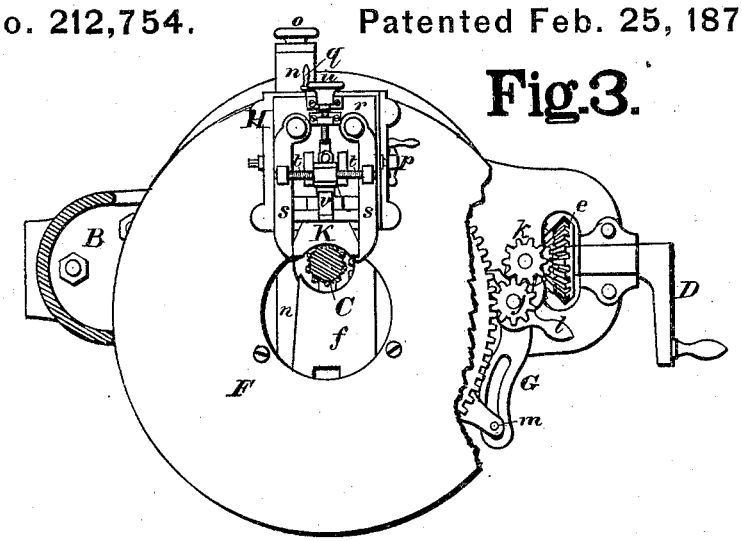


Fig.4.

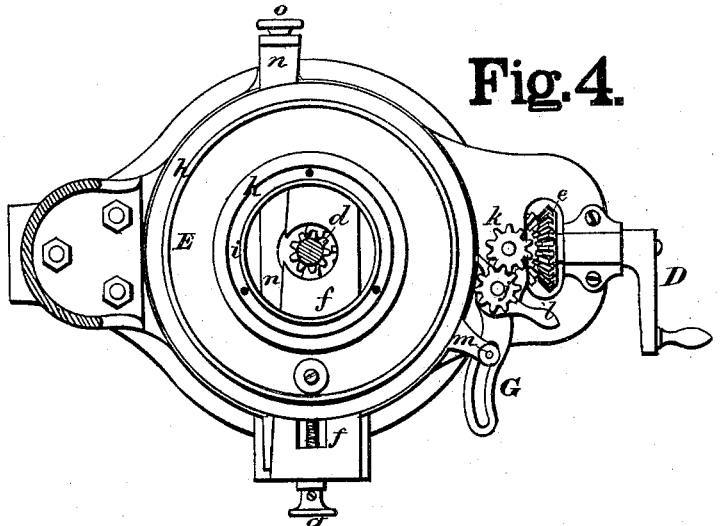
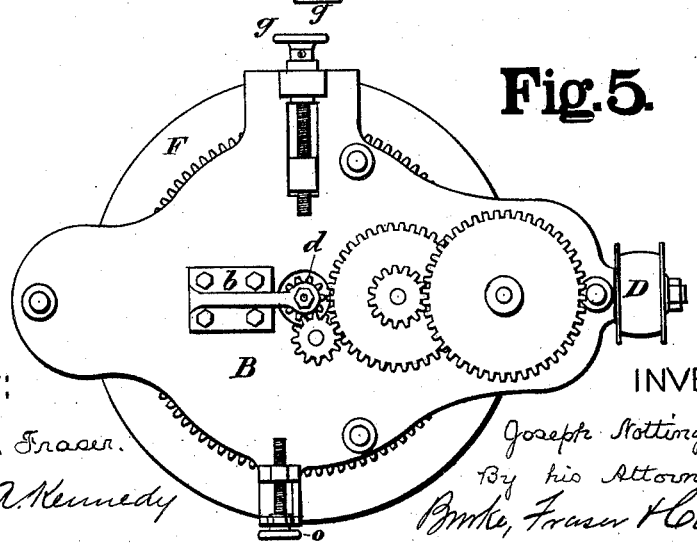


Fig.5.



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UNITED STATES PATENT OFFICE.

JOSEPH NOTTINGHAM SMITH, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN MACHINES FOR DRESSING THE BEARING-CAPS OF RAILWAY-CARRIAGE JOURNALS.

Specification forming part of Letters Patent No. **212,754**, dated February 25, 1879; application filed July 27, 1878.

To all whom it may concern:

Be it known that I, JOSEPH NOTTINGHAM SMITH, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Machines for Dressing the Bearing-Caps for Railway-Carriage Journals, and for similar purposes, of which the following is a specification, reference being had to the drawings hereto annexed and forming part of the same.

Figure 1 is a vertical mid-section of my machine. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the rotating table, a portion of which is broken away to show the gearing. Fig. 4 is a plan view of the machine with the rotating table and the upper parts removed. Fig. 5 is a plan view of the under side of the machine, the base being removed.

This machine is especially adapted for dressing out boxing or caps for journals to a given curvature, but it may also be used for dressing or milling plane surfaces and milling out hollows or recesses.

The novel features of this invention consist of various combinations and arrangements of the elemental parts, all as will be more fully hereinafter described, and specifically set forth in the claims.

In the precise construction shown in the drawings, A is a bed-piece, and B is a plate mounted over it upon posts. This construction gives free access to the gearing; otherwise a hollow base might be used as well. C is a cutter or tool, which may be of any form or contour required for the work in hand. This cutter is provided with an adjustable step or center, *a*, which fits into a bracket, *b*, bolted to the plate B. At the top it finds a bearing in another adjustable center, *c*, in an arm or arch bolted to some fixed part of the machine. On the lower part of the cutter is a pinion, *d*, which connects, through sundry intermeshing spur-wheels and pinions, with miter-gears *e e*. These gears are driven by a crank or pulley, D, as may be deemed most desirable. The intermediate gears are for the purpose of speeding up the cutter, and may be varied to suit the speed of the driver, as in other machines.

E is a bed adapted and arranged to receive a rotating table, F. This bed has a diametrical dovetail groove across its lower face, to engage a corresponding strip, *f*, on the plate B, and it is arranged to traverse on this strip by means of a traverse-screw, *g*, which rotates in a collared bearing attached to the fixed plate. The upper side of this bed has concentrically-arranged flanges or ribs *h h*, and its internal periphery is undercut or beveled, to receive a correspondingly-beveled ring, *i*, which is screwed to the table F, thus affording a means of attaching the table to the bed, and leaving it free to rotate thereon. These screws also serve to clamp fast the table to its bed when rotation is not desirable.

On the margin of the table F, or under the projecting edge of the same, are arranged cogs or teeth which mesh with an idler-pinion, *j*, and through it derive motion from a pinion, *k*, on the same shaft with one of the miter-gears *e*. Thus rotary motion is imparted to the table from the same motive power as that from which motion is imparted to the cutter.

G is a lever, which turns on the shaft of the pinion *k* as a fulcrum-pivot. On this lever is mounted a lever, *l*, in which the idler-pinion *j* finds an eccentric bearing. This eccentricity of the bearing is such that by manipulating the lever *l* the idler may be thrown in and out of gear with the teeth on the table, and at the same time remain in mesh with the pinion *k*.

When the table is caused to traverse by means of the traverse-screw before mentioned, the relative position of the idler-pinion and the teeth upon the table will change, owing to the rotundity of the table; and to preserve the proper contact, I provide a curved slot in the lever G, and a pin, *m*, on a rigid arm attached to the bed E to engage said slot, by which means the pinion is caused to adjust itself properly to the teeth on the bed.

To compensate for the necessary wear arising from the movement of the bed E on the strip *f*, a portion of the latter is in the form of a beveled key, *n*, arranged to be adjusted longitudinally by means of a screw, *o*.

It will be seen that the cutter is arranged within an opening in the center of the table F, and that the radial adjustment of the table is limited by the size of this opening.

By this arrangement I secure a bearing for both ends of the cutter, one above and one below the table, and by driving the bed from its

periphery, or beyond the limits of the central opening, the latter is left unobstructed.

To clamp the work fast while it is being dressed, and to present it properly to the cutter, I provide a suitable chuck or holder, which I will now describe with especial reference to the first three figures of the drawings.

H is a bed-piece attached to the table F, upon which is arranged to traverse, laterally, a carriage, I, the means for operating it being a traverse-screw, *p*, similar to that used in lathes. Upon this carriage I is mounted another carriage, J, which is arranged to traverse at right angles to the part upon which it is mounted, it being propelled by a screw, *q*. Upon this carriage J is mounted a plate, *r*, bearing pivoted jaws *s s*, adapted to be brought together by means of a right-and-left screw, *t t*, having a central boss arranged to play between two lugs on the plate *r*. This latter plate bearing the jaws is arranged to traverse the bed upon which it rests, being driven by the screw *u*.

K represents a cap for a journal, clamped fast in the jaws, and drawn back by the screw *u* until it rests firmly against the bearing-post *v* on the carriage J.

To enable the operator the more readily to adjust the table F to the proper eccentricity, a graduated scale may be marked upon the strip *f*, whereby the said eccentricity can be noted by the travel of the periphery of the bed E over the same.

The operation is simple. The proper shaped cutter being fixed in its bearings, and the proper degree of eccentricity being given to the table-bed by means of the traverse-screw, the machine is put in motion. As the clamp passes around to the farther side of the eccentric circle of travel, a cap to be dressed is slipped in and clamped fast. As it travels around it nears and finally comes in contact with the cutter, which dresses it out, as indicated in Fig. 3. As the caps are dressed they may be removed and replaced by others without stopping the machine.

By throwing the table out of rotative gear and setting tight the screws that serve to clamp it fast to its bed, the machine may be adapted to dressing a plane surface. This may be done by fixing the piece properly to the table and carrying it past the cutter by means of the traverse movement of the table.

The lateral adjustment of the clamp enables me to cut an elongated or oblong recess adapted to cover two journals rotating in contiguous bearings.

I wish it understood that I do not confine myself to the exact arrangement and construction of parts herein shown and described, as they may be varied considerably without materially affecting the more essential features of my invention—as, for instance, the miter-gears are not essential, nor need the cutter be driven by the same gearing that rotates the table. The table may be unprovided with teeth on its periphery, and be driven by a belt, or by a friction-wheel, if desired. I have shown, however, what I believe to be the best arrangement, substantially, for carrying out my invention.

Having thus described my invention, I claim—

1. The combination of an annular or open non-rotative bed, an annular or open table mounted thereon and arranged to be rotated so as to leave its central opening unobstructed, and a cutter arranged to rotate on an axis substantially parallel to the axis of rotation of the table, and having bearings at each end above and below the table, substantially as and for the purposes set forth.

2. A rotary table, F, a non-rotative bed, E, upon which the table is mounted, arranged to be adjusted at right angles to the axis of rotation of the table, a cutter, C, mounted in fixed bearings, so that its axis will be at all times parallel with the axis of rotation of the table, suitable mechanism whereby the cutter and table are rotated from a common driving pulley or gear, D, and suitable mechanism whereby the rotating gear on the table-bed may be kept engaged with the driving-gear, whatever may be the adjustment of the table, all combined and arranged substantially as set forth.

3. The combination of the table F, provided with teeth, or their equivalents, on its margin, the bed E, arranged to traverse the bed-plate of the machine, the slotted lever G, the idler-pinion *j*, and the pin *m*, arranged to play in the slotted lever, substantially as set forth.

4. The table having teeth, or their equivalents, on its margin, the bed E, the driving-pinion *k*, the idler-pinion *j*, the eccentric-lever *l*, the lever G, and a suitable rigid projection from the bed E, so arranged as to engage and actuate said lever G, substantially as and for the purposes set forth.

5. The table F, the bed E, provided with flanges or ribs *h*, and undercut at its inner margin, and the beveled ring *i*, adapted to be screwed or bolted to the table, all combined substantially as and for the purposes set forth.

6. The combination of the plate B, or its equivalent, the strip *f*, mounted thereon, the key *n*, adapted to be adjusted by a screw, *o*, the bed E, the ring *i*, and the table F, arranged to rotate on the bed E, substantially as set forth.

7. The device or mechanism for holding the cap or piece, which consists of a fixed post, *v*, a sliding plate, *r*, two jaws, *s s*, pivoted to the plate *r*, and provided with hooked extremities to engage the corners of the cap, screws for bringing the jaws together, and a screw, *u*, for drawing the cap or piece back to the post *v*, all combined and arranged substantially as set forth.

8. The carriage I, mounted upon a bed-piece and arranged to be adjusted or moved thereon in a direction at right angles to the radius of the table F, in combination with said table, the cutter C, the bed-piece H, before mentioned,

and the clamping mechanism borne by said carriage I, substantially as set forth.

9. The combination of the clamping mechanism shown and described, the carriage J, arranged to be adjusted radially with respect to the table, the carriage I, arranged to be adjusted at right angles to the radius of the table, and a cutter, C, arranged to rotate on its longitudinal axis in contact with the piece to be dressed as it is held by the clamp, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOSEPH NOTTINGHAM SMITH.

Witnesses:

ARTHUR C. FRASER,

HENRY CONNETT.