Smith & Whitmore,

Wrist Pin Turner.

No. 105,007. Patented July 5. 1870.

Fig. 1.

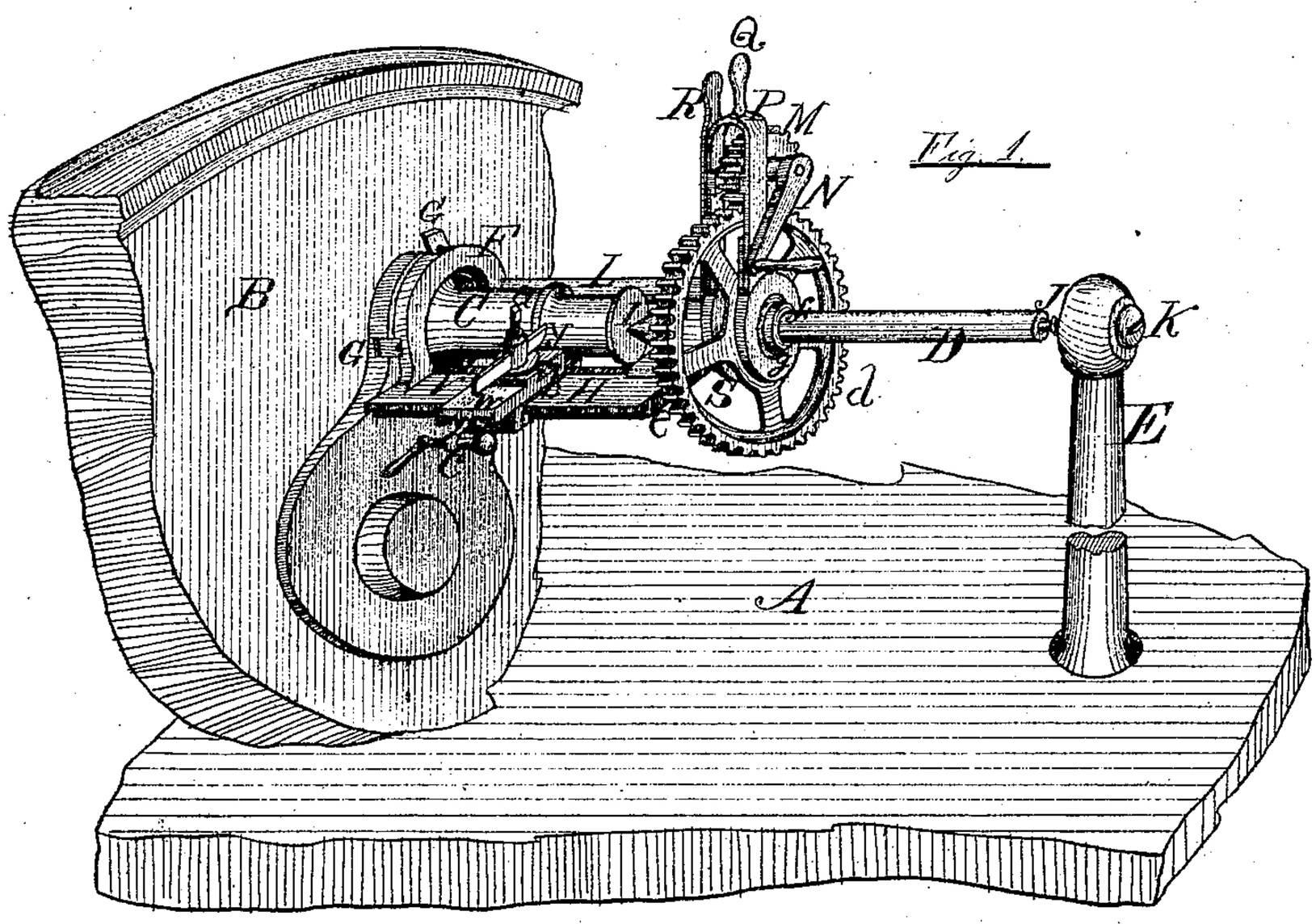


Fig. 2.

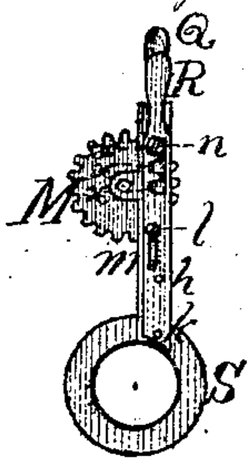


Fig. 4.

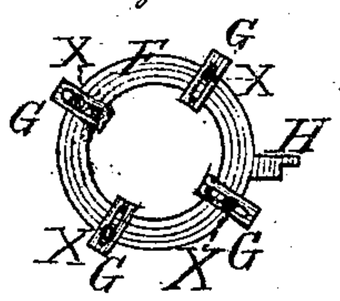
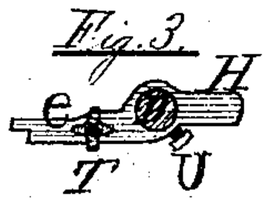


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

HORACE S. SMITH AND WILLIAM D. WHITMORE, OF BLOOMINGTON, ILLINOIS.

IMPROVED MACHINE FOR TURNING CRANK-PINS.

Specification forming part of Letters Patent No. **105,007**, dated July 5, 1870.

To all whom it may concern:

Be it known that we, HORACE S. SMITH and WILLIAM D. WHITMORE, of Bloomington, in the county of McLean and State of Illinois, have invented an Improved Machine for Turning Crank-Pins; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, and letters marked thereon, making a part of this specification, in which—

Figure 1 is a perspective representation of our improved machine as it is in position for turning off a crank-pin; Fig. 2, an elevation of the gear-frame removed from the hub of the main drive-wheel, showing also the reversible feed-slide; Fig. 3, an end view of the rotating frame, showing also the star-wheel which drives the feed-rod; Fig. 4, a face view of the annular rest which holds the rotating frame to the crank-pin.

The object of the present invention is to provide a more convenient machine than those now in use for turning off crank-pins of locomotive drive-wheels; and its nature consists, first, in combining with the frame which rotates around the crank-pin a centering-shaft and adjustable annular rest, said shaft at one end rotating in the original center of the pin, and the other end, rotating on a pivot projecting out from a suitable standard, so holds the rotating frame that the cutting-tool sliding thereon will turn the periphery of the pin so that any radial point thereof will be equidistant from the original axis, in combination with the novel construction of the feed-slide, it being so arranged with reference to the gear-frame that it may be set to turn the feed-screw in either direction, in combination with the rotating frame and centering-shaft, as the whole is hereinafter fully described and shown.

A represents a suitable foundation, which supports a standard, E, and a drive-wheel of a locomotive, a broken elevation of said wheel being shown at B, Fig. 1.

H L represents a rotating frame, which is made of iron or other suitable material, and which is provided at its end, near the wheel B, with an annular rest, F, to adjust the frame to the shoulder of the crank-pin C, and provided at its opposite end with a collar, F, to support the hub *g*, Fig. 1, of a gear-wheel, *d*.

The annular rest F has recessed into its outer face three or more slotted guide-bearings, G, which may be so moved in their radial grooves as to center the rest on the pin C. Set-screws X, Fig. 4, being put through the slots and into the rest hold the guide-bearing in fixed positions when once set.

That part of the frame H L shown at H is made wide enough to support a tool-carriage, W, which is arranged to slide on said part H by means of a feed-screw, V, Fig. 1, and consequently carry the tool Y with it, said tool being moved to or from the pin C by means of a set-screw, *c*, arranged in the ordinary manner.

A screw-rod, V, Fig. 1, is put through the annular rest F, and through the end part *e* of the frame H L, and on that part of the rod projecting through the end *e* is fastened an ordinary star-wheel, T, so arranged that at each revolution of the frame H L it will come in contact with one of the pins *h k* projecting out from the feed-slide R, and be turned a partial revolution, and consequently turn the rod V the same distance.

Nothing, however, is claimed as to novelty of the screw-rod alone or its movement, the rod being now in common use for similar purposes.

The feed-slide, however, in its construction and arrangement with reference to the other parts, and especially to the star-wheel and to the gear-frame P, is not only claimed to be new, but very convenient for the purpose designed.

As shown at R, Fig. 2, it is slotted out to have a reciprocating movement on the screws *n l*, the slot through which the screw *n* is put being provided with three notches, *x*, in order that the pins *h k* may be properly adjusted in relation to the star-wheel T. For instance, the slide R is now so set that the screw *n* fits into the outer notch *x*. This will bring the pin *h* so as to turn the star-wheel T. If, however, the slide is so moved as to bring the screw *n* into the middle notch, *x*, the star-wheel will rotate between the pins *h k*, but if the slide is moved still farther out, so that the screw *n* rests in the inner notch, *h*, the star-

wheel T will be operated upon by the pin *k*, and turned in an opposite direction to that which the pin *h* turns it.

The collar F of the frame H L is keyed fast to the shaft D, and the hub *g* of the wheel *d* is keyed fast to said collar; consequently, when said wheel is rotated, the frame H L and the shaft D rotate with it.

The gear-frame P is so slotted out, as shown at Fig. 1, as to allow one or more gear-wheels, M to rotate therein and drive the wheel *d*, the wheel M being provided with a crank, N, for the convenience of turning it, and the outer end of the frame P with a handle, Q, for the operator to hold it in position with one hand while the crank is turned with the other hand.

The inner ends of the slotted frame P are provided with collars, which pass around the hub *g* of the wheel *d*, and thus hold the gearing in mesh, so that it will properly rotate the frame H L.

The shaft D centers in the end of the pin C at I, and the other end rotates on the point J of a screw, K, put through a suitable upright or standard, E.

If great accuracy is required in turning the pin C, the shaft D can be set parallel with the shaft put through the hub of the drive-wheel B.

In manufacturing the machine we prefer to use the same material of which iron turning-lathes are made—namely, iron and steel—although other metal may be substituted, except for the cutting-tool, which should be steel.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

The reversible feed-slide R, constructed as described, in combination with gear-frame P, rotating frame H L, rod V, star-wheel T, carriage W, shaft D, wheel *d*, standard E, rest F, gear-wheel M, as arranged with the other parts for turning crank-pins, as set forth.

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Witnesses:
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