J. T. KICHNER & W. H. ODENATT.

Metal Planing-Machines.

No. 143,080. Patented September 23, 1873.

Fig. 1

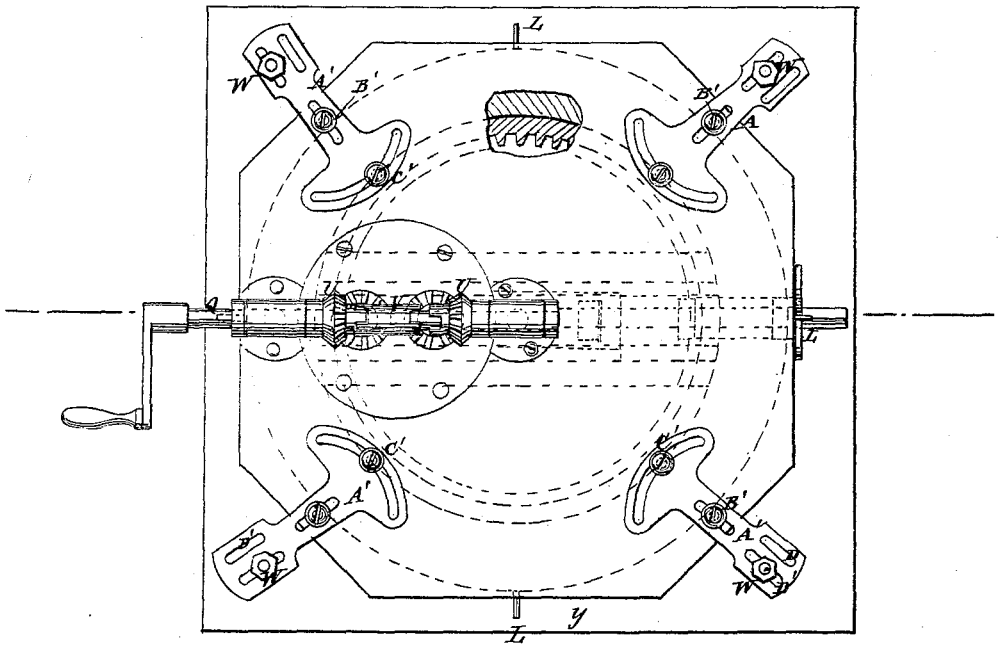
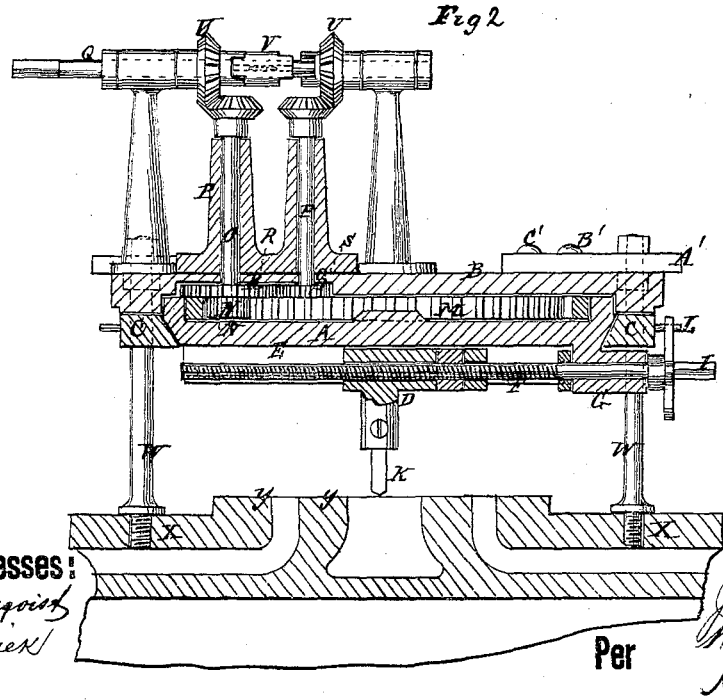


Fig 2



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UNITED STATES PATENT OFFICE.

JOHN T. KICHNER AND WILLIAM H. ODENATT, OF PHILADELPHIA, PA.

IMPROVEMENT IN METAL-PLANING MACHINES.

Specification forming part of Letters Patent No. **143,080**, dated September 23, 1873; application filed August 16, 1873.

To all whom it may concern:

Be it known that we, JOHN T. KICHNER and WILLIAM H. ODENATT, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Circular Planing-Machine, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claims.

The machine is specially designed for planing the valve-seats of locomotive and other engines, it being secured to the engine by screwing its stand-bolts into the holes of the steam-chest bolts when the steam-chest is removed, and to adapt it for attaching it to different engines, in which the holes vary in the distance apart. The top frame or disk on which the revolving disk is arranged is provided with short radial arms for attaching the stand-bolts to, which are adjustable radially and circumferentially.

The feed-screw is turned by a star-wheel, which is brought in contact with one or more stationary pins each time it makes a circuit.

Figure 1 is a plan view of my improved planing-machine, and Fig. 2 is a transverse section.

Similar letters of reference indicate corresponding parts.

A represents the revolving tool-carrying disk. It is arranged upon one side of a stationary disk or frame, B, and secured by a beveled ring, C, or in any equivalent way, so that it is free to revolve. It has a tool-stock, D, fitted in a radial dovetail-shaped groove, E, in its under side, and a feed-screw, F, in the tool-stock, and in a bearing, G, at one end of the groove. Outside of the bearing the screw has a star-wheel, H, and an extension, I. The star-wheel is for turning the screw to feed the tool K by stop-pins L, against which the points of the wheel strike as it travels around in its course. The disk A has a toothed rim, M, on its upper side, with which a pinion, N, on a vertical shaft, O, gears to turn it. This shaft extends up through the disk B and a long bearing, P, on it, and gears directly with a driving-shaft, Q, when a quick speed is required; but for a slower speed the shaft O gears by a large wheel, R, with a pinion, S, on another shaft, P′, which also extends up to the shaft Q and gears with it. The pinions U on this shaft Q, for turning the vertical shafts O and P′, are loose, and the connection is shifted from one to the other at will by a shifting-clutch, V.

Other contrivances of differential driving-gear may be employed as well for changing the speed of the disk, which requires to be changed from time to time, as the tool approaches or recedes from the center of the disk.

W represents the stand-bolts for supporting the machine. They screw into the steam-chest bolt-holes X of the cylinder, as shown in the drawings, to support the machine above the valve-seat *y* for planing it off. They also screw into the holes of a bed-plate of any kind adapted to hold the work, or into any device of any kind for attaching the machine to any special kinds of work, as the ends of columns for buildings, and the like, to square them off. A′ represents the radial adjusting-arms, attached to the top of the frame B for connecting the stand-bolts at the top. They are bolted to the top of the frame at B′ and C′ by bolts passing through slots, which allow them to be swung horizontally and shifted radially, and slots D are provided the stand-bolts at the outer ends of said arms. When the said arms are to be shifted radially the screws C′ are taken out. A series of holes will be provided in a radial line for said screws C′.

With this machine the work will be done continuously on the principle of a turning-lathe instead of intermittingly as the ordinary planing-machines, whereby the work will be much more uniform, and the time lost by the ordinary machines in going back will be saved.

It also possesses a peculiar advantage for planing off valve-seats, in that the slight grooves made by the cutting-tool do not lead out to the edge of the seat, and thus form channels out of which the steam can escape; but said grooves are circular, and range directly across the line of escape for the steam, and do not extend from the posts to the outer edges, so that they serve rather to obstruct the escape by filling with dead steam, so that there is no need of filing up the seat after

planing it, as is necessary when the seat is planed with the ordinary tool, to remove the wedges between the grooves.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The supports B for said rotating tool-carrying disk, mounted on stand-bolt W, adapted for attaching to a steam-cylinder by screwing in the holes for the steam-chest bolts, substantially as specified.

2. The combination of the adjustable arms A′ with the said support B and the stand-bolts, substantially as specified.

3. The arrangement of the driving-shaft Q, loose pinions U, clutch V, driving-shafts O P′, and wheels M, N, R, and S with the revolving tool-carrying disk A, substantially as specified.

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Witnesses:
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