(No Model.) 2 Sheets—Sheet 1.

J. A. MEBANE.

LATHE FOR DRESSING COMMUTATORS.

No. 505,838. Patented Oct. 3, 1893.

Fig. 1.

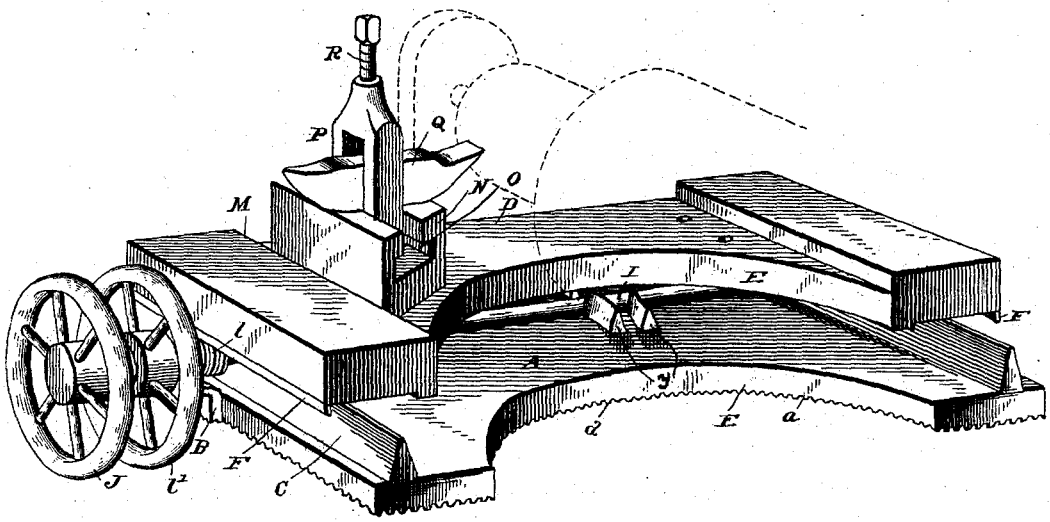


Fig. 2.

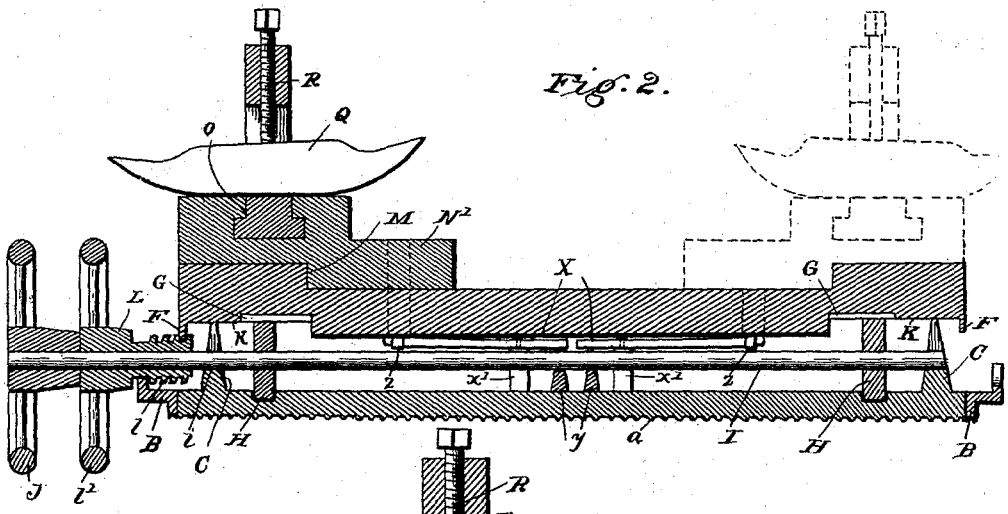
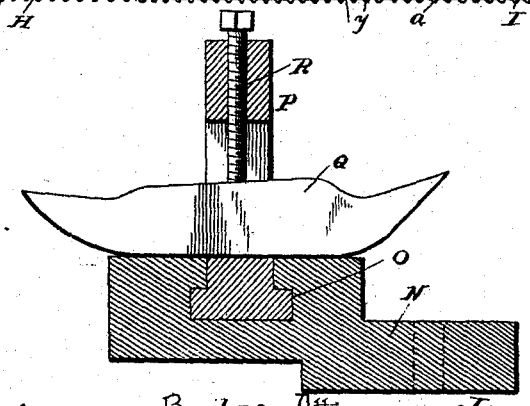


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

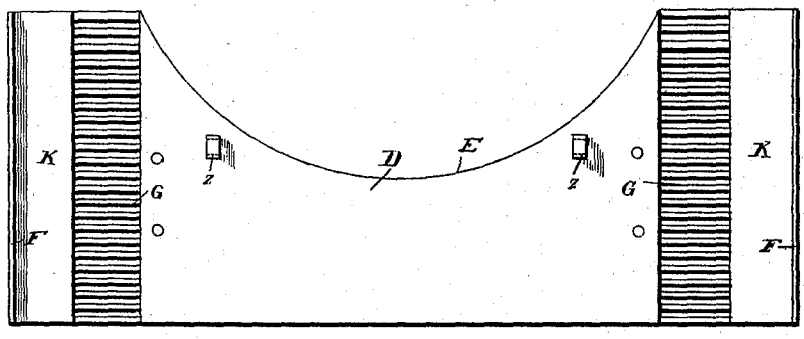
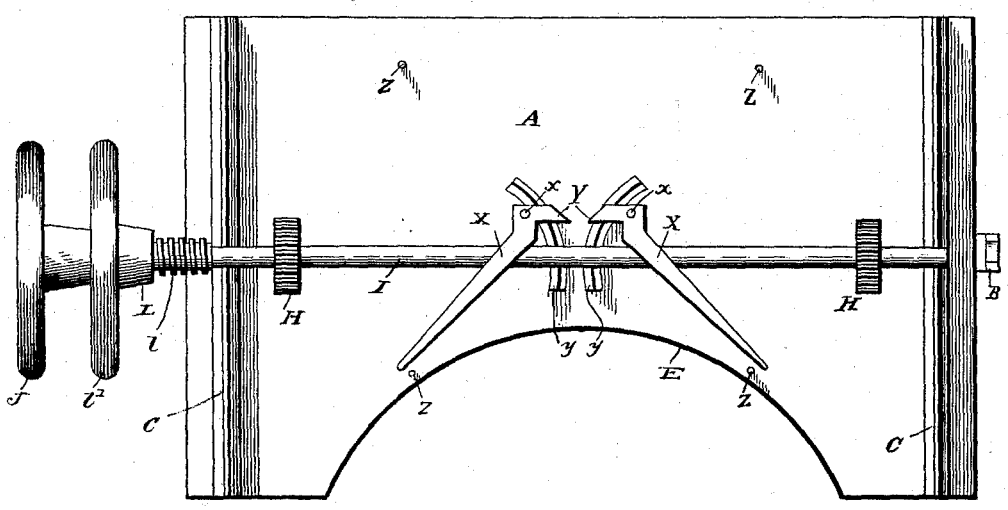


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES A. MEBANE, OF WYTHEVILLE, VIRGINIA.

LATHE FOR DRESSING COMMUTATORS.

SPECIFICATION forming part of Letters Patent No. 505,838, dated October 3, 1893.

Application filed January 28, 1893. Serial No. 460,108. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. MEBANE, a citizen of the United States, residing at Wytheville, in the county of Wythe and State of Virginia, have invented a new and useful Lathe for Dressing Commutators, of which the following is a specification.

This invention relates to lathes for dressing the commutators of dynamo electric machines; and it has for its object to provide an improved machine of this character which is particularly adapted for dressing commutators without the moving of the dynamo armature from its bearings.

To this end the main and primary object of the invention is to provide a lathe for dressing circular metal surfaces such as shafts and pulleys as well as commutators, and to adapt such machine for dressing such surfaces while they are in operative position, or separated from the other machinery in connection with which they are employed.

With these and other objects in view, which will readily appear as the nature of the invention is better understood the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of a commutator dresser constructed in accordance with this invention and arranged in position for use. Fig. 2 is a central longitudinal sectional view of the same, showing a modified arrangement of tool holder to dispose the dressing tool nearer the end of the tool carriage. Fig. 3 is a detail plan view of the bed plate. Fig. 4 is a bottom plan view of the movable carriage. Fig. 5 is an enlarged detail sectional view of the removable tool holder guide with the tool holder and tool therein.

Referring to the accompanying drawings, A represents a flat bed-plate having a serrated or roughened bottom face *a*, which is designed to rest flatly on top of a convenient base, and to give a secure purchase to the machine in the position in which it is placed. The serrations formed on the bottom of the flat bed plate A, extend over the entire area thereof and are not adapted to have an engagement with any corresponding serrations, but are intended solely to engage flat on top of the flat surface of the base of a dynamo machine, or any other suitable convenient base on which the lathe is intended to be mounted without any clamping devices whatever. Ordinarily the said bed-plate A, is designed to occupy a position on the base of a dynamo electric machine, directly under the commutator between the pedestal or bearing standard and the poles. In this position the lathe can be readily adjusted to dress off commutators without removing the armatures, the serrated or roughened under face being of service to hold the lathe steady. The said bed-plate A is further provided at each opposite end thereof with the open bearing lugs B, adjacent to which and arranged also near the opposite ends of the bed-plate, are the transverse V-shaped guide strips or ways C, which are designed to support for lateral and longitudinal movement with respect to the bed-plate, the tool carriage D. The tool carriage D, rests loosely on top of said guide strips and corresponds in shape to the bed-plate over which it slides, so as to work under the commutator which is being operated upon. Both the carriage D and the bed-plate A are recessed at one side as at E, so as to embrace the field part of the dynamo. The said sliding carriage D, which is capable of a movement transversely and longitudinally of the bed-plate, is provided at each opposite end thereof and upon its under side with the transverse worm or thread ribs F, while parallel with said ribs and at a distance in from the ends of said carriage, and upon the under side thereof are arranged the transverse racks G, which mesh with the adjusting cogs or pinions H, on the adjusting shaft I. The adjusting shaft I, works in bearing notches *i*, formed centrally in the ribs C, and is supported in one of the bearing lugs B, as will be presently described, one of said bearing lugs B, being idle while the other is in use, according to the disposition of the shaft I. And the pinions on said shaft are arranged inside of the ribs C, so that by turning the shaft I, by means of the hand wheel J at one end of the same, the carriage may be moved transversely of the bed-plate and therefore longitudinally of the commutator being dressed, in either direction.

The racks G, are wider than the pinions H,

in order to provide for an adjustment of the carriage longitudinally of the bed-plate, and therefore to and away from the commutator being dressed, and said racks are sufficiently spaced from the end ribs F, so as to leave a slide space K, therebetween, for the upper edges of the V-shaped guide strips to work on as the carriage is moved either transversely or longitudinally. In order to provide for the longitudinal adjustment of the carriage, I employ a hollow shaft or axle L, embracing one end of the shaft I, and working in the bearing B, for such shaft. The said hollow shaft is provided with an inner threaded or worm end *l*, which engages the worm or thread rib F, at the end of the carriage disposed over such hollow shaft, and at the other end of said hollow shaft is arranged the hand wheel *l'*, by means of which the said shaft can be turned, in order to move the tool carriage to and away from the commutator.

From the construction described, it will be readily seen that the shaft devices can be turned completely around, being removable, so that the hand wheels can be worked from either end of the bed-plate according to the direction in which the commutator or other surface turns.

The transversely and longitudinally adjustable carriage is provided with the shouldered ends M, onto either of which is designed to be removably clamped or bolted the removable tool holder guide N. The removable tool holder guide N, is bolted against the inner shoulder of either shouldered end M, of the carriage, toward the center, according to the direction of rotation of the commutator under which the lathe is placed as will be quite clear, and said guide is provided with a T-groove O, which adjustably receives the lower flanged end of the slotted tool holder P. The slotted tool holder P, is designed to accommodate in the slot thereof the dressing tool Q, which is held firmly therein and on top of the guide by means of the clamping set-screw R, passing through the upper end of said tool holder and binding on the tool therein so as to hold the same and the tool holder firmly in their adjusted position. Now it will be readily seen, that by operating the hand wheels of the two shafts, the tool can be moved to and away from the commutator, and longitudinally thereof so as to dress every part. The lathe just described of course would be equally as well adapted for the dressing of pulleys and shafts, as will be readily understood.

In certain cases, there are different styles of dynamos which would not permit the insertion of the lathe, herein described, under its commutator, therefore it would be necessary to dress the commutator from either end of the carriage as is clearly seen in Fig. 2 of the drawings. In this case I employ a modified form of tool holder guide N'. This tool holder guide is provided with a recessed under face adapted to register with and fit on top of the shouldered ends of the tool carriage, so that the tool holder and the tool therein can be carried on either extreme end of the carriage, in order to properly dress such commutators and other surfaces beneath which the lathe cannot be placed.

In order to provide means for steadying the movable tool carriage D, in its transverse and longitudinal adjustment, as well as to hold the same steady when adjusted, I employ the opposite swinging steadying spring arms X. The opposite steadying spring arms X, are leaf springs adapted to have their tension bear under the bottom of the carriage D, and near their inner ends are pivotally mounted on the pivot bolts *x*, passing through the pivot lugs *x'*, projecting from the bed-plate A. Beyond their points of pivot, the said spring arms are provided with the guide ends Y, adapted to work on the pointed circular guide strips *y*, also rising from the bed-plate A, near the center thereof. The outer swinging ends of the spring arm X, are adapted to play between the opposite stop lugs Z, arranged near opposite edges of the bed-plate, and said swinging ends of the steadying springs X, are adapted to be loosely inserted in the loops *z*, secured to the bottom of the carriage V. Now it will be readily apparent that while the arms X allow the tool carriage D, to be longitudinally and transversely adjusted, by reason of accommodating themselves to the position of such carriage, they, at the same time, provide means for holding the same steady in its adjusted position as will be readily apparent.

It is of course understood that the lathe herein described can be used for dressing commutators or shafts which have been removed from their supports.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a lathe of the class described, a stationary bed-plate having transverse guide strips near each end, a tool carriage mounted to rest loosely on the bed-plate and having bottom slide spaces near its opposite ends which work on said guide strips, means for longitudinally and transversely adjusting the carriage over said guide strips, and an adjustable tool holder mounted at either end of the carriage, substantially as set forth.

2. In a lathe of the class described, a flat bed-plate having a serrated or roughened bottom face and transverse V-shaped guide strips near each end, a flat tool carriage mounted to slide on said V-shaped guide strips, means for longitudinally and transversely adjusting the carriage over said guide strips, a grooved guide removably mounted on either end of said carriage, and a tool holder adjustably

mounted in said grooved guides, substantially as set forth.

3. In a lathe of the class described, a bed-plate having bearings at each end and transverse guide strips adjacent to said bearings, said guide strips also having bearing notches, a movable tool carriage arranged to slide upon said guide strips and having transverse racks near each end, an adjusting shaft removably resting in one of said bearing lugs and the bearing notches of said guide strips and having pinions engaging the racks of the carriage for laterally adjusting the same, and a hand wheel at one end, means for longitudinally adjusting the tool carriage, and an adjustable tool holder removably mounted at each end of the carriage, substantially as set forth.

4. In a dressing lathe of the class described, a bed-plate having bearings at each end and transverse guide strips adjacent to said bearings and provided with bearing notches, a movable tool carriage having transverse worm or thread ribs at each end and transverse racks parallel with said ribs and spaced therefrom to form slide spaces for said guide strips, an adjusting shaft removably resting in one of the bed-plate bearings and the bearing notches of said guide strips, said shaft carrying pinions meshing with, and of less width than, said racks and a hand wheel at one end, a hollow shaft or axle embracing the adjusting shaft in its bed-plate bearing and provided with a hand wheel at one end and threads or a worm at its other end adapted to engage the worm or thread rib at that end of the carriage, and a tool holder removably mounted on said carriage, substantially as set forth.

5. In a lathe of the class described, the combination with a stationary bed, of a movable tool carriage having shouldered ends, a guide removably mounted on either shouldered end of said carriage and provided with a T-groove, a slotted tool holder having a flanged end adapted to be adjusted in the T-groove of said guide, and a set screw passing through the other end of said tool holder and adapted to clamp the tool and tool holder in position, substantially as set forth.

6. In a lathe of the class described, the combination with the bed-plate and the adjustable tool carriage thereon; of the laterally swinging steadying springs pivotally attached to said bed-plate and loosely engaging the bottom portion of the tool carriage, substantially as set forth.

7. In a lathe of the class described, the combination of a bed-plate having pointed circular guide strips arising therefrom near its center, a transversely and longitudinally adjustable tool carriage arranged on said bed plate and having loops on its under side, and laterally swinging carriage steadying spring arms pivotally mounted on said bed-plate and having inner guide ends adapted to work on said circular guide strips, the outer ends of said swinging arms being adapted to loosely engage said loops, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES A. MEBANE.

Witnesses:
C. B. THOMAS,
G. J. HOLBROOK.