No 625,585. Patented May 23, 1899.

J. J. MILLER.

PORTABLE JOURNAL SMOOTHING TOOL.

(Application filed Jan. 13, 1899.)

(No Model.)

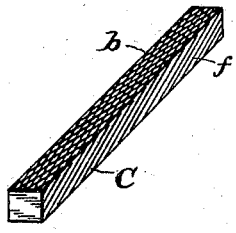

Fig. 1.

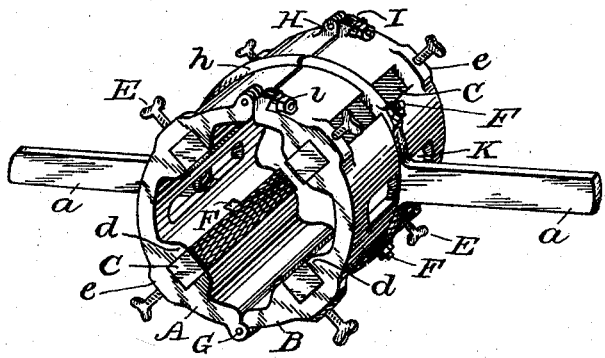

Fig. 2.

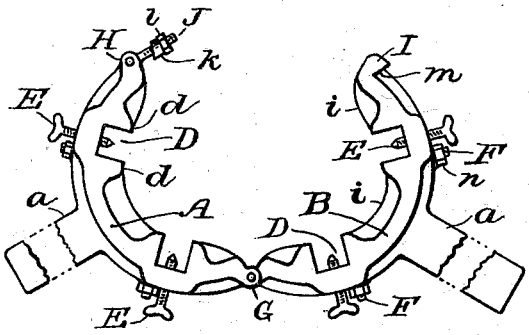

Fig. 3.

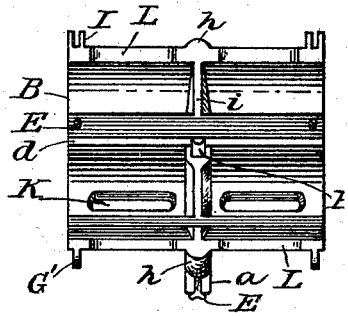

Fig. 4.

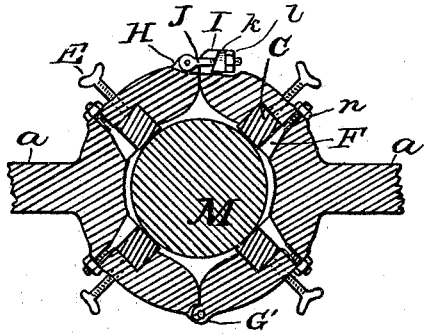

Fig. 5.

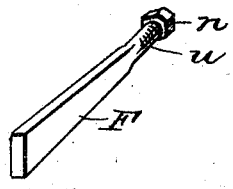

Fig. 6.

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UNITED STATES PATENT OFFICE.

JEREMIAH J. MILLER, OF INDIANAPOLIS, INDIANA.

PORTABLE JOURNAL-SMOOTHING TOOL.

SPECIFICATION forming part of Letters Patent No. 625,585, dated May 23, 1899.

Application filed January 13, 1899. Serial No. 702,081. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH J. MILLER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Portable Journal-Smoothing Tools; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to the class of portable hand-operated tools which are designed to be connected to the work upon which they are to be used; and it consists in a new and novel device or apparatus for smoothing or resurfacing the journals of car-axles and shafting which have become worn or roughened from heating or running without lubrication; and it consists, further, in the parts and combination and arrangement of parts hereinafter described and claimed.

It is well known that in operating railway-cars many axle-journals become rough or "cut," as it is termed, and the axles must be either taken to a shop and re-turned in a lathe or filed approximately true and smooth by hand on the ground, the labor and expense in either case being considerable, besides the important item of delays to a car.

It is my object to eliminate the principal difficulties attending the resurfacing of such journals and to provide an apparatus by which a journal may be operated upon quickly without removing the axle and wheels from the place where the axle may be detached from the car-truck and by which the work may be done in a superior manner and by one having but ordinary skill, thus insuring a considerable saving in expense for labor and reducing the delays of cars to the minimum. This is accomplished in my invention, which is furthermore adapted to be used upon a journal for the same purpose while the axle is in a lathe and with greater effect than an ordinary hand-file and providing a substitute for the turning-tool in many cases where a journal only requires being made smooth.

Referring to the drawings, in which similar letters of reference in the several views designate corresponding parts, Figure 1 represents a perspective view of one of the cutting or smoothing bars of my tool; Fig. 2, a perspective view of my tool complete as preferably constructed; Fig. 3, an end view of the frame; Fig. 4, a view of the inner side of one of the frame-sections, showing its plan; Fig. 5, a transverse central sectional view through my tool and also through a journal, showing the operating position of the tool upon the journal; and Fig. 6, a perspective view, exaggerated, of a wedge by which the cutting-bars are secured in the frame.

In constructing my device I employ metals which may be suitable—as, for instance, the frame may be made of malleable iron, while the smaller parts may be of wrough-iron, and the cutting-bars are made of steel and tempered. The frame is in general appearance cylindrical and of a diameter and length suitable to encompass a journal with open ends and comprises two counterpart halves, the dividing-line of the two parts being longitudinal of the cylindrical form. The two halves A and B are alike in all respects except as regards the arrangement of the hinges and locking devices, each half having a handle *a* projecting from the center of the outer side, and these are preferably cast integrally and are designed to be used in operating the tool manually. The part A has at one edge jaws G, while the opposite part B has corresponding tongues G′, the two matching and forming the hinges. At the opposite edge of the part A are jaws H, in which are pivoted screw-threaded bolts J, each bolt having a beveled washer *k*, adapted to engage the face *m* of the opposing lugs I on the part B, and a nut *l* is employed to clamp the two halves of the frame together. It will be readily understood that the frame must be opened, as shown in Fig. 3, in order to place it upon a journal M. Each half of the frame has four inwardly-projecting ribs *d*, arranged longitudinally with the cylinder and the full length thereof, and each pair forms a channel D, rectangular in cross-section, adapted to receive the cutting-bar C, so that the frame thus accommodates four cutting-bars. The frame is preferably strengthened at the center by a raised integral exte-

rior rib *h* and at each end by raised portions *e*, bridging the channels D, and a further strengthening-rib *i* may also be arranged at the inner side, if desired, this, however, being merely a matter of design, as the frame might otherwise be made sufficiently stiff.

At each end of each channel D is a threaded pointed screw E, entering from the outside and inserted in a suitable hole, so that the inner end shall press against the cutting-bar to force it adjustably against the journal.

In order to retain the cutting-bars against falling out of the frame when being handled, I provide tapering wedges F, which are inserted from the inside in a suitable aperture P, adjoining one side of each channel E. These wedges may be situated at either side of a channel. The smaller end of the wedge terminates in a threaded bolt end *u* and projects at the outside of the frame, being fitted with a nut *n*, by which it is drawn snugly against the cutting-bar.

A suitable number of slots K are provided to permit of the waste metal passing through the frame, and at the edges where the two halves join recesses L may also be made for the same purpose.

The cutting-bars C are as long as the journal, squared in cross-section, so as to be reversible in use, and have faces with cut teeth similar to those of files; but I preferably arrange them so that the several faces *b f* are graded in fineness, as one face may be very coarse for removing sufficient metal from the journal to make it approximately true, and then the cutting-bars may be reversed, so that a finer-graded side may be used for further smoothing the journal. The cutting-teeth are preferably arranged obliquely with the face of the bar, or in some cases they may run parallel with the bar. When the cutting-teeth have become dull from use, I grind away the defective teeth, thus forming a longitudinal groove at the center of the face, leaving sharp teeth at each side of the groove. This is not an essential feature, but is described as an advantage in using a bar of this design.

While hinges are shown at each end only and adjusting-screws also only at each end of the frame and the securing-wedges only at the center, it is obvious that these may be increased in number if desired.

In operation, the cutting-bars having first been placed in position in their channels and secured, the frame is opened and then placed upon the journal which is to be operated upon, after which the frame is closed and clamped solidly, after which the cutting-bars are adjusted by means of the screws arranged for that purpose. By exerting a pressure upon the handles or levers *a* in a proper direction the tool is rotated about the journal either continuously, which is preferable, or back and forth, the operation being continued and the bars repeatedly forced by means of the screws against the journal as may be necessary to cut away the roughened parts and render it smooth. It will be seen that this tool may be thus used on any car-journal by simply removing it from the journal-box a sufficient distance to provide room for the handles to be moved around the journal.

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

1. A journal-smoothing tool consisting of a sectional hinged cylindrical frame whereby the journal is encompassed from end to end and provided with pivoted screw-bolts having nuts thereon and lugs to be engaged thereby whereby the sections are rigidly secured together, levers whereby to operate the frame, channels for cutting-tool seats, cutting-tools in the channels, an adjusting-screw at each end of each channel whereby the ends of the tools are adjusted independently, and a wedge in each channel bearing against a side of the tool whereby the same is retained in the channel.

2. A journal-smoothing tool comprising a two-part cylindrical frame having at each end thereof a hinge and a pivoted screw-bolt having a nut thereon whereby the two parts are rigidly connected, parallel ribs projecting inwardly toward the cylindrical center whereby tool-seats are formed extending from end to end of the frame, a cutting-tool in each tool-seat, a wedge seated in the frame at one side of each tool-seat and bearing against one side of the tool whereby the same is retained and a screw-threaded nut on the outer end of the wedge whereby the same is forced against the cutting-tool, and operating-levers attached to the frame.

3. In a journal-smoothing tool, the combination with a journal, of a tool consisting of a cylindrically-formed frame consisting of two substantially halved sections each having an external operating-lever and provided at one side of each with connecting-hinges and at the opposite side with multiple pivoted bolts having threaded ends and nuts thereon and opposing lugs engaged by the nuts whereby the halves are rigidly secured together, channels forming tool-seats extending lengthwise in the frame and provided with retaining-wedges seated therein and extending to the outer periphery of the frame and provided with screw-nuts whereby the wedges are secured, cutting-tools in the channels and engaged at one side by the retaining-wedges, adjusting-screws for the cutting-tools, and slots in the frame parallel with the channels whereby the waste metal may escape, substantially as set forth.

4. In a journal-smoothing tool, the combination of the parted cylindrical frame provided with the external levers and having the hinges at one side thereof, the lugs and the pivoted bolt at the opposite side of the frame and having the threaded free end and nut

thereon, the channels forming tool-seats lengthwise of the frame, the four-sided graded cutting-tool in each of said seats, the adjusting-screw in said frame at each end of said seats, and the wedges seated in said frame whereby said cutting-tools are secured, substantially as set forth.

5. In a journal-smoothing tool, the combination of the frame having the operating-levers, the cutting-tool seats within the frame and disposed in opposing pairs whereby the force is equally divided between both of each pair of tools therein, the cutting-tools in said tool-seats, the wedge seated in said frame and having one of its edges bearing against a side of the cutting-tool whereby the same is secured, the threaded nut whereby the wedge is adjustably retained, and the adjusting-screws whereby each end of the tool is adjusted independently of the other end, substantially as set forth.

6. In a journal-smoothing tool, the combination of a two-part cylindrical frame having hinges at one side and pivoted clamping-bolts at the opposite side thereof and provided with exterior annular ribs, internal tool-seats disposed in opposing pairs, cutting-tools in the seats, a nutted wedge working in one side of each tool-seat and bearing against one side of the tool whereby the same is forced against the opposite side of its seat, and an adjusting-screw bearing against the bottom of each end of each of said cutting-tools, substantially as set forth.

7. In a journal-smoothing tool, the combination of the two-part hinged and clamped frame, the longitudinal internal ribs forming cutting-tool seats, the external annular ribs, the securing-wedges working in the sides of the tool-seats, the adjusting-screws at the ends of the tool-seats, the rectangular reversible cutting-tools in said tool-seats and extending therethrough, and the operating-levers, substantially as shown and described.

8. In a journal-smoothing tool, the combination of the frame consisting of the two halves A B provided each with the operating-lever and having the hinges and clamping devices, the longitudinally-arranged inwardly-projecting ribs *d* forming channels D, the threaded screw E working through said frame at each end of each of said channels, the wedge F having the bolt end *u* and nut *n* and working in said frame at a side of each of said channels, the slots K in said frame, and the cutter-bars C in said channels, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JEREMIAH J. MILLER.

Witnesses:
WM. H. PAYNE,
E. T. SILVIUS.