

W. T. SEARS & H. J. RUCH.
BORING OR DRILLING MACHINE.
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953,183.

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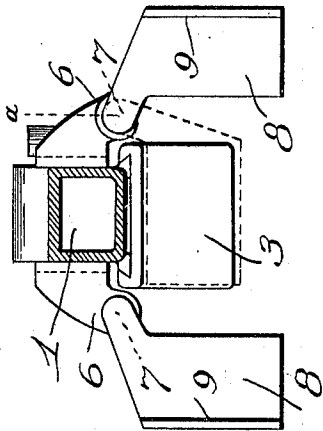


Fig. 3.

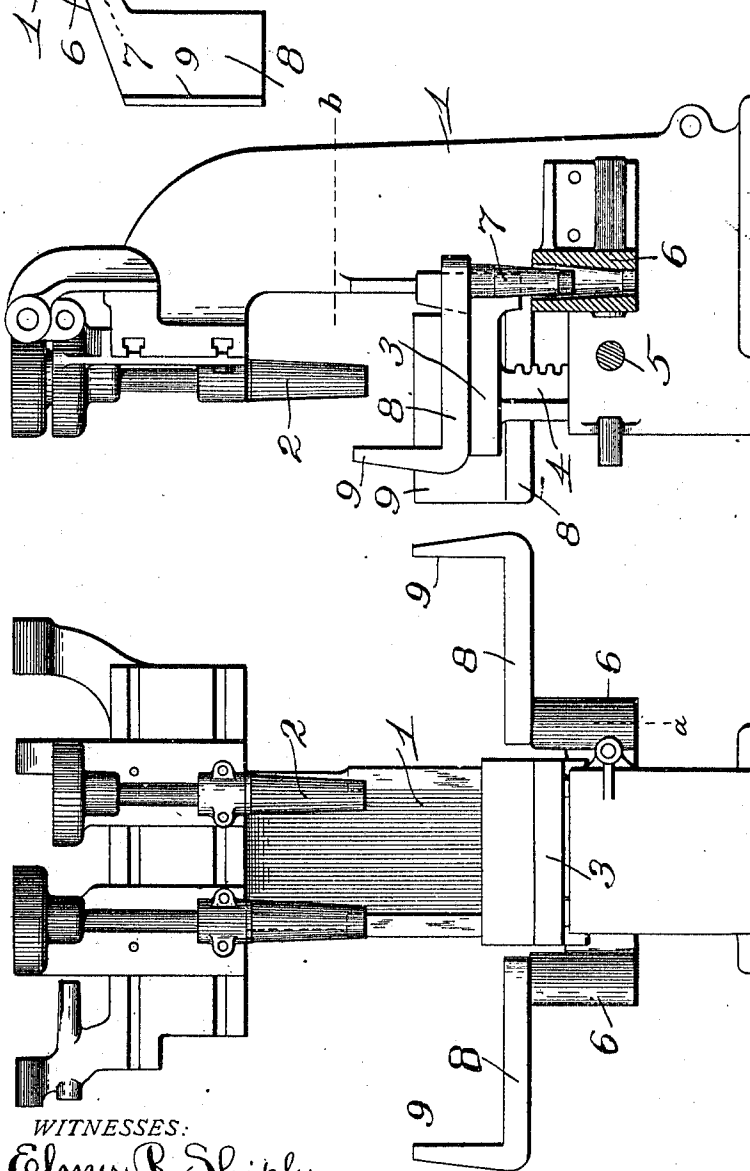


Fig. 2.

Fig. 1.

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BORING OR DRILLING MACHINE.

953,183.

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To all whom it may concern:

Be it known that we, WILLARD T. SEARS and HERMAN J. RUCH, citizens of the United States, residing at Philadelphia, Philadelphia county, Pennsylvania, and Woodbury, Gloucester county, New Jersey, respectively, have invented certain new and useful Improvements in Boring or Drilling Machines, of which the following is a specification.

This invention, pertaining to boring or drilling machines and relating particularly to workholders therefor, will be readily understood from the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a front elevation of the main portions of a boring or drilling machine exemplifying our invention: Fig. 2 a side elevation of the same, the bearing of one of the workholders appearing in vertical section in the plane of line *a* of Figs. 1 and 3, and its work-holding plate illustrated as being swung to inward normal position and elevated together with the work-table; and Fig. 3 a horizontal section of the machine in the plane of line *b* of Fig. 2.

In the drawing:—1, indicates the column of the machine: 2, the vertical spindle supported thereby, the illustration showing the machine as being equipped with a pair of spindles adapted for simultaneous work upon a piece: 3, the work-table, as it would usually be called but which is in this instance merely a work elevator: 4, a feed-rack projecting downwardly from the work-table: 5, a feed shaft to coöperate with the rack in moving the work-table vertically, the rack and shaft constituting parts of a merely typical feed device: 6, a vertical bearing rigidly supported at each side of the column: 7, a journal for each of these bearings, the journals and bearings being tapering so that when the journal is raised some distance in the bearing it is entirely free therein: 8, a horizontal work-holding plate fast upon the upper end of each of the journals 7 and adapted to swing over the work-table 3: and 9, an angle-plate formed on each of the work-holding plates.

The work to be operated upon is to be secured to one of the work-holding plates 8 while that plate is swung to outward position free of the table 3, and the angle-plates

9 if provided upon the work-holding plates, may serve in facilitating the setting and securing of the work. While the work-holding plate is in this outer position its journal is seated normally in its bearing. The work having been properly secured to the work-holding plate in question, and table 3 being in its lower position, the work-holding plate having the work attached is now to be swung inwardly over the table 3 so that the work will occupy proper position below the spindle or spindles. Table 3 is now to be elevated by means of its feed mechanism, whereby the table engages and raises the plate to which the work is attached and lifts the journal of that plate free of its bearing and moves the work up into proper feeding engagement with the tool or tools. During this upward feeding motion of the work, which feeding will generally be performed automatically, the vertical motion of the work will be uninfluenced by the journal of the plate carrying the work.

While the piece of work in question is being operated upon by the machine, another piece of work may be secured to the outwardly swung work-holding plate upon the opposite side of the machine, the upward feeding motion of the machine at this time having no effect upon this second work-holding plate. Upon the completion of the work upon the first piece, table 3 is to be lowered, with the result that the journal of the active work-holding plate becomes again seated normally in its bearing, table 3 descending clear of the plate. The plate with its completed work may now be swung outwardly, and the other plate with its piece of work may be swung inwardly over table 3 and elevated for the action of the machine as in the previous case, and while the machine is operating upon this second piece of work the piece of work on the first plate may be removed and another substituted.

We claim:

1. A metal-working machine comprising, a tool-actuating device carried by the upper portion of the machine, a bearing supported by the lower portion of the machine to one side of the tool-actuating device, a work-elevating part disposed below the tool-actuating device, and a work-holding plate mounted in said bearing and adapted to swing to inward position over said work-elevating

part and to swing to outward position free of said work-elevating part, combined substantially as set forth.

2. A metal-working machine comprising, a tool-actuating device carried by the upper portion of the machine, bearings supported by the lower portion of the machine on each side of the tool-actuating device, a work-elevating part disposed below the tool-actuating device, and a work-holding plate mounted in each of said bearings and adapted to swing to inward position over said work-elevating part and to swing to outward position free of said work-elevating part, combined substantially as set forth.

3. A metal-working machine comprising, a tool-actuating device carried by the upper portion of the machine, a bearing supported by the lower portion of the machine to one side of the tool-actuating device, a work-elevating part disposed below the tool-actuating device, and a work-holding plate

journalled in said bearing and adapted to swing to inward position over said work elevating part and to swing to outward position free of said work-elevating part, the journal and bearing of said plate being tapered so as to be free of each other when the plate is partially elevated.

4. A metal-working machine comprising, a column, a tool actuating device carried by the upper portion thereof, a work elevating device below the tool actuating device, and a plurality of work-holding plates supported by the base of the column at the sides of the work elevating device and mounted for vertical motion and for angular motion on a vertical axis so as to take position either over or to the side of the work elevating device.

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