

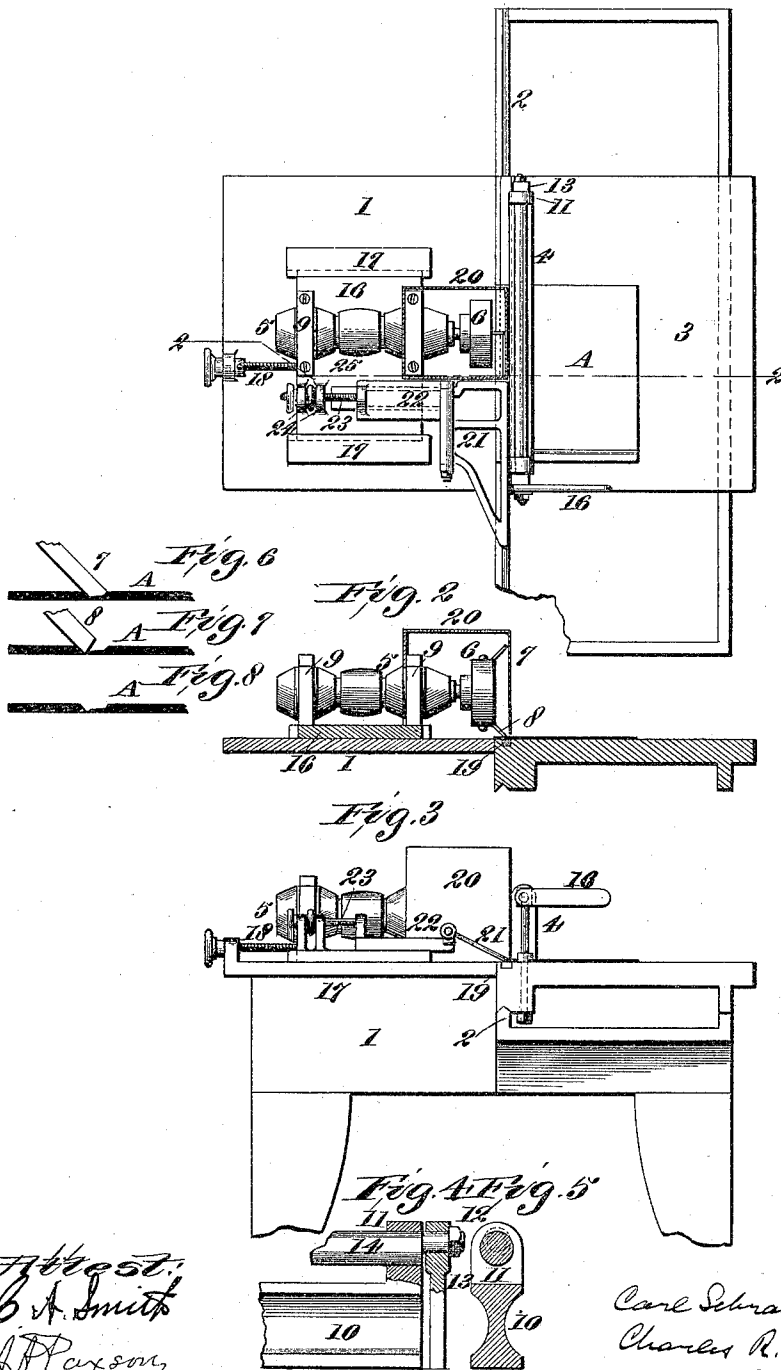
(No Model.)

C. SCHRAUBSTADTER, Jr. & C. R. SCHILLING.
BEVELING MACHINE.

No. 542,504.

Patented July 9, 1895.

Fig 1.



Attest:
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UNITED STATES PATENT OFFICE.

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BEVELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 542,504, dated July 9, 1895.

Application filed July 7, 1894. Serial No. 516,796. (No model.)

To all whom it may concern:

Be it known that we, CARL SCHRAUBSTADTER, Jr., and CHARLES R. SCHILLING, citizens of the United States, residing in the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Beveling-Machines, of which the following is a specification.

The principal object of our invention is to provide a machine for trimming and finishing off the edges and faces of printing-plates; and our invention consists in the parts and in the arrangements and in the combinations of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification, Figure 1 is a plan view of our machine. Fig. 2 is a vertical section thereof on the line 2 2 of Fig. 1. Fig. 3 is an elevation thereof. Figs. 4 and 5 are respectively longitudinal and transverse detail views of the clamping-plate and its eccentric. Figs. 6, 7, and 8 are detail views showing the relation of the cutting-tools and the forms of their respective cuts.

The main frame 1 has a track or guide 2, on which slides a reciprocating feed bed or table 3, provided with a clamp 4 for holding the plate to be operated on in position. A shaft 5, carrying a cutter-head 6, is arranged on the main frame approximately perpendicular to the line of motion of the feed bed or table 3 and far enough above such bed or table to allow the cutting-tools 7 8 on the cutter-head to barely pass without touching the bed or table. The cutter-head 6 is located on the end of the shaft, and the journal-bearings 9 thereof are supported at a sufficient distance from the cutter-head to allow an unobstructed path for the plate projecting over the side of the bed or table.

The operation in a general way is as follows: The printing-plate is clamped on the bed or table, which is then fed forward by hand. As the plate passes the rapidly-revolving cutter-head, the tools thereon cut grooves or slits in said plate, such grooves constituting the edge of the printing-plate and being of a form to require no other finishing work to prepare the plate for mounting.

The clamp 4 on the bed or carrier consists of a long flat-faced plate 10, having perforated ears 11 projecting upwardly at its ends. A cylindrical bar 12 passes through these perforations and rests at its ends in bearings provided therefor in standards 13 fixed to the bed or carrier. The intermediate portion 14 of said bar, from which the plate is suspended, is eccentric with reference to the end portions, which rest on the bearings. A handle 16 is fixed to one end of the bar 12 to turn the same. On account of the weight of the plate 10 it tends to hang vertically, and a pin provided in the table holds it in proper position, so that when it is desired to set and clamp a printing-plate the handle is used to turn the bar in its bearings, thereby causing the eccentric portion to lift the clamping-plate. The printing-plate is then adjusted in position thereunder and the handle again turned to force the clamping-plate firmly against the printing-plate.

The rotary cutter-head is movable by any suitable means perpendicularly to the line of motion of the feed bed or carrier.

As shown in the drawings, the cutter-head shaft is approximately parallel to the plane of the feed-table, and its journal-bearings 9 are located on a movable block 16, which travels in guides 17 fixed to the main frame parallel with the shaft. The position of the movable block, and consequently of the cutter-head thereon, is determined by any suitable adjusting device—for instance, by a screw 18 passing loosely through a lug on a fixed frame and having a collar thereon and working in a corresponding thread on a movable block or a standard thereon, as shown in Figs. 1 and 3. By means of this screw the cutter-head may be advanced toward or drawn farther from the clamping-plate. This feature is particularly advantageous in allowing additional cuts to be made on a printing-plate alongside of the first cut without unclamping said plate, whereby the operator is enabled to creep up little by little to the very edge of the design.

It is preferable for several reasons to use two cutting-tools on the cutter-head simultaneously to cut different portions of the groove.

Fig. 8 shows the shape of the groove which is considered the best, and Figs. 6 and 7 illustrate how it is made. One of the tools 7 in the cutter-head is of such a shape and so adjusted that it cuts a wide slant-bottomed groove with an inclined edge. This groove extends only part way through the plate, as shown in Fig. 6. A second tool 8 cuts a groove almost or quite through the printing-plate A at that side of the wide groove farthest from the design. The edge of the plate is thus left integral with the part containing the design for use as a handle to facilitate the work of mounting and to act as a bearer while proving and is very easily severed after the plate is mounted. The wide slanting bottom of the first groove is intended to receive the mounting-nails. Obviously, other forms of grooves may be cut according to the shapes and relations of the cutting-tools, but the groove shown admits of the use of cutting-tools of a shape very easily made and sharpened.

In order to guard against the danger of the cutting-tools not being accurately set or working loose, whereby they would be liable to cut into the bed or table and become injured themselves, a groove is cut into the face of the bed or table under the tools and a strip 19 of softer material, such as hard wood, is set therein, almost flush with the surface of said bed. When this strip has become worn it may readily be replaced with another similar strip. The cutter-head is preferably inclosed in a box or casing 20 to prevent the chips or shavings from flying.

As the location of the cut varies according to the adjustment of the movable block which carries the cutter-head shaft, and according to the adjustment of the tools an adjustable rule or gage is provided to indicate the line where the tools will cut. This rule preferably consists of a long straight-edged frame 21 pivoted at its end to an adjustable standard 22 located on a movable block 16. This standard is movable in guides and is adjusted by means of a screw 23, which is fixed at one end in the standard and at the other end passes loosely through two lugs 24 on the movable block 16. The space between these lugs is taken up by a nut 25, which fits on the screw and draws it one way or the other, according as the nut is turned one way or the other. The outer end of the screw is furnished with a set-nut to keep the gage in its adjusted position. The gage has its straight edge parallel with the direction of motion of the bed or carrier 3, and being on the movable block with the cutter-head, moves backwardly or forwardly with it. Therefore, when once adjusted it correctly indicates the position the groove will occupy for a particular adjustment of the tools. The straight edge of the rule is adapted to lie on the printing-plate alongside of the clamping-plate, whereby the

printing-plate may be easily and accurately set before it is clamped.

Obviously, any suitable means may be used for driving the shaft, the illustration merely showing the common form of pulley fixed thereon. So, also, other suitable means may be used for adjusting the cutter-head and the gage and for manipulating the clamping-plate and the feed device, and we do not wish to restrict ourselves to the specific device shown; but these devices each have their peculiar merits and are considered practically the best for their purposes.

The principal use of the machine is for beveling the edges of copper and zinc engraved plates; but obviously it may be used for beveling electrotype and stereotype book-plates and for other work. Its most important advantages are that it can cut a groove of any depth and cross-section in any portions of the plate with or without severing the portions of the plate, according to the distance by which the cutting-tools clear the feed-table.

What I claim as new, and desire to secure by Letters Patent, is—

1. A beveling machine comprising a feeding device movable horizontally, a cutting device, and an independently adjustable rule whose edge is adapted to lie upon the printing plate carried by said feeding device parallel with the line of motion and thereby indicate the course of the cut, substantially as and for the purpose set forth.

2. A beveling machine comprising a feeding device, a cutting device adjustable transversely thereto and a rule connected with the adjustable portion of the cutting device to move therewith.

3. A beveling machine comprising a reciprocating bed, a cutting device adjustable transversely thereto and an independently adjustable rule connected with the adjustable portion of the cutting device to move therewith.

4. A beveling machine comprising a reciprocating bed, a plate carrying journal bearings, a shaft in said bearings and a cutter head on said shaft, said plate being adjustable transversely to said bed, and an independently adjustable rule for indicating the course of the cut, said rule being pivotally connected to a support on said adjustable plate.

5. In a plate beveling machine, a horizontally movable feed table and a rotary cutter head carried on a shaft which is approximately parallel to the plane of the feed table, said cutter head being far enough above said feed table to permit a printing plate carried by said feed table to pass freely thereunder and being adapted to hold one or more cutting tools adjustable to clear said feed table, whereby a groove of any desired depth and cross section may be cut in any direction and in any portion of a printing plate on said feed

table, substantially as and for the purpose set forth.

5 6. In a plate beveling machine, a rotary cutter head adapted to hold a cutting tool, and a rule for indicating the line of the cut, said rule being independently adjustable by means of a screw fixed in the support of the rule at one end and at the other end passing

through lugs independently of said support and a nut between them.

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Witnesses:

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