

(No Model.)

3 Sheets—Sheet 1.

C. N. SMITH.
BEVELING AND TRIMMING MACHINE.

No. 596,429.

Patented Dec. 28, 1897.

Fig. 1.

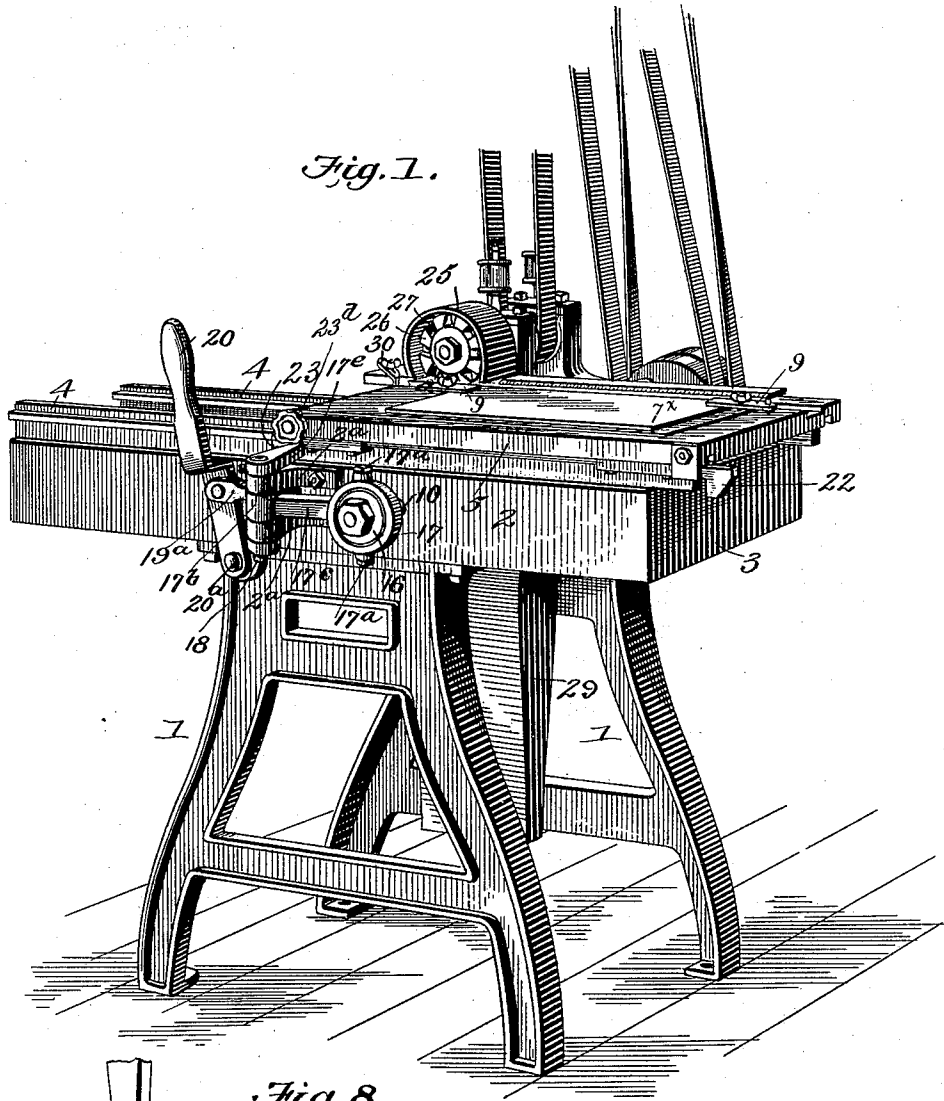
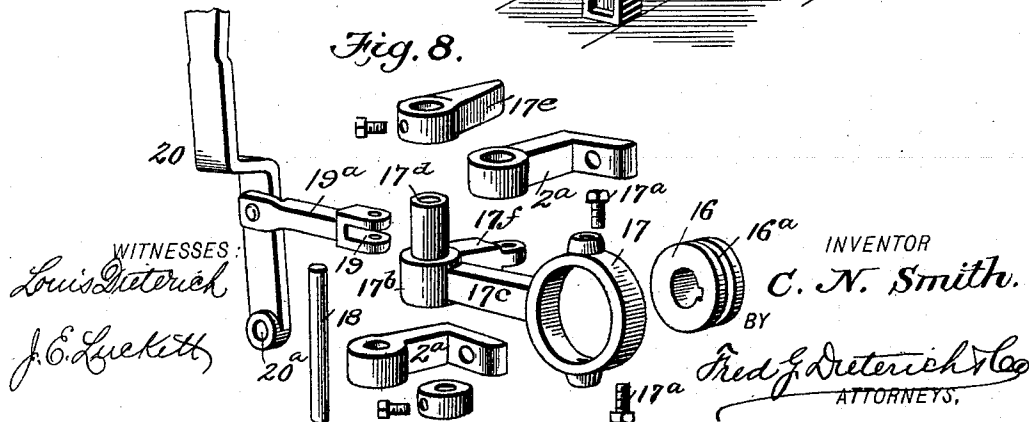


Fig. 8.



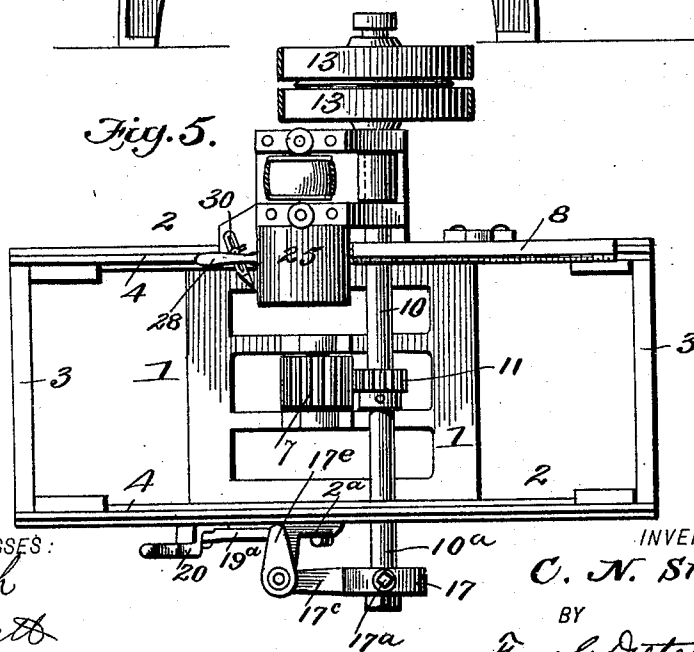
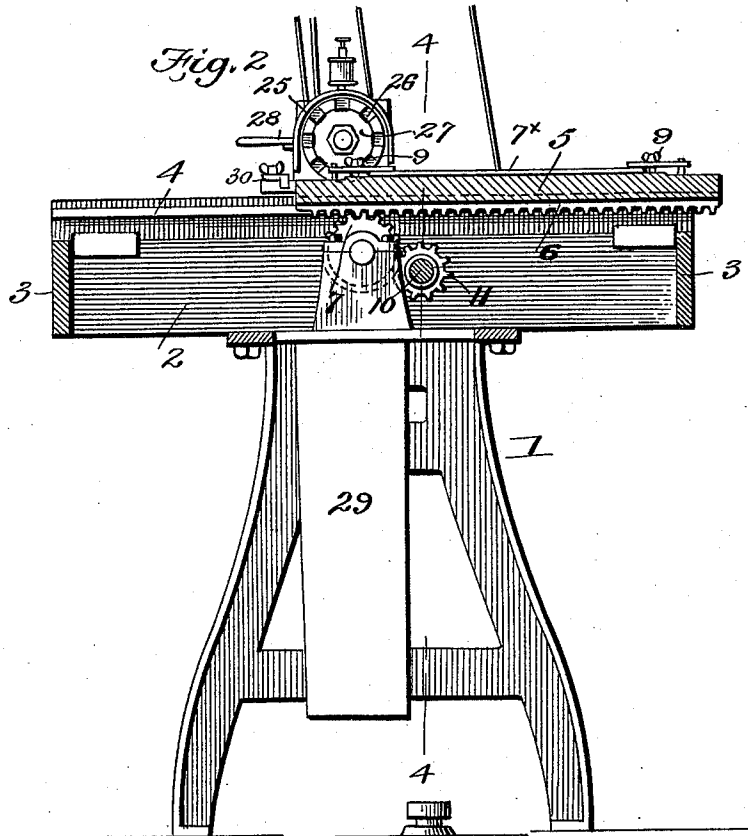
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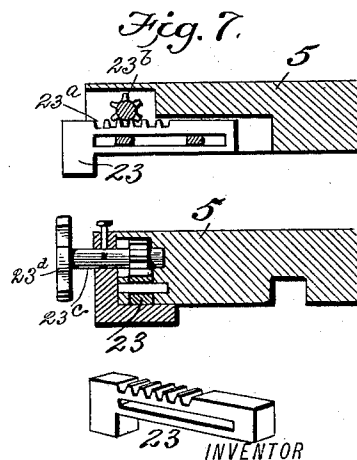
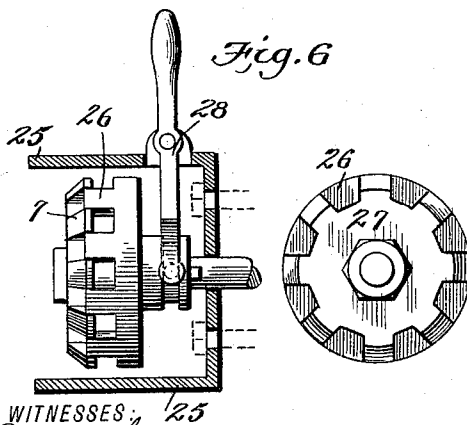
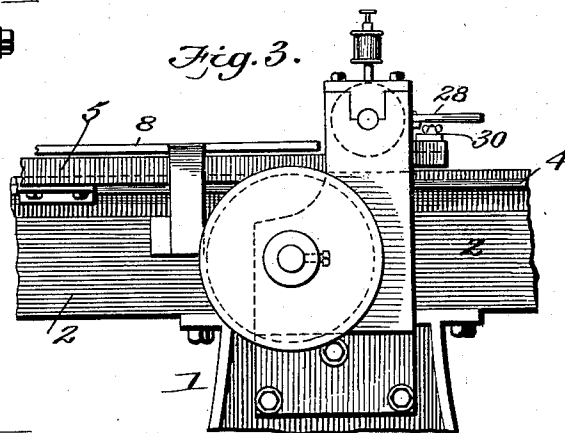
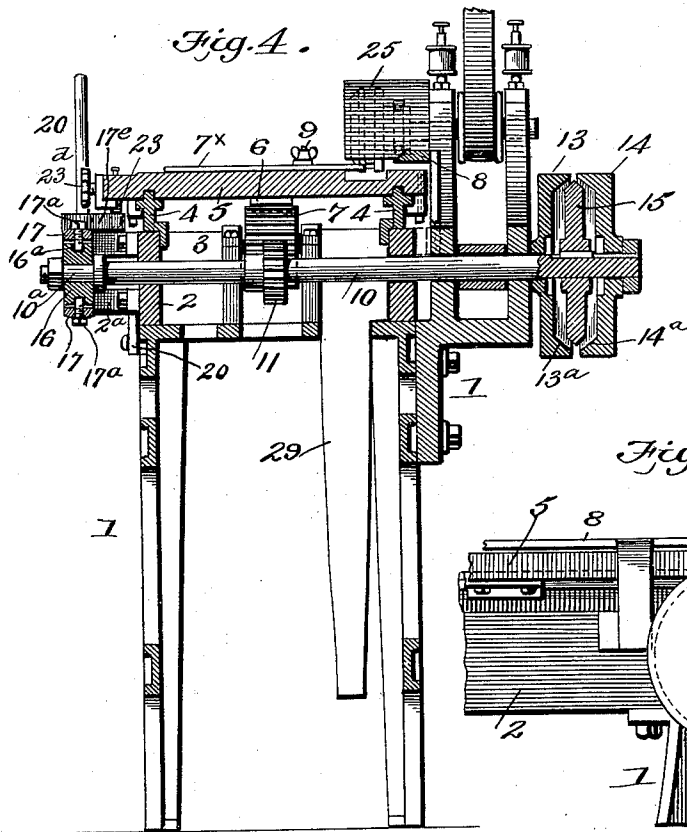
(No Model.)

3 Sheets—Sheet 3.

C. N. SMITH.
BEVELING AND TRIMMING MACHINE.

No. 596,429.

Patented Dec. 28, 1897.



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UNITED STATES PATENT OFFICE.

CHRIS N. SMITH, OF ELGIN, ILLINOIS.

BEVELING AND TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 596,429, dated December 28, 1897.

Application filed March 30, 1897. Serial No. 629,972. (No model.)

To all whom it may concern:

Be it known that I, CHRIS N. SMITH, residing at Elgin, in the county of Kane and State of Illinois, have invented a new and Improved Beveling and Trimming Machine, of which the following is a specification.

My invention is in the nature of an improved beveling and trimming machine for the beveling and squaring of zinc, copper, electro or stereo type plates; and it primarily has for its object to provide a machine, the operation of which will render the trimming and squaring of such plates into any size desired with either a square or beveled edge without the use of any other machine or machines, thus saving much time and insuring a more uniform result than is obtained by the ordinary methods now in use.

My invention also has for its object to provide a machine of this character of a very simple and inexpensive construction which can be easily manipulated, in which reverse movement of the platen or carrier-bed is automatically effected, and in which the several parts are so arranged as to positively, quickly, and effectively serve for their intended purposes.

With other objects in view, which will be hereinafter referred to, the invention consists in a machine for the purposes stated, embodying the peculiar combination and novel arrangement of parts, such as will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying three sheets of drawings, in which—

Figure 1 is a perspective view of my improved machine. Fig. 2 is a longitudinal section of the same, the parts being in the position shown in Fig. 1. Fig. 3 is a partial side view viewed from the side opposite to Fig. 1. Fig. 4 is a transverse section of the same, taken on the line 4 4 of Fig. 2. Fig. 5 is a plan view partly in section, the bed-plate being removed. Fig. 6 is a detail view of the rotary knife and the adjusting devices therefor. Fig. 7 is a detail view of one of the reversing-dogs and Fig. 8 is a detail view illustrating the switch devices hereinafter referred to.

In its practical construction my invention embodies a suitable supporting-frame 1, hav-

ing at the upper end longitudinally-extended side members 2, connected at the ends by the cross members 3 3, whereby a casing-like portion is produced which surrounds and protects the interior drive mechanism presently referred to. Lengthwise of the members 2 and on the upper end thereof are guideways 4, upon which the sliding platen or bed 5 is mounted, and which is held to reciprocate thereon, it having a central rack 6 on its under face, which is engaged and operated by a gear 7 on a drive-shaft presently more particularly referred to.

7^x indicates the stereo or electro plate to be trimmed, which is held on the bed 5 in line with the gage-plate 8 by the clamps 9 9, adjustably secured to the bed, and which have their front ends held to engage the top of the plate 8, as clearly shown in Fig. 1.

10 indicates a drive-shaft disposed transversely of the machine journaled in the side members 2 2 at a point nearly under the cutting mechanism presently referred to. This shaft has a slight longitudinal movement in its bearings and carries a cog-wheel 11 to engage pinion 6, which engages the rack on the underside of the reciprocating platen or table, such wheel and rack being of such width, however, as to admit of the slide movement of the shaft without throwing them out of gear. One end of the shaft has two pulleys 13 and 14 loosely mounted thereon and held from lateral movement by any suitable means, one of such pulleys having a straight and the other a crossed drive-belt, whereby such pulleys are rotated in reverse directions. These pulleys have friction or clutch faces 13^a 14^a, with which a sliding or friction clutch 15, fixedly held in the shaft, is adapted to be alternately moved in engagement therewith by the endwise movement of the shaft, whereby to impart the alternate reciprocal movements to the plate-carrying table.

The end 10^a of the shaft 10 has a grooved collar 16 working in an annular band 17, having adjusting-screws 17^a, which extend into the groove 16^a of the collar 16, as clearly shown in Fig. 4. The band 17 is formed on the end of a horizontal arm 17^c, having an eye portion 17^b, pivotally held on a vertical pintle 18, secured in bearings 2^a 2^a on the sides 2, as shown. The arm 17^c has a sleeve

portion 17^d, which passes up through the upper bearing 18 and carries a short crank-arm 17^e extended inward into a grooved way on the outside of the frame portion 2. The arm 17^e is also provided with a short crank member 17^f, which connects with the inner end 19 of an arm 19^a, pivotally connected to a shifting lever 20, fulcrumed at 20^a to the main frame and having its upper end extended outward and above the table for convenient reach of the operator.

22 indicates a pendent stop secured at one end of the table near the outer edge, and 23 indicates a similar stop at the other end, the purpose of which will presently appear.

Sofar as described it will be readily seen that simple and effective means are provided for imparting a reciprocating motion to the plate-carrying table and that such table receives a complete reciprocal movement and is then automatically stopped from further movement, such operation being effected as follows: When the parts are in the position shown in Fig. 1, the operator, by moving the lever in the direction indicated, causes the switch devices to move the shaft until its clutch engages the drive-wheel, which imparts the forward rotation to such shaft, it being obvious that such movement of the switch devices will cause the upper crank to assume a position to be in the path of the rear dog 22, which dog, when the table reaches the end of its forward movement, engages such crank, and in consequence turns it and the switch devices to move the shaft in a direction to cause its clutch to engage the wheel, which imparts the backward movement to the table, such dog and switch devices serving, as it were, to automatically cause a reverse action of the table.

It should be stated that when the table is at the position shown in Fig. 1 the shifting devices are set by means of the lever 20 to throw the dog 17^e rearward, so that when the table is moved the same will engage it and shift it in the direction in which the table is moving, thereby reversing the movement of the table, such dog 17^e remaining in the last-named position until it is engaged by the adjustable dog 23, which dog is, however, so set that when the table reaches its extreme movement in the reverse direction at such point, it being positively held from further movement by engagement with the supporting-frame, such pawl 17^e will be at a point midway of its throw, thereby leaving the power-shaft shifted to a position to free the clutch mechanism from either drive-wheel and thereby throw the machine out of gear, it being understood that before the machine is again started the shaft receives its complete movement in the reverse direction to set the clutch device in operation through the medium of the lever 20.

25 indicates a hood projected up from a fixed portion of the frame, in which is journaled the knife-carrying shaft, which has the knives 26 27 secured to its front end, the construction of which is best illustrated in Figs. 5 and

6, by reference to which it will be seen the knife 26 has a straight edge and the knife 27 a beveled edge, the bevel-knife being held on the end of the spindle, while the straight square-edged knife slides on a keyed portion of the shaft directly behind the knife 27 and when brought forward by the adjusting devices 28, located back of the hook, slides on such shaft and to a point between the knife 27 and thereby cuts a square edge on the plate.

29 indicates a sheet-metal funnel which carries the chips and waste material into a suitable receptacle or piles the same on the floor beneath the machine.

30 indicates a stationary knife which removes any roughness that may be left by the trimmer-knife 27.

In practice the machine is furnished with two interchangeable beds, one for flat plates and the other to be used in trimming circular or curved plates used for rotary purposes.

From the foregoing description, taken in connection with accompanying drawings, it is thought the complete operation and the advantages of my invention will readily appear to those skilled in the art to which it appertains. The same comprises but a few parts, which are so arranged that the operator can easily manipulate the same to cause a positive and rapid operation thereof. The reversing-dog 23 is adjustably held in the table 5, and for such purpose it is held to slide in the table 5 and provided with a rack portion 23^a, with which engages a spur-wheel 23^b on a shaft 23^c, which projects to the front of the frame and has a hand-wheel 23^d, as clearly shown in Fig. 7.

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

1. As an improvement in plate-trimming machines, the combination with the plate-carrier, of a rotary cutter mechanism, having a bevel-cutter and a square rotary cutter independently journaled on the bevel-cutting shaft, and means for setting the latter for cutting a square edge, substantially as shown and described.

2. As an improvement in plate-trimming machines, the combination with the reciprocating plate-carrier, of the rotary cutter mechanism, comprising a shaft, a cutter, having a bevel-knife on its outer end and a square-cutting knife, slidable on the shaft and having its teeth arranged to project between the blades of the bevel-cutter and means for adjusting the said sliding cutter, for the purpose specified.

3. In a machine as described, in combination with the plate-carrying mechanism, of a cutting mechanism, consisting of two cutters, held to turn with the shaft, one of such cutters being slidable on the shaft and having square-edged cutter-blades adapted to operate between the blades of the other cutter, said blades having a bevel-cutting edge as specified.

4. In a machine as described, the combination with the plate-carrier, and the rotary cutting mechanism, of a stationary trimmer-knife, substantially as shown and described.

5 5. The combination with the plate-carrying mechanism, of a cutting mechanism, consisting of two cutters held to turn with the shaft, one of such cutters being slidable on the shaft and held to turn therewith and having square-edged cutting-blades, the other being fixedly held on the shaft and having radial projections to receive the cutting edges of the square-edged cutter, substantially as shown and described.

15 6. The combination with the main frame,

the reciprocating carriage, the cutters, and means for reciprocating the carriage, of the fixed trip devices at one end of the carriage, the adjustable stop 23 at the other end of the carriage, and the hand-wheel, the devices 23^d 20 for operating the same, said reciprocating means including a shift-pawl adapted to be engaged by the fixed and adjustable trip devices, substantially in the manner shown and for the purposes described.

CHRIS N. SMITH.

Witnesses:

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H. NORTHEY.