

(No Model.)

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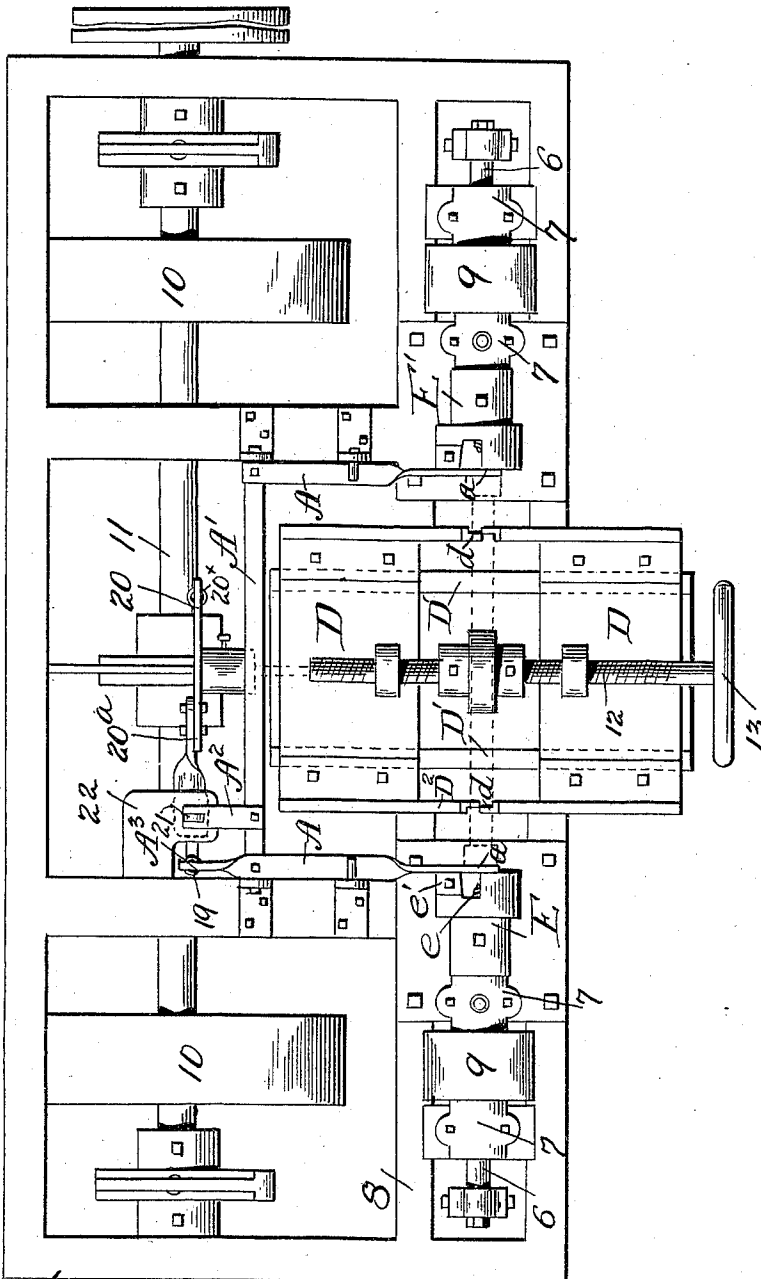
A. D. LINN & A. A. LYTTLE.

MACHINE FOR TURNING AND BORING BRUSH HEADS.

No. 542,681.

Patented July 16, 1895.

Fig. 1.



Attest
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(No Model.)

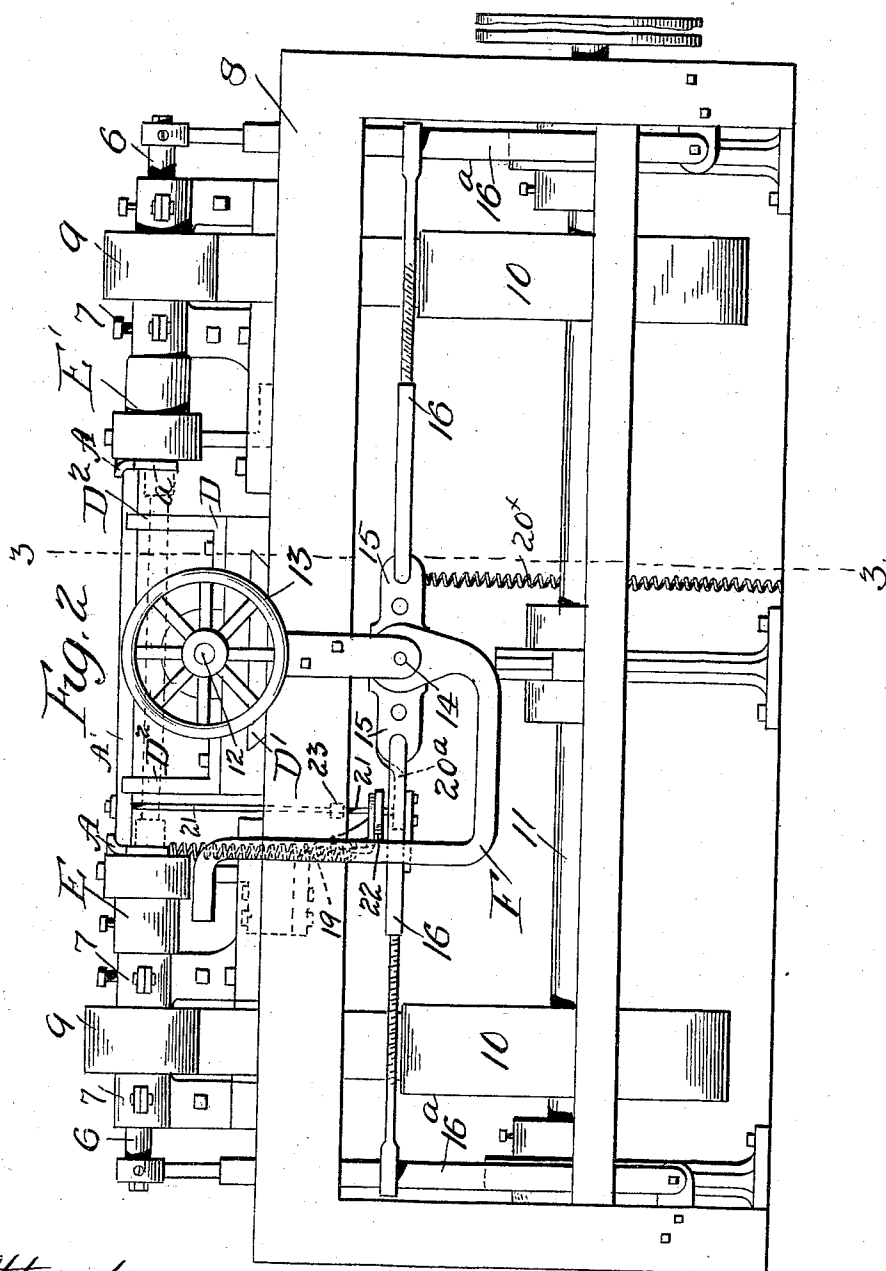
A. D. LINN & A. A. LYNCH 3 Sheets—Sheet 2.

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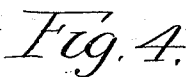
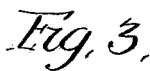
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Alton A. Lytle
by Ellis Spear
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UNITED STATES PATENT OFFICE.

ALLEN D. LINN AND ALTON A. LYTTLE, OF GRAND RAPIDS, MICHIGAN,
ASSIGNORS TO THE GRAND RAPIDS SCHOOL FURNITURE COMPANY,
OF SAME PLACE.

MACHINE FOR TURNING AND BORING BRUSH-HEADS.

SPECIFICATION forming part of Letters Patent No. 542,681, dated July 16, 1895.

Application filed April 17, 1895. Serial No. 546,088. (No model.)

To all whom it may concern:

Be it known that we, ALLEN D. LINN and ALTON A. LYTTLE, citizens of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Machines for Turning and Boring Brush-Heads, of which the following is a specification, reference being had therein to the accompanying drawings.

The said invention relates to machines designed more especially for turning and boring the ends of brush-spindles for carpet-sweepers.

We have aimed to produce a machine provided with centering-guides which will not only accurately center the stock between the revolving cutters, but will also prevent the ends of the stock from coming in contact with the cutters while it is being placed in position or removed.

We have aimed, further, to provide an improved form of clamp designed to hold the stock firmly in perfect alignment with the cutters while being operated upon.

A still further object is to provide an improved cutting mechanism having operating connections to the centering-guides, whereby as the cutters are caused to advance to their work the guides are withdrawn, the guides returning as soon as the cutters are retracted.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the complete machine. Fig. 2 is a front elevation of the same. Fig. 3 is a section on line 3 3 of Fig. 2, and Fig. 4 is an enlarged detail view of the cutters and calipers.

Referring more particularly to these drawings, E E' represent the cutter-heads for turning and boring the ends of the brush-spindle, which is shown at 5, Fig. 4. These cutter-heads are carried upon shafts 6 6, journaled in suitable bearings 7 on the frame 8 of the machine, and are driven through pulleys 9 and 10 from the main shaft 11. The cutter-heads are shown in the present instance as arranged to be driven continuously and are movable toward and from each other, as hereinafter described, to operate upon the stock

and permit the removal of the completed article. The blanks are held while being operated upon by a clamping device, which consists of the two plates D, sliding upon guides or tracks D' and carrying the arms or extensions D², provided with curved or indented faces between which the blank is clamped. The plates are drawn toward and from each other by a right and left screw-threaded rod 12 engaging threaded projections of the plates and carrying a suitable hand-wheel 13. The arms or extensions have lower lips d, which are arranged to overlap each other even when the jaws are open, and thus prevent the inserted blank from dropping entirely through the jaws.

In order to center the blank and cause it to be held with its ends an equal distance from each cutting-tool, the guide or caliper-arms A are provided. These calipers consist of two arms mounted upon a rocking-shaft A' and provided with approximately vertical end faces a, which are arranged just far enough apart to permit the insertion of the blank between them. The calipers are normally held in front of the faces of the cutters, so that there is no danger of injuring the ends of the blanks in placing them in the clamp or removing them therefrom, but are arranged to be removed as soon as the cutters begin to advance upon their work.

The shafts carrying the cutters are movable longitudinally in their bearings to cause the cutters to advance and recede, and they are operated simultaneously by a rocking shaft 14 carrying oppositely-placed arms 15, which are connected by adjustable rods 16 to pivoted arms 16^a, which are in turn connected with the shafts. A suitable operating-lever F is provided, by means of which the shaft 14 may be rocked, as above stated. A second pair of arms is also provided upon the rocking shaft at the rear of the machine, as shown at 20 20^a, to one of which a spring 20^x is connected for returning the parts to normal position.

The calipers are designed to be automatically raised by a spring 19 connected to an arm A³. A rod 21 is also connected to the arm A² and extends down through a fixed guide-

plate 22, its end normally projecting a slight distance below said plate.

When no stock is in the machine and the cutters are separated the calipers are held
5 down against the pressure of the spring by the arm 20^a of the rocking shaft bearing against the lower end of the rod. It will thus be seen that the first movement of the rocking shaft will cause but a slight movement of
10 the cutters, as their movement for a short distance is nearly parallel with the pivoted arms 16^a, while the arm 20^a, which is elongated, will be rapidly removed from beneath the rod 21, allowing the spring to raise the calipers
15 before the cutters fairly commence their forward movement.

On reversal of the operating-lever the reverse movement takes place, the cutters being first rapidly withdrawn, after which the arm
20 20^a, coming in contact with the rod, forces it upward and throws the calipers down in front of the revolving cutters.

The stop-collar 23 bearing on the guide-plate limits the downward movement of the
25 rod.

The cutter-heads comprise the spindle or shank E^x, carried by the shaft and arranged to receive the boring-tool e, this spindle being
30 screw-threaded for engaging the screw-threaded opening of the cutter-head proper E, which has a recessed face, in the peripheral edge of which is set the cutting-tool e', for trimming the outer edge of the end of the
35 spindle perfectly concentric with the central hole bored by the boring-tool.

We claim as our invention—

1. In combination with the operating tools and the interposed work holders, the guides
40 extending over the faces of the tools, and arranged to center the blank, and means for removing the guides from in front of the faces of tools substantially as described.

2. In combination with the operating tools and the interposed work holders, the guides
45 or calipers held normally over the faces of the tools and arranged to center the blank, means for advancing the tools to operate upon the blank, and means for automatically remov-

ing the guides at the beginning of the movement of the tools, substantially as described. 50

3. In combination with the longitudinally movable revolving tools, and the interposed work holder, the rocking shaft, guide arms or calipers extending from said shaft in front
55 of the face of each tool and arranged to center the blank upon the holder, the means for reciprocating the cutters, and the connections therefrom to the rocking shaft for removing the guides from the face of the cutters, substantially as described. 60

4. A machine for trimming brush spindles comprising the longitudinally movable revolving shafts with means for driving them, the cutters carried thereby, the interposed work holders, the shaft having caliper arms
65 extending normally in front of the faces of the cutters, the rocking shaft having laterally extending arms, the rod and lever connections from said arms to the cutter shafts, the connections from one of said arms to the caliper
70 shaft, means for rocking the shaft to lift the caliper arms and advance the cutters, and means for returning the parts to normal position, substantially as described.

5. In combination, the longitudinally movable revolving shaft carrying cutters, the interposed work holders, the shaft having caliper arms arranged to pass in front of the
75 faces of the cutters, the spring for holding them away from said cutters, an arm extending rearwardly from the caliper shaft, a rod depending from said arm and suitably guided, a rocking shaft with connections to the cutters for advancing them, and an arm secured
80 on said shaft and arranged to lift said rod to depress said caliper arms as the cutters are retracted by the reverse movement of the rocking shaft, substantially as described. 85

In testimony whereof we affix our signatures in presence of two witnesses.

ALLEN D. LINN.
ALTON A. LYTLE.

Witnesses:

L. T. GIBSON,
J. HOWARD MEGREW.