

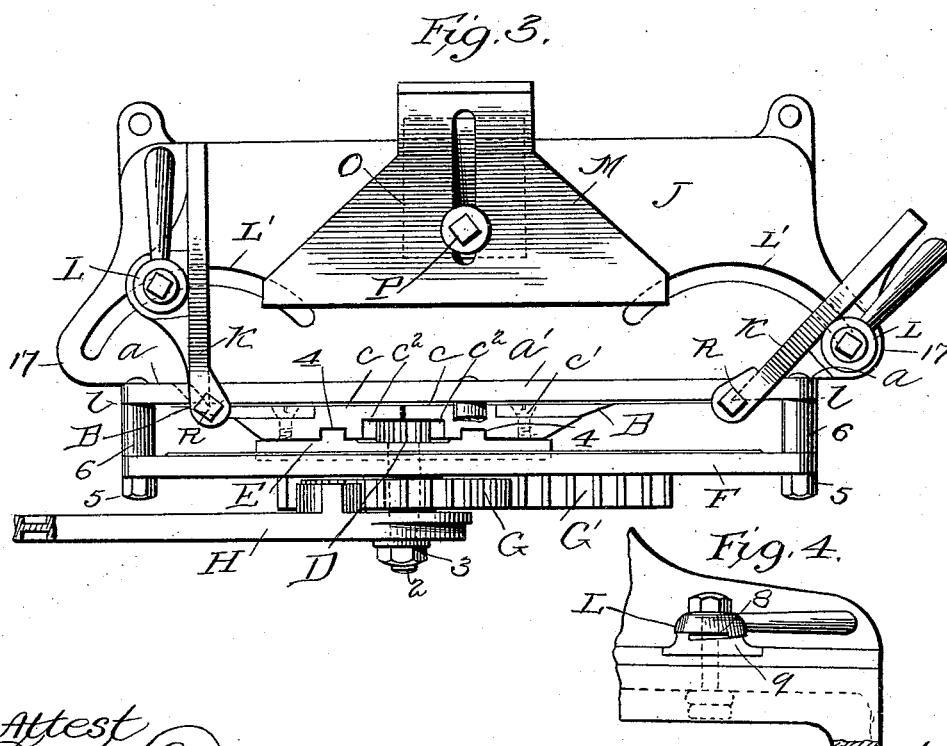
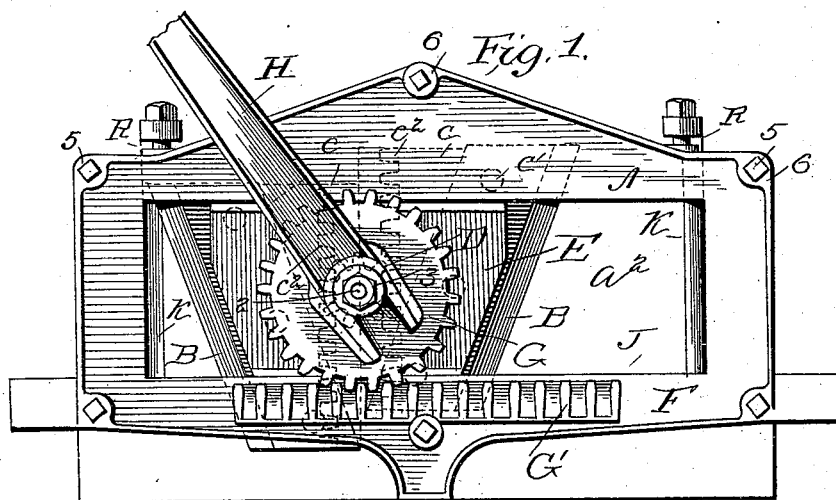
(No Model.)

2 Sheets—Sheet 1.

M. E. STOCKWELL.
TRIMMING MACHINE.

No. 490,837.

Patented Jan. 31, 1893.



Attest
Helen Malden
J. L. Middleton

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ATTY.

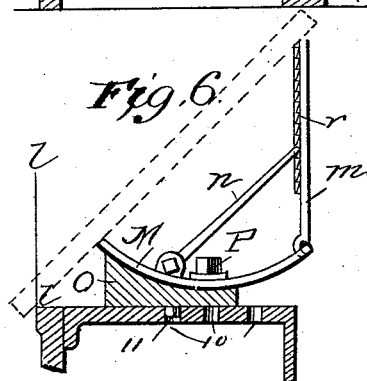
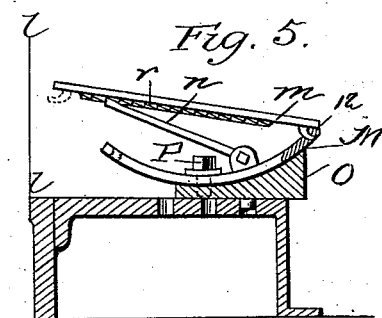
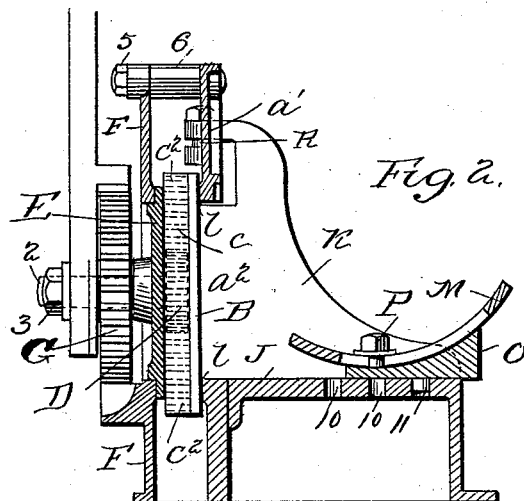
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M. E. STOCKWELL.
TRIMMING MACHINE.

2 Sheets—Sheet 2.

No. 490,837.

Patented Jan. 31, 1893.



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UNITED STATES PATENT OFFICE.

MILLARD E. STOCKWELL, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF
ONE-HALF TO WILLIAM T. HESS, OF SAME PLACE.

TRIMMING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 490,837, dated January 31, 1893.

Application filed April 22, 1892. Serial No. 430,263. (No model.)

To all whom it may concern:

Be it known that I, MILLARD E. STOCKWELL, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Trimming-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

- 10 It is the object of my invention to secure a positive draw cut action of the knives as well as the shear cut, to effect this action through simple mechanism, to employ a single operating lever for effecting the necessary movement both for the shear and draw cut, to provide for the ready removal of the knives and their plates without withdrawing the holding screws, to render the action of the knife and its attached parts positive and certain with entire freedom from liability of springing, and to generally carry out the invention in the simplest possible form.

In the drawings: Figure 1 is a rear view. Fig. 2 an end view in section. Fig. 3 a plan view and Fig. 4 a detail sectional view. Figs. 5 and 6 are detail views of the parallel guide combined with a supplemental guide. Fig. 7 is a detail view of a modification of the parallel guide.

- 30 The bed J may be of any suitable form. At its rear is the line of cut 1, 1, which is traveled by the knife edges and at the ends of which are the posts or vertical parts *a* of the frame. A cross top bar *a'* extends between these posts leaving an open space *a''* for the work to occupy. The knives B, B, extend vertically across this open space and bear upon the rear face of the frame above and below finding a firm support against said face.
- 40 The knives are placed in reverse position relatively to each other and their plates *c*, *c*, (to which they are secured by the screws *c'*) have racks *c''* on their adjacent edges which are far enough apart to admit a pinion D between them to engage the racks which pinion is on the inner end of the shaft 2, which is journaled in the knife carriage E. On the rear projecting end of this shaft a gear G is secured or splined meshing with the stationary rack G' on the rear supplemental frame F. The shaft is turned by a lever H the

forked end of which is clamped to the shaft and gear G by the nut 3. By moving the lever, the gear is turned and meshing with the rack it travels along the same, thus moving the carriage in one direction or the other and with it the knife to perform the cutting operation. At the same time the knife plates are moved vertically on the ways 4 of the carriage E, Fig. 3, by means of the pinion and vertical racks, and the knife which is to cut on this particular stroke is moved downward for instance from the position shown on the right of Fig. 1 and as its cutting edge is inclined upwardly and outwardly a perfect draw cut will be secured the material to be operated on resting against the gage K.

The rear supplemental frame is secured to the rear of the main frame by bolts 5 extending through bosses 6 which properly space the frame F in relation to the main frame so as to leave sufficient room between for the knife mechanism. The knife carrier moves against and is guided by the frame F. In order that either or both of the knives may be removed for grinding or replacing the handle is removed, the gear G is then slipped back on its shaft out of mesh with the stationary rack where it may be used to turn the shaft freely and thus move the knife plates vertically until they no longer mesh with the pinion when they may be lifted out. I prefer to move the carriage to the center of the machine in removing the knives as they will then lie on opposite sides of the central boss 6. The gages are pivoted at R to the frame *a* and are held adjustably in desired angular position by the clamps L and the curved slots L' which extend outside the side lines of the machine, being formed by extensions 17. This allows a great range of adjustment and the gages may be fixed in any position by a partial turn of the clamps L, which have inclines 8, the lower part of the clamps being formed on a movable piece 9, Fig. 4.

M is the parallel guide held adjustably upon a curved seat block O by a clamp screw P passing through a slot in the guide. The guide is curved and is adjusted to vary the angle of the work by working the guide up or down on its block and securing it in adjusted position.

The seat is thicker at one end than at the other and it is held by the pin 11 engaging either one of a series of holes 10, being thus adjustable and reversible, as shown in Fig. 6, in which the thicker end is nearer the line of cut 1—1. In order to secure a greater range of adjustment to vary the angle of the work to the knife I provide the supplemental guide *m* pivotally and removably connected to the guide M at 12 and adjustable as to inclination by the bar *n* engaging the teeth *r* on the guide plate, the piece to be cut being represented by the dotted lines of Fig. 6.

Fig. 7 shows a modified form of adjustable parallel guide in which the guide bar M' is held and adjusted by the links *n'* the lower ends of which are adjustable in the slots 13 in the edge of the bed. The parallel guide may be used in conjunction with the gages K to hold the work in various positions which will be clear to those skilled in the art. The parallel guide is of sufficient width to furnish a good bearing for the work and the same is true of the supplemental guide plate *m* which enables the workman to cut pieces of any length and short pieces especially. The reversing of the parallel guide M with its block O enables the workman to get the proper bearing for either a long or short piece and by adjusting it on the curved seat the bearing edge is raised and lowered. The parallel guide may be turned on its seat in order that its rear bearing edge will be at an angle to the cutting edge and thus support the work at the proper angle to form the bevel.

It will be seen from the plan view that the sides of the gage M are at an angle to the cutting line and they converge toward the front of the machine. The material to be cut may be placed along these edges when desired, thus increasing the capacity of the machine and the facility with which the work can be handled.

By the use of the concave main gage a space is provided for the reception of the adjusting devices of the supplemental gage.

I claim as my invention:—

1. In combination, the frame, the knife carriage movable thereon, the knife movable on the carriage in addition to the carriage movement, the rack connected with the knife, the pinion on the carriage meshing with the knife rack and the means for operating the carriage and turning the pinion extending from the carriage into connection with the frame, substantially as described.

2. In combination the frame the knife carriage and knife the means for moving the carriage and knife laterally for the shear cut, the knife guided on the carriage to have additional movement up and down in relation to the work, said knife having an inclined cutting edge, and the means for moving the knife downward as it moves laterally on its cutting stroke from the center toward the end post of the frame substantially as described.

3. In combination the frame, the knife car-

riage the knives, the knife plates guided to move on the carriage, the racks along the opposing edges of the plates, the pinion between the plates and meshing with the racks and means for operating the pinion substantially as described.

4. In combination, the frame, the rack thereon, the carriage having guide ways for a knife movable thereon, the rack connected with the knife and the gear wheel connection between the rack on the frame and the knife rack said connection being carried by the carriage, substantially as described.

5. In combination the frame the knife carriage, the knife carried thereby to move up and down, the shaft journaled in the carriage, the gear G on said shaft, the rack on the frame meshing with the gear and the pinion and rack connection between the shaft and the knife substantially as described.

6. In combination the frame having an opening above the knife way, the knife the carriage therefor, the shaft journaled in the carriage the means for moving the knife up and down consisting of the gearing from the shaft to the knife plate arranged to permit the free removal of the knife plate when the gearing is released, and the means for moving the carriage laterally comprising the stationary rack and the shifting gear wheel G whereby the knives may be removed substantially as described.

7. In combination the frame the knife, the carriage therefor, the shaft journaled in the carriage, the means for moving the knife up and down consisting of the connection from the shaft to the knife plate, the stationary rack on the frame, the gear wheel G on the shaft engaging said rack the removable handle, said gear being adapted to be shifted out of engagement with the rack and being arranged to be held in engagement by the handle substantially as described.

8. In combination, the frame, the carriage, the knife plate movable vertically on said carriage and arranged between the same and the face of the frame, the means for operating the carriage and the knife plate thereon, and the guiding and holding means for the carriage comprising a supplemental frame F extending parallel with the main frame in the plane of the carriage and engaging therewith said supplemental frame being secured to the main frame with a space between them for movement of the interposed parts, and for the removal vertically of the sliding knife plate, substantially as described.

9. In combination, the main frame, the knife and carriage, the end gages K, and the intermediate parallel gage of curved form, the seat therefor arranged centrally between the end gages, said parallel gage having its rear bearing portion extending laterally of the central seat and of the main part of the gage, substantially as described.

10. In combination, the main frame, the knife and carriage therefor, the gage seat hav-

ing a curved upper face, the main gage plate
M adjustably held therein and being curved
to conform to said seat and provide a concave
upper side the supplemental gage pivotally
5 connected with the main gage and the adjust-
ing mechanism for the supplemental gage ar-
ranged between the same and the concave face
of the main gage, substantially as described.
11. In combination, the main frame, the
10 knife and knife carriage, the main adjustable
gage M having a concaved upper face, the
supplemental gage removably pivoted thereto
by a projection and socket connection, the
teeth on the supplemental gage and the hold-
15 ing bar engaging therewith and pivotally con-

nected with the upper face of the curved main
gage, substantially as described.

12. In combination, the main frame, the
knife, the carriage therefor, the end gages K
adjustably supported, and the parallel gage 20
M adjustably connected to the bed intermedi-
ate of the gages K, the said gage M having in-
clined side edges converging toward the front
of the machine, substantially as described.

In testimony whereof I affix my signature in 25
presence of two witnesses.

MILLARD E. STOCKWELL.

Witnesses:

WM. T. HESS,

C. VAN CLEVE GANSON.