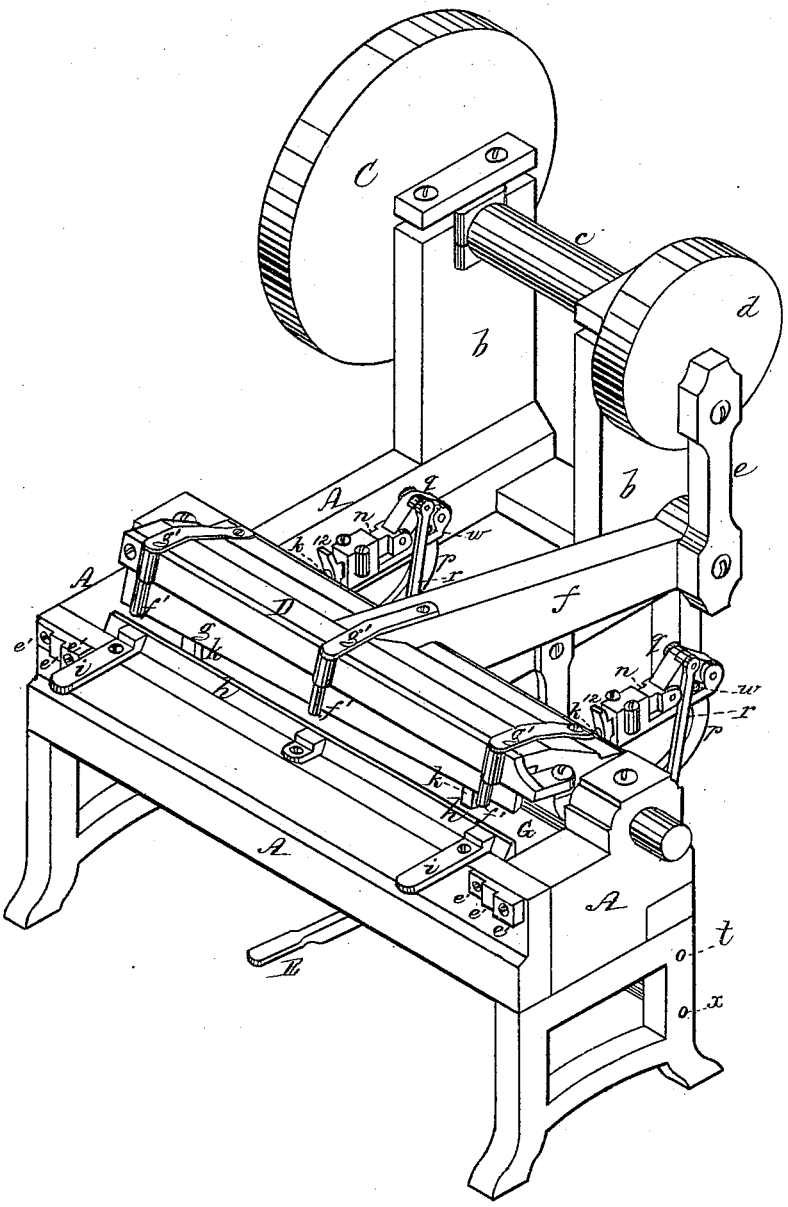
2 Sheets—Sheet 1.

L. SOULE.

MACHINE FOR CUTTING NAIL-PLATES.

No. 181,993. Patented Sept. 5, 1876.

Fig. 1



Witnesses;
W. J. Cambridge
J. C. Cambridge

Inventor,
Leander Soule
per Teschemacher & Searns
Attys.

2 Sheets—Sheet 2.

L. SOULE.

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Fig. 2

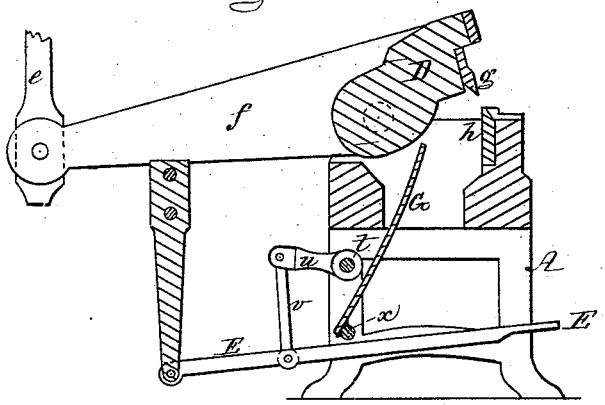


Fig. 3

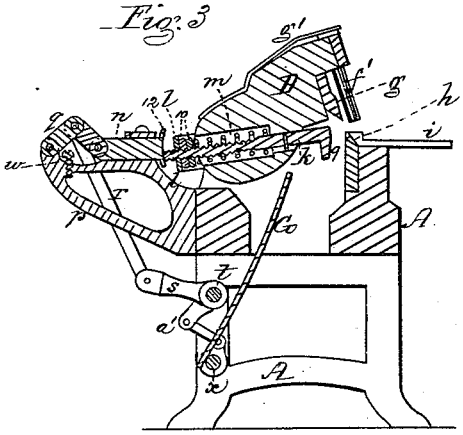


Fig. 5

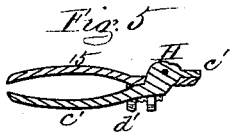
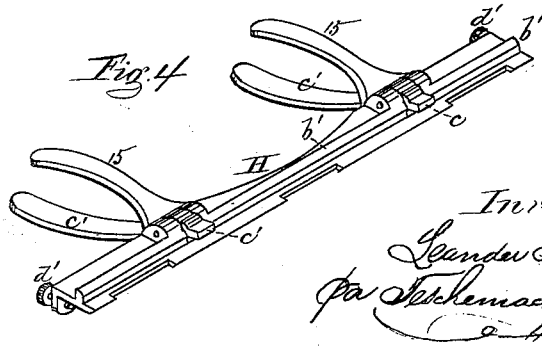


Fig. 4



Witnesses;
W. J. Cambridge
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Inventor,
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UNITED STATES PATENT OFFICE.

LEANDER SOULE, OF TAUNTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR CUTTING NAIL-PLATES.

Specification forming part of Letters Patent No. **181,993**, dated September 5, 1876; application filed August 10, 1876.

To all whom it may concern:

Be it known that I, LEANDER SOULE, of Taunton, in the county of Bristol and State of Massachusetts, have invented certain Improvements in Machines for Chopping or Cutting up Sheet Metal into Tack and Nail Plates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved machine. Fig. 2 is a vertical section through the center of the same. Fig. 3 is a vertical section through the same, taken in a plane passing through one of the adjustable gages and its operating mechanism. Fig. 4 is a perspective view of the holder, by which the last piece of the plate is held and presented to the cutters to be trimmed. Fig. 5 is a vertical section through the holder.

The machine used for chopping or cutting up sheet metal into tack or nail plates, as heretofore constructed, has been provided with one or more gages, capable of adjustment, to vary the width of the strip to be cut; and as the edge of the plate from which the strips are to be cut is not often square or even, (rendering it necessary to trim off the front edge before cutting into strips,) it has heretofore been customary to first set the gage or gages close up to the cutters for trimming, and then trim the edges of a considerable number of plates, after which the gage or gages have been again adjusted at the proper distance from the cutters, and the trimmed plates then cut up into strips for nail or tack plates. These operations necessitate two separate handlings of each plate—once for trimming the edge, and again for cutting up.

The object of the first part of my invention is to overcome this objection; and consists in the combination, with the cutters, of one or more adjustable gages, which are connected with a treadle or lever mechanism, and provided with suitable stops, by which construction the gage or gages can be instantly set by a movement of a treadle or lever at the required distance from the cutters for trimming, and after the edge of the plate has been trimmed, again adjusted by the operating mechanism to the required distance from the cutters for cutting up the plate, which thus requires to be handled but once.

My invention also consists in an adjustable holder, which is operated by hand or by suitable mechanism, this holder being intended to hold the last piece of the plate, (reversed,) and present it to the cutters, so that a strip of proper width may be cut therefrom, it having been heretofore necessary to trim this last piece in an ordinary slitting-machine, as it could not be cut by the chopping-machine on account of not having sufficient width to allow of its being held up to the cutters.

My invention also consists in a series of graded stops for the holder to strike against, these stops projecting out more or less, in order to regulate the width of the last strip, so that it may be readily cut of the greatest possible width that the last piece will admit of.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the frame-work of the machine, from the rear of which rise two standards, *b b*, in bearings at the top of which runs the driving-shaft *c*, which carries at one end the fly-wheel C, and at the opposite end a disk, *d*, provided with a crank-pin, to which is secured the upper end of a connecting-rod, *e*, the lower end of which is pivoted to a long arm, *f*, projecting from the upper cutter-lever D, which is pivoted between the side pieces of the frame A, and carries the upper cutter *g*, the lower or bed cutter *h* being secured to the front side of the frame A, to which are also secured projecting rests *i i*, which serve to support the plate while it is being fed forward to the cutters.

k k are adjustable gages for regulating the position of the edge of the plate with respect to the cutters, and as these gages and their operating mechanism are of exactly similar construction, I will describe but one.

The gage *k* is provided with a head, 9, and slides in a suitable aperture extending through the upper cutter-lever D, the rear portion of

the gage being provided with a screw-thread, over which fit lock-nuts 10, the outer one of which strikes against a guide, *l*, when the gage is forced backward by the action of a spiral spring, *m*, which surrounds it; and by means of these nuts the position of the gage, when thrown back, can be regulated for a nail or tack plate of any desired width. The gage is advanced so as to bring it close up to the cutters, when the edge of the plate is to be trimmed in the following manner: Against the rear end of the gage abuts the curved end 12 of a slide, *n*, which is supported in a guide on the top of a bracket, *p*, and is connected with a toggle-joint, *q*, to which is pivoted a rod, *r*, the lower end of which is jointed to an arm, *s*, projecting from a rocker-shaft, *t*, to an arm, *u*, projecting from which shaft *t* is pivoted a rod, *v*, connected with a treadle, E; and by means of these connections, when the treadle is depressed by the foot, the gages *k k* are pushed forward against the resistance of their springs *m m* into the proper position to gage the plate while its edge is being trimmed, a screw, *w*, beneath each toggle-joint forming an adjustable stop for limiting the downward movement of the toggle, whereby the distance of the gages from the cutters, when brought up for trimming, can be regulated as desired.

The curve of the end 12 of the slide *n* corresponds with that of the path described by the end of the gage when the lever D is moved to operate the cutter.

As soon as the operation of trimming has been completed the foot is removed from the treadle, when the gages will be carried back by the springs *m* until the stop-nuts 10 come into contact with the guides *l*, when the gages will be in the proper position for the operation of cutting up the plates into strips, as before stated; and it will thus be seen that the operations of trimming the edge of the plate and cutting or chopping it up into strips can both be performed with a single handling of the material, whereby a saving in time of from twenty-five to forty per cent. can be effected, according to the width of the strips into which the plate is cut.

If desired, two gages or sets of gages may be employed—one gage or set of gages for use in trimming the edge of the plate, and the other in cutting it into strips; and instead of a sliding gage, as shown, one of any other suitable construction, the position of which can be readily adjusted by a treadle or other mechanism, may be employed, if preferred; and, if desired, a hand-lever may be employed, instead of a treadle, for operating the gages.

G is a long metallic apron, which is secured at its lower edge to a rock-shaft, *x*, which is connected with the rock-shaft *t* by a connection, *a'*, so that when the treadle is depressed to bring up the gages for trimming, the apron G will be moved into such a position as to catch the waste-piece trimmed off the edge of the plate and guide it into a separate receptacle from that into which the strips fall after being cut. The apron is moved out of the way simultaneously with the withdrawal of the gages, so as not to interfere with the dropping of the strips into their proper receptacle.

When the plate has been "chopped" or cut up to the last piece, it becomes necessary to employ a holder, H, Fig. 4, as this piece of the plate is not of sufficient width to allow of its being held up to the cutters. In using the holder H, the last piece of the plate is reversed, and its square-cut edge brought up against the projecting ledge or gage *b'*, in which position it is held by the griping-levers *c'*, which, with the handles 15, are grasped by the hands of the operator. The holder, with the piece of plate, is then placed upon the rests *i i*, and moved forward by hand so as to properly present the last piece to the cutters, the forward movement of the holder being arrested when it has arrived in the desired position by the adjustable gage-screws *d' d'* at its opposite ends coming into contact with stops *e'*, projecting from the front of the frame A. These stops are graded, or made to project out more or less from the front of the frame, and by moving the holder H slightly in a lateral direction, the screws *d'* may be brought into contact with either of the stops *e'*, which affords a ready means of regulating the width of the last strip so that it may be cut of the greatest possible width that the last piece will admit of.

Instead of moving the holder H by hand, it may be operated by suitable mechanism, if desired, and the stops *e'* may be stationary, as shown, or adjustable, if preferred.

f' f' f' are presser-bars, which slide in guides attached to the front of the cutter-lever D, each bar being held down by a spring, *g'*, bearing against its upper end, and thus, when the upper cutter *g* is brought down to sever a strip from the plate, the lower ends of the presser-bars are brought into contact with the upper surface of the plate, the springs *g'* yielding as the lever D continues to descend, and causing the presser-bars to hold the plate firmly down upon its bed while being cut, whereby it is prevented from tipping up, and a square even edge is thus insured.

If desired, the springs *g'* may be dispensed with, and the presser-bars operated by cams, inclines, or other suitable mechanical devices.

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

1. In combination with the cutters *g h*, one or more adjustable gages, connected with a treadle or lever mechanism, and provided with suitable stops, to enable them to be instantly set at different distances from the cut-

ters, as required in trimming the edge of the plate and cutting it into strips, substantially as described.

2. In combination with the plate-cutting machine, the holder H, with its ledge *b'*, griping-jaws for holding the plate, and adjustable gage-screws *d'*, substantially as and for the purpose set forth.

3. The graded stops *e'*, in combination with the holder H, with its gages *d'*, substantially as and for the purpose described.

Witness my hand this 7th day of August, A. D. 1876.

LEANDER SOULE.

In presence of—
P. E. TESCHEMACHER,
W. J. CAMBRIDGE.