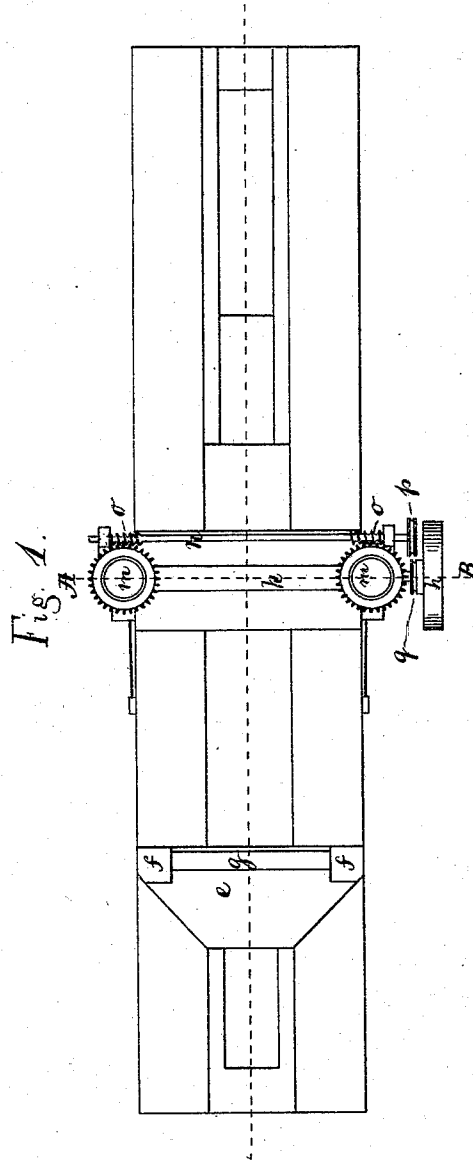
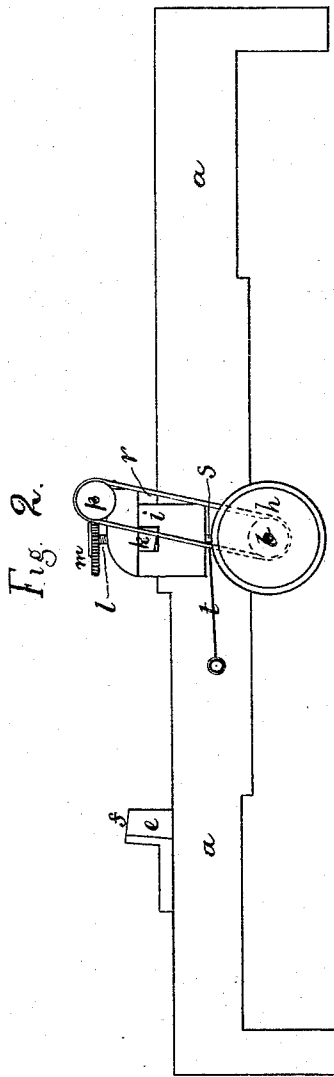


S. C. SYMONDS.

MACHINES FOR PLANING METALLIC ORGAN STOCK.

No. 178,033.

Patented May 30, 1876.



Witnesses.
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C. Frank Whittemore.

Inventor.
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his atty.

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Fig. 4.

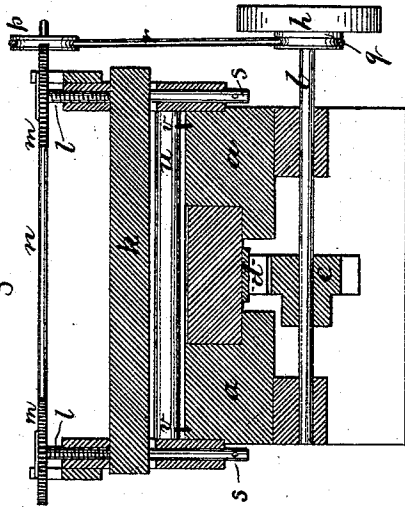
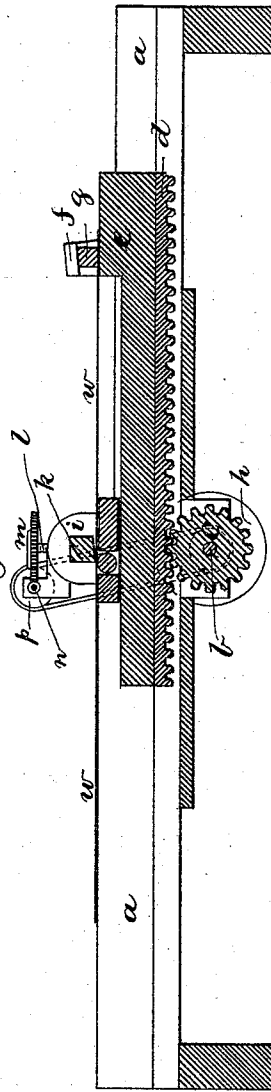


Fig. 3.



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UNITED STATES PATENT OFFICE.

SAMUEL C. SYMONDS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR PLANING METALLIC ORGAN-STOCK.

Specification forming part of Letters Patent No. **178,033**, dated May 30, 1876; application filed November 22, 1875.

To all whom it may concern:

Be it known that I, SAMUEL C. SYMONDS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Planing Metals; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in metal-planing machines; and consists in the combination and arrangement of the devices employed, as hereinafter more fully set forth.

On the accompanying drawings, Figure 1 represents a ground plan of my invention. Fig. 2 represents a side elevation. Fig. 3 represents a longitudinal section; and Fig. 4 represents a transverse section on the line A B, shown in Fig. 1.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

This invention is intended for the purpose of planing organ-pipe stock, or other soft metal, in such a manner that the planing or shaving tool, which is stationary, shall at one and the same time act upon the whole width of the sheet. Previous to this my invention, organ-pipe stock used to be planed by hand-labor, which rendered the plates very uneven in thickness, besides being a very slow and costly operation. My improved planing-machine is also arranged so as to plane tapering sheets that are used for organ-pipes as well as for other purposes.

My invention consists of the following elements—viz: A stationary frame, below which is located, in stationary bearings, a shaft that is set in a rotary motion alternatively to the right and left by means of belt-power or its equivalent. To said shaft is secured a pinion, that engages into a rack attached to a clamp, in which one end of the metallic sheet is held firmly during the operation of planing or shaving the latter. The sheet that is to be planed or shaved is drawn, by the reciprocating clamp and its operating mechanism, be-

tween a stationary bed-plate, or a roller rotating in stationary bearings, and an up-and-down adjustable knife, which knife is made of sufficient length so as to act simultaneously on the whole width of the sheet that is to be planed. The said knife is adjustable in stationary guides, provided with pressure-screws from above the knife. The pressure-screws are coupled together by means of a horizontal shaft provided with a pair of worms, that engage into worm-wheels secured to the upper end of each pressure-screw. Below the knife, in each of its guides, is arranged a lifting device, by means of which the knife can be raised above the sheet during the return stroke of the latter. For the purpose of planing or shaving a tapering sheet, I couple the driving-shaft to the worm-shaft above named, either by means of belts or their equivalents, or by an intermediate shaft, as may be desirable, by which the pressure-screws are made to press the knife downward simultaneously with the advance of the sheet, and by the employment of different sizes of pulleys or wheels I am thus able to plane any desired taper. The roller located below the knife is employed for the purpose of relieving the friction between the sheet and the stationary bed-plate; but for certain kinds of metals I prefer to lock said roller by means of a pin or otherwise, so as to hold it stationary without rotation, in which case it serves the purpose of a stationary bed-plate.

a represents the stationary frame, and *b* represents the driving-shaft, rotating to the right and left in stationary bearings in the frame *a*. *c* represents the pinion secured to the shaft *b*, that engages with the rack *d*, attached to the clamp *e*. The clamp *e* is shown in the drawings as consisting of the tapering jaws *f f*, between which and the lower part *e* is inserted a tapering block, *g*. The sheet to be planed is held or wedged firmly between the under side of the block *g* and the plate *e*; but I wish it distinctly understood that I do not confine myself to this exact construction of a clamp, as I can to equal advantage secure the end of the sheet to the reciprocating clamp by means of set-screws or equivalent devices. *h* represents the driving-pulley on the shaft *b*. *i i* represent the stationary

guides for the knife *k*. *l l* represent the pressure-screw, above the knife *k*, and *m m* represent their worm-wheels. *n* represents the worm-shaft provided with the worms *o o*, that engage into the worm-wheels *m m*. *p* represents a pulley on the worm-shaft *n*, and *q* represents a pulley on the driving-shaft *b*, by means of which and a suitable belt or cord, *r*, the screws *l l* are made to force the knife *k* downward automatically during the advance of the sheet that is to be planed. When I desire to plane a parallel sheet I disconnect the driving-shaft from the aforesaid worm-shaft.

Below the knife *k* are arranged in each end a pressure-bar, *s s*, and a spring or lever, *t t*, by means of which the knife *k* can be raised upward so as to allow the sheet operated upon to be drawn freely backward between the knife *k* and the stationary bed-plate without coming in contact with the former. *u* represents the roller below the knife *k*, which roller may be allowed to rotate loosely in its stationary bearings during the advance of the sheet; or it may be locked stationary by means of pins *v v*, or their equivalents, as may be required. *w* represents a metallic sheet that is operated upon by the planing-machine.

What I wish to secure by Letters Patent, and claim, is—

1. In combination, the stationary frame *a*, the reciprocating sheet-holding clamp *e*, the stationary or rotary bed-plate *u*, and the up-and-down-adjustable knife *k*, substantially as and for the purpose set forth.

2. In combination, the frame *a*, clamp *e*, bed *u*, adjustable knife *k*, the pressure-screws *l l*, worm-wheels *m m* and the worm-shaft *n*, with its worms *o o*, and the lifting device *s s t t*, as and for the purpose described.

3. In combination with the driving-shaft *b*, pinion *c*, rack *d*, and clamp *e*, the pulleys *p q* and the belt *r*, or their equivalents, and the connecting mechanism to the pressure-screws *l l*, as and for the purpose set forth and described.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

SAMUEL C. SYMONDS.

Witnesses:

ALBAN ANDRÉN,
HENRY CHADBOURN.