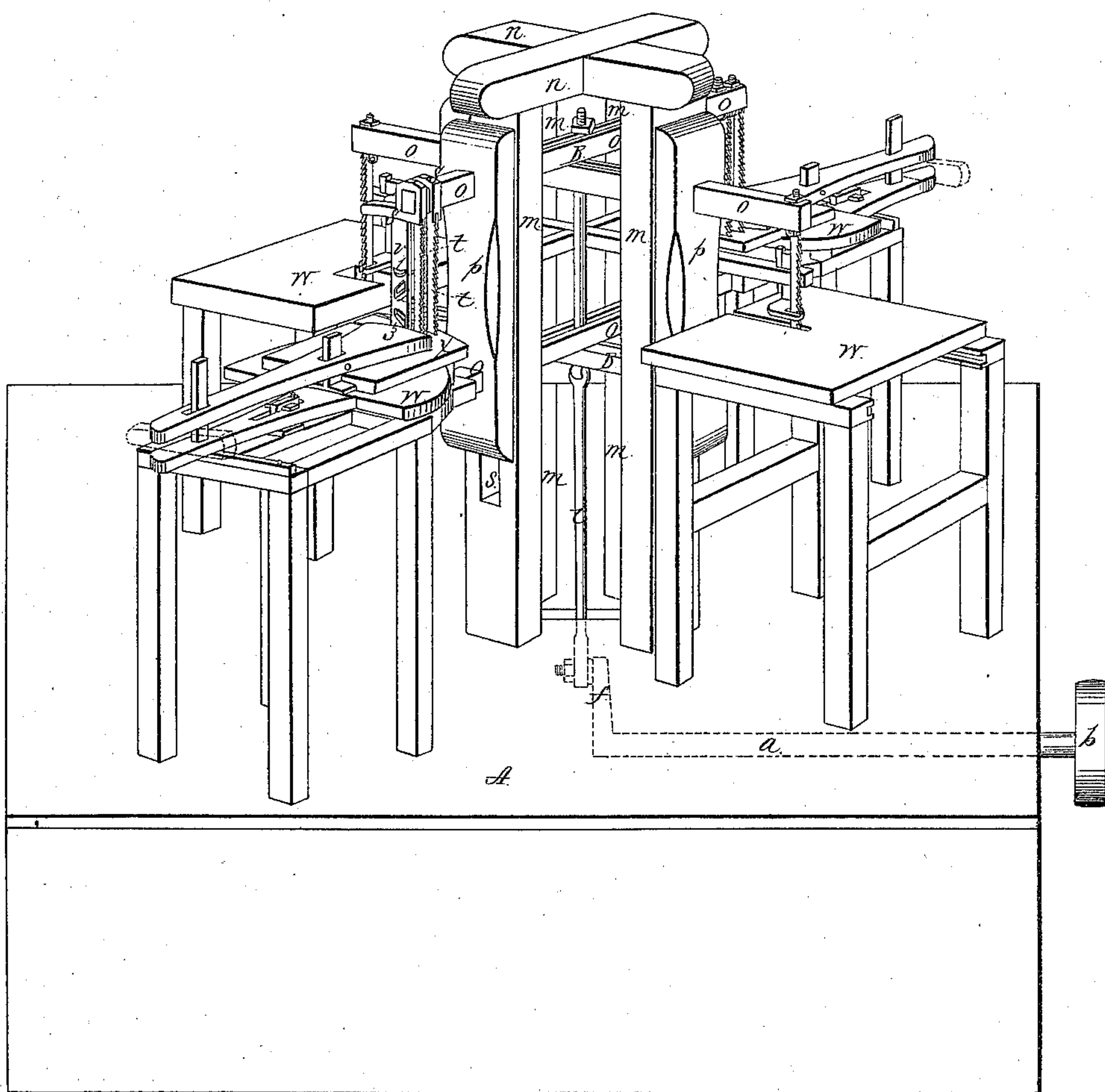


D. Close,
Scroll Sawing Machine,
No. 11,473, Patented Aug. 8, 1854.



UNITED STATES PATENT OFFICE.

DANIEL CLOSE, OF HARMONSBURGH, PENNSYLVANIA.

SAWING AND PLANING MACHINE.

Specification of Letters Patent No. 11,473, dated August 8, 1854.

To all whom it may concern:

Be it known that I, DANIEL CLOSE, of Harmonsburch, in the county of Crawford and State of Pennsylvania, have invented
5 certain new and useful Improvements in Sawing and Planing Mills, of which the following is a full and exact description, reference being had to the accompanying drawing of the same, making part of this specification.
10

My invention and improvement consists in the peculiar construction, arrangement, and combination of reciprocating planes and saws, which are hung on a frame capable of
15 carrying from one to four distinct saws or gangs of saws and planes, as the nature of the timber under operation or the shape of the pieces to be sawed out may require, each set of planes and saws or gang of saws being provided with a separate carriage or
20 rest to hold the wood to be cut, at each of which different persons may at the same time be working. Each saw or set of saws with their planes can be adjusted so as to
25 project out over the carriages, and the block or plank being sawed, to a greater or less distance as circumstances may require.

I will premise that my sawing machine is mainly intended for the purpose of cutting
30 up plank and scantling into variable sizes and forms in joiners', cabinet makers', carriage builders' and other shops of a similar character, in which the operation of working in wood is the chief business.

35 In the accompanying drawing (A) represents a part of the floor of the shop beneath which the machinery for operating the saws is placed, and which is seen in dotted lines, *a* being the main driving shaft,
40 which carries a pulley (*b*) that propels it by motion received from steam, water, or other power. On the inner end of the driving shaft (*a*) a fixed crank (*f*) is secured, the wrist pin of this crank being jointed to
45 a connecting rod (*i*), which is in turn jointed to the saw and plane frame (B). By this arrangement each revolution of the crank (*f*) produces a vibration of the connecting rod (*i*) which communicates to the saw
50 frame (B) a similar motion. This arrangement of the driving machinery which moves the sawing apparatus proper may be varied so as to suit the peculiar circumstances under which the apparatus may be made in
55 different places, as each particular constructor may deem expedient.

Upon the floor (A) four perpendicular posts (*m*) are erected, each standing on the middle of one of the four sides of a square, their sides being parallel and the upper ends
60 of those on opposite sides being joined by ties (*n*) which are halved together at right angles, in the manner of a cross. The opposite posts have parallel slots (*s*) made through them, in which the arms (*o*) are
65 placed in pairs and in which they are well fitted, but not so tightly as to prevent their playing freely up and down.

The arms (*o*) are held at the proper distance apart by the stretching bars (*p*) which
70 have mortises made through them that slip over the end of the arms, the inner sides of these bars resting against the sides of the posts for the purpose of guiding the frame when it oscillates up and down in a vertical
75 direction that it may give motion to the saws and planes which it carries in a truly vertical plane. There may be a series of rollers between the face of the posts (*m*) and the stretching and guide bars (*p*) if it is
80 thought necessary for the purpose of lessening the friction. The arms and stretching bars are held firmly together by the binding rod *q* which passes through the arms (*o*)
85 having a head on its lower end and a screw and nut on its upper end. The pair of arms passing through one pair of posts, cross those which pass through the other, which
90 arrangement admits of both pairs of arms being moved endwise in either direction, for the purpose of causing them to project with
95 their saws and planes more on one side than on the other, in order to reach to the middle or outer side of an unusually wide plank. This extreme projection on one side of the
100 frame would be productive of great inconvenience, if constant, and therefore as soon as the exigency for which they were thus arranged has passed they may be readjusted again so as to project equally on both sides,
105 by merely loosening the nut on the upper end of the bolt *q*, driving in the arms and then screwing down the nut again. The saws (*t*) and planes (*v*) are attached to the arms (*o*) by means of stirrups (*s*) and screws
110 between the projecting ends of the arms, and either one saw and its plane or a gang of both may be secured between any pair of arms, as desired.

For each plane and saw or gang of saws a
table (*w*) is provided which is surmounted
by either a turning carriage or one that

reciprocates in right lines. These carriages and the tables are provided with suitable stops and clamps to hold the plank or scantling, which are made in the usual, or in
5 any convenient manner. I have only represented one pair of the saws and the planes in actual operation, and these are cutting a plank (x) into fellies for a carriage wheel
10 the distance between the saws being precisely the width which the felly is required to be made.

The plane (v) consists of a plate of steel like the plate of the saw (t) which precedes it, but instead of saw teeth on its edge I
15 pierce its sides with openings (1, 2, 3) and file the lower edge of this opening into the proper form to perform the duty of a common plane iron, and set this edge out from the side of the plate, to the proper distance
20 to cut a shaving of the required thickness, the upper plane (1), which is in the form of a gouge for rough or jack-planing, projecting least and the others (2 and 3), which have straight edges, projecting a little farther, so as to take thin shavings to give a
25 finish to the surface. These planes are arranged to cut on the up stroke and the saw to cut on the down stroke, the two thus counterbalancing each other in
30 such manner as to equalize the resistance and make the machine work more smoothly and evenly than when using a saw alone which works on the down stroke only.

As the operation of sawing and planing
35 in all its variations is well understood by

practical workmen, it is unnecessary here to enter into any details respecting it.

I am aware that saws and planes have been combined so as to work simultaneously, whereby the strain upon the mill is greatly
40 increased and its motions rendered more irregular. I am also aware that a pair of planes have been proposed one of which cuts on the up and the other on the down stroke
45 of the crank in connection with a saw to cut on the down or up stroke, but I am not aware that prior to my invention the saws and planes have been arranged to operate alternately.

Having thus described my improved machine for sawing and planing wood into
50 different forms, what I claim therein as new and desire to secure by Letters Patent is—

The arrangement of one or more saws to cut on the down stroke in combination with
55 one or more planes to cut on the up stroke of the crank substantially as herein set forth; whereby the sawing and planing are performed alternately which tends to equalize the motion of the machine and make
60 both instruments work more smoothly so that it takes very little more power to drive both than it would to drive either.

In testimony whereof I have hereunto subscribed my name.

DANIEL CLOSE.

Witnesses:

P. H. WATSON,
JAMES MILLER.