

Spring & Derrick,

Planing and Matching Machine.

No. 6,249.

Patented Apr. 3, 1849.

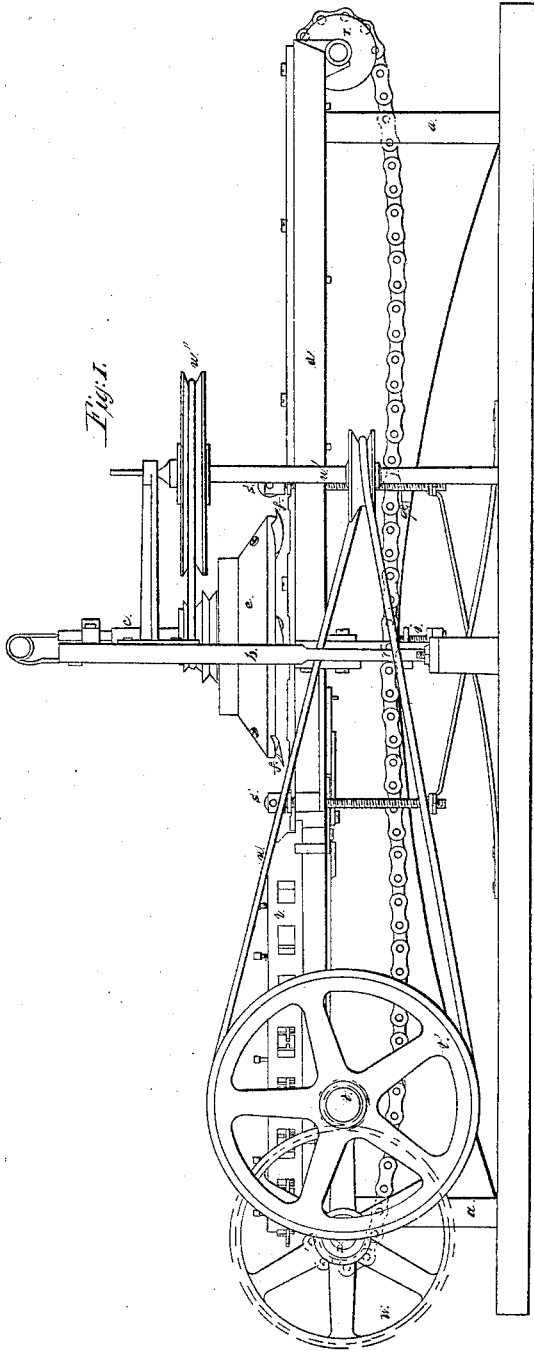
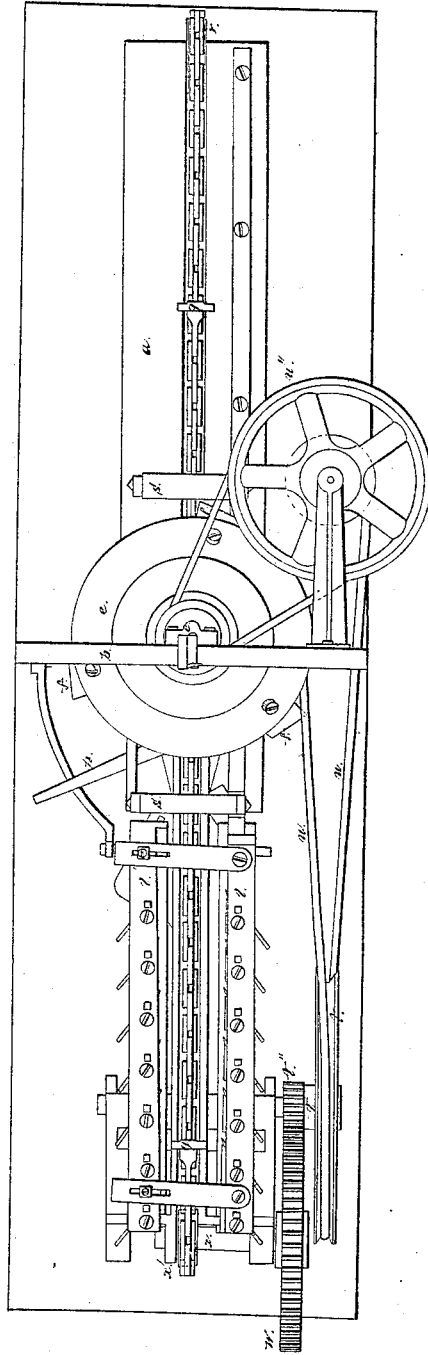


Fig. 2.



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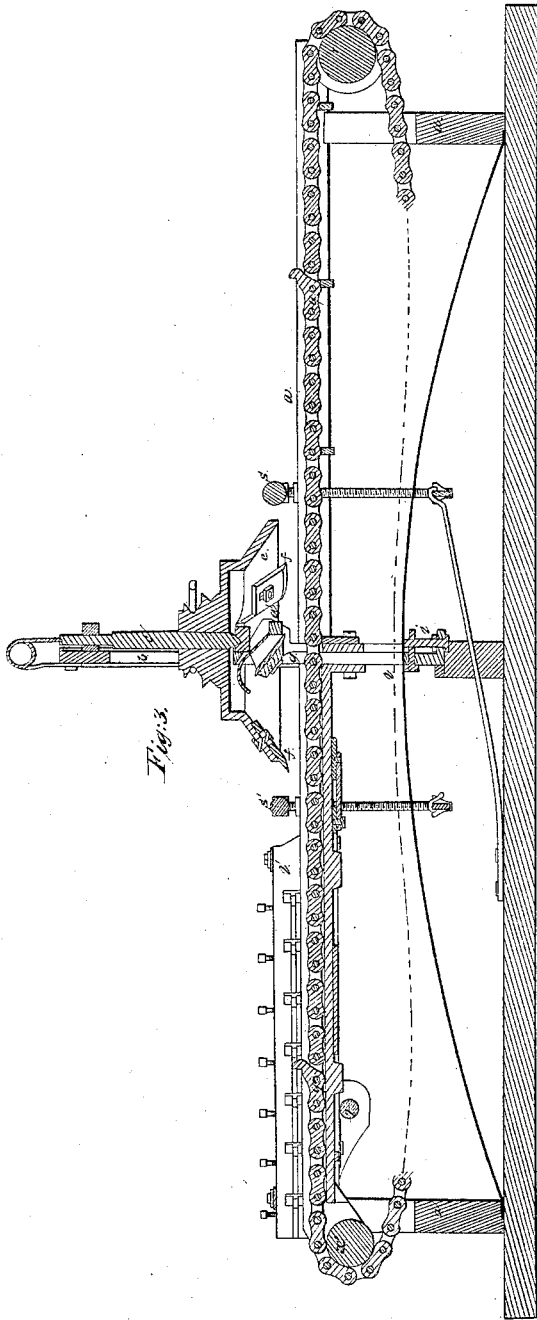
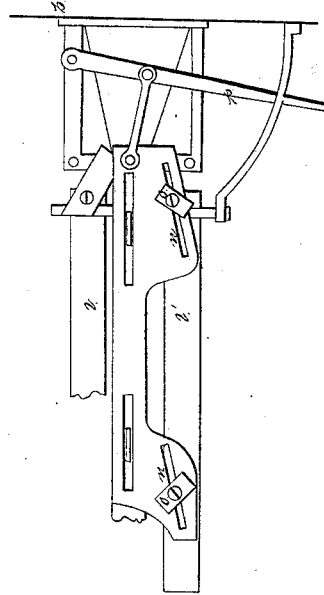


Fig. 3.

Fig. 4.



UNITED STATES PATENT OFFICE.

CHS. A. SPRING AND WM. H. DERICK, OF KENSINGTON, PENNSYLVANIA.

PLANING-MACHINE.

Specification of Letters Patent No. 6,249, dated April 3, 1849.

To all whom it may concern:

Be it known that we, CHARLES A. SPRING and WM. H. DERICK, of Kensington, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Planing, Tonguing, and Grooving Boards, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawing, that forms a part thereof in which—

Figure 1, is a side elevation. Fig. 2, is a top plan. Fig. 3, longitudinal section through the center of the machine. Fig. 4 detached section showing the mode of moving the grooving apparatus.

The nature of our invention consists in the construction and arrangement of the cutter knives or bits for planing boards, and reducing them to a thickness, and also tonguing and grooving the same all at one operation.

The machine consists of the following parts: First, a suitable frame or bench (*a*) on which the plank rests and slides under the cutters, and which is also made to support the other parts of the machine. This is somewhat similar to many machines for the same purpose now in use, only it is narrower; it is made sufficiently strong to sustain the parts that are attached to it, all of which is left to the judgment of the constructor. Near the center, or at the proper point on said bench, there is an arch of metal (*b*) fastened, that extends up a sufficient distance above the bench, to support the upper journal of a vertical shaft, (*c*), on which a disk (*e*) is fixed, in shapes either an obtuse cone or bell-formed, with the concave side downward; to the rim or base of this cone we attach knives (*f*) which are gage-shaped on their edges, and project a little beyond the rim; they are fastened to the concave sides, as shown in the section, Fig. 3, the center space under the cone is occupied by a frame (*g*) in which there is a stationary plane bit, the width of the plank to be planed, or wider. This frame slides up and down in ways affixed to the main frame (*a*) of the machine which may be in one piece with the arch. This frame (*g*) has a bar (*a'*) affixed to it directly in front of the plane bit, and rising and fall-

ing with it, which serves to steady the board in its position; and the space between it and the bit forms what is ordinarily known as the throat of the plane; on the upper part of the frame (*g*) there is a step, in which the lower end of the shaft (*c*) runs, so that when the frame (*g*) is made to rise and fall, the shaft (*c*) and disk (*e*) moves up and down with it, by which means the thickness of the plank is gaged; the movement of the frame is effected by means of a screw (*i*) below the bed of the bench; the plank passes into the machine under a roller *s* or between a pair of rollers at the same point which may serve as feed rollers by being properly geared, as is well known to machinists, or it may be fed in as shown in the drawing, by means of an endless chain, as will be more clearly described hereafter. The plank, when it reaches the disk cutter is reduced by the gouges to a uniform thickness, and then passes under the stationary bit; after which it is bent downward, so as to clear the rear edge of the disk, and then approaches the tonguing and grooving apparatus.

The tonguing apparatus is shown at (*l*) and consists of a bar or stock of metal (*l*) fixed permanently to the face of the bench, in which twelve bits, more or less, are inserted, like those used in hand planes, the number of bits being sufficient to cut the tongue at one operation, are so placed that each succeeding one will be set out far enough to take a shaving off beyond the one preceding it, until the tongue is complete. The grooving bits are similarly arranged in a bar (*l'*), but the bar in which they are placed is made to have a lateral motion, by means of an apparatus shown in the detached section, Fig. 4, consisting of a plate with two inclined fissures (*n, n,*) in its, in which two pins (*o, o,*) affixed to the bar (*l'*) work, so that when the plate is made to slide longitudinally, it will cause the bar to move laterally, so as to set it for any width board; (*p*) is a lever for setting it in position—but other modes may be adopted. When the board is driven forward by an endless chain, as shown in the drawing, the hooks are so constructed as to rise up and seize the plank, and then draw down, so as to hug the end down to the bench. The hooks project up through a fissure in which the chain passes; the hook (*q*) forms one of the links, and its upper end that comes

against the end of the board is made T shaped, and extends over on to the face of the bench on each side of the fissure; as it rises up around the carrying pulley (*r*) it is thrown upward, and when it is brought into line after having seized the board it draws down with a force proportional to that required to carry the board forward. Two pressure rollers are employed to aid in holding down the board; one (*s*) before the revolving cutter, and one (*s'*) after it has passed from under the disk. The board or plank is reduced to an equal thickness by means of the gouges or cutters on the disk, under the center of which the board passes and then passes under the stationary cutter or plane-bits in the frame (*g*) where there is a single shaving taken off, and the board is smoothed, the shaving passes out under the lower edge of the disk behind, and the plank is carried forward to be tongued and grooved as before described, and is then delivered from the machine.

The different parts are moved by proper gearing, which in the machine shown in the drawing consists of a driving shaft (*t*) that receives its motion from any power. On this shaft there is a hand wheel (*t'*) from which a band (*u*) extends forward to a

pulley on an upright shaft (*u'*) which it drives; on this shaft there is a band wheel (*u''*) that connects by band with a pulley on the shaft (*e*) of the disk, by means of which the cutter disk is made to revolve with great velocity; a pinion (*t''*) is also affixed on the driving shaft, into which a large spur wheel (*w*) gears, said wheel being placed on the shaft (*x*) on which the rear carrier-pulley (*x'*) is placed, that the chain passes over, and is driven by it, the motion being sufficiently reduced by means of the before mentioned pinion and wheel.

Having thus fully described our invention, and its mode of operation, what we claim therein as new, and for which we desire to secure Letters Patent, is—

The combination of the disked cutter-wheel (*e*) and stationary bit in the frame (*g*) substantially in the manner and for the purpose set forth, the whole being constructed and arranged as above specified.

C. A. SPRING.
W. H. DERICK.

Witnesses:

JOHN LAWS,
ALLEN DOONKERS,
GEO. LANDELL.