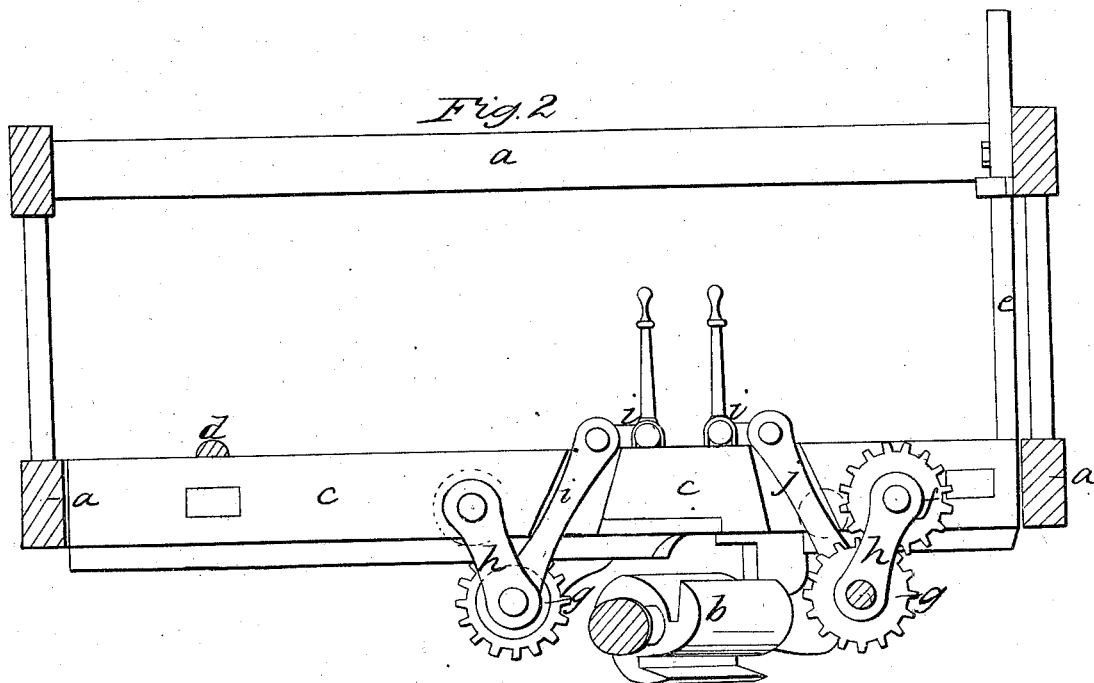
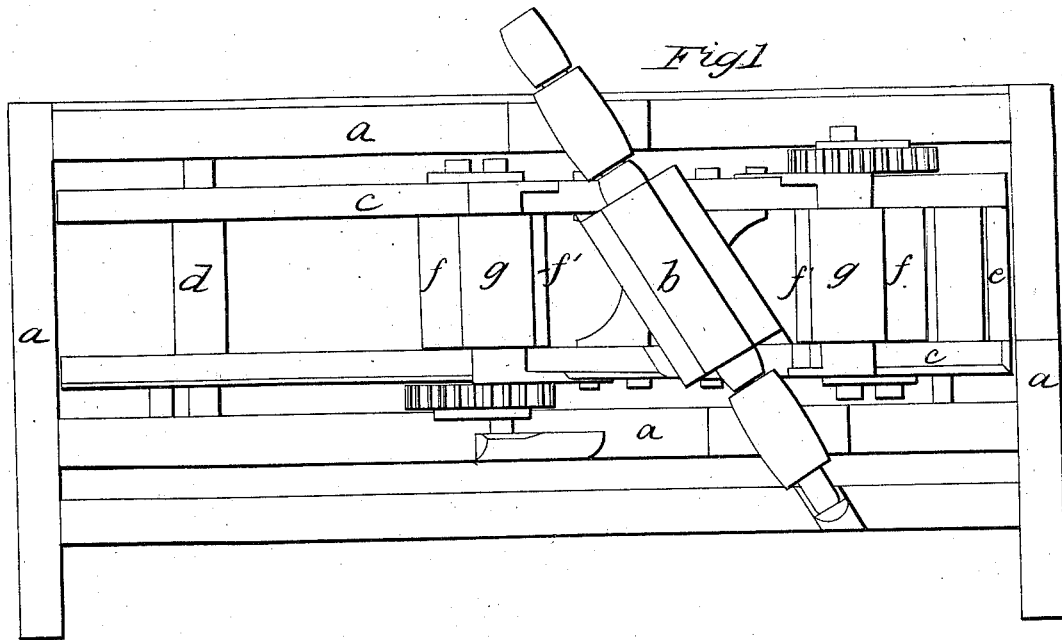


*Spring & Boon,*  
*Wood Planing Machine.*  
*N<sup>o</sup> 7,530.                      Patented July 30, 1850.*



# UNITED STATES PATENT OFFICE.

C. A. SPRING AND PETER BOON, OF KENSINGTON, PENNSYLVANIA.

## ARRANGEMENT OF PRESSURE AND FEED ROLLERS IN PLANING-MACHINES.

Specification forming part of Letters Patent No. 7,536, dated July 30, 1850; Reissued January 13, 1852, No. 209.

*To all whom it may concern:*

Be it known that we, C. A. SPRING and PETER BOON, of Kensington, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Planing-Machines, 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 drawings, of which—

Figure 1, is a side elevation showing the position of the planing cylinder. Fig. 2 a section showing the bed piece and rollers.

The nature of our improvements consist in placing a cylinder of knives constructed on any of the most approved plans, in an oblique position, say at an angle of 45° more or less, with the line of motion of the board through the machine. We have found by practical experiment that by placing a cylinder of knives in an angular position instead of placing it at right angles to the line of motion of the board, we greatly reduce the power required to drive the machine, and to reduce and plane the board in a proper manner, besides which advantage we find that boards so planed are much smoother and more perfect than those planed when the cylinder is placed at right angles to the length of the board, as in the ordinary machines. The board also runs through the machine steadier and does not require to be held down with so much care, the planing cylinder having a greater tendency to steady the board when acting obliquely upon it, than when at right angles. Also in case of splinters in the surface of the board they are not so likely to be turned out, as when the knives act in the direction of their length. We also construct the bed of the machine so that it may be moved to or from the knife, which allows it to be set to plane boards of any thickness, or to move it back from the planing cylinder if required, which is frequently of great advantage. We also place in the movable bed two series of rollers, such series consisting of three rollers; two of these rollers ( $f$   $f'$ ) are fastened in the movable bed with their peripheries on a level with the face of the bed; the other ( $g$ ) is outside of them and is connected to

the axes of one roller ( $f$ ) by links ( $h$ ) one at each end, so that it can traverse round it within a limited range approaching toward or receding from the other roller ( $f'$ ). The two rollers ( $f$  and  $g$ ) are geared together by spur gears so as to turn in unison with each other. They are also of the same diameter; the third roller ( $f'$ ) may be smaller. The roller ( $g$ ) is drawn toward the roller ( $f'$ ) by two other links ( $j$ ) connected with the crank arms ( $i$ ) on the back of the bed, and held down by weights or springs. It will be perceived that by this arrangement neither star wheels or a complex series of spur wheels are necessary to permit boards of different thickness to pass and be held down properly. Another incidental advantage of this series is that the upper or pressure roller ( $g$ ) approaches nearer to the cutter wheel the thinner the material to be planed, which is an advantage of great importance in planing machines.

In the drawings ( $a$ ) is the frame of the machine to which are fixed the bearings in which the journals of the oblique planing cylinder ( $b$ ) run. The bed piece ( $c$ ) is supported at one end by the cross piece ( $d$ ) which works in bearings in the frame. The other end is attached to a sliding piece ( $e$ ) which together with the bed is moved by a lever or other contrivance, nearer or farther from the planing cylinder. The lower rollers ( $f$ ) are jointed to the upper rollers ( $g$ ) by the links ( $h$ ). The rollers ( $g$ ) are drawn down obliquely on the board by levers ( $i$ ) and the links ( $j$ ) which are actuated by weights or springs applied to the tails of the levers ( $i$ ).

Having thus fully described our improved machine, what we claim as new therein and desire to secure by Letters Patent is—

Connecting the movable weighted pressure rollers with the stationary ones by oblique links, in combination with the additional rollers ( $f'$ ) the whole arranged substantially in the manner and for the purposes set forth.

CHARLES A. SPRING.  
PETER BOON.

Witnesses:

JOHN LAWS,  
JOSEPH DUNOTT.