

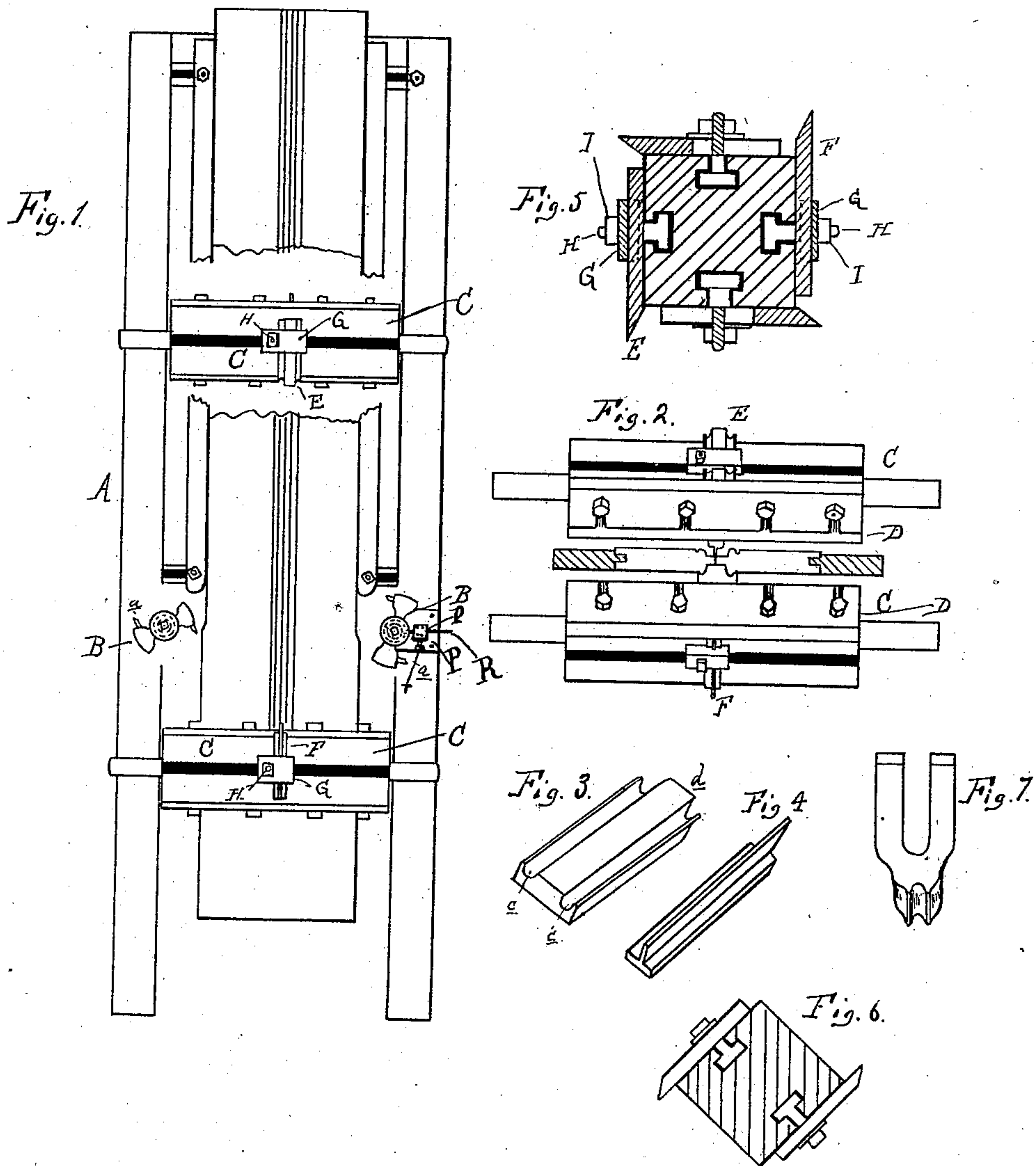
(No Model.)

J. A. ROBERTS.

PLANING MACHINE.

No. 294,914.

Patented Mar. 11, 1884.



Attest:

*W. Sprague*  
*Charles J. Hunt*

Inventor

Jas. A. Roberts.

By his Atty.

*W. S. Sprague*

# UNITED STATES PATENT OFFICE.

JAMES A. ROBERTS, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO  
WM. M. DWIGHT, OF SAME PLACE.

## PLANING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,914, dated March 11, 1884.

Application filed December 19, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. ROBERTS, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Planing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to certain new and useful improvements in the construction and arrangement of cutter-tools, designed to be used in connection with planer-heads, for the purpose of making ceiling, flooring, and other  
15 like work.

The invention consists, first, in the peculiar formation of the tools employed; second, in their combination and arrangement in relation to each other and the planer-head; and,  
20 third, in the peculiar construction, arrangement, and various combinations of the parts, all as more fully hereinafter set forth.

The object of my invention is to construct a tool that will produce uniform and smooth  
25 work, and to so arrange them in relation to each other in the planer-head that I can "stick" or form two pieces of matched flooring or ceiling at the one passage of the board through the machine.

30 Figure 1 is a diagram plan view of a planing-machine. Fig. 2 is a sectional elevation of the cylinder-heads. Fig. 3 is a perspective view of one of the knives for forming the bead and tongue. Fig. 4 is similar view of  
35 the divider-knife. Fig. 5 is a section of a cylinder-head with my improved cutters. Figs. 6 and 7 represent the beading-knife now in common use.

In the accompanying drawings, which form  
40 a part of this specification, A represents a planing-machine, provided with the rotary cutter-heads B at the sides, and the cylinder cutter-heads C, as in the ordinary constructions of that class of wood-working machinery, and  
45 adapted to be adjusted so as to operate upon boards of various thickness and width. The heads B are provided with suitable cutters, *a*, for forming the grooves in the edges of the board, and the heads C are provided with the  
50 ordinary planer-knives, D, for planing the board. These heads C are also provided upon

one side with a tongue and beading-tool, E, and upon the opposite side with a dividing-tool, F. These tools E and F are secured to their respective positions by means of cap G, 55 through which passes a square-headed bolt, H, receiving a nut, I, upon its outer end, while the heads of the bolt enter a slot in the cutter-head. The inner faces of the caps are grooved to receive the tools E and F. The  
60 knife E is of the form employed for producing the beads and tongue in the body of the board in making ceilings, and they are adjusted upon the heads at some desired distance from the guide side of the machine, so as to produce  
65 ceiling of a given width, and the divider-knives are so arranged upon the opposite sides of the heads, that as the board passes through the machine it divides the tongue at its longitudinal center. By this arrangement of the  
70 parts, boards of varying widths may be passed through the machine, producing ceiling of a given width upon the guide side, while the other pieces will vary in accordance with the varying widths of the boards introduced, the  
75 grooving-knife upon the guide side being unchanged, while that upon the opposite side of the machine is adjusted to the width of material to be operated upon.

Any of the well-known means may be employed to adjust the grooving-knife; but I  
80 prefer that shown in Fig. 1, in which P is a plate attached to the frame, and having a projection, *p*, provided with a slot, through which passes the rod R, said rod being attached to  
85 the bearing which supports the grooving-knife shaft, and by means of the set-screw *r*, passing through the said projection and bearing upon the rod R, the same may be held in any desired position.

It will readily be seen that by the employment and arrangement of the knives, as hereinbefore described, I am enabled to perform double the amount of work that can be produced on a machine wherein the grooves and  
95 tongues are formed upon the outside edges, producing but one strip or piece at a time. In making flooring where the bead is dispensed with, the tonguing-knife is made with a straight cutting-edge.

In Fig. 3 I show one of my improved "beading and tonguing" tools, which is made of a  
100



flat bar of steel, in one face of which is formed the grooves *c* upon either side of the tongue-cutting edge *d*. The opposite face of this blank, and at the end thereof, is beveled off to form the cutting-edges. These tools are secured in the heads with their grooved faces outward, so that in the rotation of the head the bevel face of the tool is in advance, and by its use I am enabled to produce much smoother work than can be done in the use of any of the tools now employed, where the bevel is at the reverse side, as shown in Fig. 6. It will readily be seen that this tool can be easily sharpened without removing, by filing the beveled face, not requiring a skillful workman, while in the old tool, Fig. 7, the beading-tool is formed by filing the groove in the bevel face of the tool, which must necessarily be done by a skilled workman at considerable expense in time and labor, without procuring absolute uniformity; also requiring the removal of the tool in sharpening. The old tool has also to be frequently replaced, as but little of it can be used, while in my construction nearly the entire blank can be used, so long as there is sufficient length to be rigidly secured by the cap.

While I have stated that flooring or ceiling may be made of varying widths of boards, it is obvious that, provided proper boards are used, I can make two boards or strips of ceiling or flooring of even and prescribed widths, thus saving the trouble and expense of ripping, which latter process is less economical, as it requires five-eighths inch wider material to produce the same amount of stock.

Having described the manufacture of ceiling, from the preceding description it will be seen that by varying the forms of the cutting-edges of the knives different styles of ceiling and flooring may be produced.

I am aware that it is not new to use a single

knife to divide a board longitudinally, and at the same time to form a tongue on the edges of the board adjacent to said line of division, and lay no claim to such construction, as by using a single knife there is a greater consumption of power, loss of material, and straining of parts by reason of the large bite said knife must be made to take in order to perform its work, whereas, by the employment of one knife to form the tongue and a separate one to divide said tongue midway, I overcome the objections to those machines as heretofore constructed, where only one knife is employed to perform the double office of forming the tongue and dividing the same at one and the same operation.

What I claim as my invention is—

1. In a tongue-and-grooving machine for making two strips simultaneously from one piece of board, an upper and lower cutter-head, each provided with two planer-knives upon opposite faces, and a set of beading and dividing tools adjustably secured upon the intermediate faces, in combination with two edged grooving-tools and adjustable edge-guides, substantially as described.

2. In a planing-machine for making two strips of ceiling or flooring simultaneously from one board, a head provided with a set of planer-knives and a set of beading-tools, said beading-tools being adjustably secured to said head, in combination with a fixed and an adjustable side grooving-tool, whereby the machine is adapted to boards of different widths, and the bead can be formed at any desired point on said board, as and for the purpose herein described.

JAMES A. ROBERTS.

Witnesses:

WILLIAM M. DWIGHT,  
H. S. SPRAGUE.