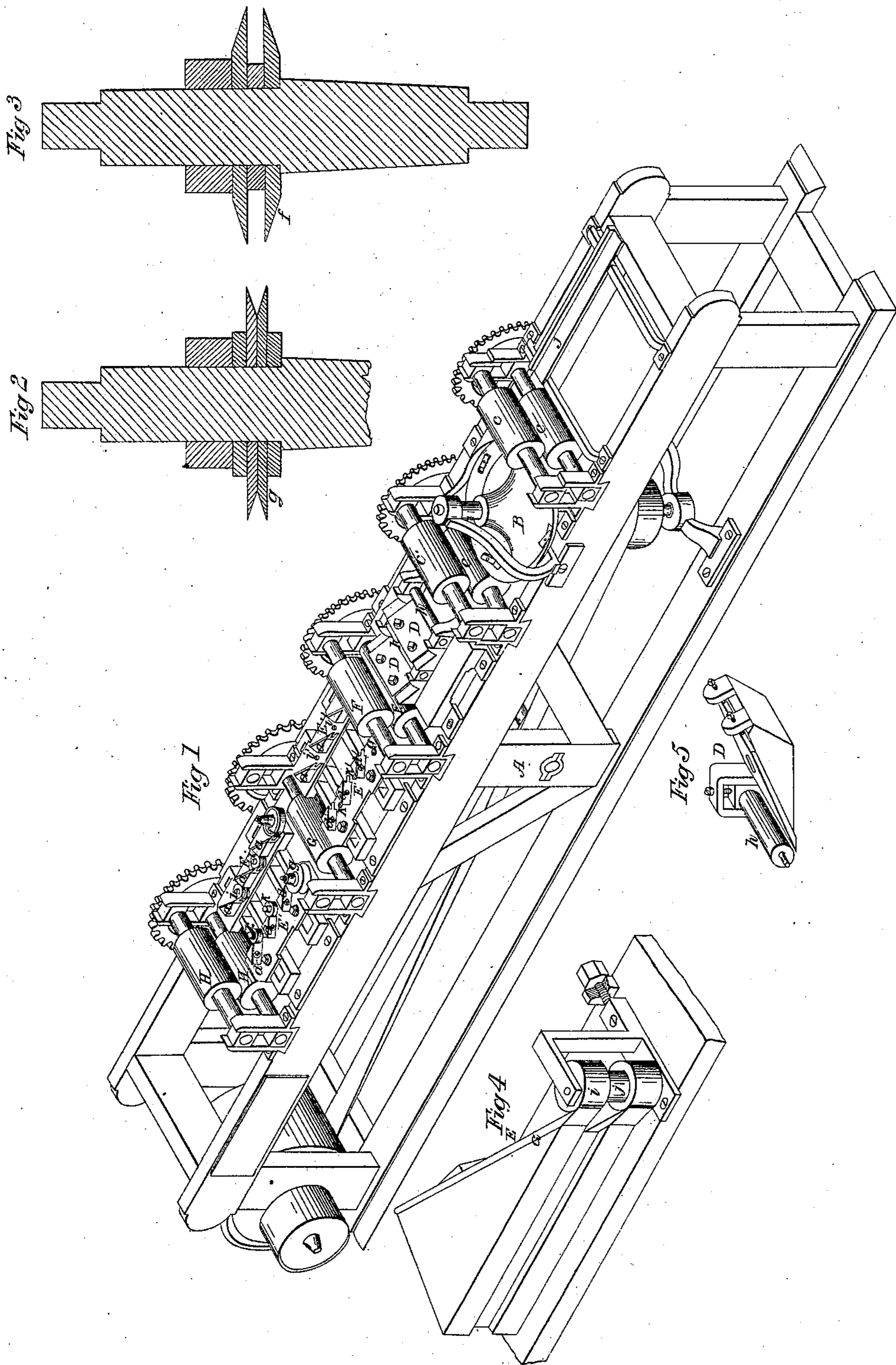


Powell, Barlow & Holden,
Wood Planing Machine.

2 Sheets. Sheet 1.

N^o 4,983.

Patented Feb. 27, 1847.



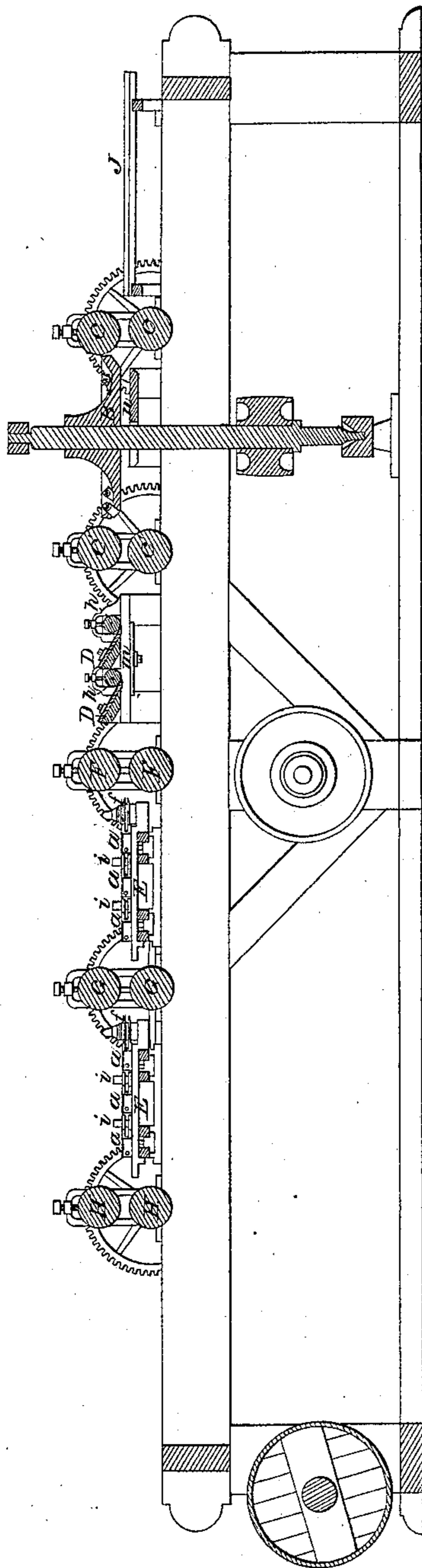
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Fig. 6.



UNITED STATES PATENT OFFICE.

JOSEPH POWELL, EDWARD HOLDEN, AND NELSON BARLOW, OF ST. LOUIS, MISSOURI.

MACHINE FOR PLANING, TONGUING, AND GROOVING.

Specification forming part of Letters Patent No. 4,983, dated February 27, 1847; Reissued March 9, 1852, No. 210.

To all whom it may concern:

Be it known that we, JOSEPH POWELL, EDWARD HOLDEN, and NELSON BARLOW, of the city of St. Louis and State of Missouri, have
5 invented a new and improved machine for planing boards or plank and tonguing and grooving the edges of the same, which we denominate "Powell, Barlow & Co.'s Improved Planing-Machine"; and we do hereby declare the following to be a full, clear,
10 and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, is a perspective view, Figs. 2, 3, 4, and 5, are portions of the same detached and enlarged, and Fig. 6, is a vertical longitudinal section of the machine.

The supporting frame A, we construct of beams, posts and cross-pieces in any well
20 known or usual manner—eighteen feet in length, three feet in breadth, and of a convenient and suitable height, are generally its proportions. The plank or board to be operated upon is passed along the grinding
25 bed-piece J, to the feeding rollers *c, c*, which conduct it between the bed plate *n*, and the rotating reducing cutter wheel B, to the feeding rollers *c', c'*. The axles of the feeding rollers *c, c*, immediately preceding the
30 reducing wheel, are not in a vertical line with each other; the upper roller of the pair being placed nearer to the shaft of the reducing wheel than the lower one. The axles of the pair of feeding rollers *c', c'*, immediately following the reducing wheel, are also
35 placed the same distance out of a vertical line,—the upper roller being placed nearer to the shaft of the reducing wheel than the lower one. These two pairs of feeding rollers are thus arranged for the purpose of
40 springing the board or plank to the bed-plate *n*,—and retaining it in close proximity thereto,—as it advances—while the reducing wheel is operating upon the same; also for holding the ends of the boards or
45 plank to the bed-plate (*n*,) and preventing their being injured while passing from one pair of feeding rollers to the other, under the reducing wheel. The reducing wheel B, brings the board or plank to a uniform and
50 proper thickness, and is armed with cutters of the most suitable and proper form for effecting that object. From the feeding rollers *c', c'*, the board or plank passes on
55 to the bed plate *m*, and under the small roll-

ers *h, h*, and the stationary planing cutters D, D,—two or more in number,—which are so adjusted with each other as to give the boards or plank a perfectly smooth surface in its passage under the same to the rollers
60 F, F. The rollers *h, h*, are placed immediately in front of the cutters D, D, and are adjusted by means of set screws so as to exert considerable pressure upon the boards, they are consequently revolved by the forward
65 motion of the same, and by the pressure which they exert, they serve to harden the surface of the boards, left in a rough state by the reducing wheel, and prevent the cutters from taking too deep a hold and
70 tearing out splinters from the same. Passing from the feeding rollers F, F, the edges of the boards are operated upon by the tonguing and grooving tools arranged upon the adjustable side plates E and E', placed
75 between the feeding rollers F, F, and G, G, and operating as follows: Sharp edged horizontal cutting disks *f, f*, are placed upon vertical axles in the front ends of the adjustable plates E, E'. These disks are
80 straight on one side and beveled off to a thin edge on the other. The disks *f, f*, have their straight sides placed facing each other at the distance of the required thickness of the tongue to be formed; as the edge of the
85 board comes in contact with these disks, they cut into the same and are thereby caused to revolve, forming incisions each side of the tongue as the board advances; immediately beyond the disks *f, f*, there are arranged the
90 tonguing cutters *a, a, a*, which remove the shoulders each side of the incisions formed by the cutting disks *f, f*. Just in front of the tonguing cutters *a, a, a*, there are placed the grooved rollers *i, i*, playing loosely upon
95 vertical axles inserted into the plate E; the tongue as it is formed on the edge of the board, passes into the grooves in the rollers *i, i*; the periphery of these rollers at the sides of the grooves in the same, presses on
100 the shoulders on each side of the tongue, a little in advance of the tonguing cutters, and perform the same office in relation thereto that the rollers *h, h*, do in connection with the planing cutters D, D, above described.
105

Opposite to the disks *f, f*, there are placed the revolving cutting disks *g, g*, on the front end of the plate E'; these cutters are arranged upon their axle with their beveled
110 sides facing each other, and as they come in

contact with the edge of the plank or board they cut incisions on each side of the channel or groove to be formed in the same. Opposite to the tonguing cutters *a, a, a*, there are arranged the grooving cutters *d, d, d*, in the adjustable plate *E'*, which form the groove between the incisions made by the disks *g, g*. Immediately in front of the grooving cutters *d, d, d*, rollers *k, k, k*, are placed; these rollers play loosely on vertical axles, and are so adjusted as to press upon the bottom of the groove just in advance of the tonguing cutters, having the same effect in relation thereto, that the rollers *h, h*, have in relation to the planing cutters *D, D*, above described.

Between the feeding rollers *G, G*, and *H, H*, adjustable side plates *E, E'*, with tonguing and grooving tools arranged upon the same exactly corresponding with those above described, are placed; and are so adjusted in relation to them, as to give the tongue and groove the proper form and depth. If it should be deemed expedient a still farther series of tonguing and grooving tools may be added to the machine corresponding with those above described.

In Fig. 1, of the accompanying drawings, between the feeding rollers *F, F*, and *G, G*, the cuttings disks *f, f*, and *g, g*, and the rollers *i, i*, and *k, k*, are omitted for the purpose of showing other parts more distinctly; as is also the upper feeding roller *G*.

In any of the known methods heretofore made use of for tonguing and grooving boards or plank, there is an effect produced by the action of the cutters which may be described as tearing the edges of the shavings from the wood, this is particularly the case in cutting out the groove. The cutting disks above described, are designed to obviate this difficulty. The incision which they make each side of the tongue and groove, enables the stationary cutters to perform their work with much less power and friction, and to form a smoother and more perfect tongue and groove. The reducing wheel *B*, and the respective series of feeding rollers are connected to a driving shaft in any convenient or well known manner.

In constructing our planing machine, it will be apparent that it may be so constructed that the planks or boards may be made to pass through the same upon their sides, or edges; and that when they are passed through the machine on their sides, the reducing wheel and planing cutters can be arranged so as to operate upon the upper or

under surface of the same, as may be deemed expedient. We prefer in practice, to have the machine so arranged as to pass the boards or plank through the same upon their sides, and to operate upon their under surface.

From the combination of the various parts of our planing machine it will be obvious that it is capable of great rapidity of execution, as well as perfection of finish. We feel confident that from seventy five to one hundred feet of boards can be perfectly planed, tongued and grooved by it per minute; which is from three to four times the amount accomplished by the best planing machines now in use.

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

1. The combination of the pairs of feeding rollers *c, c*, and *c', c'*, with the bed-plate *n*, and the rotating reducing wheel *B*, substantially in the manner and for the purpose herein set forth:—(viz: the placing the axles of the pair of feeding rollers *c, c*, preceding the reducing cutter wheel, and the axles of the pair of feeding rollers *c', c'*, immediately following the same, respectively out of a vertical line with each other, thereby bringing the upper roller of each pair nearer to the shaft of the reducing wheel than the lower one, for the purpose of springing the board or plank to the bed-plate, as herein more particularly described.)

2. We also claim the combination of the series of cutting disks *f, f*, tonguing cutters *a, a, a*, and rollers *i, i, i*, for the purpose of forming the tongue on the edge of boards or plank substantially as herein set forth.

3. We also claim the combination of the cutting disks *g, g*, the grooving cutters *d, d, d*, and rollers *k, k, k*, for the purpose of forming the groove in the edge of boards of plank substantially in the manner herein set forth.

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