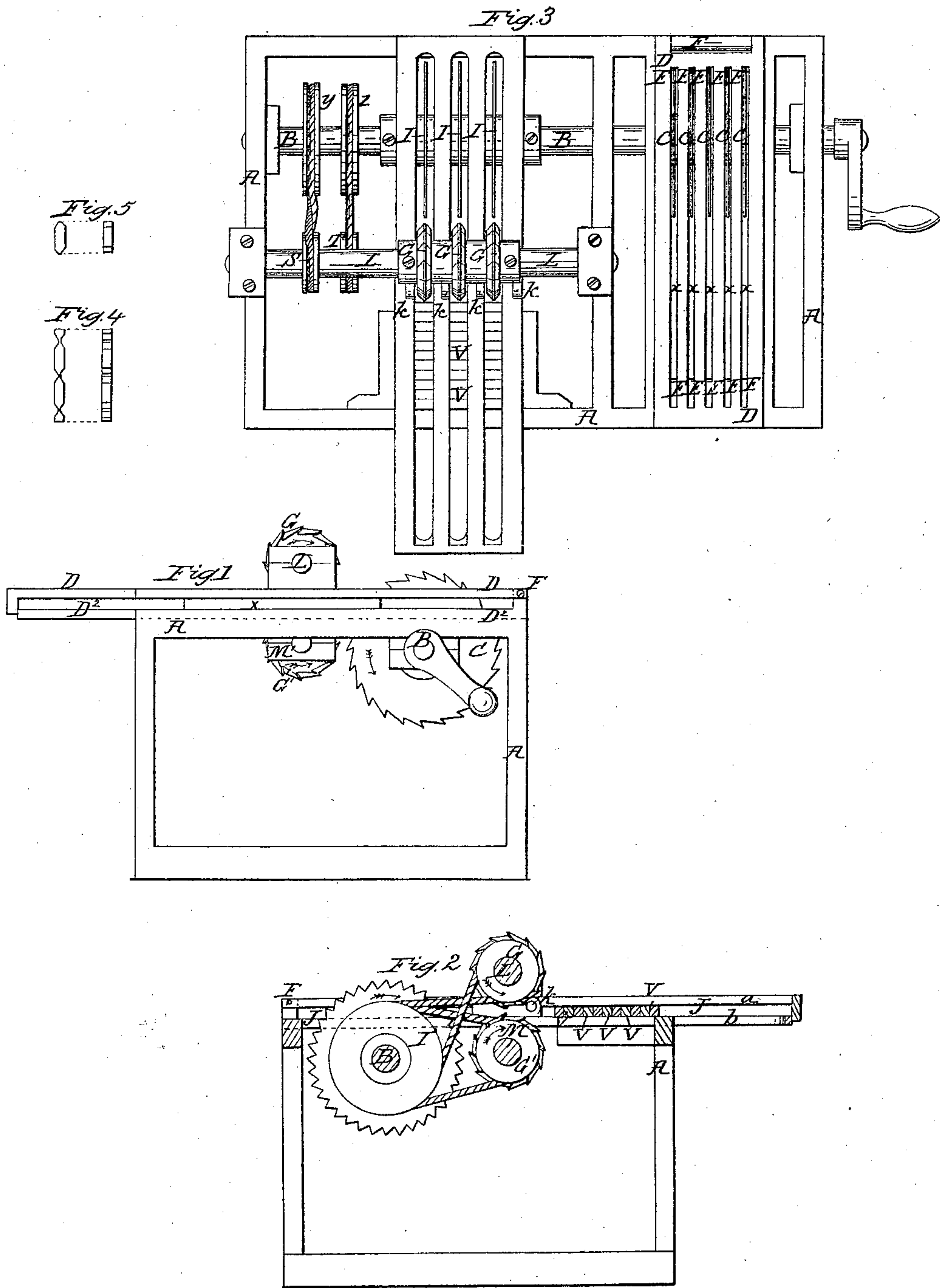


A. H. Boyd.

Making Wooden Pins.

N^o 20,016.

Patented Apr. 20, 1858.



UNITED STATES PATENT OFFICE.

AMOS H. BOYD, OF SACO, MAINE, ASSIGNOR TO SAMUEL F. CHASE, OF SAME PLACE.

MACHINE FOR MAKING WOODEN DOWEL-PINS.

Specification of Letters Patent No. 20,016, dated April 20, 1858.

To all whom it may concern:

Be it known that I, Amos H. Boyd, of Saco, in the county of York and State of Maine, have invented a new and Improved
5 Mode of Operating with Circular Saws and Cutters in the Manufacture of Wooden Dowels and other Small Woodwork.

The nature of my invention consists, in the arrangement of gangs, of two or
10 more circular saws, in combination with a clamp carriage, or bed piece, for the purpose of holding and splitting a board, or flat piece of wood, into strips; and of cross cutting the strips into shorter pieces; the wood,
15 or board, or pieces, being held firmly, and safely, in the clamp carriage, after, as well as before, it is divided. I also combine therewith, a double series of circular cutters, for the purpose of grooving the strips of wood,
20 on two sides, across the grain; thereby forming points, or bevel ends, when the strips are severed at the center, or small, of the grooves, (as seen in Figs. 4 and 5,) the particular arrangement herein set forth, being
25 designed for the manufacture of wooden dowels; or square wooden pins, pointed, or beveled at each end, and used to join together parts of wood work,—especially, the parts of hoghead heads, and other heading.
30 The following is a full description of said machine, reference being had to the accompanying drawings, and the letters, and figures of reference, marked thereon.

Figure 1, is a view of the driving end of
35 said machine, or of the end to which the driving power is applied. Fig. 2, is a vertical, central, and transverse section of it. Fig. 3 is a top view. Other figures contained in the drawings, will be hereinafter
40 referred to and described.

As to the parts indicated by the letters, upon the several figures, A, is the main frame of the machine. The main shaft B, has its bearing in boxes, at the two ends of
45 the frame; and carries two sets, or gangs, of circular saws, and also pulleys *y* and *z*.

C, is a gang of splitting saws, the space between each saw is adjusted, according to the size of strip to be split out. The said
50 saws, project through the slots of a clamp bed piece, or carriage, consisting of an upper leaf, D, and a lower leaf, D²: in each of which leaves are cut slots, or openings E E: the slots in the upper leaf, conforming in
55 space and position, to those in the lower leaf; and extending nearly the whole length

of the said leaves, or carriage. Said leaves being connected together at one end, by hinge F, forming a clamp; and constitute a carriage, between the said leaves of which, 60 the board, or wood *x* to be split, is placed, and carried toward, and through the saws. The board *x* may be cut any convenient length, to be received in the carriage, before, or in front of the saws: or the said carriage 35 or leaves, may be extended to suit different kinds of work.

The gang, or set, of circular saws I I, on main shaft B, are to cut out strips, or pieces, of wood, crosswise. For grooving the strips 70 of wood, across the grain, so that when cut into dowels, (as seen in Fig. 5) they shall present points at each end, or bevel ends, I use two or more circular cutters, placed one directly over another, and sufficiently near 75 each other, for both to act upon any wood passed between them. Shaft L carries three circular cutters, G, G, above the bed of the machine; and shaft M, carries three other cutters, G', below the bed, each of those 80 below, ranging directly under one of those above, their nearness, and relative position, being shown in Fig. 2. The periphery of each circular cutter, is provided with teeth of such shape and inclination, as by revolving, 85 to cut an angular groove, across the grain, in the wood passed between them. Fig. 4, of the drawings, represents a strip of wood, so grooved. The said circular cutters, are each in a line with one of the saws 90 I, I; and the strips of wood, after being grooved, and passing the cutters, move to the saws, presenting to each saw, the point of the angle of groove; at which point, they are cut by the saws I, I, forming dowels: as seen in Fig. 5. 95

J, is another clamp bed piece, or carriage, similar, in principle, to the one hereinbefore described, but designed to carry strips, or pieces of wood, *v, v*, laid crosswise of such 100 bed piece, or carriage, and for the purpose of being cut crosswise. Said bed piece, or carriage J, is composed of an upper leaf, *a*, and a lower leaf, *b*, with slots or openings, through both leaves, those in the upper, 105 forming, in shape and position, to those in the under leaf, and extending nearly the entire length of the carriage. The top leaf, however, is shorter than the under leaf, extending only from the front end of the carriage, (which end projects in Fig. 3,) to the 110 joints, *k, k, k*, each of the bars, or slats, of

the upper leaf, being separately connected, by one of said joints, to the corresponding bar, or slat, of the under leaf, the necessity of which arrangement, will be seen in the position of shaft L, and the top cutters. The said joints, *k, k*, form a hinge, by which the upper leaf may be raised. The wood, *v, v*, being laid crosswise, upon the lower leaf, *b*, the top leaf is depressed upon the wood, holding each strip of wood, firmly, and also each piece, into which the strips may be cut, by the saws, firmly, between the bars, or slats, of the said upper and lower leaves, *a*, and *b*. It will be understood, also, that the first described clamp carriage, that composed of leaves D, and D², is designed to hold the wood, or work, firmly and safely, between the slats, or bars, of the upper and lower leaves, after, as well as before, it is sawed, or split. I will observe, that the said carriages, or leaves, may be made of wood, or iron, or other material, but their strength must of course be proportioned to the nature of the office to be performed, which is a matter of mechanical skill and judgment.

Shaft L, is carried by a cross band, from pulley *y*, to pulley S. Shaft M, is carried by a straight band, from pulley *z*, to pulley T.

Main shaft B, being rotated, in a direction to rotate the saws and cutters, in the directions indicated by the arrows, in Figs. 1, and 2, of the drawings, the board or wood is placed lengthwise between leaves D, and D², before the saws, and crosswise between leaves *a* and *b*, of carriage J, and the said carriages, being placed on suitable slides, are moved or slid, by hand, horizontally, through the saws, and cutters, to be split, grooved, and cross cut, in the manner hereinbefore particularly specified.

In the ordinary mode of operating with circular saws, without such guard as my ma-

chine furnishes, the work, or wood, is apt to catch in the back teeth of the saw, and be thrown forward with such violence as to endanger the operator. This danger is greatly enhanced by operating circular saws, in gangs. One advantage of my clamp carriage is, that when it is used, the work can not be so thrown up. Another advantage is, that by it, the wood is held firmly, and free from trembling, or derangement of any kind, while operated on, by which means, straighter and smoother work is produced.

I am aware that circular saws are used to revolve through slots cut in a bed piece, or bench, and that it is the usual and perhaps necessary mode of use—and I do not, of course claim the simple construction of a slot, through which for the saw to rotate. The new and useful idea which my machine embodies, is the carriage, having the slots through which the saws revolve, so extended, as to permit the carriage on which the wood is placed, to traverse by, and between, the saws; the said carriage being so constructed as to form a clamp, in which the wood is firmly held.

What I claim as my invention, for which I desire to secure Letters Patent is as follows:

1. The slotted clamp carriage, or bed piece, in combination with a gang, of two, or more circular saws, for splitting, or cutting off wood, substantially as specified.

2. The arrangement, and adaptation of said circular cutters, in combination with said clamp carriages, and circular saws, substantially as specified for the purpose specified.

AMOS H. BOYD.

Witnesses:

ALEX. F. CHISHOLM,
F. S. DALAND.