

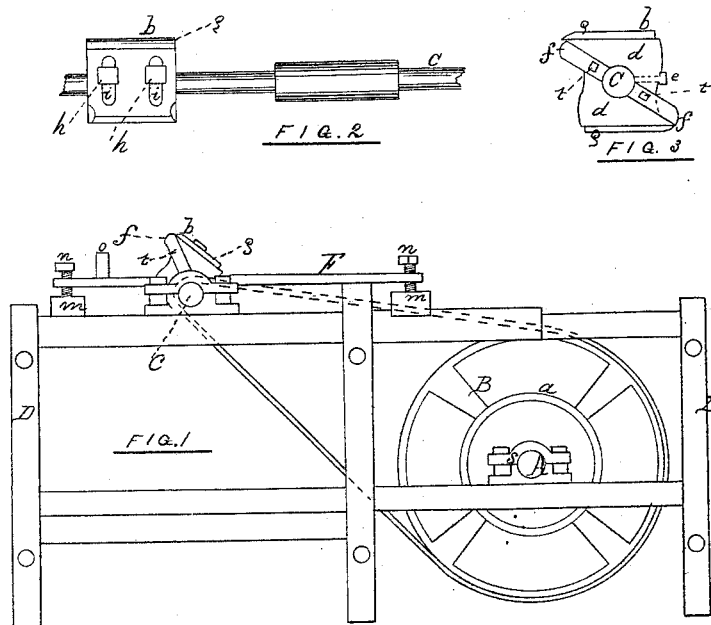
E. H. WOODSUM.

Improvement in Gain-Cutters.

No. 114,079.

Patented April 25, 1871.

PLATE I



Witness

Henry C. Houston

Inventor

Chas. W. Cochrane

E. H. Woodsum
Per atty W. H. Clifford

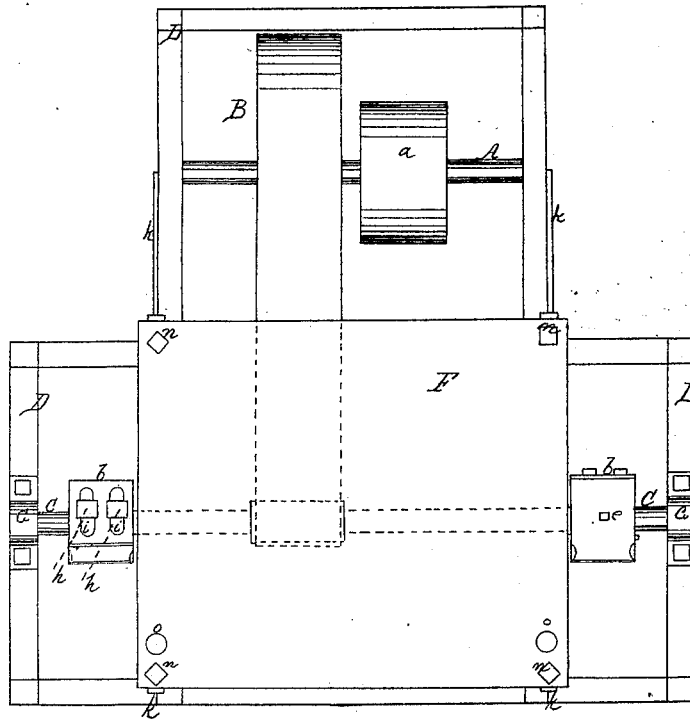
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PLATE 2.



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UNITED STATES PATENT OFFICE.

E. H. WOODSUM, OF HARRISON, MAINE, ASSIGNOR TO HIMSELF AND F. H. WHITMAN, OF SAME PLACE.

IMPROVEMENT IN GAIN-CUTTERS.

Specification forming part of Letters Patent No. 114,079, dated April 25, 1871.

To all whom it may concern:

Be it known that I, E. H. WOODSUM, of Harrison, in the county of Cumberland and State of Maine, have invented a new and useful Improved Gain-Cutter; and I hereby declare the following to be a full, clear, and exact description thereof, which will enable others to make and use my invention, reference being had to the accompanying drawings, forming part of this specification, in which—

Plate 1, Figure 1 shows a side elevation of my machine; Fig. 2, a portion of the shaft carrying the cutters, and a back view of one of said cutters; Fig. 3, a side elevation of one of the cutters detached; Plate 2, a top plan of my invention.

This invention relates to a machine for cutting out sections from wood across the grain, for the purpose of making joints, for instance, or fitting into the spaces made by such cuttings other pieces or portions of wood or lumber, for the purpose of connecting different pieces—as, for instance, sleepers of a railroad.

Reference to the several plates and figures will explain my invention.

A is the motive-shaft, upon which is the small wheel *a* to receive a belt for the purpose of imparting motion to the machine. This shaft A revolves in boxes *s*.

B is a balance-wheel, with a belt connecting with a shaft, C. These shafts are set in a proper frame, D, to receive and support the same and the other parts of the machine. The shaft C has the cutters *b*, which will be hereafter described. The ends of this shaft are held in boxes *c*.

F is a sliding table, moving by hand between the cutters *b*, and intended to carry the lumber to be cut so that two recesses or sections can be made in the same stick or piece simultaneously, which would be quite convenient in the manufacture of certain kinds of railroad-sleepers. Thus, by the revolution of the wheel B, motion is imparted to the shaft C and its cutters *b*.

The rotating cutters are constructed as follows: First, the two pieces of the form seen at *d*, with circular slots in the same to fit over the shaft C; or these may be made in one piece and slipped over the end of the shaft. This

part is keyed to the shaft C by the bolt *e*. Upon both sides of this piece or portion are set, in slots in said sides, the cutters *f*, at right angles to the shaft C. These, as will be seen from the drawings, are so placed as to cut edge-wise—that is, their outer edges come in contact with the wood to be cut, so as to score the same. It will also be seen that they are placed a little in advance of the adjustable cutters *g*, which will now be described.

The scorers or cutters *f* are secured by bolts or keys *t*. The cutters *g* are placed on the top and bottom sides of *d*, and are placed between the edge cutters or scorers *f*. The flat cutters *g* are attached to the part *d* by set-screws *h*, and are adjustable to different desired depths of cut by the slots *i*.

The operation of the cutters *g* and *f* is as follows: As the part *d* revolves with shaft C and carries with it the cutters *g* and *f*, the scorers *f* first cut two slits in the lumber a little in advance of cutters *g*, which serve to cut out the piece or section thus scored or marked out by *f*. So, also, any splitting out of the wood is prevented, as the fibers are first cut by *f*, and then the chip or section is simply cut out by *g*. The rotation of these knives on the cylinder C enables such work to be done with great rapidity.

F is a sliding table, moving on tracks *k* backward and forward. *m* are feet, with slots therein to fit the tracks or rails *k*, and thus keep the table in position. *n* are adjusting-bolts, to regulate the height of the table in relation to the rotary cutters, as desired. *o* are braces or uprights for the lumber to be cut to bear against.

The operation of the entire machine is, then, as follows: Motion is first given to the cutters as hereinbefore set forth. The table F is drawn backward and the piece of lumber placed in position thereon against the braces *o*. The table is then pushed up till the lumber comes in contact with the rotary cutters. As the cutters strike the wood the cutters *f* score or cut two slits in the same of the width and depth intended. The flat cutters *g* immediately chip out the piece thus scored, and so on till the place desired to be cut out is completed.

The rotary cutters are movable as desired on

the shaft C, so as to make the distance between the two cuttings such as is required. This is effected by the key e.

The convenience of the machine will be understood from this: If it is desired to cut notches or recesses in a large number of pieces of lumber at the same distance apart on the whole of the pieces, and of the same width and depth in all, it will be perceived that by adjusting the cutters as to the depth and distance apart of such cuttings any number can be made without variation.

A "gain" or cut is made in each end of a railroad-sleeper, near the end where the track rests on it, say of two inches in depth. In these gains or cuts are placed pieces of oak or other hard wood, the grain running longitudinally.

The railroad-sleeper now mostly used is cedar or hemlock, and by this means is made nearly as durable as oak, and much cheaper.

This machine is to cut out the pieces in the hemlock or other soft-wood sleeper, and, being capable of being gaged, can cut any number with exactly the same distances between the gains or cuts.

I claim as my invention—

Combination of cutter-heads, adjustable knives, and platform, substantially as herein set forth, to prepare WOODSUM'S improved railroad-sleeper and for similar uses.

E. H. WOODSUM.

Witnesses:

JOHN E. WOODSUM,

LEAH H. BACKMAN.