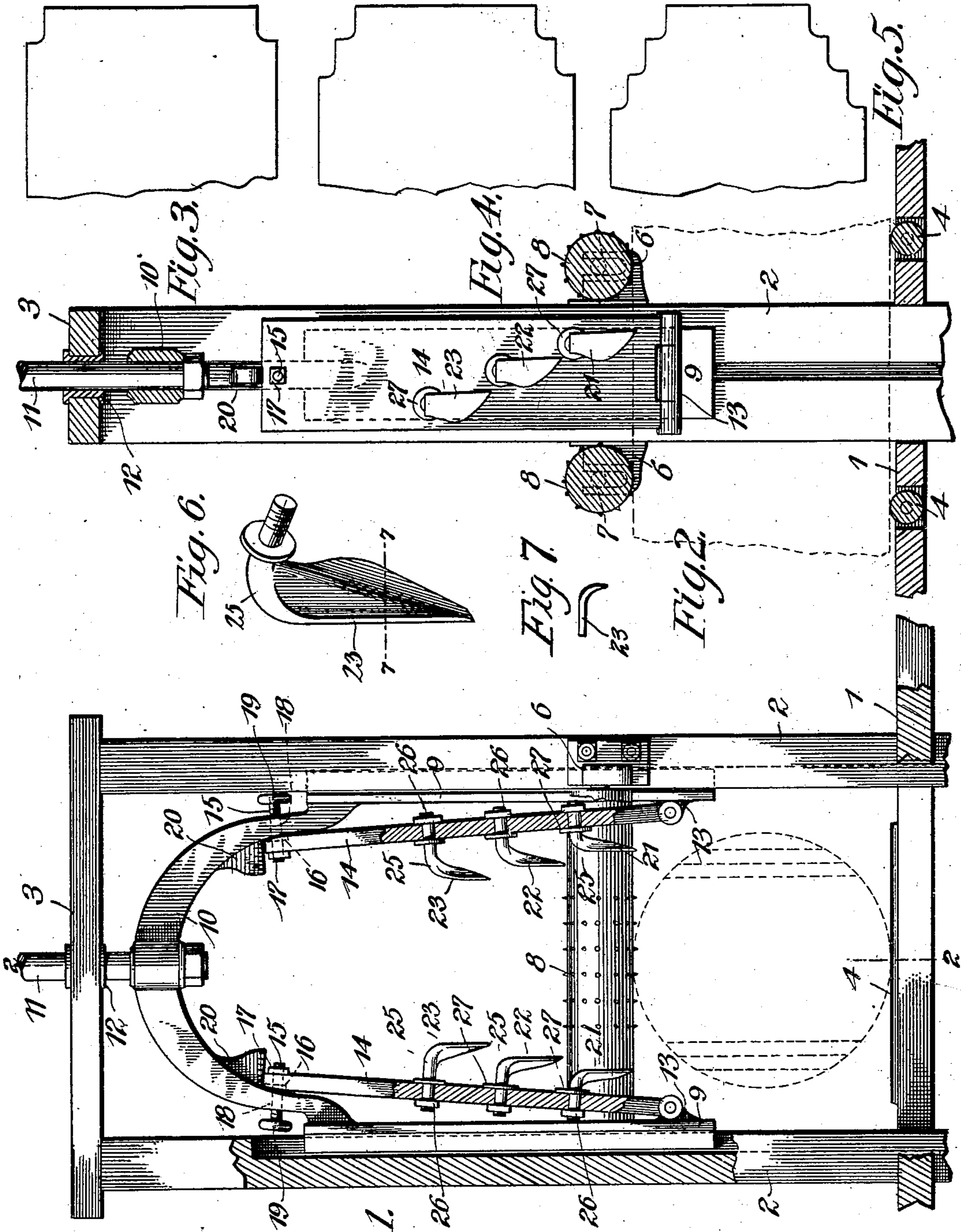


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A. W. BARRS.
RAILROAD TIE CUTTING MACHINE.
APPLICATION FILED JAN. 21, 1903.

NO MODEL.



Witnesses
E. J. Stewart
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Fig. 1.

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UNITED STATES PATENT OFFICE.

AMANDER W. BARRS, OF JACKSONVILLE, FLORIDA.

RAILROAD-TIE-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 728,835, dated May 26, 1903.

Application filed January 21, 1903. Serial No. 139,964. (No model.)

To all whom it may concern:

Be it known that I, AMANDER W. BARRS, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Railroad-Tie-Cutting Machine, of which the following is a specification.

This invention relates to certain improvements in woodworking-machines, and has for its principal object to construct a machine for cutting railway-ties and articles of similar contour from logs.

A further object of the invention is to provide a device of this character in which a plurality of cutters act successively on the log to gradually remove the opposite sides thereof to form the flattened upper and lower faces of the tie, and a still further object of the invention is to provide a machine in which the cutters may be adjusted for the manufacture of ties of different size.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an end elevation, partly in section, of a tie-cutting machine constructed in accordance with the invention. Fig. 2 is a transverse sectional elevation of the same on the line 2 2 of Fig. 1. Figs. 3, 4, and 5 are views in the nature of diagrams illustrating the operation of the successive cutting-tools. Fig. 6 is a detail perspective view of one of the cutting-knives. Fig. 7 is a sectional plan view of one of the cutting-knives on the line 7 7 of Fig. 6.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The machine is provided with a suitable base 1, from which rise opposite standard 2, connected together at their upper ends by a transversely-disposed cross-bar 3, the frame being of suitable size and shape for the cutting of ties of any size. In the lower portion

of the frame or on the base are arranged rollers 4 for the support of the log or timber from which the tie or other article is to be cut, or this portion of the mechanism may be in the form of any ordinary form of timber-supporting carriage commonly used in woodworking-machines.

The standards 2 are provided with projecting brackets 6, having vertical slots 7 for the reception of the reduced end portions of timber-engaging rollers 8, which rest on the surface of the log and move freely in a vertical direction to correspond to any inequalities in the height and thickness of the log. These rollers are sufficiently heavy to hold the timber down on the supporting-rollers 4 or the timber-carriage in order to prevent vertical play during the cutting operation.

The inner faces of the standards 2 are provided with vertically-disposed slots for the reception of reciprocating bars 9, the upper ends of which are connected by a yoke or cross-bar 10, and to the central portion of the yoke is connected an actuating-rod 11, passing through a suitable bearing bushing or sleeve 12 and the cross-bar 3. This rod is connected to an operative mechanism of any desired character which it has not been considered necessary to illustrate in the drawings.

To the lower portion of each of the side bars 6 is secured a lug or bracket 13, to which is pivotally or otherwise adjustably connected the lower end of a cutter-bar 14, and the upper end of each cutter-bar is provided with an opening for the reception of a bolt 15, having an enlarged shoulder or flange 16 fitting against the outer face of the bar, while the end of the bolt is threaded and receives a securing-nut or other fastening device 17, the whole forming a swiveled connection between the cutter-bar and the bolt. The bolt is threaded and passes through an opening in the yoke, and its outer end is provided with a milled knob or handle 19, by which the position of the cutter-bar may be adjusted, and the yoke is provided with an extension or bracket 20, bearing a graduated scale to indicate the extent of adjustment.

Each cutter-bar carries a plurality of cutting-knives 21, 22, and 23, the knives being arranged in different horizontal and different

vertical planes, as shown more clearly in Fig. 2, while the forward edges of the upper knives are in direct vertical alinement with the rear edges of the lower knives, or the edges of superposed knives may be allowed to slightly overlap.

Each of the cutting-knives is of the form shown in Fig. 6, comprising a steel cutting-blade having an approximately straight vertical edge and its rear face being arranged on a curved line which extends down to the lower pointed end of the blade. The rear portion of the blade is curved or bent laterally, so that in operation the blade will remove a chip of corresponding shape and not act as a splitting-knife, as would be the case if the blade were straight or flat throughout. The upper end of each blade is secured to or formed integral with a holding-shank 25, extending through an opening in the cutter-bar and threaded at its outer end for the reception of a securing-nut 26, while at a point intermediate of the length of the shank is a shoulder or flange 27 to prevent displacement of the knives and shank in an outward direction.

In the operation of the machine, the parts being properly adjusted, a log or section of timber is fed through the machine on the supporting rollers or carriage, as the case may be, and the rod 11 receives a comparatively rapid reciprocatory movement. This movement may be governed by the speed at which the log is fed, or the actuating mechanisms may be entirely independent of each other. On the first downward movement of the reciprocating bars the knives 21 will cut away a portion of the sides of the log in the manner shown in the diagram Fig. 3, and thence after the log has been fed farther forward a second downward movement will cause the two sets of knives 21 and 22 to cut into the timber, as indicated in the diagram in Fig. 4. Following up the operation the third set of cutting-knives 23 will be brought into play on the third movement. The diagrams are intended only to illustrate the operation of the cutters where the movement imparted to the log is equal to the width of a cutting-knife at each operation and while the shape of the log, after all of the cutters have been brought into play, will be substantially the same as that shown in Fig. 5. It is not intended that the timber shall be cut away to this extent at the first three movements of the rod, it being desirable to effect a more gradual reduction in order to avoid danger of breakage of the knives. The extent of feeding movement will to some extent be dependent on the width of the knives,

and where comparatively narrow knives are employed the extent of feed may at each operation be equal to the width of the knife.

In some cases the mechanism may be employed for the purpose of dressing but one side of a piece of timber, and in such case the construction may be suitably modified by omitting the knives and cutter-bar of the opposite side, or the knives alone may be removed, if desired.

Having thus described the invention, what is claimed is—

1. A railroad-tie-cutting machine comprising in combination, a timber-support, a pair of reciprocatory knife-carriers, and a plurality of cutters secured to each of the carriers and serving each to counterbalance the other in operating on opposite sides of the timber to be cut, the cutters on each of the carriers being disposed one in advance of the other with respect to the length of the timber and arranged in different vertical planes inwardly from the edge of such timber.

2. The combination with a timber-support, of a frame, a reciprocatory knife-carrier carried thereby, and a set of knives secured to the carrier, the knives of each set being disposed at different levels and arranged in different planes with respect to both the longitudinal and transverse planes of the carrier, each of said knives being in the form of a pointed blade having a curved cutting edge, and the forward edges of the upper knives being in vertical alinement with the rear curved edges of the lower knives, substantially as specified.

3. The combination with a timber-support, of a frame having vertically-disposed slotted standards, a reciprocatory frame guided thereby, a pair of cutter-bars pivotally connected at one end to the reciprocatory frame, adjusting means for the opposite end of said cutter-bars, a scale for indicating the extent of adjustment, and a plurality of knives carried by the cutter-bars and disposed in different horizontal and different vertical planes.

4. The combination with a timber-support, of a reciprocatory knife-carrier, and a plurality of cutting-knives carried thereby, each of said knives being in the form of a pointed blade having a curved cutting edge, and the blade being laterally curved toward its rear or cutting edge.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

AMANDER W. BARRS.

Witnesses:

E. E. DOYLE,

J. ROSS COLHOUN.