(No Model.)

C. H. BARROWS.

MACHINE FOR SPLITTING WOOD.

No. 383,690. Patented May 29, 1888.

Fig. 1.

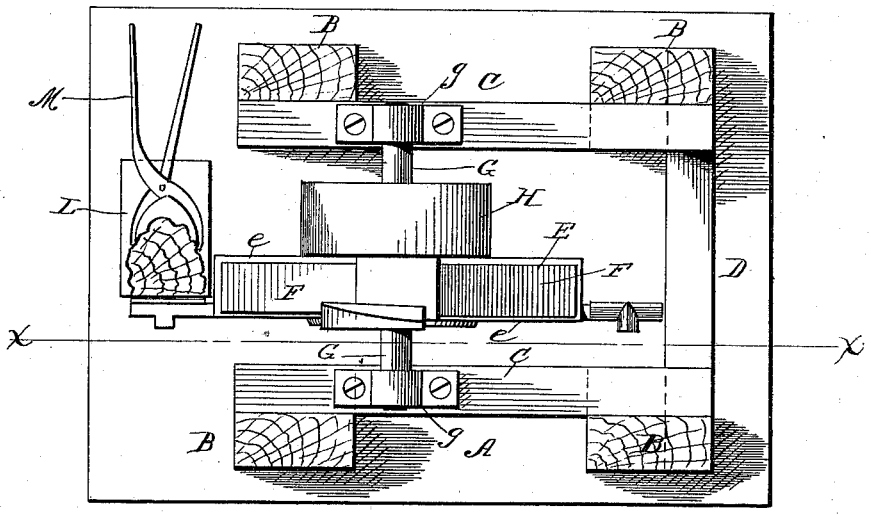


Fig. 3.

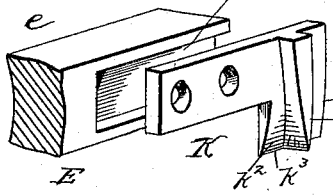
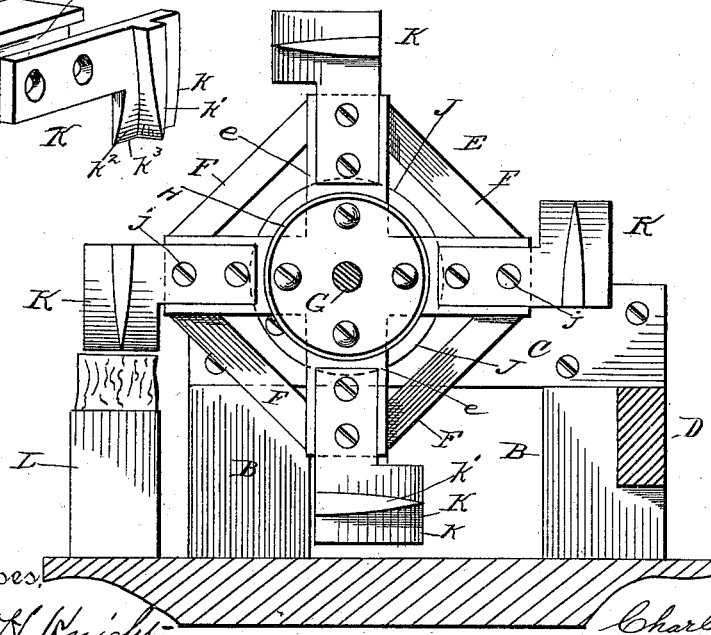


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES H. BARROWS, OF WILLIMANTIC, CONNECTICUT.

MACHINE FOR SPLITTING WOOD.

SPECIFICATION forming part of Letters Patent No. 383,690, dated May 29, 1888.

Application filed June 14, 1887. Serial No. 241,255. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BARROWS, a citizen of the United States, residing at Willimantic, in the county of Windham and State of Connecticut, have invented certain new and useful Improvements in Machines for Splitting Wood; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in wood-splitting machines adapted more particularly for use in splitting kindling-wood; and it consists in the peculiar combination and novel construction and arrangement of parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

The object of my invention is to provide a machine which shall be simple and substantial in construction, effective in operation, and comparatively cheap of manufacture.

A further object of my invention is to provide a series of cutters or knives which are carried by a rapidly-rotating wheel, each knife operating in quick succession upon the block to be split, and each knife being of such peculiar construction as to sever a piece of wood from the main block and split the piece so severed at the same operation. These knives have a shank by which they are secured laterally to one face of a revolving wheel, as presently explained, whereby they can be removed with ease and facility, in order to sharpen the same or for repairs when injured.

In the accompanying drawings, Figure 1 is a top plan view of my improved machine. Fig. 2 is a vertical sectional view on the line *x x* of Fig. 1, showing the wheel in elevation. Fig. 3 is a detached perspective view.

Like letters of reference denote corresponding parts in the several figures.

Referring to the drawings, A indicates a suitable frame, of any preferred pattern and size to support the rotating wheel and its shaft of the machine. This frame is preferably formed by uprights or standards B B, which are fixed in place in any ordinary manner, and to the uprights or standards B are secured longitudinal timbers C C and a cross-timber, D, the latter being arranged at the rear of said longitudinal timbers, the front end of the frame being left open to permit one side of a revolving wheel, E, journaled in the frame, to project through, as shown in Fig. 2. The form of the frame, however, can be varied and changed at pleasure—as, for instance, instead of having the open end, as just described, one side of the frame can be left open to permit the rotating wheel to project laterally from the frame, as is obvious. This wheel E is preferably composed of two transverse pieces arranged to cross each other at right angles, and secured together at their meeting point by means of bolts or otherwise, thus forming four radial arms, *e*, which are suitably braced by rods F, which form the periphery of the wheel.

It will be seen that the bars F are made straight and arranged at an angle to each other, which thus forms a wheel of square contour that is adapted to carry four cutters, one at each angle or corner; but the shape of the wheel can be varied and changed to provide a greater number of angles, which correspondingly increases the carrying capacity of the wheel.

The cutter-wheel is carried by and rotates with a horizontal shaft, G, which has its bearings in journal-boxes *g g*, secured to the longitudinal timbers B of the frame.

A band-wheel, H, is fixed upon the shaft G at one side of the cutter-wheel, and motion is imparted to the cutter-wheel through a belt or band from any suitable motor. (Not shown.) Between said band-wheel and the cutter-wheel is arranged a disk, J, the annular rim of which projects a short distance beyond the periphery of the band-wheel and serves as a guide for the belt or band and to prevent the same from coming into contact with the revolving wheel. It is obvious that instead of the disk J a flange may be secured to or formed with the band-wheel H at the side next the cutter-wheel.

One face of each arm *e* is formed with a groove or depression, *f*, which is of suitable size and opens through the outer end of the arm to form a seat for the shank of a knife or cutter, K, the shank being fitted snugly in the groove and having its outer exposed side flush

with the outer face of the arm to which it is secured, as shown. Through-bolts *j* are passed through the arm and its blade to firmly secure the parts together and permit them to be readily separated.

I will now proceed to describe one of my improved cutters K, by which I am enabled to cut two pieces of wood at one operation. Each cutter comprises two blades or members, *k k'*, one of which is beveled from one side or face to its opposite face, thereby forming an inclined surface, k^2, on one face of the blade and a sharp cutting-edge, k^3, at the extremity toward which the bevel inclines. The other blade or member, *k'*, is formed with or secured to the blade *k* at right angles thereto, the inner surface of said second blade being made to conform to the inclined side face of the blade *k*, as shown in Fig. 3, in order to make the cutting-edge continuous, and thus enabled to make a clean cut. Both the side faces of the blade *k'* are beveled uniformly toward one end, thus forming a wedge-shaped blade, the cutting-edge of which is slightly widened to conform to the shape of the blade *k* k^2, as above explained. By this construction I am enabled to cut two pieces of wood from the main block at the same time—that is to say, while the blade *k* is cutting a portion of the block being operated upon the blade *k'* cuts the severed portion in half, as will be readily understood. The blades *k* and *k'* may be made of separate pieces of metal and secured together in any suitable manner; or they may be made of a single piece of metal.

A cutting-block, L, is arranged in front of the revolving wheel to support the block of wood to be cut, so that one of its vertical edges is arranged at one side of the path described by the cutters on the rotating wheel.

The wood is placed upon the block L, as shown in Fig. 1, and fed to the revolving cutters by means of a pair of tongs, M, the clamping-faces of which are divided and spread apart, having the ends of such divided parts sharpened to take into the wood so that they shall take a sure and firm hold upon the wood and prevent the same from slipping while the cutters are operating thereon.

When splitting very light wood—such as pine—the shaft G may be extended and a crank-arm secured thereto, by which the machine may be operated manually.

In lieu of arranging the revolving wheel between the longitudinal beams of the frame one end of the shaft may be extended beyond the frame, and the knife-carrying wheel secured on said extended end.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for splitting fire-wood, a vertically-rotating wheel supported on a suitable shaft and a series of cutters fixed to the wheel at suitable intervals from each other and projecting beyond the periphery thereof, each cutter consisting of two blades, which are arranged substantially at right angles to each other, and all the cutters facing in the same direction around the wheel, as and for the purpose described.

2. In a machine for splitting fire-wood, the combination of a vertically-rotating wheel supported on a horizontal shaft, a series of two-part cutters projecting radially from the wheel at suitable distances from each other, and a stationary block disposed in advance of said wheel and at one side of the path of the cutters, as and for the purpose described.

3. In a machine for splitting fire-wood, a vertically-rotating wheel carrying a series of spaced two-part cutters, one of the blades of each cutter being arranged at right angles to and projecting centrally from one of the lateral faces of the other blade of said cutter, as and for the purpose described.

4. In a machine for splitting fire-wood, a vertically-rotating wheel carrying a series of fixed two-part cutters which project beyond the periphery of the wheel at suitable intervals, one of the blades, *k*, of each cutter having one of its lateral faces inclined to the other face thereof, and the other blade, *k'*, of said cutter fitting snugly against the inclined lateral face of the other blade and projecting centrally therefrom, the cutting-edges of both blades lying in the same plane, as and for the purpose described.

5. In a machine for splitting fire-wood, a vertically-rotating wheel hung upon a suitable shaft and having a series of radial arms, each provided with a longitudinal socket which opens through the outer extremity and one of the lateral faces of the arm, in combination with a series of two-part cutters which are arranged at points beyond the periphery of the wheel, and each cutter having an extended shank which fits snugly in the socket of the arms, and means for detachably securing the cutters to the arms of the wheel, as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. BARROWS.

Witnesses:
JOHN M. HALL,
SILAS F. LOOMER.