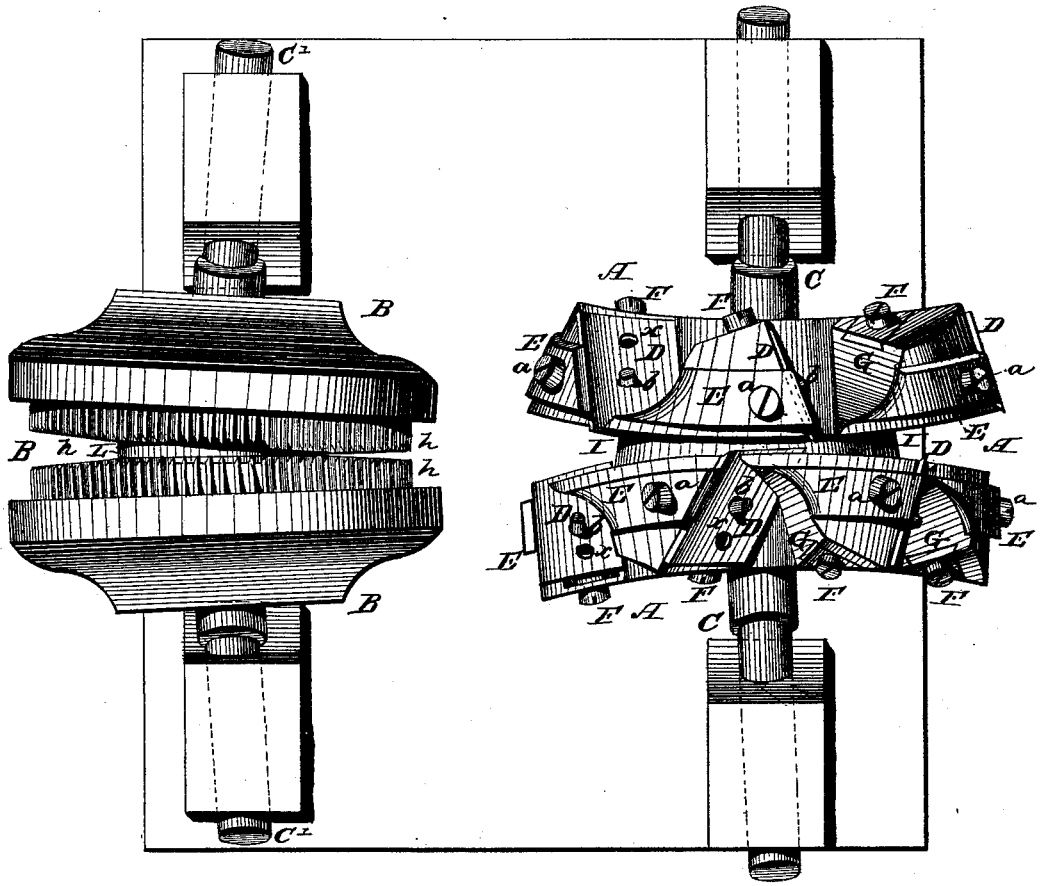
2 Sheets—Sheet 1.

H. LOMBARD
Whip-Rounding Machine.

No. 214,257. Patented April 15, 1879.

Fig. 1.



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Inventor:

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H. LOMBARD.

Whip-Rounding Machine.

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Fig. 2.

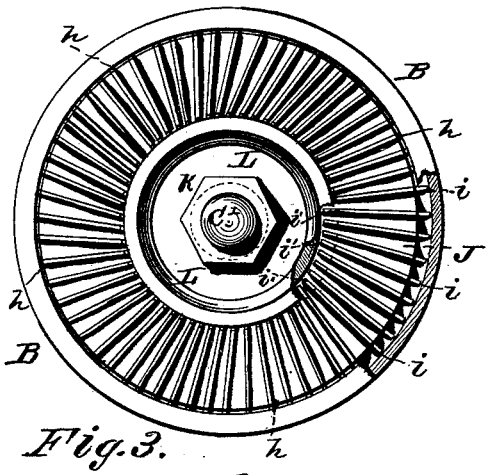


Fig. 3.

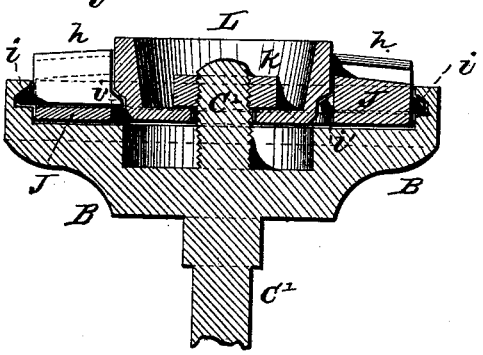


Fig. 4.

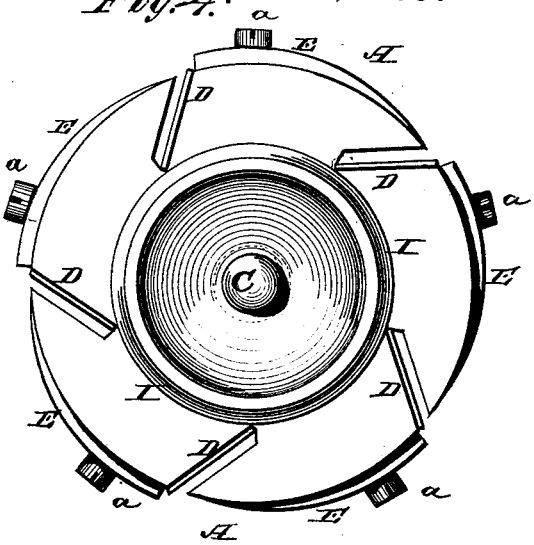


Fig. 5.

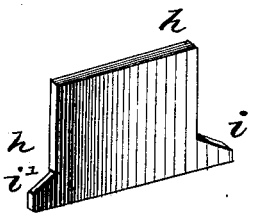


Fig. 6.

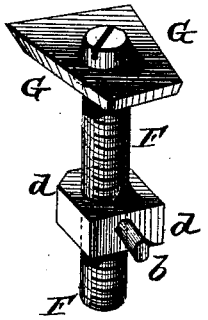


Fig. 7.

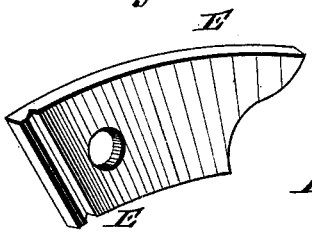
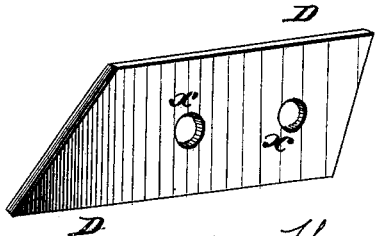


Fig. 8.



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UNITED STATES PATENT OFFICE.

HEZEKIAH LOMBARD, OF WESTFIELD, MASSACHUSETTS.

IMPROVEMENT IN WHIP-ROUNDING MACHINES.

Specification forming part of Letters Patent No. **214,257**, dated April 15, 1879; application filed November 1, 1878.

To all whom it may concern:

Be it known that I, HEZEKIAH LOMBARD, of Westfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Whip-Rounding Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for roughing off and finishing whips and similar articles at one operation, as will be hereinafter more fully set forth.

In the annexed drawings, Figure 1 is a plan view. Fig. 2 is a face view of head B, partly in section. Fig. 3 is a central vertical section of the same. Fig. 4 is a face view of head A; and Figs. 5, 6, 7, and 8 are detailed views of various parts of my invention.

A A represent the roughing-heads, and B B the finishing-heads, the former containing five knives each, and the latter sixty, and are so arranged that the article being turned will pass between the roughers first, and then the finishers. For short whips suitable feeding devices should be arranged between them, so as to more firmly hold and advance them.

The roughing-heads A A are mounted upon inclined arbors or spindles C C, so as to bring the faces through which the blades D project parallel with each other.

The blades D are set at an angle with relation to the face of the head, and this angle should be such that the blades will neither scrape nor gouge out pieces in the whip, but cut them just as desired. The blades are also inclined with relation to the radii of the head at such an angle as will give them a draw-cut, thereby preventing them from cutting across the whip, which, if allowed, would have a tendency to spring the whip down.

Each blade D is held in place by a cap, E, fastened by means of a screw, *a*, so that by releasing said screw the blade can easily be removed for sharpening. The blade is also p ovided with one or more holes, *x*, for the insertion of a pin or projection, *b*, on the nut *d*, through which the screw F passes. This screw regulates the distance the edge of the blade will project to cut properly, and also prevents the blade from being driven back by its action on the stock or whip.

The screw F is held in place by being swiveled in a dovetailed plate, G, inserted in the head, and by turning the screw the nut *d* will be moved out or in on the screw, carrying the blade with it.

It will be seen that there is no cap on the face of the blade, thereby admitting of a free delivery of shavings, so that there is no liability of clogging, as there otherwise would be, especially if pitch is used to fasten the pieces together, of which a whip is sometimes composed.

One of the heads A is formed with a projecting hub, I, upon which the article being turned must rest if it is small and limber; but, if sufficiently stiff, it may be held by a guide placed in front. The other head A is formed with a corresponding recess, into which the hub I enters, so as to let the cutters come close together.

The arbors C C of the cutter-heads should be mounted on suitable bearings, so that they may be moved to and from each other, as may be required, to give the proper shape to the article being turned, and also that they may be varied in relation to the angle at which their axis of rotation may set to the article being turned, forming, however, in all cases an acute angle in front of the cutters and an obtuse angle behind them.

The blades *h h* of the finishing-heads are set parallel with their axis of rotation, or at right angles with their faces, so as to scrape rather than whittle, and thus make a smooth surface on the article being turned.

These blades are set in the heads at an angle to their radius the same as the roughing-blades D, and for the same purpose; but their axes are set nearer horizontal, and the faces are changed correspondingly, so as to set parallel with each other at their tops, which makes them less conical.

The blades are set into a ring, J, and have a projection, *i*, which fits into a recess in the cutter-head, and another projection, *i'*, on

which the cap L sits, this cap being drawn down tight by means of a nut, *k*, on the end of the arbor C′, upon which the head is mounted. One of the caps L forms a hub to support the whip, and the other cap is recessed to receive said hub.

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

1. In a machine for rounding whips, the combination of a pair of roughing-heads and a pair of finishing-heads, substantially as described, for roughing and finishing a whip at one operation, as herein set forth.

2. The blades of the roughing and finishing heads, set at an angle with relation to the axis of rotation as well as in relation to the radius of the heads, substantially as and for the purposes herein set forth.

3. The combination, with the head A, of the blade D, having one or more holes, *x*, the cap E, plate G, screw F, and nut *d*, with projection *b*, substantially as and for the purposes set forth.

4. The hub I, formed on one head A, in combination with opposite head provided with a corresponding recess for the purposes set forth.

5. The combination of the head B, blades *h*, having projections *i i′*, ring J, and cap L, as and for the purposes herein set forth.

6. The combination of two revolving roughing-heads, arranged in inclined position, and provided with adjustable blades set at an angle to the axis of rotation and to the radius of the heads, substantially as herein set forth.

7. The combination of two revolving finishing-heads, arranged in inclined position, and each provided with a series of blades set at an angle in the face thereof, substantially as herein set forth.

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

HEZEKIAH LOMBARD.

Witnesses:

W. H. SOUZA,

M. B. WHITNEY.