

G. B. SELDEN.  
Hoop-Machine.

No. 203,949.

Patented May 21, 1878.

Fig. 1.

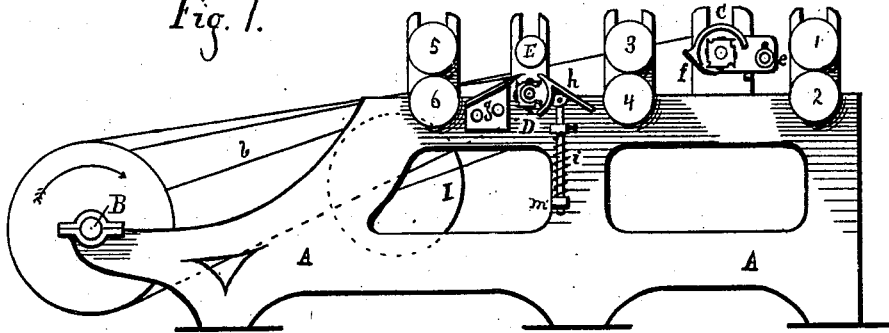


Fig. 2.

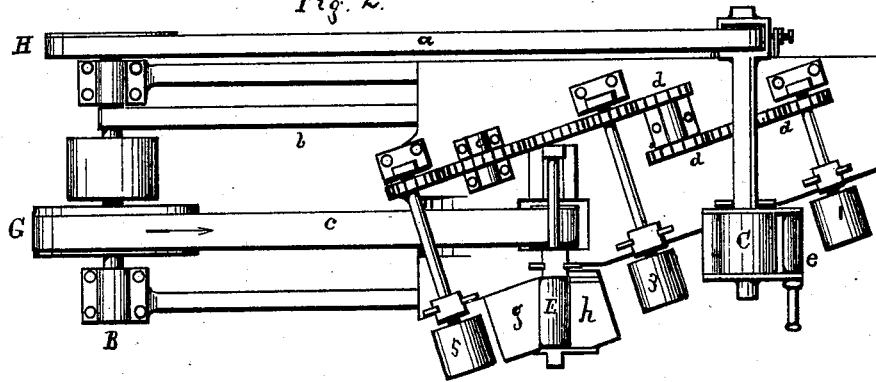


Fig. 3.

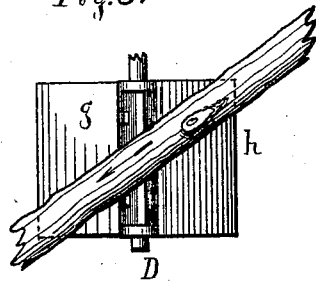
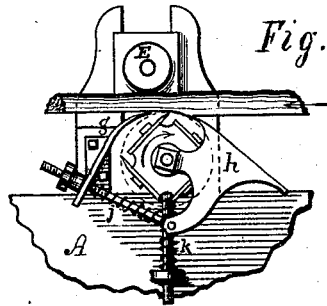


Fig. 4.



WITNESSES:  
*E. B. Whitmore.*  
*M. H. Briggs*

INVENTOR:  
*George B. Selden.*

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Fig. 5.

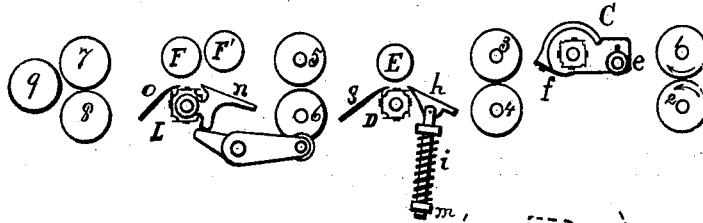


Fig. 6.

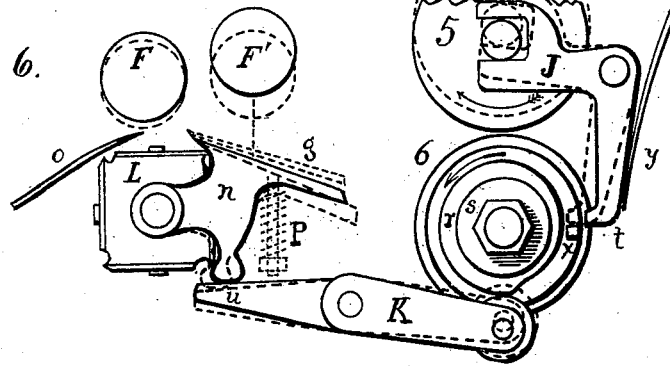
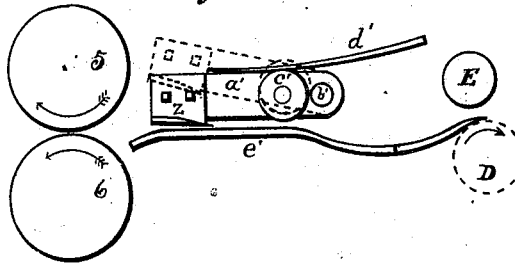


Fig. 7.



WITNESSES

E. B. Whitmore.  
Wm Gomm

INVENTOR

George B. Selden

# UNITED STATES PATENT OFFICE.

GEORGE B. SELDEN, OF ROCHESTER, NEW YORK.

## IMPROVEMENT IN HOOP-MACHINES.

Specification forming part of Letters Patent No. **203,949**, dated May 21, 1878; application filed April 19, 1878.

*To all whom it may concern:*

Be it known that I, GEORGE B. SELDEN, of the city of Rochester, in the State of New York, have invented certain Improvements in Hoop-Machines, of which the following is a specification:

This invention relates to an improvement in machinery for dressing half-round hoops.

It consists in the combination, with a knot-trimmer, of a longitudinal cutter-head, provided with suitable guides to support the hoop before and after the head, and a yielding roller for passing the knots on the bark side, the whole being so arranged that the stock is shaved on the proper lines, notwithstanding its curves.

My invention also consists in the combination, with the aforesaid devices, of a finishing-head, by which the quality of the stock produced is improved; and in an arrangement for tapering or lapping the hoops as they pass through the machine.

Figure 1 is an elevation, and Fig. 2 a plan view, of a machine embodying my invention. Fig. 3 shows a hoop passing over the main cutter, and Fig. 4 one mode of arranging the cutter and its attachments. Fig. 5 shows my machine with finishing-cutter and lapper attached. Fig. 6 is an enlarged view of the lapper, and Fig. 7 the device for cutting the point on the bark side of the hoop.

A A, Fig. 1, is the frame of the machine, and B the driving-shaft. The hoops are fed through the machine by the feeding-rollers 1 2, 3 4, and 5 6, which are driven by the belt *b* and train of gears *d d*.

The rollers 3 and 4 are clamped together and travel across the line of feed.

The cutter-head C of the knot-cutter has a slight vertical motion to and from the stock, and is controlled in its operation on the knots by a yoke-frame swiveling about the head and carrying the roller *e*, which bears on the bark of the hoop before the head, and the rest *f* of which bears on the hoop after the head. These rests are so shaped and arranged that the knots are trimmed down to the proper height above the general bark-line.

The cutter-head D is driven from the shaft B by means of the belt *c*. The hoops pass be-

tween the cutter-head D and the yielding roll E, by a spring on which they are held against the knife. A stationary rest, *g*, supports the hoops after the head, and the yielding forward rest, *h*, swings immediately about the head, being carried by arms which are boxed on the shaft of the head D; or the inner arm may swing on a ring concentric with the shaft.

A spring on the rod *i* allows the rest *h* to swing back and expose the cutter D, so that it can remove the required amount of wood from the inner or split side of the hoop. The line of feed is arranged at an angle with the shaft of the cutter-head D. (See Fig. 2.) The effect of this is virtually to narrow the throat of the cutter-head D.

The principal difficulties in the way of finishing hoops with a longitudinal cutting-head arise from the fact that a short curve convex toward the knife is liable to run in on the knife and be thinned, and a curve concave toward the knife will be left thick at that spot. The head, protected by its rests, cannot get into an acute curve, while a short bend will run into the throat of the cutter. These difficulties are overcome by reducing the width of the throat of the cutter-head D, which is accomplished by arranging the forward rest, *h*, to swing concentrically about the head, and by locating the line of feed at an angle with the axis of the cutter D. This will be readily understood by a reference to Fig. 3, from which it will be seen that a hoop of the same width as the throat between the rests *h* and *g* fed at an angle of forty-five degrees with the axis of the cutter would be supported on its edges by the rests at points nearly opposite each other. Under these circumstances the tendency to gouging is reduced to its minimum, while the conditions are the most favorable to prevent thickening, although a smaller angle than forty-five degrees is to be preferred.

Suitable side guides may be used to prevent the roller E from crowding the hoop sideways out of the feed-rolls.

In Fig. 1 the cutter-head D and attachments are represented as rigidly attached to the frame of the machine. Exactly the same principles are involved in case the head is supported by a swinging frame capable of ver-

tical movement, and to which the rests and the pressure-roller E are attached. In this case the spring on the forward rest, *h*, should bear on the frame supporting the cutter-head, and not on the frame of the machine. This arrangement is shown in Fig. 4, in which the spring *j* is shown as attached to the after-rest, *g*. It may be protected from the shavings in any convenient manner.

The cutter-head, with its frame and attachments, are supported by the spring *k*, which bears on a lug on the frame of the machine.

The roller E travels up and down with the head, toward which it is pressed by a spring.

Fig. 5 represents a machine in which an additional longitudinal cutter, L, is used. It is provided with a yielding pressure-roller, F, on the bark side, and two stationary rests, *n* and *o*, before and after the head. The forward rest *n* is set so as to allow the head to remove a uniform cut from the interior of the hoop. This arrangement is useful in producing smoother work than can be done at a single cut.

In order to produce a marketable article, it is generally necessary that the hoops should be lapped. This is another of the purposes for which I use the finishing-cutter L. When arranged for lapping this cutter-head has an elastic or yielding roller, F, on the bark side, a stationary after-rest, *o*, and the forward rest *n* swings concentrically about the head, and is controlled by a cam, *r*, operated by the hoop itself in conjunction with the feed-rollers 5 and 6. (See Fig. 6.)

The cam is loose on the shaft of the feed-roller 6, which revolves in stationary boxes. The cam is driven by a friction-collar, *s*, when not held from rotating by a catch, *t*, on the outer end of the bent lever J, which is operated by the upper end of the shaft of feed-roll 5.

The position of the rest *n* is controlled by the cam *r*, acting through the lever K, which bears against the rest at *u*, Fig. 6.

When a hoop is introduced between the feed-rollers 5 and 6, the roller 5 recedes from the other and arrests the rotation of the cam by interposing the cap *t* in the path of the pin X in the cam. The rest *n*, therefore, remains stationary so long as the rollers are separated by the hoop, and a uniform cut is made from the inner surface of the hoop by the cutter.

When the end of the hoop passes from between the rollers the pin *x* is released from the catch *t*, and the cam, driven by the friction, immediately commences to revolve, and allows the rest to recede gradually as the end of the hoop passes by the head. The end of the hoop is thus thinned by the cutter L for a distance depending upon the relative position of the head and the rolls 5 and 6, and the shape of the cam *r*.

An additional pressure-roll, F', Fig. 6, arranged to come forward as the rest recedes, may be used to keep crooked ends in contact with the rest. The cam will continue to re-

volve until the next hook, opening the rolls, will allow the pin *x* to again encounter the catch.

If a spring, *y*, is used on the lever, it should be weaker than the spring used to clamp the feed-rollers together.

The same means of operating the rest for lapping may be applied to the rest *h* by connecting the abutment *m*, against which the spring *i* rests, with a cam similar in its arrangement to the cam *r*.

In cases where it is desired to chamfer or point the bark side of the hoop, I use the knife *z*, Fig. 7, which is fixed to a swinging arm, *a'*, pivoted at *b'*, and controlled by the roller *c'*, attached to the arm.

The knife is pressed toward the hoop by the spring *c'*. While the hoop is passing between the roller *d'* and the supporting-plate *e'* the knife, by means of the roller and lever, is held off from the hoop, as shown in dotted lines in Fig. 7; but when the end of the hoop passes beyond the roller *c'* the spring forces the knife against the hoop. The knife is so set that it removes a chip from the end of the hoop as it passes by it. The cut is made at any desired angle with the flat side of the hoop by giving the knife the proper inclination.

In working small stock splints are frequently encountered, which are split so thin through a part or the whole of their length as not to require dressing. In this case, if the finishing cutter-head be so arranged as to take a uniform cut from the inside of the splint, it may be shaved too thin in places or throughout its length. Such splints may be saved by arranging the forward rest so as to completely cover the finishing-head L, and allowing it to yield back on a spring to its proper position. The rest *n* thus arranged is shown in dotted lines at *g'*, Fig. 6.

A spring, P holds the rest in the position *g'*, and the rest keeps the bark side of the splint all the time in contact with the roller F.

Unless the splint is thick enough to fill the gage between the roller F and the head L, the rest *n* is not crowded back so as to expose the head L, and a thin splint is not reduced in thickness.

This arrangement may be adopted either with or without the lapping attachment shown in Fig. 6, in the former case the spring for holding the rest *n* in position to shield the head being placed between the rest and the lever K.

I have used the rest *n* arranged to protect thin splints on a machine constructed in accordance with the specification of Patent No. 175,174.

For shaving angular splints the grooved feed-rolls described in my previous patents may be used in combination with the various devices herein set forth.

I do not claim herein anything which has been previously patented to me.

I claim—

1. In combination with the knot-cutter C,

the longitudinal cutter-head D, placed obliquely to the line of feed, and the rests *g* and *h* and pressure-roller E, substantially as set forth.

2. The combination, in a hoop-dressing machine, of a knot-cutter, C, covering-head D, and finishing-cutter L, provided with a yielding rest, *n*, arranged to protect thin splints, substantially as described.

3. In combination with the cutter-head L,

the movable rest *n*, controlled by the cam *r*, operated by the feed-rollers 5 and 6, substantially as and for the purposes described.

4. The pointing-knife *z*, controlled by the roller *c'*, operating substantially as and for the purposes set forth.

GEORGE B. SELDEN.

Witnesses:

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T. G. OUTERBRIDGE.