G. B. SELDEN.

MACHINE FOR SPLITTING HOOP-POLES.

No. 189,659. Patented April 17, 1877.

Fig. I

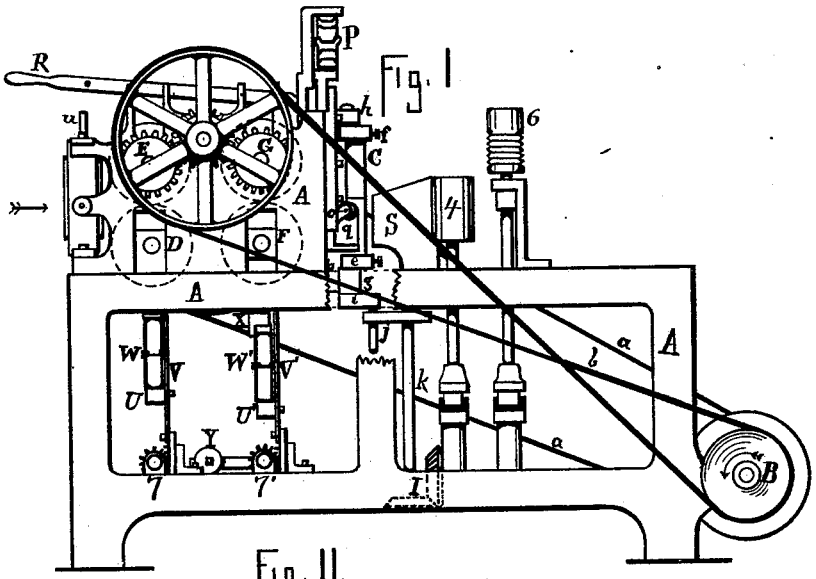

Fig. II.

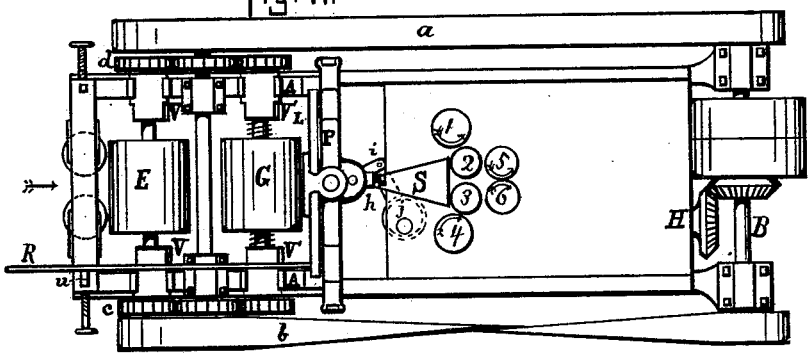

Fig. III.

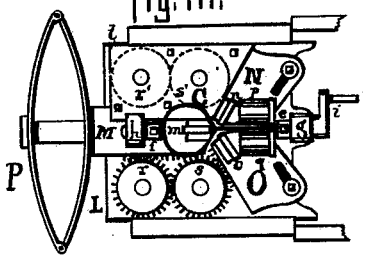

Fig. IV.

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GEORGE B. SELDEN, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN MACHINES FOR SPLITTING HOOP-POLES.

Specification forming part of Letters Patent No. **189,659**, dated April 17, 1877; application filed July 13, 1876.

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 an Improvement in Machines for Splitting Hoop-Poles, of which the following is a specification:

This invention relates to an improvement in machines for splitting hoop-poles; and it consists in combining suitable feeding, centering, and discharging mechanism with a three-part knife, in such a manner that the machine can at will be adapted to splitting poles into two, three, four, or more parts.

Figure 1 is a side elevation, and Fig. 2 is a plan view, of a machine embodying my invention. Fig. 3 is an end view of the centering device.

A A is the frame of the machine, and B the driving-shaft, from which power is transmitted to the various working parts of the machine. One or more pairs of feed-rolls are arranged to feed the poles to the knife C. These rolls D E F G, Figs. 1 and 2, are driven from the shaft B by the belts and gears *a b c d* on each side of the machine. An oscillating three-part knife, C, is located immediately behind the feed-rolls F G. One wing of this knife extends at right angles with the axis of the feed-rolls, and terminates in a socket-piece, *e*, Figs. 1 and 3, and the other two wings extend outward and are brought together in a corresponding socket-piece, *f*. The two sockets are provided with journals turning in suitable bearings *g h*. One of the sockets is provided with an arm, *i*, which is oscillated to and fro by the eccentric *j* on the shaft *k*, which is driven from the main shaft B by an intermediate shaft and the bevels H and I. The edge of the straight wing of the knife corresponds with the center of oscillation of the socket-pieces *e* and *f*, so that its position is invariable, while the back of the knife oscillates to and fro. The edges of the other wings of the knife change their position slightly during the oscillation; but near the center of the three wings, where the three-part splitting is done, the variation is so little that it may be disregarded. The bearings carrying the socket-pieces are attached to a suitable supporting-plate, L, Figs. 2 and 3, which also carries the centering-rolls *m n o*. In between the three wings of the knife C are placed three narrow-faced rolls. These rolls are carried by three radial sliding pieces, M N O, Fig. 3, which are so connected together by means of the racks and gears *r s r' s'* that the slides and centering-rolls all recede equally from the center, where the wings of the knife join. One of the slides is provided with a spring, P, by which the slides and centering-rolls are all forced together toward the common center. The slides and gears *r s r' s'* are held in place on the plate L by suitable plates, one only of which is shown, *t*, Fig. 3. The bearing *h* is either attached to these plates or directly to the plate L by passing it through a slotted opening in the slide M. The slides N O, besides their three-part centering-rolls, each carry a roll, *p q*, Fig. 3, placed parallel with the straight wing of the knife. These rolls will also recede equally from the straight wing of the knife, and serve as a centering device in two-part splitting, which is done on the straight wing of the knife.

The same knife and centering apparatus, therefore, serve for either two-part or three-part splitting, and to change from one to the other it is only necessary to alter the position of the plate L crrrying the knife and centering-rolls with reference to the line of feed through the feeding-rolls. The plate L is arranged to slide in gibs on the side frames, Fig. 2, and its position with reference to the line of feed is controlled by the hand-lever R, or by any other suitable means.

By the use of this lever the operator feeding the machine may quickly adapt the machine to any kind of splitting. A catch, *u*, secures the lever when the plate L is in its elevated position. The eccentric *j* is splined on the shaft *k* and travels with the plate M, to which it is connected by a suitable arm, or the pin at the outer end of the arm *i* is lengthened out and slides through the eccentric strap.

It will also be observed that half-poles will be presented to the straight knife by the feeding-rolls in proper position to be resplit. For resplitting three-part or angular splints, a divided V-grooved feed-roll may be used, (see Fig. 4,) in which each portion of the roll is held up to its work by the springs *v v*. Each

portion of the roller is splined on the shaft. This roll will also feed whole poles or two-part splints.

Behind the knife a suitable dividing-wedge, S, is placed, which guides the two splints in two-part splitting into the pulling-rolls 1 2, 3 4, by which they are discharged out of the machine, and in three-part splitting guides two of the splints into the same rolls, while the third is guided between the V-grooved pulling-rolls 5 6. The pulling-rolls are all driven from the shaft *k* by suitable gearing. The rolls 2 and 3 revolve in stationary boxes, and the other rolls are held up to their work by suitable springs.

If two pairs of feeding-rollers be used, the pair F G nearest the knife should be so arranged that in three-part splitting they may play freely across the line of feed.

There is also an advantage in splining these rolls on their shafts, and placing a spring between them and the boxes on each side, as shown in Fig. 2. Two straps, *v v v' v'*, connect, by means of a rack and gear, the boxes of the rolls E and G with the rock-shafts 7 and 7', Fig. 1. By this means the shafts E and G are compelled to rise evenly, and the bars U U' connecting the two straps *v' v'*, as the rolls rise, compress the springs W W'. The piece X connects the spring W' directly with the boxes of the shaft of the feed-roll F. The weight Y, Fig. 1, balances the feed-rolls F and G.

A stationary knife may be used; but I prefer the oscillating knife, even if it be not oscillated positively by the machine, or if it be so connected with the driving-shaft that it may be oscillated or not, at the will of the operator.

The line of feed may be altered by so arranging the feed-rolls that their position may be changed, in which case it would be unnecessary to move the centering-head and plate L. By lengthening the pulling-rollers 1 2, 3 4 a combined machine could thus be constructed; but I prefer to build the machine as herein described.

It is also evident that the movable centering device herein shown may be applied to that class of pole-splitting machines in which the poles are thrust by pressure applied at one end against a knife.

By widening out the machine, lengthening the feeding-rollers, and using two knives, one two-part and one three-part, and adopting suitable pulling-rolls, a combined friction-splitter may be made.

I prefer the simpler and cheaper machine herein described.

I claim—

1. The oscillating three-part knife C.

2. In combination with suitable feeding mechanism, the oscillating three-part knife C and centering-rolls *m n o*.

3. In combination with the knife C, the centering-rolls *m n o* and *p q*.

4. The combination of the movable plate L, knife C, and centering-rolls *m n o* and *p q*.

5. In combination with suitable feeding mechanism, the knife C, centering-rolls *m n o* and *p q*, and suitable discharging-rolls 1 2, 3 4, 5 6.

6. In combination with suitable feeding mechanism, the movable plate L, carrying the knife C, and centering rolls *m n o* and *p q*.

7. In combination with suitable feeding-rollers, the movable plate L, carrying the knife C, and the centering-rolls *m n o* and *p q*, and suitable discharging mechanism.

8. In a machine for splitting hoop-poles, the combination, with a two-part and a three-part knife, and their respective centering devices, of suitable feeding and discharging rollers, operating substantially as and for the purposes set forth.

9. The combination of the knife C, slides M N O, rolls *m n o* and *p q*, and racks and gears *r s r' s'*, and plate L, operating substantially as and for the purposes set forth.

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Witnesses:

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