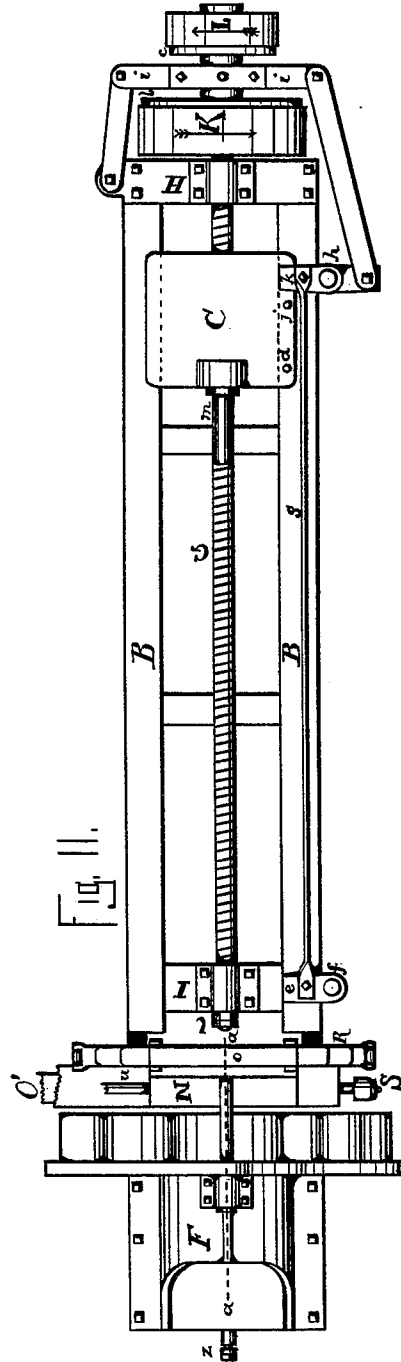
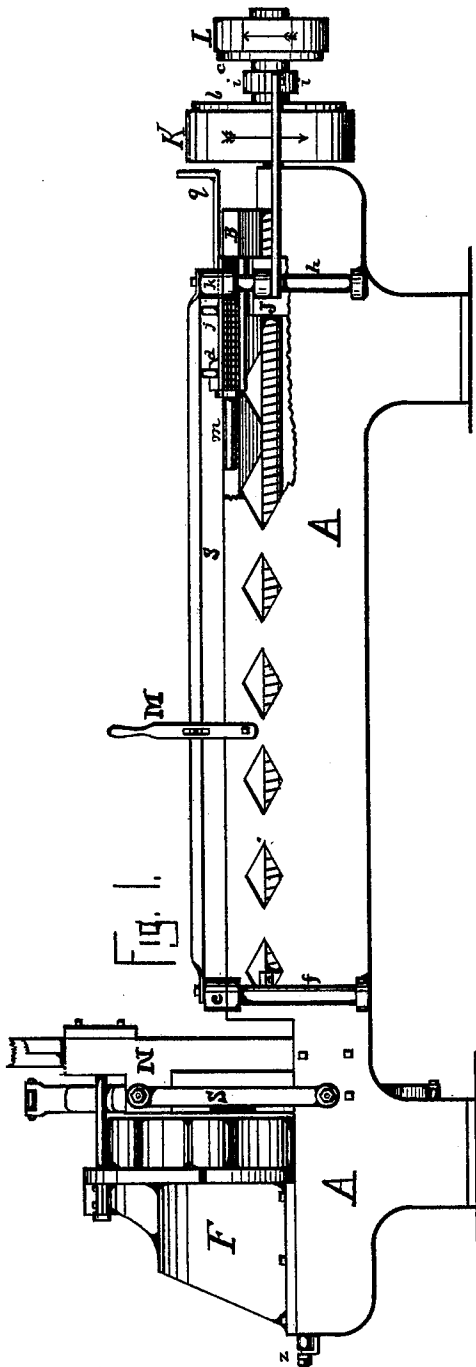


G. B. SELDEN.

MACHINES FOR SPLITTING HOOP-POLES.

No. 175,304.

Patented March 28, 1876.



WITNESSES:
W. A. Briggs
Geo. F. Yeoman

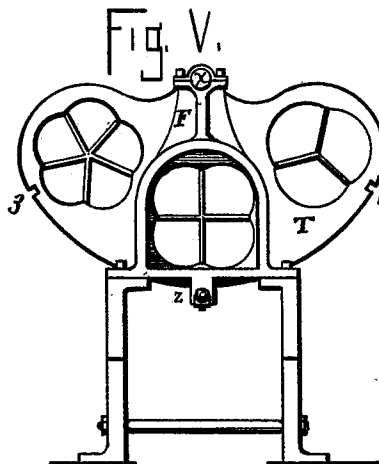
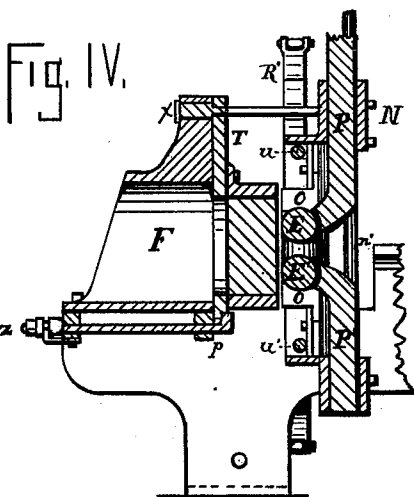
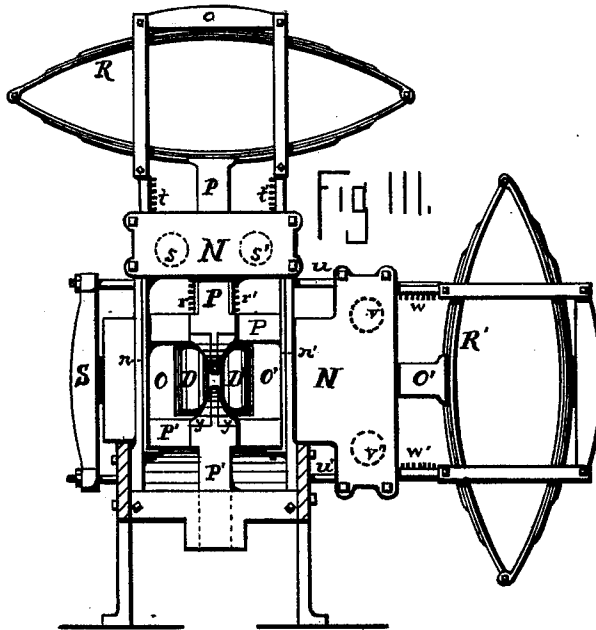
INVENTOR:
George B. Selden.

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UNITED STATES PATENT OFFICE.

GEORGE B. SELDEN, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN MACHINES FOR SPLITTING HOOP-POLES.

Specification forming part of Letters Patent No. **175,304**, dated March 28, 1876; application filed September 14, 1875.

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 is an improvement on Patent No. 128,561, and consists in the application of a screw to operate the cross-head, in an improved construction of the centering device, and in a changeable knife-holder, for facilitating the change from one knife to another.

Figure 1 is an elevation, and Fig. 2 a plan view, of a machine embodying my invention. Fig. 3 is an elevation of the centering-head, and Fig. 4 a section on the line *a a*, Fig. 2, showing the parts above that line. Fig. 5 shows the knife-head in end elevation.

A A is the frame of the machine, and B B suitable parallel ways on which the cross head C slides forward and back, to and from the centering-rolls D D' E E' and the knives. Between the ways and beneath the cross-head C is placed a quick-acting screw, G, boxed in suitable cross-bars H and I, Fig. 2. A nut, J, Fig. 1, on the screw G, is securely bolted to the cross-head C, and a rotary motion of the screw-shaft G causes the head C to traverse forward or back on the ways B B. Power is applied to the shaft G by means of the pulleys K and L, one of which, K, is used to give the screw G the proper motion to drive the cross-head C toward the knives, and the other, L, to return it. These pulleys are connected with the shaft G by friction-clutches *b* and *c*, which are operated by the hand-lever M, or by the cross-head C itself, at either end of its travel. At the extremity of its forward travel, a pin, *d*, on the cross-head C strikes the arm *e* on the rock-shaft *f*, Fig. 2; from which the motion is carried by the rod *g*, rock-shaft *h*, and lever *i* to the friction-clutch *b*, which is thereby disengaged from the pulley K, while at the same time the clutch *c* is engaged with the pulley L, by which the motion of the screw G is reversed and the cross-head returned to the farther end of the ways. At the end of its backward motion, the clutch *c* is disengaged by the pin *j* striking the arm *k* on the rock-shaft *h*. The screw G is provided at its forward end *l* with jam-nuts and friction collars, which bear

against the cross-bar I, by which means the strain of the work on the screw is a pull and not a thrust. The pusher *m* is a rod screwed into the forward end of the cross-head C, of such a length as to reach within an inch or two of the knives, when the cross-head is at the extremity of its forward travel. A series of concentric ridges turned on the end of the pusher allows the pole, which it pushes in front of it, to rotate slightly while being split, without slipping off the pusher. The centering-rolls D D' and E E', Figs. 3 and 4, with their connections, are supported by a suitable sustaining-frame, N, bolted to the side frames of the machine. One pair of rollers, E E', opens vertically, and the other pair, D D', horizontally, and each roller of each pair is so connected with the other roller of the same pair that they each recede equally from the line joining the center of the knife and the pusher. The rollers D D' revolve on studs in the inner ends of the sliding frames O O', which are secured to the knife-side of the sustaining-frame N by jibs. The rollers E E' are secured to similar sliding frames P P', on the pusher-side of the frame N, but are narrow enough and offset from their frames so as to come in between the other pair. (See Fig. 4.)

The stem of the slide P, which carries the upper roll E of the pair opening vertically, is provided on each side with racks *r r'*, which mesh into pinions shown by dotted circles *s s'*, Fig. 3, which in their turn mesh into sliding racks *t t'*, attached to suitable straps *n n'*, which pass downward and are secured to the slide P' carrying the lower roll E'. The straps are divided above the racks, and, being connected by a suitable cross-piece, *o*, embrace an elliptic spring, R. The lower half of this spring presses against the upper end of the slide P, and the upper half against the cross-bar *o*, and by this arrangement the upper roll E is forced downward, while the lower roll E' is drawn upward by the same spring and with equal force, and equality in the motions of either roll is secured by the racks and pinions. A similar arrangement is adopted for the rolls centering horizontally; the sliding frame O' carrying the roll D', being connected with the slide of the opposite roll by means of the cross-bar S, rods *u u'*, and the racks and pinions

W W' and V V'. Suitable stops are provided to limit the inward motion of each pair of centering-rolls, under the pressure of their respective springs R R'. All the rolls are placed as near the knives as possible, and each pair must close up so as to leave the opening between them as small as the point of the smallest pole designed to be split by the machine. The narrow-faced rollers E E' are biconcave, in one piece with their journals, which revolve in holes in suitably-shaped supporting-pieces y y, Fig. 3, bolted to an inwardly projecting tongue on the slides P P'. For convenience of opening the rolls I have used a screw passing through a lug on the cross-bar o and into a nut on the slide P. Behind the centering device a suitably-shaped casting, F, Figs. 1 and 2, supports a swinging plate, T, to which the knives are secured. Three-part, four-part, and five part knives are represented in Fig. 5. These are let into suitable collars, which are bolted to the plate T. The collars are made of such size and shape that the openings between the wings of the knives and the collars will admit the largest pole designed to be split by the machine to pass bodily through the opening. The plate T, which supports the knives, is secured to the casting F by a stud, x, Fig. 4, turning in a suitable journal, and by a catch, p, Fig. 4. This catch fits into notches 1 and 3, Fig. 5, in the edge of the plate T, which are cut in such positions as to secure the various knives in their proper relation with the centering-rolls. The catch passes through lugs on the lower side of casting F, and is moved in and out of the notches in plate T by nut z.

In practice an operator quickly learns, from the appearance of a pole, whether it will spring in being split, and turns the crook down, so that it springs against the cross-bars between the ways. A strap, bent over the ways and secured to them, not too far from the center-

ing-rolls, so that the operator can easily introduce a pole under it, prevents a pole which happens to spring upward from doing any harm.

Poles longer than the ways may be split on this machine by attaching to the cross-head a strap, q, Fig. 1, which reaches back the required distance, and is turned up at its outer end. In this case the cross-head comes forward part way, with the end of the pole resting against the strap q, and then goes back so that the end of the pole may be placed against the pusher, and the splitting be finished.

I claim—

1. The combination of a multipart knife, the centering-rolls E E' and D D', and the cross-head C, provided with the pusher m with the screw G, operating substantially as described.

2. In a machine for splitting hoop-poles, the movable knife-holder T, operating substantially as and for the purposes set forth.

3. The combination of the centering-rolls E E' and their supporting slides P P', spring R, straps n n', and racks and pinions t t' s s' r r', substantially as described.

4. In combination with the cross-head C, centering-rolls E E' and D D', the movable knife-holding plate T, operating substantially as described.

5. In combination with a multipart knife-holder, T, the cross-head C, and screw G, operating substantially as and for the purposes set forth.

6. The cross-head C, provided with the attachment q for splitting poles longer than the ways, operating substantially as and for the purposes set forth.

GEORGE B. SELDEN.

Witnesses:

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GEO. F. YEOMAN.