

J. PENNEY.

Improvement in Machines for Splitting Hoop-Poles.

No. 128,561.

Patented July 2, 1872.

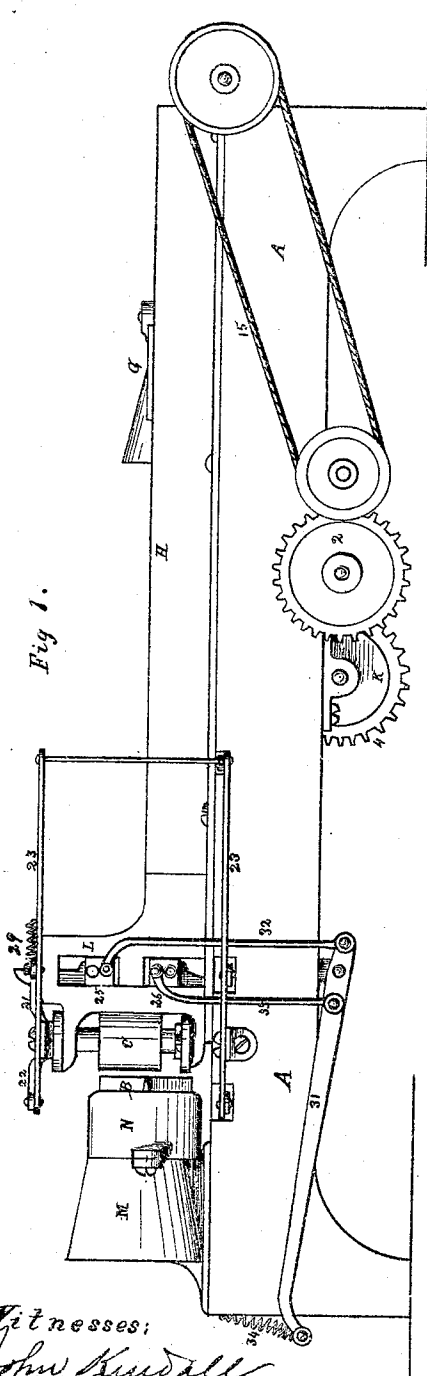
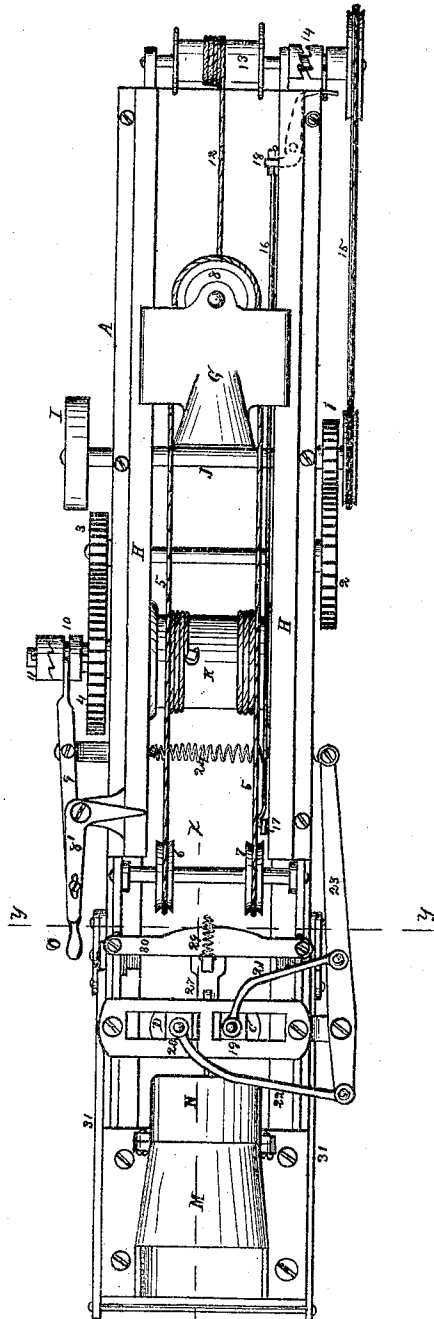


Fig 1.

Fig 2.



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Fig 3.

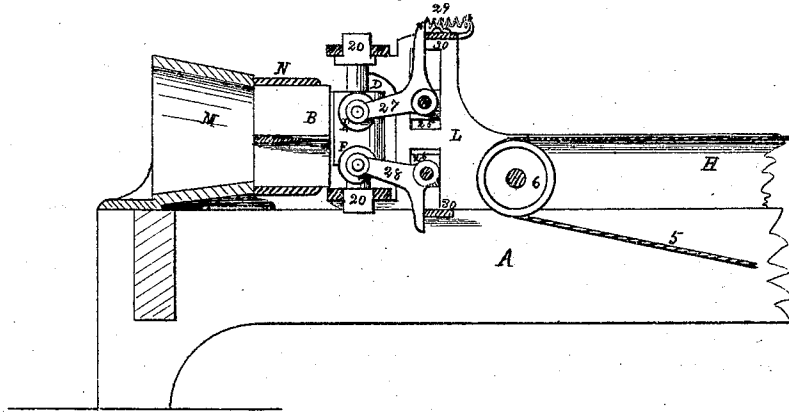


Fig 4.

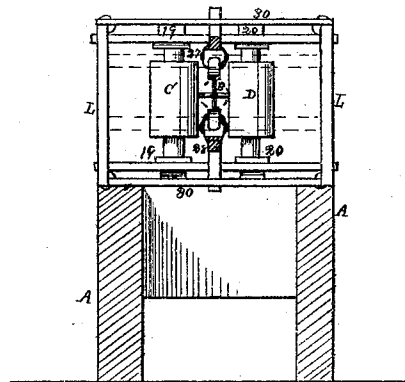


Fig 5.

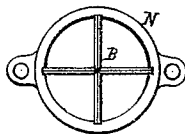
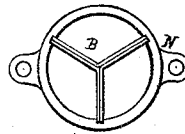


Fig 6.



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JOSEPH PENNEY, OF GRAND RAPIDS, MICHIGAN.

IMPROVEMENT IN MACHINES FOR SPLITTING HOOP-POLES.

Specification forming part of Letters Patent No. 128,561, dated July 2, 1872.

SPECIFICATION.

I, JOSEPH PENNEY, of Grand Rapids, in the county of Kent and State of Michigan, have invented an Improvement in Machines for Splitting Hoop-Poles, of which the following is a specification:

In this machine hoop-poles are forced, by power applied at one end, against a many-parted knife, by which they are divided longitudinally into a number of splints corresponding to the character of the knife employed, suitable provision being made for centering the pole to the knife and for retaining it in place while being split.

In the accompanying drawing the same parts are indicated by the same lettering.

Figure 1 is a side elevation of the machine. Fig. 2 is a plan view of the machine. Fig. 3 is a longitudinal section on the line X X, Fig. 2, showing the parts above that line. Fig. 4 is a cross-section on the line Y Y, Fig. 2, showing the parts to the left of that line.

A is the frame of the machine; B, the knife; C D and E F, the centering-rolls; and G, the cross-head, which slides backward and forward on the ways H H. The length of these ways corresponds to the length of the longest pole designed to be split by the machine, and they are securely bolted parallel to each other to the frame A. Power is applied to the machine by the pulley I on the shaft J, from which, by the train of gears 1 2 3 4, it is transmitted to the drum K, about which are coiled the two ends of the wire-rope 5, which pass about the sheaves 6 and 7 at the forward end of the ways, and back between the ways around an equalizing-sheave, 8, on the cross-head. The forward end of the cross-head has, midway between the ways, a conical opening in it to receive the end of the pole. As the drum K revolves it draws the cross-head along on the ways, by means of the rope 5, from the back end forward toward the centering-rolls. Arrived at the forward end of the ways, the cross-head, by means of the levers 8' and 9, disengage the clutch 10, which is feathered on the hub of the gear 4 from the clutch 11 fastened on the shaft of the drum K, when the further forward movement of the cross-head is arrested. As the cross-head moves forward it unwinds the rope 12 from the drum 13 at the back end of the machine, and when it arrives at the end of its for-

ward travel it strikes the movable piece 17, which, by means of the rod 16 and bent lever 18, engages the two jaws of the clutch 14. The outer jaw of this clutch is driven from the driving-shaft J by the belt 15, and when the jaws of the clutch are engaged the rope 12 is wound upon the drum 13 and the cross-head is drawn back on the ways, unwinding the rope 5 from the drum K, which is now free to move, being disengaged from the gear 4. Arrived at the extremity of its backward travel, the cross-head disengages the jaws of the clutch 14 by striking the inner end of the bent lever 18, and remains at rest until started forward by again engaging the jaws of the forward clutch by means of the handle O. The centering-rolls consist of two pairs, one pair, C D, being placed vertically and the other, E F, horizontally. The vertical pair C D, Fig. 4, are placed as near the knife as possible, and are supported by shafts turning in boxes 19 and 20 at each end. These boxes have a lateral movement in slots in the cross-bars of a suitable sustaining-frame, and are so linked together by the levers 23 and links 21 and 22 at both ends of the shafts that the rolls, in moving, recede equally from each other. A spring, 24, on the lever holds the rolls together and maintains an equal pressure on each side of the pole as it passes through between them. The horizontal rolls E F, Fig. 3, are arranged in a similar manner on shafts passing through boxes 25 and 26 at each end, having a vertical movement in slots in the side frames L; but they are offset from the shafts by the arms 27 and 28, Fig. 3, so as to bring the rolls between the vertical pair. A prolongation of the arms 27 and 28, resting against the cross-bars 30, holds the arms and rolls attached to them in position when at work. The upper roll is prevented from falling down by the spring 29. The boxes 25 and 26 are linked together by the levers 31 and the links 32 and 33 on each side of the machine, and the rolls attached to the shafts are held to their work by a spring, 34. To the hollow casting M is bolted a collar, N, in which is seated the knife B. The knife is composed of a number of radial wings proceeding from a common center. A three-part knife has been shown in Fig. 6 and a four-part knife in Fig. 5. Knives of a larger number of parts may be used, or a single straight knife may be employed to divide

the pole into two splints. I prefer to split from the small end; and suitable supports may be introduced between the ways to sustain the weight of the pole until it has entered the centering-rolls.

In the operation of the machine a pole is introduced between the cross-head and the centering-rolls. The clutch 10 is engaged by the handle O, by which the cross-head is started and the pole forced between the centering-rolls and against the knife, and is by it divided into splints. The cross-head arrives at the extremity of its forward travel and returns to its first position at the back end of the machine. The pole is now split—all but the last few inches—and it is forced completely through by the next pole which strikes against it, the ends of the poles having been squared previous to their introduction into the machine; or the nose of the cross-head may be lengthened out so as to reach within a short distance of the knife when the cross-head is at the end of its forward travel, in which case, as the splitting is always an inch or two in advance

of the knife, the work is practically done before the end of the pole arrives at the knife, and the splints may be readily removed from the machine.

This arrangement is especially advantageous in splitting small poles, for which a wooden block attached to the front end of the cross-head answers every purpose, and saves the centering-rolls from injury.

Claims.

1. The combination of the knife B, the cross-head G, and the centering-rolls C D and E F, arranged to operate substantially as described.

2. In combination with the knife B, the cross-head G, arranged to advance and retreat automatically by means of the ropes 5 and 12, the reversing-sheaves 6 and 7, and the drums K and 13, all operating substantially as set forth.

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Witnesses:

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