No. 635,908. Patented Oct. 31, 1899.

J. ASKINS.

MACHINE FOR REDUCING WOOD TO FIBER.

(Application filed June 2, 1899.)

(No Model.) 2 Sheets—Sheet 1.

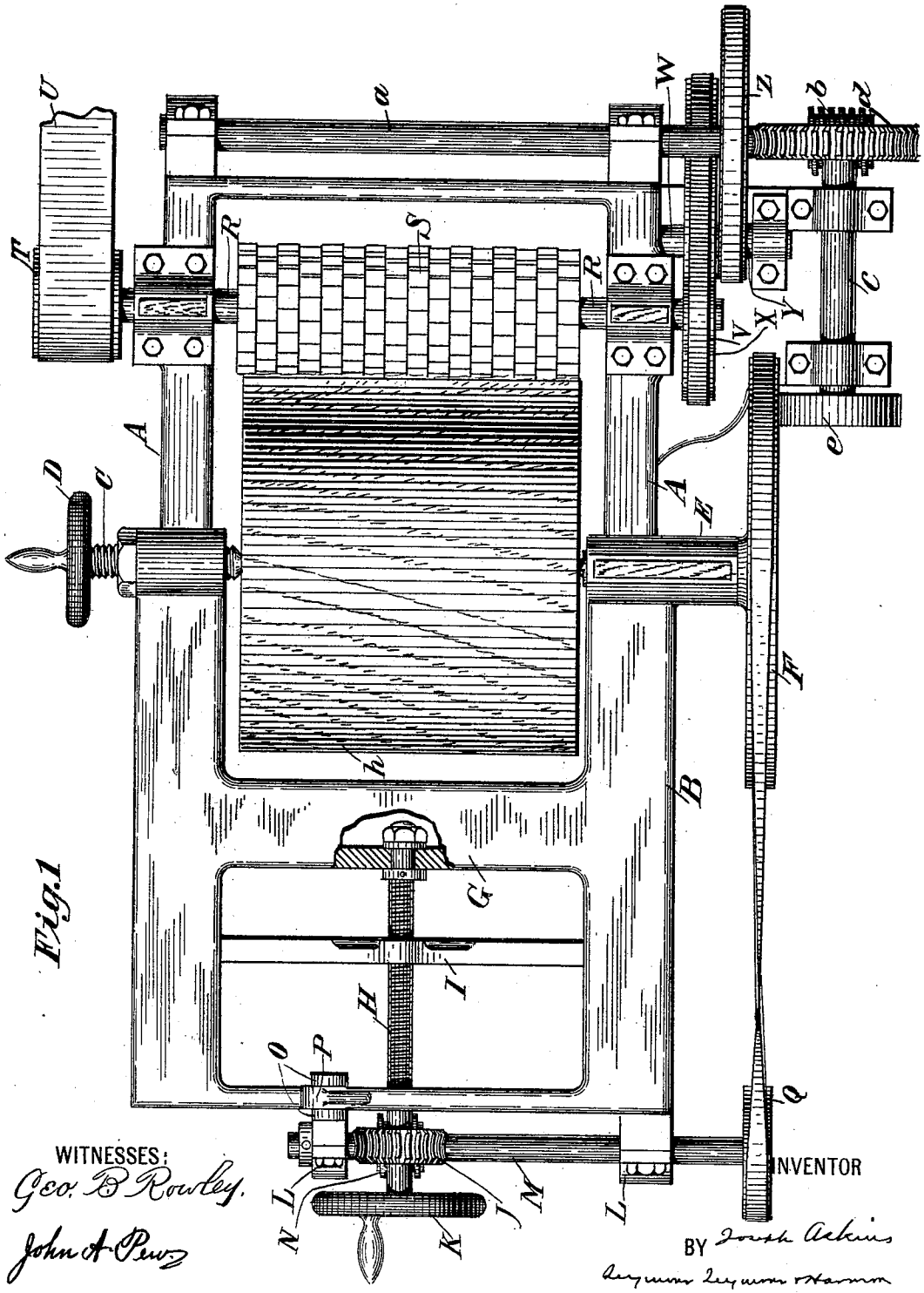


Fig. 1.

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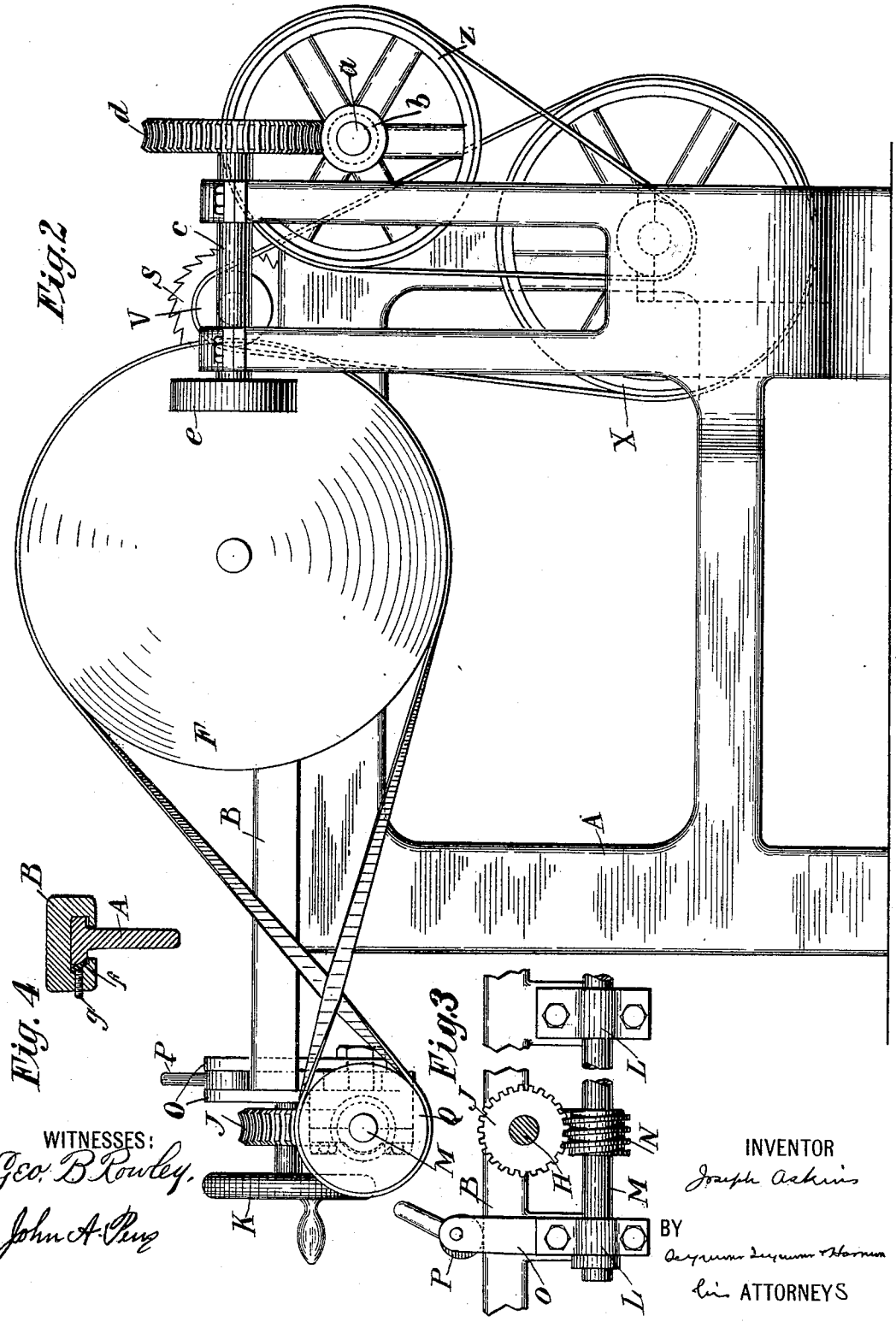
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MACHINE FOR REDUCING WOOD TO FIBER.

SPECIFICATION forming part of Letters Patent No. 635,908, dated October 31, 1899.

Application filed June 2, 1899. Serial No. 719,142. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ASKINS, a citizen of the United States, and a resident of Rutherford, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Machines for Reducing Wood to Fiber, of which the following is a specification.

The object of my invention is to provide a simple device for reducing wood to a fibrous condition.

In the drawings forming part of this specification, Figure 1 is a plan view, parts being broken away to show the construction. Fig. 2 is a side elevation of the machine. Fig. 3 is a detail of the mechanism for throwing the worm-gear in and out of action. Fig. 4 is a detail of the feed-carriage.

A represents the fixed frame of the machine. Moving on said fixed frame is a carriage B. This carriage B slides on ways on the table, as indicated in detail at Fig. 4. Carried on the forward part of this table is a chuck or holding device to hold the log of wood to be cut. One part of this chuck consists of the movable and screw-threaded part C, having the hand-wheel D. The other part of the chuck is fixed as regards longitudinal movement, but is rotary in the bearing E and carries a pulley F. Fixed to turn freely in the cross-bar G of the movable carriage is a screw-threaded shaft H. This shaft passes through a screw-threaded aperture in the cross-piece I, attached to the frame A of the machine. This shaft is supported in any suitable bearings at the rear end of the sliding table, and fixed to the shaft is a worm-wheel J, and on the end of the shaft is a hand-wheel K.

Supported in suitable bearings L at the rear of the table, is a worm-shaft M, carrying a worm N. This shaft is made movable vertically in its bearings by any suitable arrangement, so that it can be raised and lowered, thus throwing the worm N in and out of engagement with the worm-wheel J. Links O are attached to the bearing of the shaft, said links extending above the frame of the sliding table. Between said links is pivoted a cam P. It will be seen that upon moving said cam the worm N will be either raised into or lowered out of contact with the worm-wheel.

Attached to one end of the shaft M is a pulley Q. This is connected by a belt with the pulley F, as clearly shown in Figs. 1 and 2 of the drawings.

Supported on the frame of the machine is a shaft R, which carries the cutter S. This cutter is of any suitable shape or form. Attached to one end of the shaft R is the main power-pulley T, which receives its power by means of the belt U from any suitable motor. On the other end of the shaft R is another belt-pulley V. Supported by the frame of the machine is a shaft W, which carries a large pulley X and the small pulley Y. The pulley V is geared to the pulley X by means of a belt, as shown, and the pulley Y is geared to the pulley Z, which is carried on the shaft *a*, also supported on the frame of the machine. This shaft *a* also carries a worm *b*. Supported by brackets from the frame of the machine is a short shaft *c*, which carries at one end the worm-wheel *d* and at the other the friction-wheel *e*, said friction-wheel being in contact with the side surface of the pulley F.

The operation of the device is as follows: The log of wood (indicated at *h*, Fig. 1) is secured in the chucks. The cam P is manipulated so as to throw the worm N out of engagement with the worm-wheel J. By turning the hand-wheel K the sliding table is moved forward until the log is in the position to be acted on by the knives, as shown in Fig. 1. The cam P is then manipulated so as to throw the worm-gear N into engagement with the worm-wheel J. The machine is now started by any suitable clutch mechanism, (not shown,) thus causing the cutter S to revolve and disintegrate the substance of the log; but as the cutter-shaft revolves it turns, through the medium of the pulleys V, X, Y, and Z, the shaft *a*, which by means of the worm *b* and the worm-wheel *d* causes the revolution of the shaft *c*. The revolution of this shaft causes the friction-wheel *e* to move the pulley F, thus turning the log so that it will present new surfaces for the action of the knives; but as the pulley F is connected with the pulley Q and

through the described connections with the worm-wheel J it will be seen that as the log revolves the sliding table will be moved forward, thus keeping the surface of the log always in contact with the knives. As the table moves forward it carries with it the pulley F. The friction-wheel therefore will gradually move toward the center of said pulley F, thus increasing the speed of rotation of the log—that is, as the log grows smaller its rapidity of rotation will become greater, the necessity for which is obvious. When so much of the log as can be acted on has been cut into fibers, the machine is stopped, the worm N is disconnected from the worm-wheel J, the table is moved backward by turning the hand-wheel K, a new log is placed in position, and the operation repeated.

The size of the fibers or particles into which the log is cut may be varied by varying the shape and characteristics of the knives employed.

In order to adjust for wear of the sliding table upon the frame of the machine, I place at one side of the bearing the removable bearing-plate *f*, as shown in Fig. 4, which is adjustable by means of the set-screw G. The operation of this will be obvious from an inspection of the drawings.

It will be seen that I have produced a very simple and inexpensive machine for performing this work.

What I claim, and desire to secure by Letters Patent, is—

1. In a machine for reducing blocks of wood to fiber, the combination of a rotary cutter, a carriage, means for moving the same to feed the work, a chuck on said carriage for holding the log to be cut, a friction-pulley on the spindle of said chuck, a shaft operated by the cutter-shaft, a friction-wheel secured on said shaft and bearing against the face of the friction-pulley, whereby the advance of the carriage varies the position of the friction-wheel on the pulley and thereby varies the speed, substantially as described.

2. In a machine for reducing blocks of wood to fiber, the combination of a rotary cutter, a carriage, means for moving the same to feed the work, a chuck on said carriage for holding the log to be cut, a combined belt and friction pulley on the spindle of said chuck, a shaft operated by the cutter-shaft, a friction-wheel secured on said shaft and bearing against the face of the friction-pulley, whereby the advance of the carriage varies the position of the friction-wheel on the pulley and thereby varies the speed, a belt connecting the said combined friction and belt pulley with the feed-operating device, substantially as described.

3. In a machine for reducing wood to fiber, the combination of a carriage, means for moving the same, a chuck on said carriage for holding the work, mechanism connected with the chuck for rotating the same, the connection between the parts of the rotating device so arranged that the chuck-rotating mechanism of itself and without other devices causes the speed of revolution of the log to be varied with the backward-and-forward motion of the carriage, substantially as described.

Signed at New York, in the county of New York and State of New York, this 29th day of May, 1899.

JOSEPH ASKINS.

Witnesses:
E. M. HARMON,
F. B. KAIN.