

(No Model.)

2 Sheets—Sheet 1.

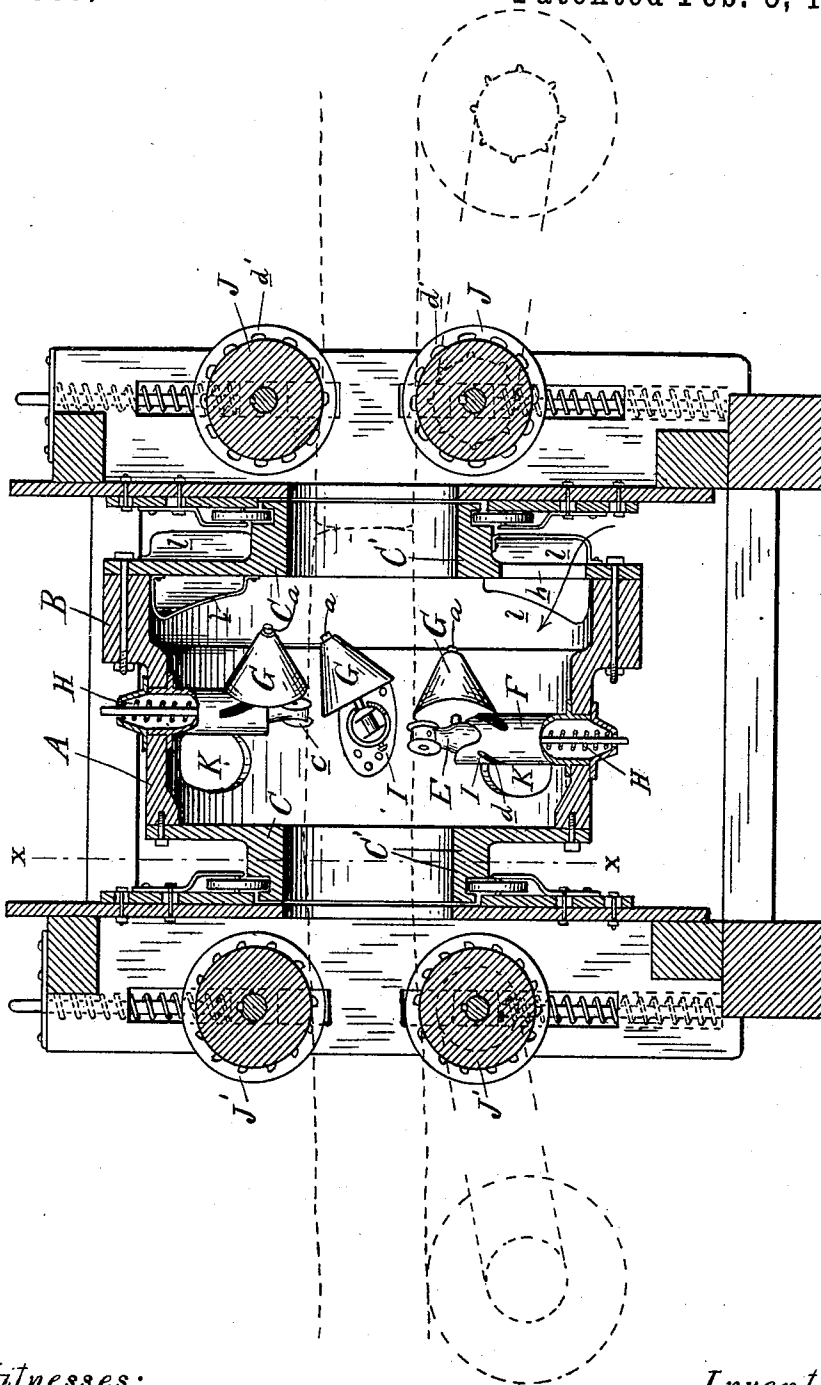
N. H. DOLSEN.

MACHINE FOR REMOVING BARK FROM TIMBER.

No. 397,114.

Patented Feb. 5, 1889.

Fig. 1



Witnesses:

R. M. Hulbert
John C. Schuman.

Inventor:

Ninian H. Dolsen.

By Thos. S. Maguire
Att'y.

(No Model.)

2 Sheets—Sheet 2.

N. H. DOLSEN.

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Fig. 2

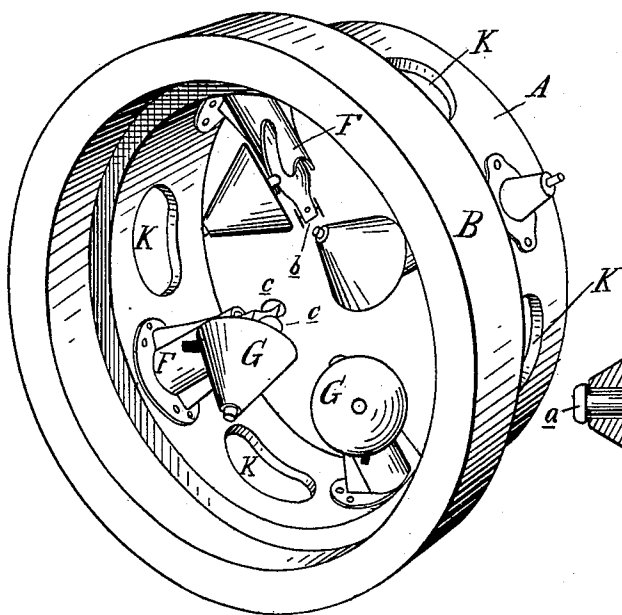


Fig. 3

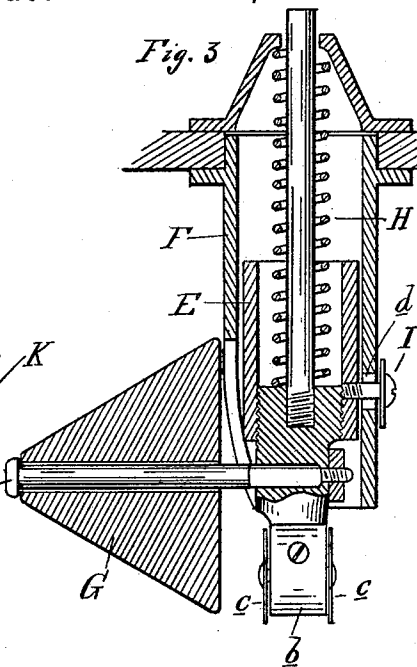


Fig. 4

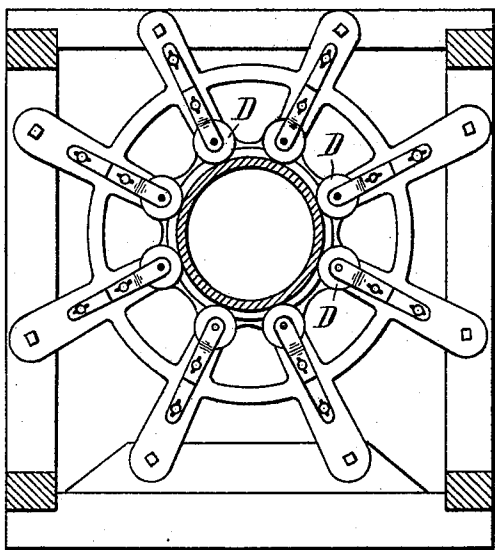
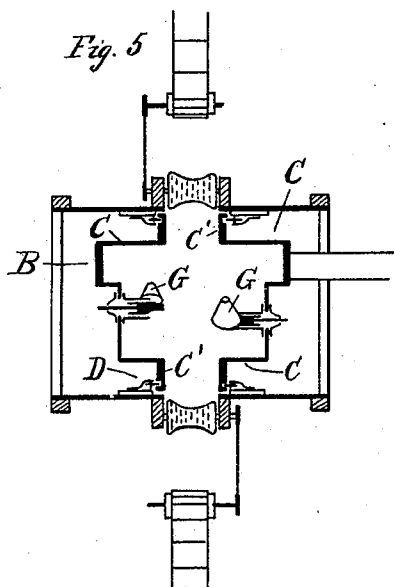


Fig. 5



Witnesses:

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John Schuman.

Inventor:

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Att'y.

UNITED STATES PATENT OFFICE.

NINIAN H. DOLSEN, OF ST. IGNACE, MICHIGAN, ASSIGNOR TO EVERETT & CONNORS, OF SAME PLACE.

MACHINE FOR REMOVING BARK FROM TIMBER.

SPECIFICATION forming part of Letters Patent No. 397,114, dated February 5, 1889.

Application filed April 26, 1888. Serial No. 271,924. (No model.)

To all whom it may concern:

Be it known that I, NINIAN H. DOLSEN, a citizen of the United States, residing at St. Ignace, in the county of Mackinac and State of Michigan, have invented certain new and useful Improvements in Machines for Removing Bark from Timber, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in machines for removing bark from logs, posts, poles, and other forms of timber; and the invention is specially designed to remove the bark from cedar timber, in the various applications of which (as for telegraph-poles, posts for fencing or paving purposes, &c.) it is generally required to have the bark removed. In the present state of the art such removal of the bark is most economically accomplished by hand, although it is a comparatively tedious work, and if not done when the wood is in suitable condition is often very difficult to be accomplished, as the bark is liable to stick to the wood.

My machine is not intended for use only when the removal by hand-labor cannot be advantageously accomplished; but it is designed to form a labor-saving device and to do better work besides, as the log is trimmed at the same time upon the outside, by removing from it projecting knots, branches, and other protuberances which are ordinarily left in peeling by hand, and which cannot be removed as smoothly thereby.

My invention consists in a revolving cutter-head, preferably in the form of a large drum or pulley, centrally apertured and provided with radially-movable knife-holders, which carry upon their inner ends suitable knives for cutting off and removing the bark from the stationary log, and knife-guides which travel in contact with the log and thereby adjust the knives to the work; and, further, in the combination, with that cutter-head, of suitable self-adjusting feeding devices, whereby the logs of any size are fed centrally through the aperture of the cutter-head; and, further, my invention consists in the devices for removing the debris from the cutter-head, all as more fully hereinafter described.

In the drawings which accompany this

specification, Figure 1 is a vertical central longitudinal section of my improved machine. Fig. 1 is a detached perspective view of the revolving cutter-head, showing the radial adjustable knife-holders. Fig. 3 is a vertical central section through one of the knife-holders, with the knife and knife-guide secured to it. Fig. 4 is a cross-section on line *x x* in Fig. 1, and is especially designed to show the anti-friction bearings of the cutter-head. Fig. 5 is a horizontal section of the machine in diagram.

A is the revolving cutter-head, preferably in the form of a drum, provided upon its outer face with the circumferential bearing B, to apply power by means of a suitable belt to revolve the cutter-head. This cutter-head is provided upon its ends with the heads C, upon which are formed the hollow bearings C', which are journaled in suitable stationary bearings of the supporting-frame, preferably by means of anti-friction rollers D, which are radially adjustable to take up any wear or lost motion.

E are the knife-holders, radially movably secured in the tubular sockets F, which are radially secured to the cutter-head.

To the inner ends of the knife-holders are secured the barking-knives and the knife-guides G, which are preferably made in the form of conical rollers loosely journaled upon a stub-shaft, *a*. The barking-knives are of any suitable construction, preferably as shown in the drawings, wherein *b* is a suitable chisel-knife for stripping the bark; *c*, the rolling cutters for cutting the bark, placed with their cutting-faces at right angles to the barking-knives. The knife-holders are provided with suitable tension-springs, H, and with a guide pin or pins, I, which engage into the spiral slots *d*, all so arranged that simultaneously with the radial adjustment of the knife-holder a rotary motion is imparted to the knife-holders, for the purpose more fully hereinafter described. The sockets F are cut away at their lower portions to permit of easy access to the knives and for the purpose of giving free discharge of the debris at any position of the knives.

Opposite the front and rear of the apertures in the cutter-head are journaled in suitable

yielding bearings of the frame the feed-rolls J J and J' J', provided with the studs *d'*, or suitably roughened otherwise to feed the timber. One or both of each set of feed-rolls is preferably made a live roll to carry the timber through the cutter-head independent of other feeding devices, which may be suitably arranged in front and rear of the machine to carry the logs into the cutter-head and remove the barked timber therefrom.

In practice the rolling cutters C are designed to operate by cutting into the bark in a spiral path around the log while the cutter-head is revolving, and the log is prevented from rotating. The barking-knives *b* then strip off the spiral ribbons cut by the other knives. The different knife-holders are placed in such relation to each other as to have one spiral follow closely upon the other, so as to denude gradually the whole outside of the log.

It will be seen that there is no necessity for carrying two barking-cutters on each knife-holder, although, if desired, it may be so arranged, and these knives are preferably arranged to overlap each other in order to be sure to have all the bark stripped off.

In feeding timber the varying diameter of the log naturally requires the radial adjustability of the knife-holders, and to this end the knife-guides are made conical to allow the logs easily to enter between and crowd the knives apart, and the feeding-rolls are both journaled in yielding bearings for the purpose of permitting the passage of timber of any size centrally through the apertures of the cutter-head. To prevent the log from rotating, I preferably make the feed-rollers with concave faces and form the spurs *d'* in the form of short knife-blades, as shown, which cut longitudinally into the log, and thereby take a better hold to counteract any tendency to rotate. I preferably feed the timber with the small end first, as the knives will thereby crowd gradually apart and the passage from one log to the other is more easily accomplished.

It will be understood that the pitch of the spiral varies with the diameter of the log, provided the speed of the feeding devices remains the same. Therefore to enable the knives to cut the same width of strip or ribbon and to remove the same it is necessary to maintain the stripping-knives at right angles to the direction of the spiral, and this is accomplished by the engagement of the wrist or pin I into the spiral slots of the sockets, which are so adjusted that as the knife-holders are radially expanded the knives will turn upon their axis in a corresponding ratio, so as to maintain at all times their proper position to enable them to strip at all times the same width of ribbon.

It will be seen that the conical form of the knife-guides has not alone the advantage of enabling the log to easily crowd the knife-holders, but also admits the free rotary movement of the knife-holders.

To insure a free discharge for the débris, I preferably provide the cutter-heads with large circumferential apertures K between the knife-holders, and in addition thereto I generate a blast by suitable inlet-openings, *h*, in the sides of the cutter-heads, and the wings or deflectors L, extending outwardly to catch the air and throw it into the interior of the cutter-head, from which it naturally finds its exit through the apertures K, carrying away with it the débris, a strong suction being created in the rotation of the cutter-head.

It is obvious that a cutter-head with one knife-holder may be made operative; but I prefer to use a series of knife-holders. I am also aware that a single knife may be made operative to do both the cutting and stripping; but I prefer the curved chisel-knife for stripping and the rolling knives for cutting the bark to produce more perfect work.

What I claim as my invention is—

1. In a machine for the purpose described, a rotary cutter-head centrally apertured and provided with radial self-adjusting knife-holders carrying conical knife-guides and barking-knives, substantially as described.

2. In a machine for the purpose described, a rotary cutter-head centrally apertured and provided with radial self-adjusting knife-holders rotatably secured in tubular sockets on the cutter-head, substantially as described.

3. In a machine for the purpose described, a rotary cutter-head centrally apertured and carrying radially-adjustable knife-holders, the knives secured thereto, and the conical knife-guides, substantially as described.

4. In a machine for the purpose described, the combination, with the rotary cutter-head provided with radially-adjustable knife-holders carrying stripping and barking knives and conical knife-guides, of the feed-rollers arranged in yielding bearings in front and rear of the apertures of the cutter-head, substantially as described.

5. In a machine for the purpose described, the combination, with the rotary cutter-head, of the radially self-adjusting knife-holders consisting of the socket F, the knife-holder E, radially adjustable therein, the tension-spring H, the wrist I, and the spiral slot *d*, substantially as described.

6. In a machine for the purpose described, the combination of the following elements: the centrally-apertured rotary cutter-head, the radially-adjustable knife-holders secured thereto and provided with suitable knives for cutting and stripping the bark, the knife-guides secured to the inner ends of the knife-holders in advance of the knives, the feed-rollers arranged in front and rear of the apertures, and the blast-generating devices applied to the cutter-head arranged to assist in removing the débris, substantially as described.

7. In a machine for the purpose described, the combination of the following elements: the rotary cutter-head provided with apertured

bearings, the anti-friction bearings, the radial self-adjusting knife-holders, the conical guides secured to the knife-holders in advance of the knives, the barking and stripping knives secured to the knife-holders, and the spiral guides, all combined to operate substantially as and for the purpose described.

8. In a machine for the purpose described, the combination, with the rotary cutter-head centrally apertured and provided with radially self-adjusting knife-holders and knives,

substantially as described, of the feed-rolls provided with longitudinal flattened spurs for feeding the timber and preventing it from rotating, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 5th day of April, 1888.

NINIAN H. DOLSEN.

Witnesses:

P. M. HULBERT,
JOHN SCHUMAN.