(No Model.) 2 Sheets—Sheet 1.

A. F. JONES.

BARK MILL.

No. 453,486. Patented June 2, 1891.

Fig. 1.

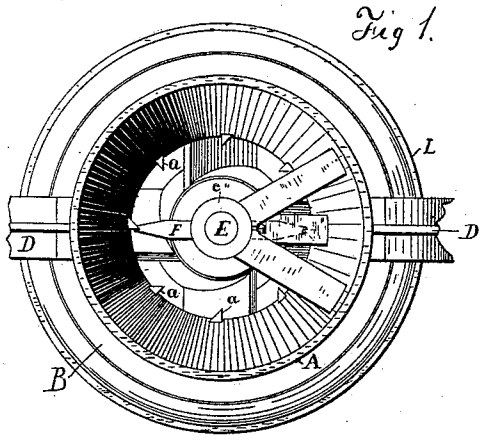


Fig. 4.

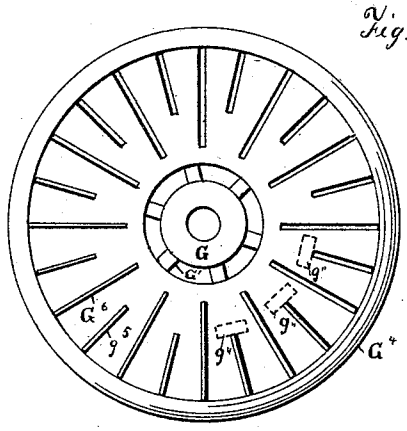


Fig. 2.

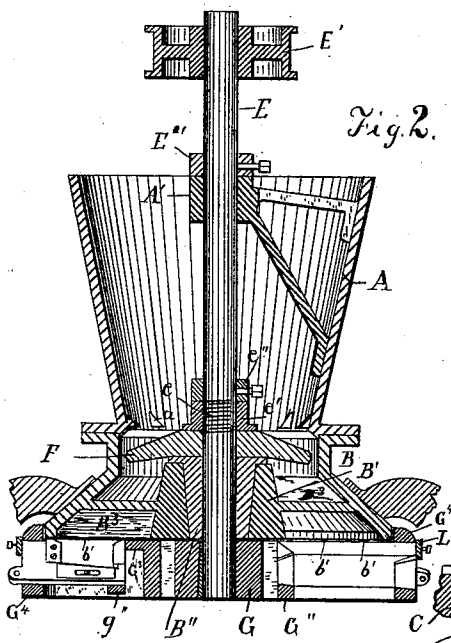


Fig. 3.

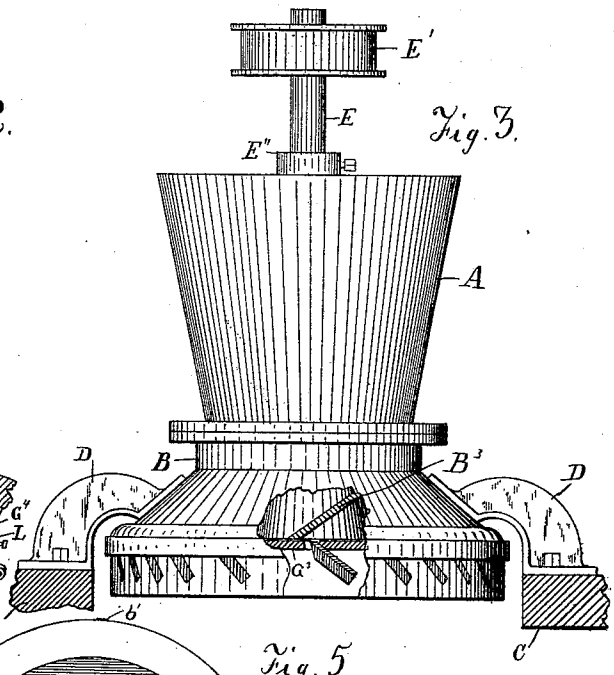
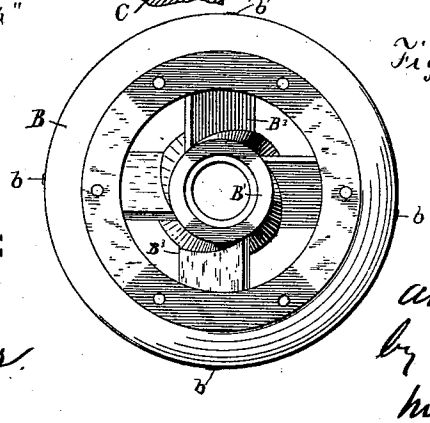


Fig. 5.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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BARK MILL.

No. 453,486. Patented June 2, 1891.

Fig. 6.

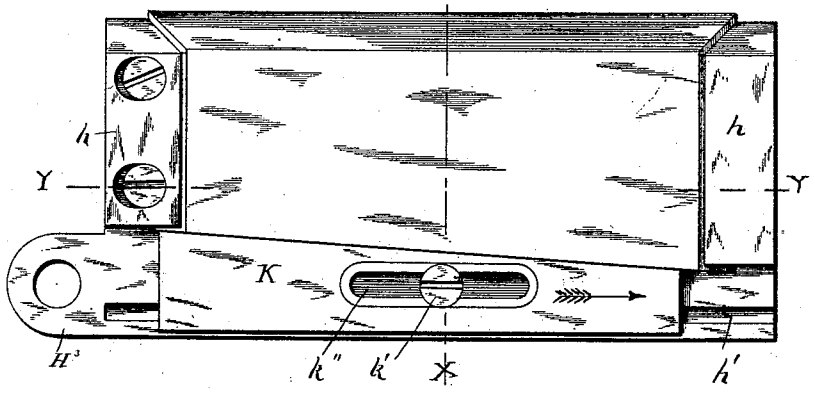


Fig. 7.

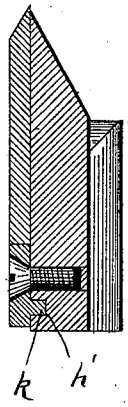


Fig. 8.

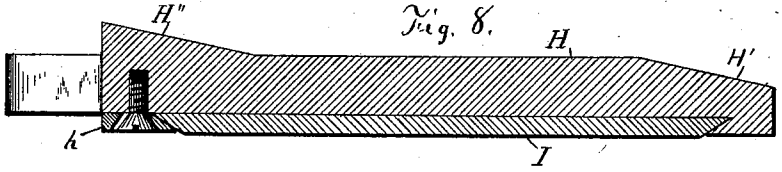
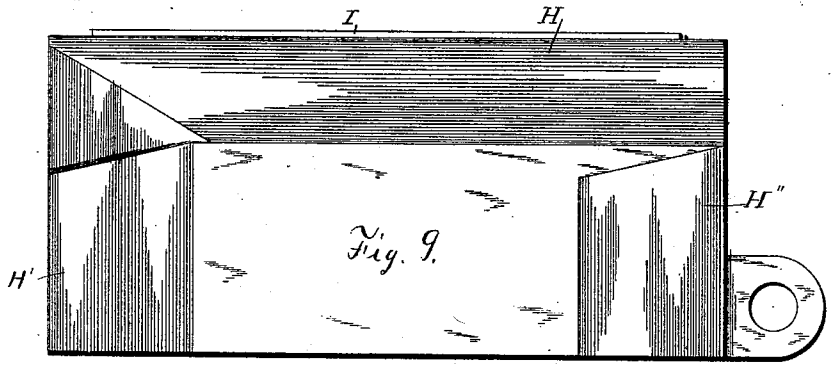


Fig. 9.



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UNITED STATES PATENT OFFICE.

ALBERT F. JONES, OF SALEM, MASSACHUSETTS.

BARK-MILL.

SPECIFICATION forming part of Letters Patent No. 453,486, dated June 2, 1891.

Application filed July 19, 1890. Serial No. 359,283. (No model.)

To all whom it may concern:

Be it known that I, ALBERT F. JONES, a citizen of Canada, and a resident of Salem, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Bark-Mills, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to an improved mill for reducing bark, and has for its object to provide a machine in which the various parts can be readily adjusted, removed, and replaced, and one in which the bark will be reduced much more rapidly and much finer than the machines now in use.

With these objects in view my invention consists in the peculiar construction of the various parts and their novel combination or arrangement, all of which will be more fully hereinafter described and claimed.

In the drawings forming a part of this specification, Figure 1 represents a plan view, Fig. 2 represents a central longitudinal section, and Fig. 3 represents a side elevation, of the improved bark-mill, partly shown in section. Fig. 4 represents a plan view of the rotary knife-carrier. Fig. 5 represents a plan view of the stationary base part of the mill. Fig. 6 represents a detail front elevation of one of the cutter-blades and its holder. Fig. 7 represents a cross-section on the line X X shown in Fig. 6. Fig. 8 represents a horizontal section on the line Y Y shown in Fig. 6, and Fig. 9 represents a rear view of one of the blade-holders.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In carrying out my invention I employ the stationary bark receptacle or hopper A, to the under side of which is secured the annular base B, which latter is preferably secured to the floor C by means of brackets D D, as shown.

E is the knife-carrying shaft, which is journaled near its upper end in a bearing A', secured in a suitable manner to the hopper A.

B' is a vertically-perforated hub, cast in one piece with the stationary base B, and in it is located, preferably, a bearing-sleeve B'', in which the lower end of the shaft E is journaled.

To the upper end of the shaft E is secured a pulley E', to which a rotary motion is imparted by means of belt-power in the usual manner.

E'' is a collar secured in an adjustable manner to the shaft E above its bearing A', as shown in Fig. 2.

Directly above the bearing-sleeve B'' is secured to the shaft E the bark-breaker F, which may be made with two or more radial arms, as may be desirable. The hub of said breaker F is splined on the shaft E, and is adjustable thereon by means of a nut *e'*, surrounding a screw-threaded portion *e* on the said shaft E, as shown in Fig. 2. Above the nut *e'* is secured to the shaft E an adjustable collar *e''*, as shown in said Fig. 2.

a a a are internally-projecting teeth in the lower end of the bark receptacle or hopper A, which, in combination with the rotary breaker F, serve to break up and disintegrate the bark before it enters the conical base B.

B^3 B^3 are inclined wings or walls extending from the hub B' to the conical base B, as shown in Figs. 2, 3, and 5.

To the lower end of the rotary shaft E is secured in a suitable manner the knife or blade carrier, which is composed of a central hub G, splined to the shaft E, and in one piece with said hub are cast radial arms G' G' and ring G'', which serve as an inner support for the long knife-carriers. In one piece also with the hub G and ring G'' is cast a circular disk or plate G^3, terminating as a peripheral ring G^4, as shown, which serves as an outer support for the knife-carriers.

In practice I prefer to use alternate long and short knives on the rotary carrier, all of which have the outer ends of their holders supported in inclined recesses or perforations in the ring G^4, the inner ends of the longer knives being supported in similar inclined perforations or recesses in the ring G'' and

the inner ends of the shorter knives being supported in recesses or perforations in lugs or ears g'', as shown in Figs. 2 and 4.

Through the circular disk or plate G^3 of the rotary disk-carrier are made a number of radial slots G^6 G^6 and g^5 g^5, through which project the cutting-edges of the respective long and short blades in a manner similar to the way in which planing-irons are arranged in a planing-tool.

In practice I prefer to make on the outer and lower edge of the stationary base B a number of teeth or projections b' b' for the purpose of preventing the bark from clogging between the lower edge of said base and the rotary knife-carrier.

The blade-holders are fully shown in detail in Figs. 6, 7, 8, and 9, and are constructed as follows:

H represents one of the metal holders having ribs h h at its ends, one or both of which may be made adjustable. I represents the knife or blade, which is located on the front of the holder between the ribs or guides h h, as shown. Below the blade I is arranged a wedge K, having on its rear side a rib k, fitting in correspondingly-shaped groove h' on the front side of the holder H, as shown in Figs. 6 and 7. By adjusting the position of the wedge K and moving it in the direction shown by arrow in Fig. 6 the knife or blade I will be raised more or less, as may be desired, relative to the upper edge of the holder H, and thus the blade may be raised from time to time as it is being worn and resharpened. The wedge K is secured firmly to the holder after being adjusted by means of a screw k', passing through a slot k'' in the said wedge K, as shown in Figs. 6 and 7. The holder H has at its inner and outer ends preferably wedge-shaped or inclined surfaces H' and H'', adapted to fit into correspondingly-shaped perforations in the inner portions of the rotary knife-carrier. H^3 is a perforated ear in the outer end of the holder H, to which may be attached a hook or suitable tool for the purpose of withdrawing the tool-holder and its blade when the knife is in need of being sharpened. After the tool-holders have been inserted in the recessed rotary knife-carrier they are locked to the latter by means of a metal hoop L, which is placed around the ring G^4, so as to cover the outer ends of the tool-holders, as shown in Figs. 2 and 3. By means of the nut e' on the shaft d the rotary knife-carrier, its tool-holder, and knives can be adjusted with great nicety relative to the lower edges of the inclined wings B'' on the base B, according to the degree of fineness in which the bark is to be cut.

The operation of the machine is as follows: The shaft E is set in a rotary motion and with it the breakers F and the knife-carrier. The bark is fed into the hopper A and broken into small pieces by the breakers F and stationary teeth a a, after which the broken bark falls into the conical base B in the spaces between the stationary inclined wings B^3, the inclined wings serving to press the bark down upon the cutters in consequence of the inclination of the said wing and the movement of the cutter-disk, and, coming in contact with the rotary knives while held by the said wings, the bark is shaved off in the form of thin shavings, which pass downward through the slits or openings G^6 g^5, and may be then collected or conveyed to any desired place as may be found most practical and desirable.

What I wish to secure by Letters Patent and claim is—

1. In a bark-mill, the combination, with a hopper, of an annular base rigidly secured thereto, a hub arranged in the center of the base, radial wings arranged in oblique planes, connecting the hub and base, a bearing-sleeve arranged in the hub, a shaft journaled therein, a horizontal revolving disk mounted upon the lower end of the shaft and adapted to revolve beneath the oblique radial wings, and the knives carried by said disk, substantially as shown and described.

2. In a bark-mill, the combination, with a hopper, of an annular base rigidly connected therewith, a hub arranged in the center of the base, a bearing-sleeve arranged in the hub, a shaft journaled in the sleeve, a breaker splined upon the shaft above the sleeve, a nut upon the shaft above the breaker, a series of breaker-teeth arranged upon the interior sides of the hopper, the inclined wings connecting the hub and base, and a horizontally-revolving cutter-disk provided with knives revolving beneath the inclined wings and operated by the shaft, substantially as shown and described.

3. In a bark-mill, the combination, with a hopper, of an annular base rigidly secured thereto, a hub arranged in the base, inclined wings connecting the base and hub, a bearing-sleeve arranged in the hub and having a flange overhanging the hub, a shaft journaled in the said sleeve, a breaker mounted upon the shaft, breaker-teeth arranged upon the interior of the hopper, a horizontal disk mounted upon the lower end of the shaft, and a series of knives arranged in the said disk at an acute angle to the inclined wings, substantially as shown and described.

4. The combination, with the hopper and base, of the inclined wings, the hub, the bearing-sleeve, revolving shaft, the rings G and G'', disk G^3, rim G^4, lugs g'', the disk G^3, being slotted radially, the rim G^4 and lugs g'' having oblique recesses formed therein, the holders H, inserted in the said recesses, the knives I, carried in the holders and projecting through the slots in the disk, and the ring L for holding the same in place, substantially as shown and described.

5. An improved knife-holder consisting of the body portion or frame having guides upon the ends of the same, the knife working between the guides, and a wedge resting on the face of the frame and capable of lateral adjustment, whereby the knife is vertically adjusted, substantially as shown and described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 14th day of July, A. D. 1890.

ALBERT F. JONES.

Witnesses:
ALBAN ANDRÉN,
THEKLA ANDRÉN.