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1,969,914

APPARATUS FOR BARKING LOGS

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FIG. 1.

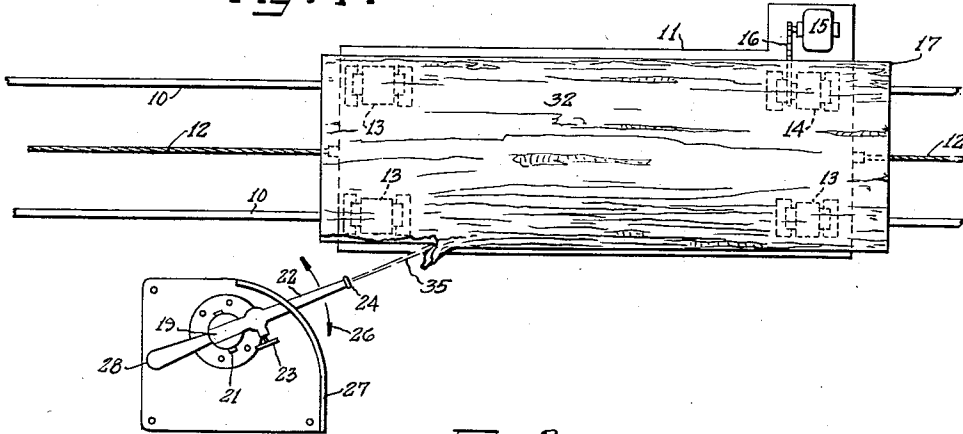


FIG. 2.

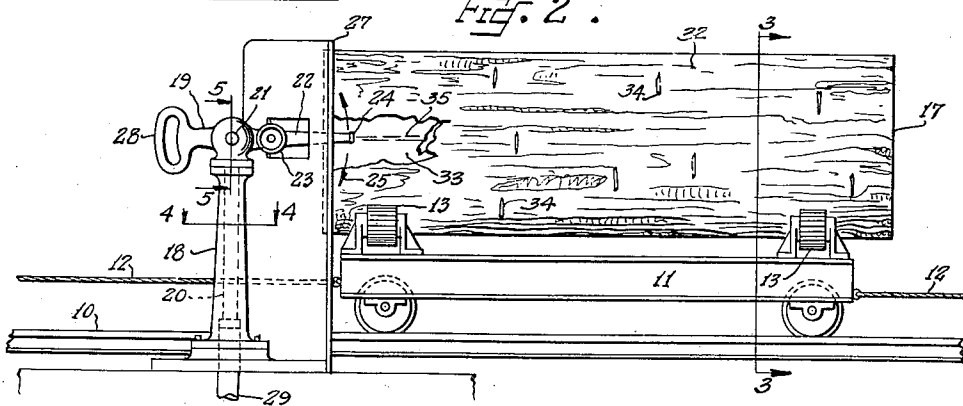


FIG. 3.

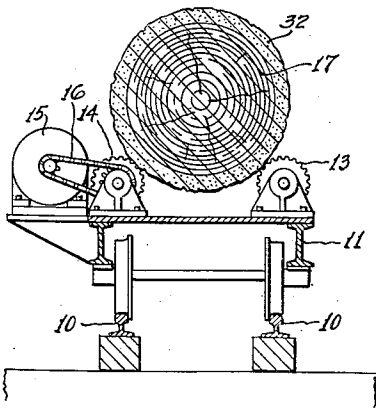


FIG. 4.

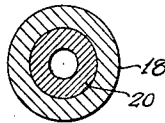
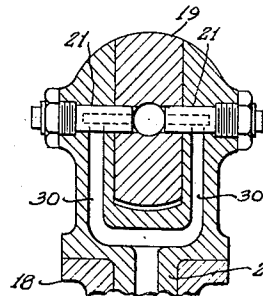


FIG. 5.



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APPARATUS FOR BARKING LOGS

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1 Claim. (Cl. 144-208)

This invention relates generally to the paper-making industry, and particularly to a method of and apparatus for barking logs.

The main object of this invention is to provide an apparatus for thoroughly, quickly and inexpensively removing the bark from logs preparatory to the converting of same into chips for paper-making purposes.

The second object is to eliminate all of the hazards which accompany the use of existing types of barking machines.

The third object is to make it possible to greatly improve the quality of pulp manufactured by the thorough removal of all of its bark without the necessity of wasting a considerable portion of the wood structure which is suitable for pulp making, as is now commonly done in order to thoroughly remove all of the bark.

The fourth object is to produce an apparatus for removing the bark from a log which readily adapts itself to the handling of a complete log regardless of variations in the contour of that surface of the log which lies between the bark and woody portion thereof.

The fifth object is to utilize the natural lines of cleavage between the woody portion of a log and its bark covering for the purpose of introducing a stream of water at a very high pressure in order to act as a fluid wedge for separating the bark from the woody portion of the log.

These, and other objects, will become more apparent from the specification following as illustrated in the accompanying drawing, in which:

Fig. 1 is a plan view of the apparatus required for the purpose of practicing the method herein disclosed.

Fig. 2 is a side elevation of the device.

Fig. 3 is a vertical section along the line 2-3 in Fig. 2.

Fig. 4 is a horizontal section along the line 4-4 in Fig. 2.

Fig. 5 is a vertical section along the line 5-5 in Fig. 2.

Similar numbers of reference refer to similar parts throughout the several views.

Referring in detail to the drawing, there is shown a pair of rails 10 constituting a track for a wheeled carriage 11 which is propelled along the track by means of the cables 12 operated by a suitable cable-winding mechanism (not shown). On the carriage 11 is disposed a saddle comprised of three idler rolls 13 and a live roll 14, the latter of which is rotated by a motor 15 through the chain 16.

The purpose of the mechanism thus far described is to provide longitudinal and rotative movement to the log 17 which is deposited in the saddle and removed therefrom by any of the well known mechanisms employed for log handling.

Alongside the rails 10 is mounted a stationary turret 18 whose head 19 can swing on the vertical pivot 20 and the horizontal pivot 21. The head 19 carries a high pressure water nozzle 22 which is provided with a control valve 23. The nozzle tip 24 is capable of movement in vertical and horizontal planes, indicated by arrows 25 in Fig. 2 and the arrows 26 in Fig. 1.

The turret 18 is provided with a shield 27 to protect the operator who manipulates the nozzle 22 by means of the handle 28.

Water is supplied to the turret 18 by suitable piping 29, from whence it passes upward through the vertical pivot 20 and branches out through the channels 30 into the pivots 21.

The log 17 is illustrated as having its bark 32 cover its entire surface, with the exception of the area 33 from which the bark has been removed, representing the portion of the log 17 which lies nearest to the bark 32. There are also illustrated cuts or abrasions 34 made in the surface of the log in any convenient manner for the purpose of expediting the barking operation where water pressures are not sufficiently great for the purpose or where other factors cause the bark to cling more tenaciously to the woody portion of the log.

It is a well known fact that the tendency of the bark to cling to the woody portion of the tree varies according to the season in which the tree is cut, the length of time it is down and the kind and age of the tree from which the log is formed. It follows then that the pressure of the water employed, the angularity of the jet 23 with relation to the log axis, and even the character of the jet itself will vary according to circumstances.

It can be seen from the foregoing that not only will the bark be completely removed from the log without wasting chip making material, and also that the log will be thoroughly cleansed of foreign substances such as rocks and gravel which may have become imbedded in the other surface of the log on its journey from the stump to the rolls 16 and 17.

Inasmuch as certain kinds of bark, such as hemlock, are useful for various purposes in which it is desirable to keep out as much wood fiber as possible, it can be seen that this method lends

itself equally well to the production of wood chips free from bark and also bark chips free from wood.

While I have illustrated an apparatus employing a means for moving a log longitudinally and rotatably past a high pressure nozzle, which itself is capable of angular adjustment in horizontal and vertical planes, it would appear to anyone that necessary variations will arise in the construction of this apparatus and the employment of the method, and these will be determined by any of the many factors which enter into the problem of barking logs.

In some cases it will be found desirable to operate the device somewhat in the fashion of a cylindrical planer in which the carriage is moved longitudinally the full length of the log and strips of bark removed therefrom between intermittent rotations of the log. In other cases the log will be caused to move in a spiral path which is traced by the jet 35, and in other cases the log will be made to rotate continuously and be advanced intermittently.

It is equally unimportant what means shall be employed to rotate the log or to move it longitudinally, or whether the turret is stationary with relation to the ground, or whether the turret itself moves longitudinally.

Obviously, any number of nozzles may be employed without departing from the spirit of the

invention. Those familiar with the logging and lumber industry are aware that modern plants often wash their logs in transit by directing large radial streams of relatively low pressure water against the outside of the bark of the log. While such washing operations might tend to remove loosened particles of bark, they cannot of course be employed for the purpose of removing bark, since the main action of the washing streams is to push the bark against the log while it is my intention to employ the high pressure water jet as a wedge for the purpose of removing the bark, and this wedge is necessarily more nearly parallel to the bark contacting portion of the log, and it is brought into this parallelism by contact with the woody portion of the log itself.

I claim:

A log barking machine having in combination a carriage for transporting the log, means for rotating said log on the carriage, means for propelling the carriage, a stationary turret disposed alongside of said carriage having a nozzle thereon, means to swing and incline the nozzle with relation to said turret, a shield interposed between said turret and carriage through which said nozzle projects, and means for supplying water to said turret under extremely high pressures.

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