May 31, 1955 S. HANSEL 2,709,465

OSCILLATABLE BARK-REMOVING ELONGATE JET PROVIDING CONTINUOUSLY PARALLEL LINES OF IMPINGEMENT

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Fig. 2.

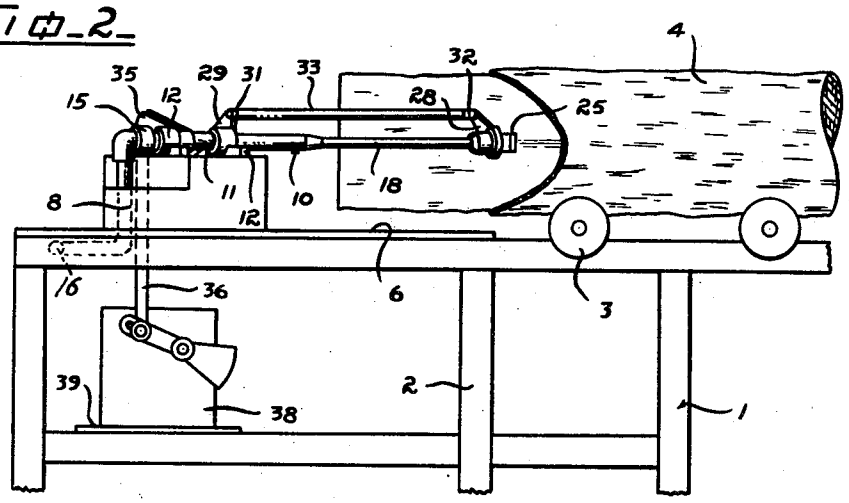
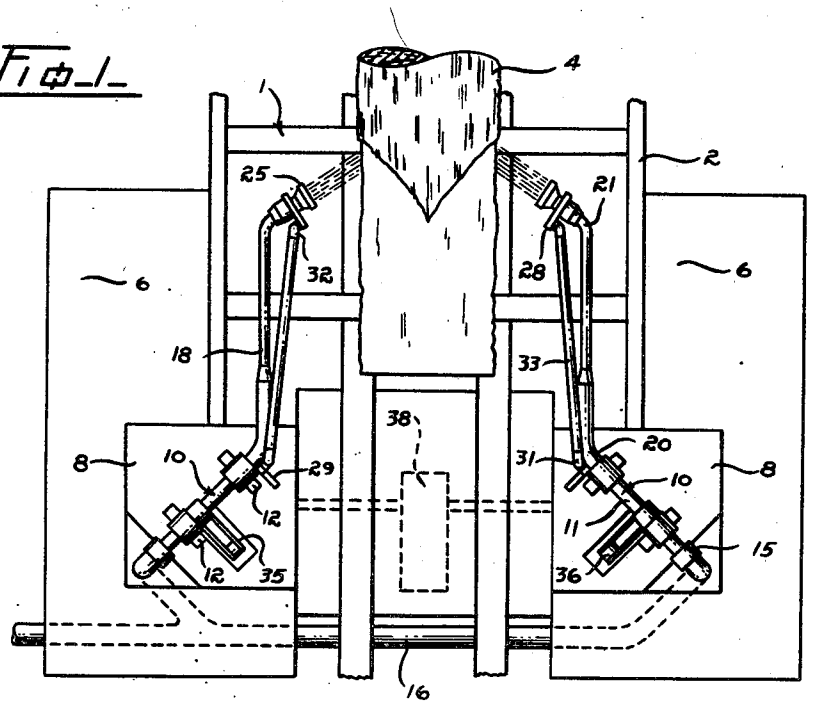


Fig. 1.



INVENTOR
SYDNEY HANSEL
Ernest F Carver
ATTORNEY

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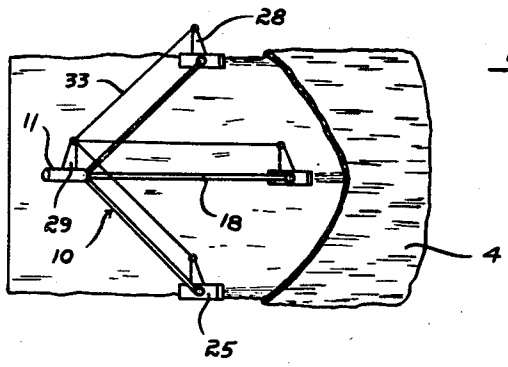


Fig. 4.

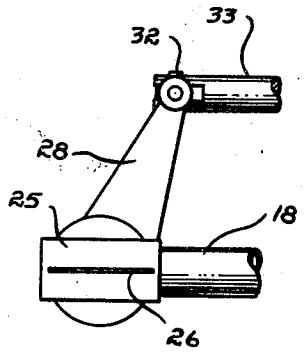
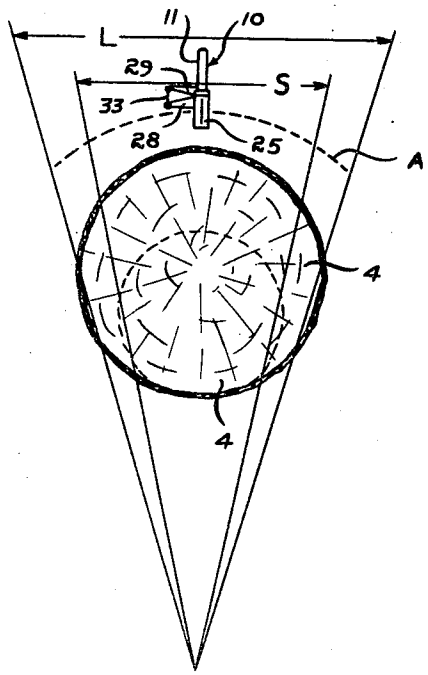


Fig. 3.

Fig. 5.



INVENTOR
SYDNEY HANSEL
Ernest F. Parker
ATTORNEY

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OSCILLATABLE BARK-REMOVING ELONGATE JET PROVIDING CONTINUOUSLY PARALLEL LINES OF IMPINGEMENT

Sydney Hansel, Vancouver, British Columbia, Canada

Application April 12, 1954, Serial No. 422,592

3 Claims. (Cl. 144—208)

My invention relates to improvements in hydraulic barkers.

The object of the invention is to provide a device for the removal of bark from logs by directing from an elongate orifice one or more jets of water under high pressure onto the periphery of a log as it is moved in an endwise direction and for swinging the nozzles through which the jets are projected through a given arcuate path so as to provide that the elongate line of impingement of the jet upon a log shall remain parallel to a plane containing a longitudinal axis of a log being peeled irrespective of the swinging movement of said jet about its arcuate path, and to provide that the jet in flowing towards the axis of the arc about which its nozzle swings will be directed to an axial point located within or beyond the cross sectional area of the log to be peeled and beyond the length of the radius of the swing of the nozzle.

Other objects will appear as the specification proceeds.

Referring to the accompanying drawings:

Figure 1 is a plan view of the invention installed at the sides of a conveyor on which logs to be barked are progressively moved longitudinally, only part of the conveyor being shown.

Figure 2 is a side elevation of the invention as viewed from the right in Figure 1.

Figure 3 is an enlarged scale fragmentary elevational view showing the preferred form of nozzle.

Figure 4 is a diagrammatic view showing the movement of the nozzle assembly when mounted to direct its jet upon the side of a log.

Figure 5 is a diagrammatic view showing the variation in length of jet impingement for large and small logs when the nozzle assembly is mounted above the log.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral **1** indicates generally a log conveyor consisting of a framework **2** which supports suitably driven feed rolls **3** upon which logs **4**, one only shown, are adapted to be moved at appropriate speed. Erected on opposite sides of the conveyor **1** are operating decks or platforms **6** and on each deck is a table **8** upon each of which a nozzle assembly **10** is carried. Each nozzle assembly consists of a pipe **11** mounted horizontally in spaced bearings **12** and disposed at an angle of substantially forty-five degrees to the longitudinal axis of the conveyor **1** and the logs **4** thereon. The rear end of the pipe is rockingly mounted in a swing joint fitting **15** and this fitting in turn is connected to a supply pipe **16** which is connected to a suitable source of water supply at high pressure. A tubular arm **18** is connected to the forward end of the horizontal pipe **11** and is provided with bends **20** and **21** adjacent its ends. The bend **20** is preferably at an angle of forty-five degrees to the pipe **11** and the bend **21** is at a substantially similar angle but extending in the opposite direction or extending towards the log in the direction of its travel as indicated in Figure 1. The bend **21** is provided with a rockingly mounted nozzle **25** having a discharge opening or slit **26**, see detail in Figure 3, in its preferred form and which is normally set to discharge a thin ribbon jet of water under high pressure with its narrow dimension trained to impinge lengthwise onto the log, consequently with the bends **20** and **21** as shown a nozzle discharge opening of six inches will cause a jet of water of about eight and a half inches to impinge as an unbroken force upon the log. The nozzle **25** is provided with a crank **28** through which said nozzle is rocked about the bend **21**.

A standard **29** is mounted adjacent the forward end of the pipe **11** and carries a universal joint **31** and the free end of the crank **28** is provided also with a second universal joint **32**. The universal joints **31** and **32** are connected together by a pantograph rod **33** of appropriate length so that said pantograph rod **33**, the swinging portion of the tubular arm **18**, the center to center length of the crank **28** and the distance between the joint of the standard **29** from the adjacent center of the tubular arm at its inner end form a parallelogram through which the predetermined setting of the discharge opening **26** relative to the line of travel of the log upon the conveyor can be maintained at a constant irrespective of the swing of the tubular arm **18** and the nozzle **25** about the axis of the bearings **12**.

Fitted to each pipe **11** is a crank **35** which is adapted to be rocked through a connecting rod **36** actuated from a suitable oscillator **38** carried by a platform **39** for the purpose of rocking the nozzle across the log at any desired speed along any desired arc of traverse.

In the device as shown in Figures 1 and 2, the nozzles are so disposed as to impinge on the sides of the log, an arrangement which is preferred when logs of a substantially constant and large size are to be peeled, but when both large and small logs are to be treated it will be preferred to mount a nozzle assembly either above and below the conveyor or to use one above the conveyor and to rotate the logs as they are moved forwardly along said conveyor.

In Figure 5 of the drawings, one only nozzle assembly is shown, that being disposed above the log for the jet to impinge substantially downard towards a line parallel to the center line of travel of the conveyor and somewhere below the axis of the smallest log carried by the conveyor. The tubular arm **18** when placed vertically above the axis of the log as shown in Figure 5, would carry its nozzle **25**, when moving from one side to the other, along a circular arc A having its center in horizontal alignment with the axis of the bearings **12**, the arc lying well above any log carried by the conveyor.

It has been shown that the jet will discharge from the nozzle in planes parallel to the swinging axis of the arm **18** by virtue of its setting, but it will be seen that the line of impact of the jet on the perimeter of the log, by virtue of the angle of the swinging arm relative to the line of travel of the logs, will describe a compound cycloidal like path on an advancing log, but said line of impact, if the log remained stationary, would describe a compound semi-elliptic like path across the sides and upper and lower faces of the log, the latter path being illustrated in Figs. 1, 2 and 4.

Nearly all logs of a general size group can be handled with one setting of the width of traverse of the nozzle, viz: if the log is of large size as indicated by the dimension L of a projection line of the jet arc A shown in Figure 5, the contact length of the jet impinging upon its perimeter will be short and slow log movement on the conveyor would be desirable in order to cope with the narrow peripheral path covered with each arcuate traverse A of the nozzle. If on the other hand the log is small, as indicated by broken lines in Figure 5,

the contact length of the jet would become relatively long and would produce a wider peripheral path for each arcuate traverse A of the nozzle **25**, so that greater log speed would be desirable to make effective use of the water. Obviously an extensive variation of log diameters can be treated without having recourse to resetting the length of arcuate traverse of the nozzle to a value corresponding to the projection line S in Fig. 5, and without serious waste of water.

While the drawings show the oscillating nozzles on opposite sides of the log in Figures 1 and 2 and a nozzle placed above the log in Figure 5, they may be placed in any desired position relative to the periphery of said logs without departing from the function of the invention.

What I claim as my invention is:

1. A log barking device adapted to peel a log as it is moved endways along a path, said device comprising an arm having a nozzle at its free end, and means for supplying water under high pressure to discharge through said nozzle, said arm being mounted to swing about an axis extending at an angle towards the axis of a given log in the path, said nozzle being set to project its jet onto the periphery of any log, and means for oscillating the arm to swing the nozzle transversely of the log, the angularity of the axis of the arm being between thirty and sixty degrees from the axis of the log.

2. A log barking device adapted to peel a log as it is moved endways along a path, said device comprising a tubular arm rockingly mounted for oscillation upon an axis disposed at an angle to a longitudinal axis of a given log moving along the path, said tubular arm extending when at a mid-point of its oscillating stroke parallel to the log axis, a nozzle rockingly mounted at the free end of the tubular arm and set at an angle thereto to cause a jet of water to impinge upon the periphery of the log, said nozzle being designed to provide a jet of water having width and length characteristics at the point of impact with the log, one of said characteristics being parallel to a plane containing said log axis when said arm is in said mid-point position, and means interposed between the swing point of the tubular arm and the nozzle to maintain the parallelism of said one characteristic and said plane as the tubular arm is rocked transversely of the log path.

3. A log barking device adapted to peel a log as it is moved endways along a path, said device comprising an arm having a nozzle at its free end, and means for supplying water under high pressure to discharge through said nozzle, said arm being mounted to swing about an axis extending at an angle towards a longitudinal axis of a given log in the path, said nozzle being set to project its jet onto the periphery of any log, and means for oscillating the arm to swing the nozzle transversely of the log, said nozzle being rockingly mounted upon the arm and having an elongate discharge orifice, said orifice having its elongate axis extending parallel to a plane containing said log axis, a pantograph coupled to the nozzle and to a part adjacent the axis of said arm to maintain the parallelism of said elongate axis and said plane as said arm and its nozzle is oscillated transversely of the log.

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