March 27, 1928. 1,663,794

C. E. CLOWES

ROSSER

Filed Feb. 24, 1927 2 Sheets-Sheet 1

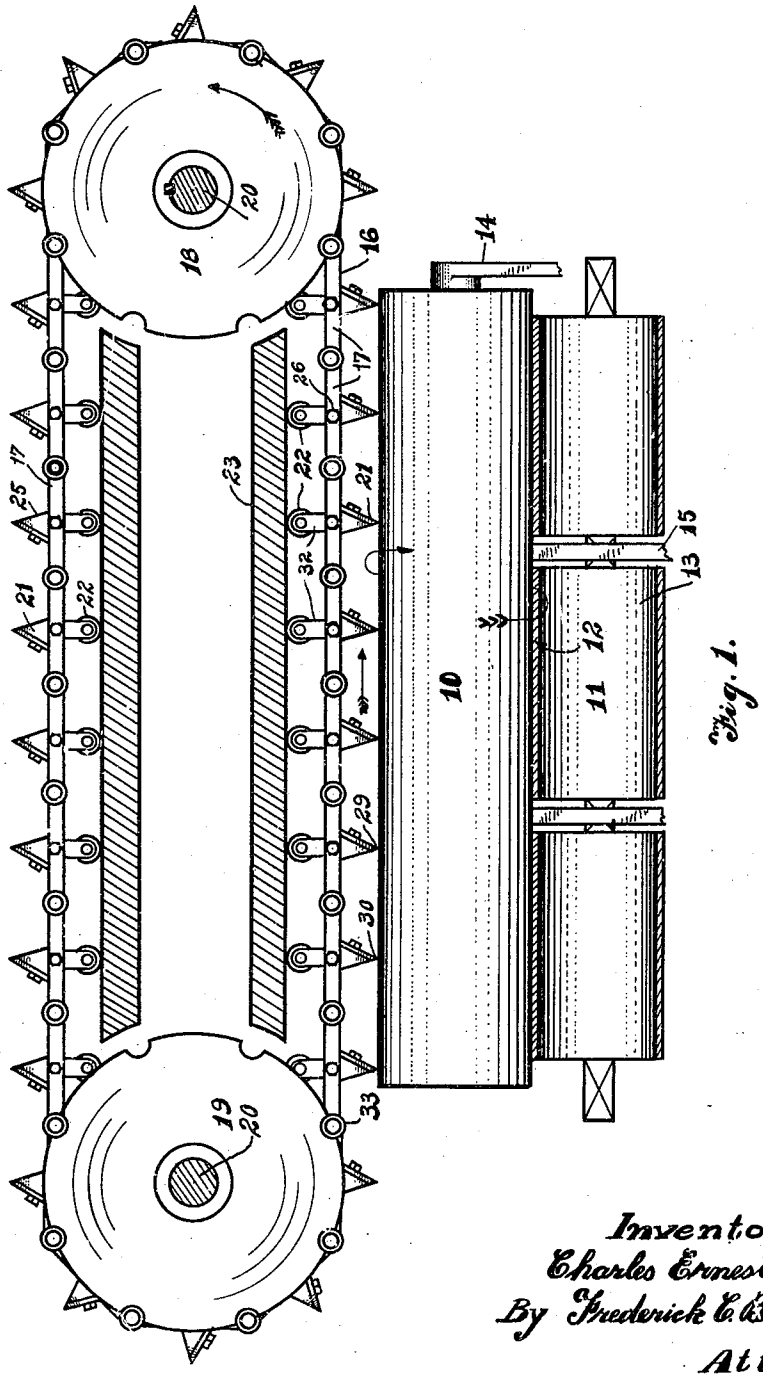


Fig. 1.

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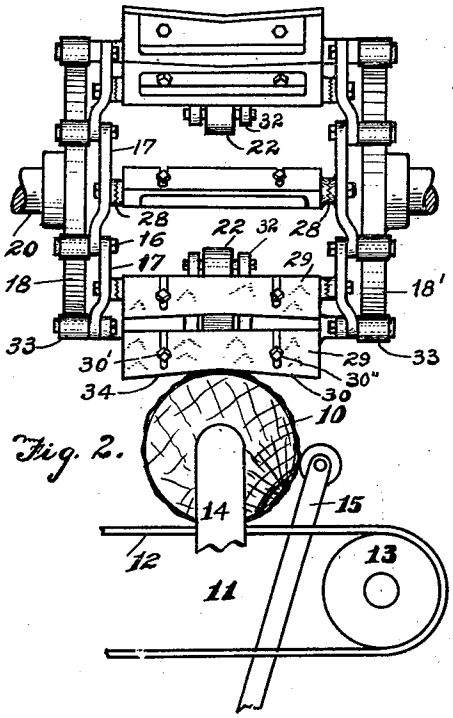


Fig. 2.

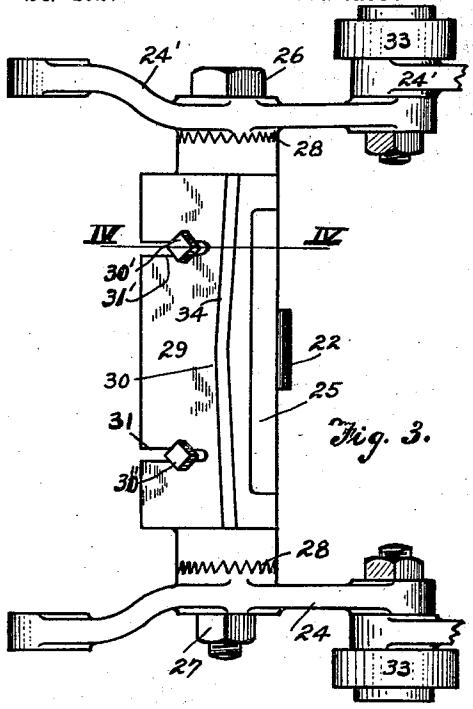


Fig. 3.

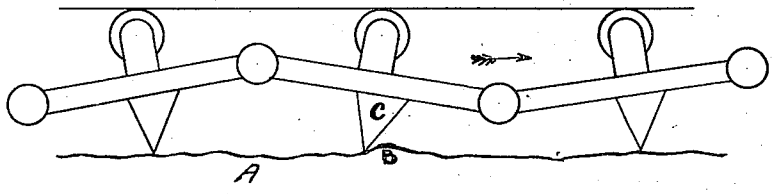


Fig. 5.

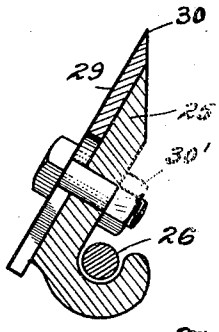


Fig. 4.

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Patented Mar. 27, 1928. 1,663,794

UNITED STATES PATENT OFFICE.

CHARLES ERNEST CLOWES, OF FREDERICTON, NEW BRUNSWICK, CANADA.

ROSSER.

Application filed February 24, 1927. Serial No. 170,576.

The invention relates to improvements in rossers as described in the present specification and shown in the accompanying drawings which form part of the same.

The invention has for its primary object the provision of a machine for more economically scraping bark from a log, which constitutes an important operation in the manufacture of mechanical pulp and which has to be very efficiently accomplished in order to thoroughly remove the bark and thereby add to the quality of pulp ground from this stock.

The invention appertains to the means disclosed for the actual removal of the bark rather than the mechanism necessary for supporting the log during such operation, which may be of conventional or special design.

According to the present invention, a log, hereinafter referred to as "the stick", is slowly revolved and held against traveling instruments set at a negative angle in order to ross the stick by scraping off the bark. These scrapers move lengthwise of the log so as to work with the grain, the log being held side-on, the gradual rotation effecting complete removal of the bark.

The scrapers are designed to be adjustable so that the angle of contact may be changed to suit different species and condition of wood. For instance a run of logs which are hard or frozen will necessitate that the angle of inclination be less than that for handling softer or newly cut wood.

A very distinctive feature of the present invention lies in the mounting of the scrapers whereby they accommodate themselves to irregularities of the stick's surface to the end that upon encountering a knot or other obstruction they ride over it. Other features will become manifest as the description proceeds.

In the drawings, Figure 1 is a side elevation of the invention slightly in section, depicting in conjunction therewith a part of the workholding device.

Figure 2 is a front end elevation of Figure 1.

Figure 3 is a detailed plan view of one of the links of the endless band.

Figure 4 is a sectional view taken on the line 4—4 of Figure 3.

Figure 5 is a diagrammatic view exhibiting the action of the scrapers in passing over irregularities of the log's surface.

Like numerals of reference indicate corresponding parts in each of the figures throughout the drawings.

In the drawings the reference numeral 10 designates the log or stick which is shown supported by means of a workholder generally indicated by the numeral 11. This workholder is shown by way of example and not of limitatiion as it will be readily apparent to those skilled in the art that there are numerous types of workholders which might be equally well employed: that shown in the drawings consists of an endless belt 12 upon which the log rests. Said belt is passed over pulleys 13 which are suitably driven from a source of power. 14 is an end stop for taking axial thrust of the log due to the scraping action of the tools. 15 is a side rest for centering the log. The rotation of the endless belt 12 slowly revolves the log and the rest 15 prevents its lateral movement, so that by this construction the log is held what is generally known as "side-on" against the scrapers.

16 generally indicates the endless band composed of links as at 17. The band is carried at its forward end by sprockets 18, 18′, and at its rear end by further sprockets 19. These sprockets are supported by shafts as at 20, one pair of which sprockets is connected to a source of power and functions as the driver. Intermediate of each link is a scraper as at 21, while on the other side is a roller as at 22 which travels over a rail 23 in order to hold the scrapers against the log and take the thrust thereof.

Each link consists of a pair of link bars 24, 24′, secured to a tool holder 25. This tool holder is preferably a casting and extends between the two members 24, 24′ and is secured to the same by a bolt 26 having a nut 27 threadedly engaged thereto and bearing against the member 24. To provide for adjustment of the angularity of the scraper tool interlocking teeth as at 28 are provided at the ends of the tooth holder 25 and inner sides of the members 24, 24′. These teeth form a clutch at each side of the tool holder which positively secures the tool holder against angular movement when the bolt is tightened. To adjust the tool holder by this construction, it is merely necessary

to unloosen the bolt and nut sufficiently to spread the members 24, 24′ and then turn the holder 25 to give the desired adjustment. It is then secured by the retightening of the bolt.

29 indicates the scraper tool which has a working edge 30 chisel-shaped in cross section as clearly discernible in Figure 4. The tool extends transversely of the link and is fastened to the tool holder by bolts and nuts 30′, 30″, or any other analogous fastening means. The bolts preferably extend through slots 31, 31′, in order to provide for detachment of the scraper from the holder for purposes of sharpening.

Upon opposing sides of the link to that of the tool holder are lugs as at 32 carrying the roller 22 aforementioned. This roller is positioned directly in the line of thrust resulting from the scraping action and rides on the rail 23 which functions as a thrust sustaining surface for the scrapers.

Each of the members 24, 24′, of the link carries a roller as at 33 for engaging the teeth spaces of the sprockets over which the endless band travels.

Referring to the diagrammatic illustration given in Figure 5, A represents the irregular surface of the log and B an obstruction such as a knot, C shows a scraper contacting with this obstruction and thrown at an angle so as to accommodate it, which will of course occur in any irregularity of the log's surface.

It will be seen that the tension of the links has a tendency to hold them in the line of motion, whereas, upon striking an obstruction, the resistance being on one side of the line of motion causes a yielding due to the link being thrown upwardly as shown. Directly the obstruction is passed the tension straightens the link again and it is held in this position by the pull on the workng side of the belt.

Adverting to the scraper teeth, in order to obtain as great a line of contact as possible with the log, it is proposed to relieve the working edge of the teeth as shown in the drawings by making a cutting edge slightly V-shaped as shown at 34. The same result may be obtained by shaping the cutting edge in various ways or by providing a number of scrapers; hence it is not intended to limit the invention in this respect.

In the operation of the invention it will be seen that as the endless band is set in motion the scrapers will traverse the log for its entire length and that with the slow rotatory movement of the log the entire bark will be eventually removed. The rail 23 supports the thrust of the scraping tools during their entire working stroke. This rail is of course suitably supported in any desirable manner. Whereas a single rail has been shown in the preferred embodiment of the invention for cooperating with a roller disposed intermediate of the width of each link of the endless chain, it will be manifest to those skilled in the art that a plurality of rails might be employed side-by-side; for instance, together with a number of rollers attached to each link, and that other variations and modifications might be resorted to without departing from the spirit and scope of the invention.

Having now described the preferred forms of the embodiment of the invention capable of carrying the same into practical operation, it is distinctly understood that such changes and modifications may be resorted to as may fairly come within the spirit and scope of the invention and claims hereinafter following.

What I claim is:—

1. In a rossing machine, sprockets disposed in spaced relation, a travelling belt therefor, a scraper rigidly projecting from each link thereof presenting a continuous series of working edges along one side of the belt between the sprockets for engagement axially with a side of the stick, rollers, one borne by each link in the thrust line of the scraper, and a rail extending parallel to the line of motion presenting a thrust sustaining surface for the rollers.

2. In a rossing machine, an endless belt composed of tool carrying links, each link consisting of a pair of spaced link bars, a toolholder extending between said bars and provided with teeth for interlocking with teeth borne by the abutting faces of the bars, a bolt and nut securing the toolholder to the bars and a scraping tool affixed to said holder transversely of the link.

3. In a rossing machine, an endless link belt for operation over spaced sprockets, a member extending parallel to and in close proximity to the rear of the working side of the belt, said member presenting a rigid thrust sustaining surface, a scraper attached to each link of the belt, the scraping edge thereof being located on the outside of the links and intermediate of their respective ends, and a roller attached to each link on the inner side thereof and directly in the thrust line of each scraper whereby the thrust of the scraper is not only transmitted to the thrust sustaining surface of the aforesaid member but a slight rocking of the link is permitted to accommodate surface irregularities of the stick.

Signed at Fredericton, Canada, this 17th day of February, 1927.

CHARLES ERNEST CLOWES.