

Nov. 29, 1932.

P. FOSS

1,889,046

APPARATUS FOR DECORTICATING TIMBER

Filed April 24, 1931

2 Sheets-Sheet 1

Fig. 1

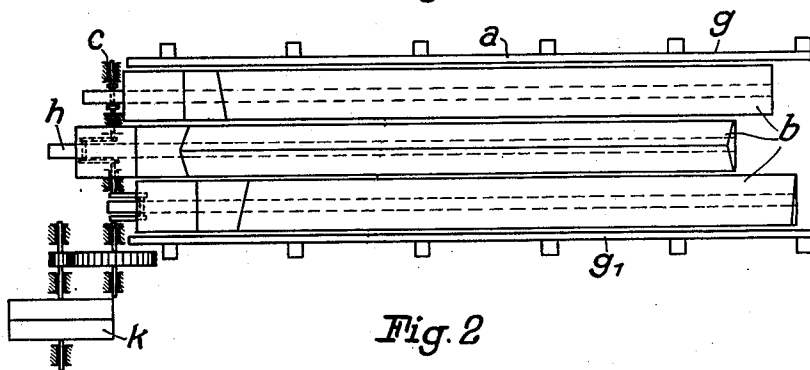


Fig. 2

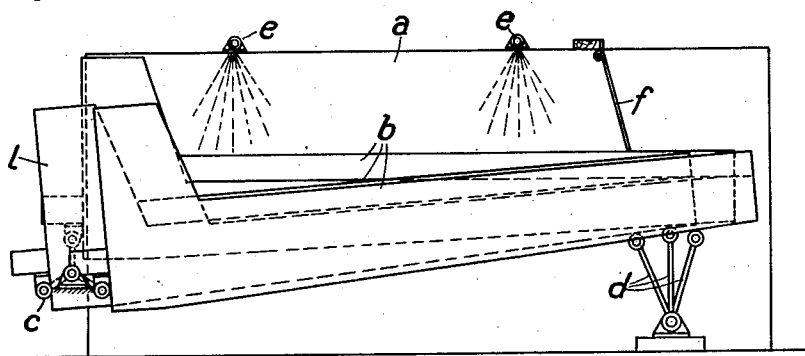
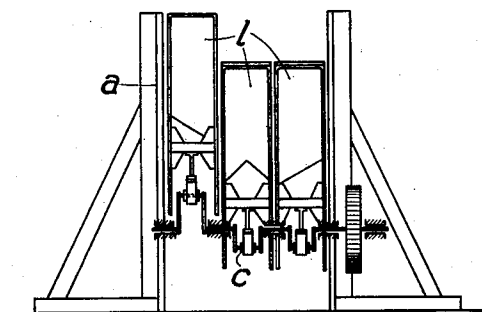


Fig. 3



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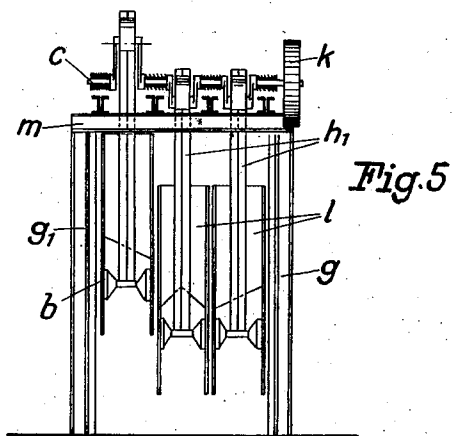
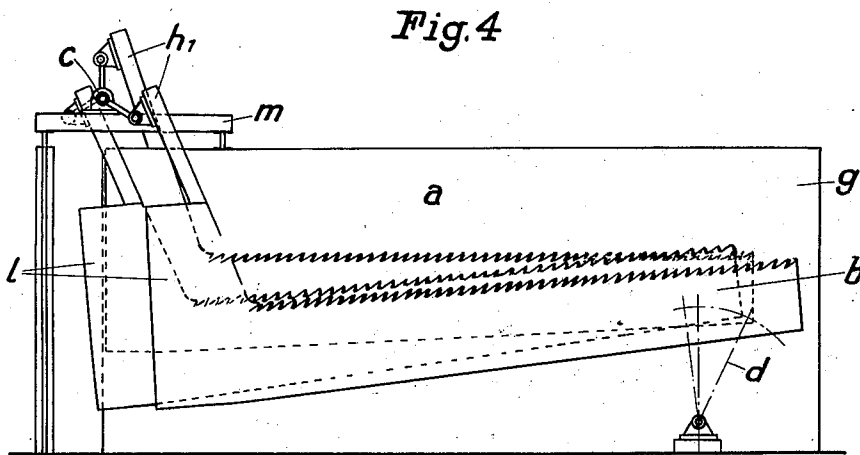
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Inventor:

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UNITED STATES PATENT OFFICE

PER FOSS, OF VELSEN-NOORD, NETHERLANDS

APPARATUS FOR DECORTICATING TIMBER

Application filed April 24, 1931, Serial No. 532,680, and in Germany May 1, 1930.

This invention relates to apparatus for decorticating timber.

The method of removing bark from wood by rolling the logs against each other is already known. For this purpose heretofore use was generally made of drums rotating around their longitudinal axis, in which the logs lying lengthwise and one on top of the other roll on each other upon rotation of the drums. In this way they are freed from the bark by friction. The drums are generally inclined or provided with suitable arrangements by means of which the logs are slowly moved to the place of delivery located opposite to the admission end. In addition a device has also been used in the past consisting of chains, belts or the like, that are suspended in the form of loops and in which the logs are laid in the troughs of the loops. In some cases the belts are joined together by longitudinal rods, so that a grid-like belt is the result. This grid-like belt is moved up and down so that an effect similar to that produced with the aid of the drums is attained. Box-like devices are also in use, in which the logs are placed crosswise to the length of the box and moved with the aid of spurs extending into the box through the floor of the same. The logs are lifted by the spurs so that they roll against each other. They also roll forward in the box. By means of the end wall located in the path of the rolling movement, their rolling forward motion is stopped, they pile up there and with the growth of the pile they go over the edge of the wall onto a chute. One modification of the device is that the rolling forward movement of the logs, instead of being produced by moving spurs projecting from below into the box, is due to a wave-like motion of the bottom of the box which is divided up for this purpose. The effect of the device modified in this way is the same as that actuated by lifting spurs. It has been found, however, that the bark was not satisfactorily removed from the logs by means of these devices, and in particular it was left adhering on the rugged and uneven parts of the logs, for example, on the places where the branches

had been attached and in the depressions of the logs.

By the device according to the invention, the decorticating of logs is greatly improved and treatment of all parts of the logs is assured. Moreover, the device according to the invention is distinguished by its exceptional simplicity. The logs are rolled on each other by the device of the invention, and also forced to exert an intensive lengthwise friction against each other. The decorticating can be carried on with or without spraying of the logs with water, according to the individual requirements.

The device consists of a receptacle open at one or both ends, having a floor of grid beams and furthermore of a device for moving the grid beams perpendicularly or longitudinally in relation to each other. For actuating the grid beams use can be made of devices already known per se, such as eccentric crank drives and the like. The container is advantageously constructed in the form of a trough. The beams forming the floor are arranged with their longitudinal axes parallel to the longitudinal axis of the trough. In order to facilitate the movement of the timber, the grid beams, the upper faces of which are advantageously of a roof-shaped construction, are provided with a metal coating having irregularities in its surface. Between the grid beams intermediate spaces are provided which are of such a width that the bark which has been removed is able to fall through these slits or can be conveyed away by irrigation with water.

The trough can be opened at the charging end or else can be closed by a special closure, or by the grid beams themselves, which in that case would be provided in this portion with an added portion extending upward at an angle. At the discharge end the trough is open. In order, however, not to have a too rapid forward motion, it is, however, advisable to construct the grid beams on an incline towards the discharge end.

It is obviously unnecessary to arrange the grid beams in a horizontal position in the other part of the trough. On the contrary, the grid beams can be arranged so as to slope

in one or another direction, the slope being selected according to the nature of the timber from which the bark is to be stripped, preliminary tests being first carried out in order to determine the most advantageous form of the grid beam support from case to case. If the grid beam support does not slope upwards or only has a slight upward slope towards the discharge side, then a dam may advantageously be provided at the exit end of the trough, which may be in the form of a weir or a flap or the like. The drive or drives for the individual grid beams are preferably arranged in such a manner that they do not come into contact during the operation with the water used for the irrigation, or with the stripped bark or the like.

In order more clearly to understand the nature of the invention, reference is made to the accompanying drawings which illustrate diagrammatically and by way of example several embodiments of apparatus for carrying out the invention and in which:—

Fig. 1 is a plan of one embodiment of such apparatus.

Fig. 2 is an elevation of the same apparatus, the front side wall being cut away.

Fig. 3 is an end view.

Similarly, Figs. 4 and 5 depict respectively the side and end views of another embodiment of apparatus for carrying out the process of the present invention.

The rectangular vessel *a* consists of the two side walls *g* and *g'*, made, for example, of wood, and of the bottom, which, for example, is constructed of three beams *b*. These beams are mounted so as to oscillate at their free ends by means of the oscillating arms *d*, at the other ends they are provided with arms *h* which can be set in motion by means of a crank shaft *c*. *k* is the drive for the crank shaft, which is mounted in such a manner that it moves each beam *b* both in the longitudinal direction and in the vertical direction. The end walls of the vessel *a* are constructed on the one hand of the beams *l* which are rigidly connected with the bottom beams and which are mounted in an approximately perpendicular position thereon, and on the other hand of the flap *f* which hinges about its upper edge. Nozzles *e*, may moreover, be arranged above the vessel.

When the floor of the vessel *a* which is filled with logs, is set in motion by means of the drive *k*, *c* and *h*, the logs are subjected on the one hand to a rolling movement. At the same time, however, they slide over and away from one another.

Generally the forward motion of the logs will be such that they are intermittently moved forward lengthwise somewhat and then shoved back again a smaller amount, by the grid beams swinging back and forth. Together all these movements cause an exceedingly thorough decorticating.

The apparatus can be operated using batch charging, or else logs can be continually charged at the end of the vessel bounded by the beams *l*, said logs being discharged under the flap *f*, said flap acting as a variable dam, depending on its actual weight, or if desired, by attaching an extra weight thereto. When operating continuously, the beams at the bottom act in conjunction with the beams *l* and by virtue of the suitably roughened upper surface of the separate beams as shown more particularly in Fig. 4, as a conveying device. The time during which the timber is treated in the apparatus can be regulated as already remarked on the one hand by suitably adjusting the effective weight of the flap *f*, but it may also be regulated by means of the upward slope which is given to the beams from the charging side to the discharging side. In this connection, the extent to which the attachments *l* are sloped plays a certain part. In the apparatus as illustrated in Figs. 4 and 5, the drive which imparts the rising and falling motion to the one end of the beams is arranged at such a height over said beams that it is completely protected from the irrigating water which flows down over the logs, and also from the ejected bark or the like. Thus, for example, the drive is mounted upon a bracket *m*, which is placed at about the same height as the top edge of the side walls *g* and *g'*. The crank shaft *c* is connected with the arms or tie-bars *h'* which constitute the upper extensions of the approximately vertical beams *l*. Apart from this, the embodiment of apparatus according to Figs. 4 and 5 can be constructed in the same manner as the embodiment first described, and it may also be driven in the same manner.

I claim:—

1. A device for removing bark from logs which comprises a receptacle consisting of two side members and a plurality of spaced floor members normally sloping upward toward the discharge end of the device and means for imparting to said floor members vertical oscillatory motion relative to each other.

2. A device for removing bark from logs which comprises a receptacle consisting of two side members and a plurality of spaced floor members rising abruptly at the charging end of the device to form an end boundary thereto and means for imparting to said floor members vertical oscillatory motion relative to each other.

3. A device for removing bark from logs which comprises a receptacle consisting of two side members and a plurality of spaced floor members rising abruptly at the charging end of the device to form an end boundary thereto and means attached to the upper portion of the abruptly rising ends of said members for imparting to said floor members vertical oscillatory motion relative to each other.

4. A device for removing bark from logs which comprises a receptacle consisting of two side members and a plurality of elongated spaced floor members extending parallel to said side members and means for imparting to said floor members vertical oscillatory motion relative to each other and of greater amplitude at one end of said device than at the other.

5. A device for removing bark from logs which comprises a trough open at at least one end and a plurality of elongated spaced floor members longitudinally arranged in said through and means for imparting to said floors members vertical oscillatory motion relative to each other and of greater amplitude at one end of said device than at the other.

6. A device for removing bark from logs which comprises a receptacle consisting of two side members and a plurality of elongated spaced floor members extending parallel to said side members, and eccentric driving means for imparting to said floor members vertical oscillatory motion relative to each other and of greater amplitude at one end of said device than at the other.

7. A device for removing bark from logs which comprises a receptacle consisting of two side members and a plurality of elongated spaced floor members extending parallel to said side members and having sloping upper surfaces, and means for imparting to said floor members vertical oscillatory motion relative to each other and of greater amplitude at one end of said device than at the other.

8. A device for removing bark from logs which comprises a receptacle consisting of two side members and a plurality of elongated spaced floor members extending parallel to said side members and having roughened upper surfaces, and means for imparting to said floor members vertical oscillatory motion relative to each other and of greater amplitude at one end of said device than at the other.

9. A device for removing bark from logs by subjecting the logs to combined rolling and intermittent longitudinal motion which comprises a receptacle consisting of two side members and a plurality of elongated spaced floor members extending parallel to said side members, means for imparting to said floor members vertical oscillatory motion relative to each other and of greater amplitude at one end of said device than at the other, and a hinged flap member positioned above said floor members adjacent the end of the device at which said oscillatory motion is of lesser amplitude.

10. A device for removing bark from logs by subjecting the logs to combined rolling and intermittent longitudinal motion which comprises a receptacle consisting of two side

members and a plurality of elongated spaced floor members extending parallel to said side members, means for imparting to said floor members vertical oscillatory motion relative to each other and of greater amplitude at one end of said device than at the other, and a hinged flap member of adjustable effective weight positioned above said floor members adjacent the end of the device at which said oscillatory motion is of lesser amplitude.

11. A method of barking logs which comprises simultaneously rolling and intermittently advancing logs longitudinally through a receptacle by means of the motion of longitudinal, vertical and longitudinally vibrating members forming the bottom of said receptacle.

12. A method of barking logs which comprises simultaneously rolling and intermittently advancing logs longitudinally through a receptacle by means of the motion of longitudinal, vertical and longitudinally vibrating members forming the bottom of said receptacle, and supplying flushing water to said receptacle.

In testimony whereof, I affix my signature.
PER FOSS.

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