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LOG CONVEYING APPARATUS

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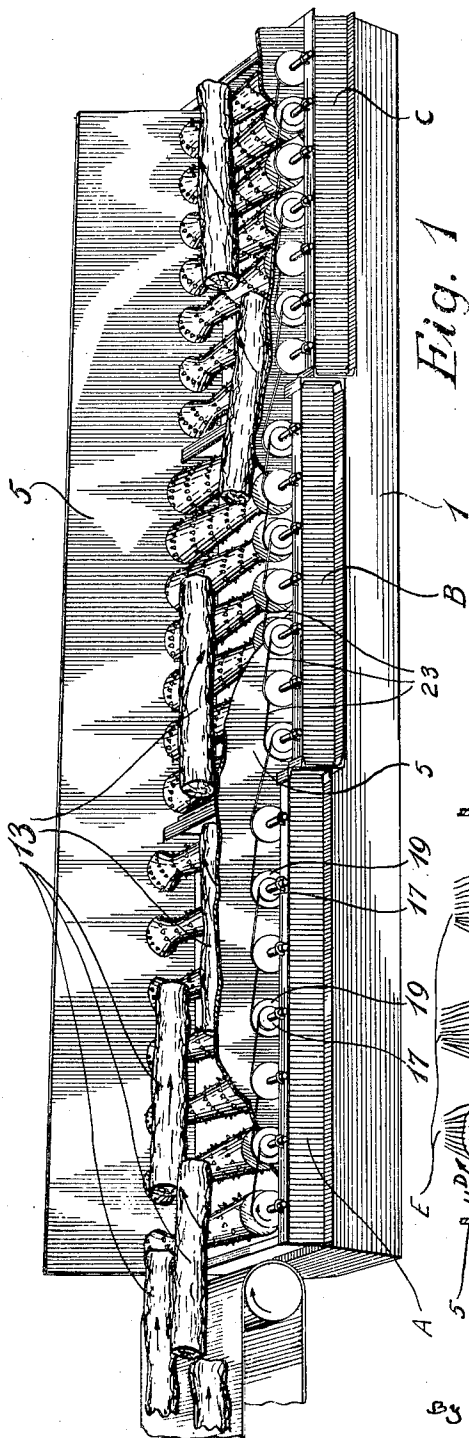


Fig. 1

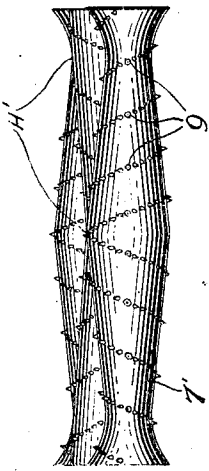


Fig. 3

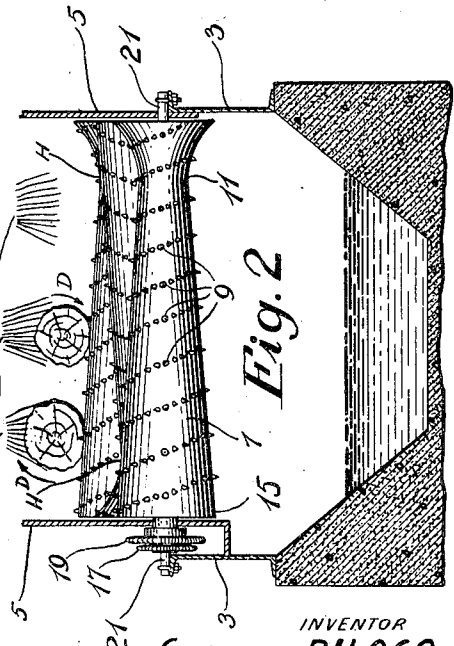


Fig. 2

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This invention pertains to an apparatus for conveying wooden logs.

An object of the invention is to provide a machine which will convey while automatically and thoroughly washing logs which are to be used in further operations where dirt would prove detrimental.

A further object of the invention resides in the provision of such an apparatus or machine which permits, by continuous and positive rotation of the logs, to clean all of the outer surface thereof. The apparatus rolls the logs through several circumferences in the course of washing.

Yet a further object of the invention lies in the provision of an apparatus which will permit a separation of the logs from one another so as to obtain a more efficient washing.

These objects are attained by means of an apparatus which comprises a series of identical rotatable rollers mounted on parallel axes, each having an outer conical surface; all surfaces being inclined in the same direction so that the logs are driven in that direction by gravity. Spikes are provided on the surface of said rollers, in helical alignment, to more positively move the logs laterally while rotating them. Further, the rollers are grouped into sections; the conical inclination of the rollers of one section being reverse that of the rollers of the adjacent sections. Finally, the successive rollers are driven at progressively increasing speed so as to obtain separation of the logs as they travel from one section to the next.

Further objects and advantages of the invention, as well as a better understanding thereof, will be had by the following description, having regard to the accompanying drawings, wherein:

FIG. 1 is a view in perspective elevation of the apparatus of the invention;

FIG. 2 is a transverse cross-sectional view thereof, and

FIG. 3 is another embodiment of the rollers used in the apparatus of the invention.

The apparatus shown comprises a trough-like support 1 adapted to collect water from the washing and the dirt that it carries. This support could advantageously be made of concrete.

Atop this support 1, are fixed a series of sections: three sections, A, B, C being shown. It will be realized that any number of sections may be used depending on the length and diametral size of the logs, the width available, how dirty the logs are, and how thoroughly the washing is to be carried out. In practice, a complete rotation of each log is usually found sufficient as a guide to the dimensions to be given and the number of sections needed.

Each section consists of two upright lateral supporting frame members 3 to which are fixed vertical protective plates 5, the frontal one being shown broken away to illustrate the internal structure of the apparatus. Plates 5 actually bridge and connect each section.

Within each section, are rotatably mounted a series of spaced rollers 7, having their axes lying in parallel relationship and in a common horizontal plane. As best seen in FIG. 2 each roller has a conical shape and all the rollers of one section are inclined in the same direction. Thus, as the logs 13 travel on a section, they are driven laterally, by gravity, in accordance with the inclination of the conical rollers 7. At the same time, logs 13 roll on

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the roller surface as indicated by arrows D of FIG. 2 and receive a complete washing by sprinkling water jets E. To help and promote their rotation, a series of pointed spikes 9 may be provided on the surface of the rollers. These spikes are preferably aligned to form helices directed towards the smallest diameter location 11.

Apart from promoting the lateral descent and rotation of logs 13, the spikes greatly enhance their longitudinal displacement, along arrow G, by preventing slipping.

With the preferred arrangement shown in FIG. 1, it is possible to reverse the rotation of logs 13 and thus get the benefit of possibly several complete log rotations without unduly widening the apparatus. The actual number of rotations will depend, of course on the size of the logs. More rotations may be obtained by simply providing successive roller sections wherein, from one section to the other, the inclinations of the rollers are reversed. Thus the logs move in the direction of the smallest diameter locations 11 of the rollers of one section and remain there until they hit the next section where they move to the largest diameter locations 15, whence they move in reverse direction towards the smallest diameter locations 11 of the rollers of that particular section.

To obtain smooth transfer from one section to the next, it is proposed to vertically offset the successive sections by moving them downwardly in cascade as clearly shown in FIG. 1. They should be moved down to the extent that the top points adjacent to, or at the locations 15 of largest diameter be level with the top points on locations 11 of smallest diameters on the rollers of the preceding section. This is indicated by the letters H in FIG. 2.

It will be noted, also from FIG. 2 that at location 11, the inclination of rollers 7 change direction. This is to prevent the logs from being jammed against frame member 3 during their travel.

Finally, in order to enhance separation of the logs and prevent their crowding in the various sections, successive rollers 7 are brought into progressively increasing speed. This may be done by providing, for each roller shaft 21, a driving pulley made up of a small diameter sheave 17 and a large diameter sheave 19: both of which being rigidly fixed to roller shaft 21 with the large sheave 19 being connected to the small sheave by means of a belt 23, or the like.

The rollers 7' shown in FIG. 3 are similar to rollers 7 of FIGS. 1 and 2 except that in this case the form is that of a double cone having equal inclinations starting from the center and extending axially of rollers 7' in reverse directions. With this arrangement, similarly to that of FIGS. 1 and 2, the rollers of one section have the location of largest diameter at the center. The sections are also vertically offset so as to obtain smooth passage of the logs from one section to the other. Points H' of FIG. 3 are the equivalent of points H of FIG. 2.

While a preferred embodiment has just been described, it should be understood that the invention is only limited by the scope of the appended claims.

I claim:

1. An apparatus for conveying logs; said apparatus having a plurality of identical roller sections following one another; each section comprising: a series of spaced rollers rotatably mounted on parallel axes; each said rollers having an outer conical surface inclined in a predetermined direction for driving logs in that direction and producing log rotation; the rollers of one section being inclined in a direction reverse that of the rollers of the adjacent section.

2. An apparatus as claimed in claim 1, wherein said

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rollers have an outer conical surface inclined in a first direction for the major axial extent thereof and inclined in a second direction opposed to said first direction for the remaining extent thereof; the inclination of major axial extent driving logs in the first direction and producing log rotation.

3. An apparatus for conveying logs; said apparatus having a plurality of identical roller sections in alignment with one another; each section comprising: a series of spaced-rollers rotatably mounted on parallel axes; each said roller of each section having an outer conical surface inclined in a predetermined direction for the major axial extent and inclined in a second direction opposed to said predetermined direction for the remaining extent thereof; said inclination thus defining a location, on each said roller, of minimum diameter; the inclination of major axial extent driving logs in the predetermined direction for producing rotation thereof; the rollers of one section being inclined, in their major axial extent, in a direction reverse that of the major extent of the rollers of the adjacent section.

4. An apparatus for conveying logs; said apparatus having a plurality of identical roller sections in alignment with one another; each section comprising: a series of spaced rollers rotatably mounted on parallel axes; each roller of each section having an outer conical surface inclined in a predetermined direction and curving, adjacent the end thereof, in the opposite direction thus defining

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a location of minimum diameter; the inclination in the predetermined direction driving logs in that direction and producing rotation thereof, the rollers of adjacent sections being inclined in a direction reverse that of said predetermined direction; said sections being vertically offset from one another so that the top point on the locations of smallest diameter become level with the corresponding top point of the locations of substantially largest diameter.

5. An apparatus for conveying logs as claimed in claim 4, wherein there is provided, on the conical surface of each roller, a plurality of pointed spikes aligned to form at least one helix around the outer surface of said rollers.

6. An apparatus for conveying logs as claimed in claim 1, wherein means are provided to rotate successive rollers at progressively increasing speed.

7. An apparatus for conveying logs as claimed in claim 4, wherein means are provided to rotate successive rollers of each section, and from one section to the next, at progressively increasing speed.

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