Oct. 20, 1942. P. N. OTTERSLAND 2,299,248

LOG CHIPPER

Filed Jan. 13, 1940

Fig. 1,

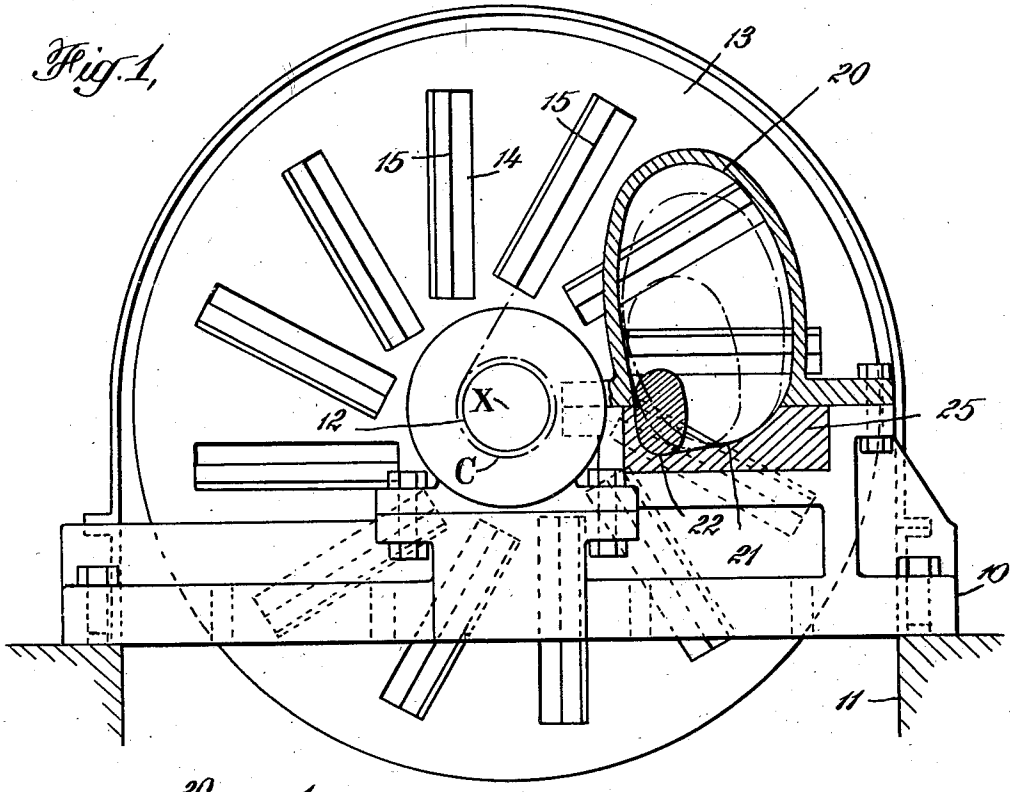



Fig. 2,

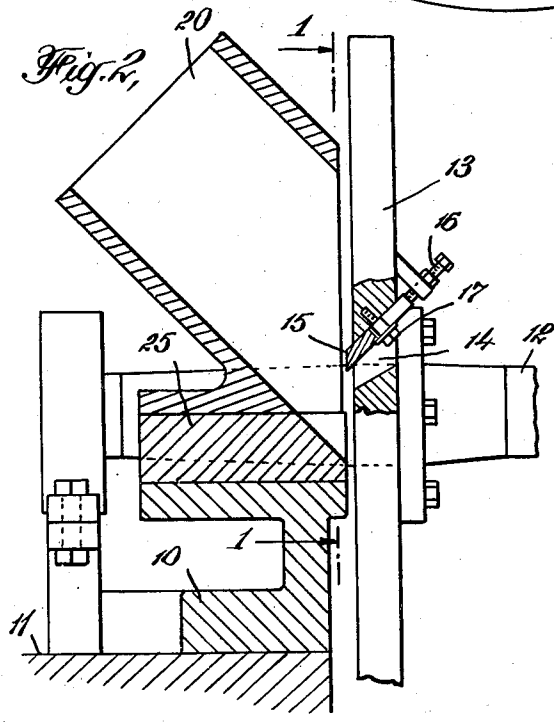



Fig. 3,

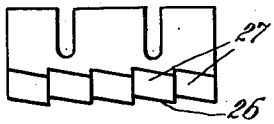



Fig. 4,

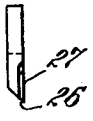
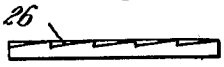



Fig. 5.




INVENTOR
Peter N. Ottersland
BY
Marshall & Hawley.
ATTORNEYS

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## LOG CHIPPER

Peter N. Ottersland, Watertown, N. Y.

Application January 13, 1940, Serial No. 313,672

3 Claims. (Cl. 144—176)

This invention relates to log chippers.

Chippers usually consist of a rotary disk having a series of knives or blades, the log to be chipped being fed to the rotary cutter in an inclined feed spout or chute. As the knives are carried by the disk into engagement with the end of the log, the chips are cut therefrom.

In the chippers now in common use, the knives are so spaced around the disk that only one knife or blade is performing its cutting or chipping function at any one time. Thus, there is a considerable space on the disk between the successive knives or blades.

As the knives engage and cut chips from the end of the log they tend to draw the log downwardly in the chute and while the knife cuts the log and before the next knife comes into action there is a considerable pressure exerted between the end of the log and the surface of the disk. This causes the disk to wear, forming concaved or grooved portions between the knives. When the end of the log engages or moves into and leaves these grooved or concaved surfaces, it is kicked back and thus is not properly positioned for engagement by the knives. Furthermore, there is nothing in the chipper as now manufactured to engage and steady the log between successive cuts. As the knives engage the log the log tends to pivot about its lower edge since it usually does not entirely fill the feed spout and therefore "jumps around," thus preventing effective action of the knives.

This invention has for its salient object to provide a chipper so constructed and arranged that the chipping of the log will be expedited and rendered more efficient.

Another object of the invention is to provide a chipper so constructed and arranged that the log will be held steady in the chute at all times during the chipping operation and the chipper will therefore produce chips of more uniform length than are produced in machines of the conventional type.

Another object of the invention is to provide a spout so constructed and arranged that a log therein will take a position as near as possible to the axis of the chipper disk.

Another object of the invention is to provide a chute and chipper disk or cutter so correlated that the setting of the knives on the disk and the cross section of the chute will cooperate in moving the log being cut to a position in the chute nearest the axis of the disk, thereby insuring the simultaneous operation of a plurality of knives on the log.

Another object of the invention is to provide a knife for a chipper so constructed and arranged that chips of uniform width will be cut.

Another object of the invention is to provide a construction of knife and chute so constructed and arranged that a plurality of knives will operate simultaneously on small logs as well as on large logs.

Further objects of the invention will appear from the following specification taken in connection with the drawing which forms a part of this application, and in which

Fig. 1 is an elevational view partly in section of a chipper disk and chute constructed in accordance with the invention, this view being taken substantialy on line 1—1 of Fig. 2;

Fig. 2 is a vertical sectional elevation through the discharge end of the chute;

Fig. 3 is a plan view of a modified form of knife which may be used on the chipper illustrated in Figs. 1 and 2;

Fig. 4 is an end elevation of the knife shown in Fig. 3; and

Fig. 5 is an edge view of the knife shown in Fig. 3.

The invention briefly described comprises a chipper disk having a plurality of knives arranged symmetrically on the disk and extending therethrough, the knives being mounted tangentially to a circle having the disk axis as its center. The chipper disk is used in conjunction with a chute in which the cross section is so designed that the logs will tend to move toward the lower inner portion of the disk and the tangential arrangement of the knives operating in conjunction with the shape of the chute tends to force the logs in the chute to a position as near as possible to the axis of the disk. This will insure the simultaneous operation of a plurality of knives on the log since the portions of the knives nearer the disk axis are closer together than the outer portions thereof. In other words, the knives as mounted diverge toward the periphery of the disk. The invention also includes a stepped construction of knife which operates to cut chips of uniform width from the log.

Further details of the invention will appear from the following description.

In the particular embodiment of the invention illustrated in the drawing, the chipper comprises a frame 10 mounted on a base 11 and provided with suitable bearings for supporting a shaft 12 on which is mounted the chipper disk 13. The disk 13 has formed therein a plurality of slots 14 and in each slot there is mounted a knife 15.

Each knife is adjustable by means of a screw 16 and is locked in adjusted position by a bolt 17.

As shown particularly in Fig. 1, the knives are arranged and the slots are so formed that the cutting edges of the knives are disposed tangentially to a circle C having the axis X of the shaft 12 as its center.

By means of the tangential arrangement of the knives the engagement of a knife with a log in the chute tends to draw the log toward the axis X of the shaft 12. From the showing in Fig. 1 it will be noted that the knives diverge toward the periphery of the disk and therefore the portions of the knives nearer the axis are closer together than the outer portions thereof. Because of this condition it is desirable to have the knives engage the log as close as possible to the axis X, thereby insuring the simultaneous engagement of a plurality of knives with the log.

In order to further promote the condition described in the preceding paragraph, the chute 20 which has its longitudinal axis and discharge end offset from the axis X of the cutter, is so designed that the bottom 21 slopes downwardly and provides a pocket 22 for receiving the logs which are moved toward or into the pocket 22 by the action of the knives thereon. The downward sloping bottom and pocket at the discharge end of the chute are formed by the bed knife 25.

Figs. 3, 4 and 5 show a modified form of knife which may be used to advantage with the chipper illustrated in Figs. 1 and 2. This knife has a serrated cutting edge 26 formed by a plurality of ledges 27. These ledges form in effect a plurality of independent cutting knives, each of which cuts a uniform width of chip and the use of this knife insures uniform chips. From the illustration in Fig. 5 it will be noted that each ledge 27 has its outer or cutting edge disposed in a different plane from the plane of the other edge and one end of each step or ledge is disposed in a different plane from the other end.

Fig. 1 illustrates in dotted lines various sizes of logs in the chute 20 and it will be obvious from the foregoing description and from the illustration in the drawings that the chipper construction described insures the simultaneous engagement of a plurality of knives in the cutting operation on the logs regardless of the size of the log. As above stated, this is due to the fact that the log being cut is moved as near as possible to the axis of the disk. Furthermore, by the use of the knife shown in Figs. 3, 4 and 5 a uniform width of cut or chip will be insured.

Although certain specific embodiments of the invention have been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit and scope of the invention, as expressed in the following claims.

What I claim is:

1. A log chipper of the type consisting of a disk having a plurality of openings therethrough, a cutting knife adjacent each opening having its cutting edge disposed in a plane offset from the disk axis and a downwardly inclined chute for feeding logs to the knives, in which the lower surface of the chute is inclined downwardly transversely toward the disk axis, the lowest point in said lower surface being disposed at the side of the chute nearest the disk axis whereby the logs in the chute will be moved by gravity and by the action of the disk knives toward the disk axis.

2. A log chipper as set forth in claim 1 in which the lower end of the lower surface of the chute is formed by a stationary knife which conforms in shape to the lower surface of the chute and forms a continuation thereof.

3. A log chipper as defined in claim 1 in which the knives are spaced on the disk a distance less than the distance between the top and bottom surfaces of the chute so that a plurality of knives will be simultaneously disposed opposite and will overlap the discharge end of the chute.

PETER N. OTTERSLAND.