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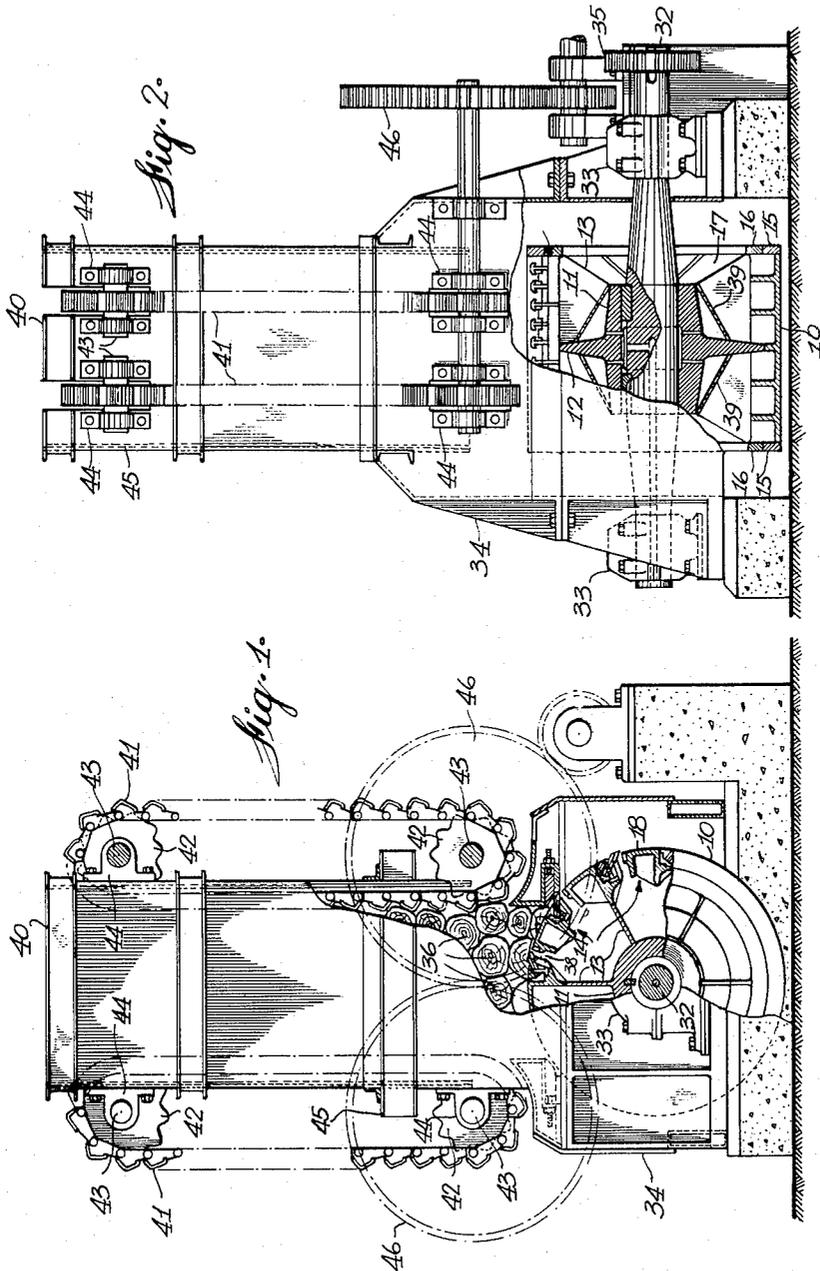
T. B. LITTLE ETAL

3,209,801

WOOD CHIP PRODUCING APPARATUS

Original Filed Dec. 1, 1958

2 Sheets-Sheet 1



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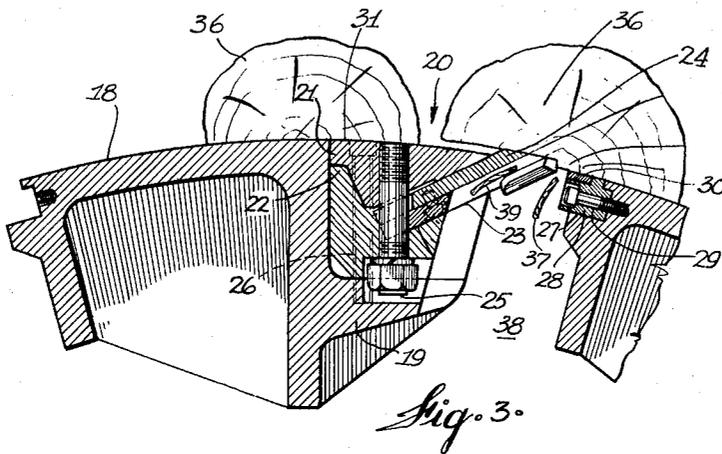
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## WOOD CHIP PRODUCING APPARATUS

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Original application Dec. 1, 1958, Ser. No. 777,494.

Divided and this application Feb. 15, 1963, Ser.

No. 258,825

2 Claims. (Cl. 144—172)

This patent application is a division of a co-pending parent application Ser. No. 777,494, now abandoned, for: Wood Chips and Production Thereof, filed December 1, 1958 of which the present applicants were co-inventors, and applicants are entitled to the benefit of the filing date of this parent case for the subject matter hereof.

In the said copending application, there is described an apparatus wherein a plurality of knife assemblies are mounted on the cylindrical surface of a drum mounted for rotation about its axis. Logs are fed onto the cylindrical surface of the drum and, on rotation of the drum, the knife assemblies cut chips from the logs.

It is, of course, highly desirable to provide a structure which will enable the produced chips to be collected in a convenient and practical manner for subsequent treatment. Drum type chippers are old in general and in some such chippers, chip-receiving chambers are provided in the interior of the drum but, so far as applicants are aware, no satisfactory means of discharging chips from these chambers have been provided.

It is an object of this invention to provide a drum type of chipping apparatus of relatively simple construction wherein the chips produced may be collected in the drum and discharged from each end of the drum in a simple, effective, and positive manner.

The invention will be described with reference to the accompanying drawing, in which:

FIGURE 1 is a side elevation, partly in section, of a machine in accordance with the invention,

FIGURE 2 is an end elevation, partly in section, of the machine shown in FIGURE 1, and

FIGURE 3 is an enlarged sectional end elevation of a portion of the drum.

Referring to the drawing, a drum 10 includes an axial hub 11 having a web, disc or supporting member 12 fixed thereto midway between the ends thereof and extending radially therefrom. Also radially extending from the hub on each side of the disc 12 are a plurality of imperforate spider arms or plates 13 and fixed to the outer edges of the web and arms are a plurality of axially extending circumferentially-spaced knife assembly supports 14. End rings 15 and 16 are fixed to the ends of the supports 14 and define an axial opening 17 at each end of the drum. The diameter of each opening 17 is preferably the major portion of the overall diameter of the drum.

Each support 14 has an outer arcuate surface 18 extending substantially from end to end of the drum and constituting a section of a cylindrical outer surface of the drum. Along one edge of the surface 18, support 14 has a recessed longitudinally extending shoulder 19 on which is arranged to be seated a knife assembly 20. As shown, assembly 20 has two clamping members 21 and 22 between which are clamped a plurality of chip-forming tools 23 and a slabbing knife 24, such as are described in copending application Serial No. 777,494. The members 21 and 22 are clamped together by means of bolts 25 and the assembly is secured to the shoulder 19 as by bolts 26.

It will be observed that the cutting edges of tools 23 and knife 24 are disposed in the space between adjacent supports 14.

Along the other longitudinal edge of each support 14 is a recessed shoulder 27 on which is mounted an anvil member 28 secured to the support as by screws 29 and having an anvil 30 disposed slightly forwardly of the cutting edges of the tool 23 and knife 24 in the adjacent support.

Clamp member 21 has an outer arcuate surface 31 constituting a continuation of surface 18 and a portion of the cylindrical drum surface.

The drum described is mounted for rotation about a horizontal axis as by means of a shaft 32 to which hub 11 is keyed and which extends through the open ends of the drum and is journaled in bearings 33 mounted in a main frame 34. The shaft and drum are driven as by means of a sprocket 35 on the shaft.

The cutting edges of tools 23 and knife 24 are disposed slightly outwardly of the cylindrical drum surface whereby, when logs 36 are engaged by such surface, these cutting edges will produce chips therefrom. Chips 37, as produced by tools 23, will move downwardly through the space between the cutting edges of tools 23 and anvil 30 into a broad chip-receiving passage 38 between each pair of supports 14. Chips 39, as produced by knife 24, will move downwardly through a space between tools 23 and knife 24 into the passage 38.

The axial extent of the hub 11 is preferably the major portion of the axis of the drum. Thus, each end of the hub terminates inwardly of but in general proximity to the adjacent open end of the drum. The outer edge of each arm 13 extends from the end of the hub to ring 16 defining the end of the drum.

A frusto-conical baffle 39 may be provided and, as shown, joins each end of hub 11 and web 12 at a point adjacent the outer periphery of the web. It will be apparent that the baffle is interrupted by the arms 13 and that the baffle provides a surface of gradually decreasing diameter from disc 12 to the end of the drum. It will also be apparent that the chip-receiving passages 38 are defined by arms 13, which constitute said walls thereof, and baffle 39 constituting the bottom wall thereof. Thus, chips falling into these passages will be directed out of each open end of the drum by the baffles 39. Preferably, as shown, the portion of the shaft 32 extending outwardly through the end of the drum is of gradually decreasing diameter.

Means for feeding logs onto the top of the revolving drum for engagement by the moving knife assemblies thereon may comprise any suitable device. That shown by way of example comprises a feed hopper 40, the sides of which are constituted by a pair of travelling chains 41. Each chain 41 is carried by vertically aligned sprockets 42 mounted on shafts 43. Shafts 43 are supported in bearings 44 mounted in frame 45. The lower sprockets of each pair are driven by gears 46 in opposite directions. Thus, the inner travelling portions of the chain move downwardly to feed logs 36 downwardly onto the drum. It will be observed that the logs are disposed with their axes parallel to the axis of the drum.

We claim:

1. Apparatus for producing wood chips which comprises a shaft, a hub mounted on said shaft, a disc mounted on said hub and extending radially from the mid-section thereof, a plurality of spaced plates extending radially from said hub on each side of said disc and defining chip-receiving passages therebetween, a knife assembly support mounted on the radially outer edge of each said plate and on the periphery of said disc, each said support having an arcuate surface, a drum defined in part by said supports and having a cylindrical external surface defined in part by said arcuate surfaces, said hub having each of its ends terminating inwardly of the adjacent end of said drum,

3

said drum having in each end thereof a chip discharge opening leading from said passages and an annular end surface defining said opening, said shaft extending through said openings and said openings being otherwise unobstructed, the area of each said opening constituting the major portion of the area of the space enclosed by the overall diameter of said drum, each said plate having a free edge extending from the end of said hub towards said end surface of said drum, said free edge being inwardly inclined with respect to said end surface, and a knife assembly mounted on each of said supports, said cylindrical drum surface having chip-receiving openings therein leading to said chip-receiving passages.

4

2. Apparatus for producing wood chips as defined in claim 1, including a chip-directing baffle disposed in each said chip-receiving passage, each said baffle extending from one to another of said plates, and being inclined from said disc to the adjacent end edge of said hub.

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