The rotary ring of a log barker has a flaring mouth carrying limb-cutting bits in radial planes. Hooked ends of swinging arms rotated around a log as it is moved lengthwise scrape off the bark. Bark and limb pieces fall into a hog having stationary shearing bars cooperating with rotary shearing bars carried above a plate rotating about a vertical axis. Hogged material dropping through apertures in the plate is swept out of the casing by vanes carried by the rotor.

A principal object of the invention is to comminute discrete fragments of bark and limb refuse removed from a log passing through a barker which can be spread as a mulch or transported readily for disposal.

An additional object is to remove limbs from logs being barked more readily and effectively with less interference with the barking operation than has been experienced previously.

Another object is to remove bark and limb refuse effectively from a log barker so as to eliminate the necessity of cleaning the barker periodically.

It is also an object to utilize the present mechanism in lieu of a refuse conveyor located beneath a log barker. More particularly, the invention relates to an improved type of limb and knot paring mechanism having inclined bits with an obtuse-angled cutting edge. A refuse hog beneath the barker includes a bridge carrying stationary cutting bars offset from radial positions toward approaching rotary shearing bars, the shearing edges of which rotate preferably are offset forward in their direction of rotation from radii of the hog rotor. The hogged material drops through apertures in the hog rotor immediately ahead of the rotary shearing bars. Radial vanes carried by the rotor sweep the hogged material around the lower portion of the rotor and out through a tangentially-located discharge port.

FIG. 1 is a longitudinal vertical section through a log barker and refuse-reducing mechanism of the present invention.

FIG. 2 is an elevation of the barker ring assembly viewed from the discharge side, with parts broken away, and FIG. 3 is a corresponding elevation of the barker ring assembly viewed from the feed side.

FIG. 4 is an enlarged vertical longitudinal section through the barker ring assembly.

FIG. 5 is a detail bottom plan of a portion of a limb cutting bit taken on line 5—5 of FIG. 4, FIG. 6 is a detail section on line 6—6 of FIG. 5, and FIG. 7 is a section on line 7—7 of FIG. 5.

FIG. 8 is a horizontal section taken along line 8—8 of FIG. 1, showing the refuse hog.
slope of the inner face of collar 12. Such angle preferably is approximately 125 degrees.

As a log L is fed by the conveyor 1 into the mouth of the barker ring as shown in FIG. 1, the cutting edges 15a and 15b will engage and trim off any branch stubs or other protuberances projecting outward to a distance beyond the circle defined cooperatively by the cutting edges 15b of the several bits. A sufficient number of these bits should be provided to cut such projections effectively, and sixteen of such bits has been found to be a satisfactory number.

Disposition of the lengths of the cutting bits substantially in radial planes of the Barker rotor parallel to the axis of the rotor provides a strong cutting end, and one which does an effective cutting job. In particular, a long cutting edge is afforded by arranging the cutting edge sections 15a and 15b at an obtuse angle, as shown best in FIG. 6, instead of the cutting edge sections forming a right angle like the cutting edge sections of the cutter bits shown in the prior Nicholson Pat. 2,802,492.

The limb refuse cut by the bits 13 and the bark refuse scraped from the log by the barker arms in the form of discrete fragments 8 falls into the circular pit 16 shown in FIGS. 1 and 8 which is located directly beneath the barker. Across the lower portion of this pit extends a bridge 17 which may be in the form of a channel having its upper edge extending upwardly. This bridge preferably extends diametrically across the pit so that it serves to support a bearing for the upper end of an upright shaft 18 located centrally on the pit. This shaft carries a hub 19 on which is mounted a rotor disk 20 of a hog.

The upright shaft 18 carries a pulley 21 which is connected by several V-belts 22 to a drive pulley 23. This drive pulley can be driven by any suitable drive mechanism such as represented by a shaft 24. The size of the pulleys 21 and 23 will be selected in accordance with the speed relationship of the drive shaft 24 and at the speed at which it is desired to have the hog rotor rotate.

On opposite sides and opposite ends of the bridge 17 are mounted stationary shearing bars 25, the lower edges of which constitute shearing edges. Moveable shearing bars 26 are carried by the rotor plate 20 in positions to coact with the stationary shearing bars 25 as the rotor rotates. In order to effect a slicing relationship between the movable and stationary shearing bars, such moveable and stationary shearing bars are mounted so that the shearing edge of each moving bar approaches the shearing edge of a stationary bar at an acute angle rather than parallel to the shearing edge of the stationary bar.

To attain such acute-angled relationship of the shearing-bar edges, the bridge 17 is made of substantial width and the stationary shearing bars are mounted chordwise on the edges of the bridge toward the approaching movable shearing bars 26. While such movable shearing bars are disposed substantially radially of the rotor disk 20, their shearing edges are shown in FIG. 8 as being located somewhat inward, in the direction of rotor rotation, of the radius which passes lengthwise through the bar, in each instance.

Consequently, when the shearing edges of a movable bar and a stationary bar move into shearing relationship as shown in FIG. 9, such edges are disposed at an acute angle.

The rotor plate 20 is spaced downward somewhat from the lower shearing edges of the stationary shearing bars 25 as shown in FIG. 1. Immediately ahead of each movable shearing bar 26, the rotor plate 20 has a slot 27 through it for passage of hogged waste material from above such plate down into the lower portion of the hog. Beneath each movable shearing bar 26 is a vane 28 extending radially of the rotor, which acts to sweep the hogged waste material rotationally within the casing of the hog including an upright circumferential wall 29, preferably of considerably greater extent than the wall of the pit 16, a bottom wall 30 and an annular top wall 31 bridging between the pit and the circumferential wall 2 of the hog.

The number of movable shearing blades and vanes and the speed of their rotation are not critical, it is preferred that there be from three to six of such shearing bars and vanes, four being shown in the drawings as preferred. The speed of rotation of the rotor should be sufficiently great as to provide an effective quick sweeping action of the waste material into the vane and into the pit and then into the pit of the hog.

While the air flow through the hog, discrete bark and limb refuse fragments dropping into the hog onto plate 20 is air-borne to a greater or lesser extent. Since such refuse can only pass through the rotor plate 20 by way of the slots 27 immediately ahead of the moving shearing bars 26, the current of air will tend to blow the waste material fragments from the surface of plate 20 against the leading sides of such bars, to feed the discrete wood refuse fragments between the cooking stationary shearing bars 25 and rotary shearing bars 26. Also, rotational movement of the bars 26 will tend to move them against material falling into the hog. The combination of these actions enables the moving shearing bars to force at least most of the waste material against the stationary shearing bars to reduce the size of the discrete wood refuse fragments farther before it drops through the slots 27. Consequently, the waste material is hogged sufficiently fine so that it can be propelled readily from the hog by the vanes 28 through the discharge opening 32, and such hogged material will be suitable for use as a mulch or for other disposal, such as for fuel.

I claim:

1. A refuse-reducing mechanism for a log barker comprising a hog including an upwardly open pit beneath the barker receiving refuse from the barker, a rotor in said pit including a rotary plate having elongated slots therein spaced circumferentially of said plate and having their lengths extending radially of said plate, means mounting said rotor for rotation about an upright axis, moving shearing bars carried by said plate alongside the edges of said slots trailing with respect to the direction of rotor rotation, a stationary shearing bar mounted stationarily relative to said rotor in a position for movement of said moving shearing bars relative thereto to reduce further discrete wood refuse fragments falling into said pit from the log barker, said plate being positioned adjacent to said stationary shearing bar for feeding discrete wood refuse fragments between said moving shearing bars and said stationary shearing bar, and blower means effecting movement of a current of air from above said plate downward through said plate slots into the portion of said pit below said plate.

2. A refuse-reducing mechanism for a log barker comprising a hog including a pit beneath the barker including an opening receiving refuse from the barker, a rotor in
said pit, means mounting said rotor for rotation about an upright axis, moving shearing bars carried by said rotor, bridge means extending diametrically across the opening to said pit, a stationary shearing bar mounted on one edge of said bridge means offset from a radius of said rotor toward said moving shearing bars approaching said stationary shearing bar for movement of said moving shearing bars relative to said stationary shearing bar to reduce further discrete wood refuse fragments falling into said pit from the log barker, and means for feeding discrete wood refuse fragments between said moving shearing bars and said stationary shearing bar.