

Recently Developed Barking Machinery

by

C. A. Randall ✓

J. D. Ross /



Report No. E-1

October 1953

OREGON FOREST PRODUCTS LABORATORY

State Board of Forestry and School of Forestry,
Oregon State College Cooperating
Corvallis

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Table of Contents

	<u>Page</u>
Introduction	1
Need for barking equipment	2
Principles of barking machinery.	3
Classification of barkers.	3
Present status of barkers.	4
Description of barking machines.	5
Slab and edging barkers.	6
Pole, post, piling, pulpwood barkers	10
Sawlog and peeler log barkers.	25
Illustrations.	43
Bibliography	44

INTRODUCTION

The growing interest in barking and barking equipment has prompted The Oregon Forest Products Laboratory to survey recent developments in this field. It is the purpose of this survey to offer such information as may be useful in the planning stage of barker installations.

Comparisons of individual machines are not made. It should be understood that each has its own advantages and disadvantages, and how well these can meet individual plant requirements can best be determined by dealing directly with the manufacturers.

It should also be pointed out that machine prices fluctuate, and their capacities and production rates may vary greatly depending on operator skill and average log diameter.

Some of the earlier types of barking machines are not included in the text of this report since they cannot be classified as recent developments. For the most part, these are already well known to industry, and are referred to in the classified bibliography. They include the Thorne Pulp Barker (14)*, Waterous Buzz Barker (3, 14), Waterous Disk Barker (3), and Waterous Drum Barker (3).

Two experimental hydraulic machines, the Burton (31) and the Rambo (34), were designed for use in Redwood barking. Although neither is manufactured commercially, they are worthy of comment and more detailed information may be obtained from cited references.

*Numbers in parentheses refer to the bibliography at the end of this publication.

NEED FOR BARKING EQUIPMENT

Although barking equipment may appear unjustifiably expensive, careful consideration of all factors involved usually proves its economic soundness. In the pulp and paper industry barking equipment is a necessity; in the pole and post industry it is essential in preparing the material for maximum effectiveness from preservative treatment; and in the lumber industry barking equipment may perform the manifold functions of (1) preparing logs for more efficient breakdown in sawing, (2) producing bark-free slabs and edgings for conversion into chips, (3) recovering bark in suitable condition for further processing, and (4) reducing labor loss because of saw sharpening, mill clean-up, and accidents.

It has been estimated that in many of the larger mills, barking ahead of the saw may add as much as \$1.00 to \$1.50 per M fbm, log scale, to returns from the sawmill operation. This estimate does not include possible additional returns by recovering chippable material from bark-free waste that usually goes to the burner, or recovery of valuable material from the bark.

A conservative estimate places the recovery of clean, solid wood, which may be picked from the conveyors of most average-size sawmills, at approximately 18 cubic feet per M fbm.

From the foregoing it is apparent that there is not only a need for barking equipment, but that it may also be essential to increased profits.

PRINCIPLES OF BARKING MACHINES

All barking machines now commercially available make use of the following principles, or combinations thereof, to remove bark from logs:

1. Rotating or stationary knives
2. Hydraulic abrasion
3. Mechanical abrasion
4. Frictional or impact forces

CLASSIFICATION OF BARKERS

While most classifications of barking equipment have been based on the mechanics of the machines, it seems logical that a functional division would be more valuable to potential users of the machinery.

For this reason, the descriptions of the various barkers are arranged in the following functional classification:

1. Slab and edging barkers
2. Pole, post, piling, or pulpwood barkers
3. Sawlog and peeler log barkers

It is apparent that some overlapping may occur between divisions 2 and 3.

PRESENT STATUS OF BARKERS

This compilation of available barking machinery suggests the following conclusions:

- (1) The field of post, pole, piling and pulpwood barking has the largest array of equipment and seemingly most of the problems encountered in this field have been solved. Generally speaking, the machinery does a good job of barking, and the initial costs are not unreasonable.
- (2) It is interesting to note that, although use of large drum barkers has declined in recent years, there are several new developments in small, portable machines of this type. The Tennessee Valley Authority's portable-drum (page 22), and the Murco, Adams-Clark fixed-drum barker (page 16), are machines of this type. Both may be classified as woods barkers and are strides toward greater mobility.
- (3) Slab barkers have been somewhat neglected and probably warrant more attention, provided a machine can be manufactured in the low-cost field. This would provide smaller mills with a means of removing bark from slabs and edgings which at present are being sent to the burner.
- (4) Large-log barking is the latest development in the field, and for the most part is peculiar to the Pacific Coast. Several successful hydraulic machines are being used in large-log operations, both for pulp and for lumber. However, the high initial cost of most of these installations restricts their use to larger mills.
- (5) Emphasis at present is on removal of bark in any way possible to enable better utilization of wood. Where further use of the bark is contemplated, some modifications may be necessary.

DESCRIPTION OF BARKING MACHINES

The following machine descriptions are deliberately brief, since it is believed that the individual manufacturers should be consulted for complete information. Efforts are made, however, to give manufacturer's names and addresses, basic principles of each machine, and approximate capacities and costs. Several barkers listed are still in the experimental stage, but are included since they may soon be in production.

SLAB AND EDGING BARKERS

	<u>Page</u>
1. Allis-Chalmers Hydraulic Slab Barker	7
2. Puget Sound Hydraulic Slab Barker	7
3. Sumner Improved Hydraulic Slab Barker	8
4. Waterous Buzz Barker (Mechanical) (See Introduction).	1

Allis-Chalmers Hydraulic Slab Barker

Manufactured by: The Canadian Allis-Chalmers Manufacturing Company, Lachine, P. Q., and Sumner Iron Works Ltd., Vancouver, B. C.

Designed to: Bark slabs having 12-inch minimum and 30-inch maximum widths, a minimum length of 2 feet, and not over 10 inches thick.

Price: \$14,000 (1951) excluding feedworks, drive, pump, and electric motor, fob manufacturer.

Operation: Bed chains feed the slab into a steel-enclosed compartment to pressure rolls where either a single oscillating jet or a battery of nozzles removes the bark.

Nozzle pressure-- 1200 to 1400 psi
 Pump motor (900 hp)-- 800 gpm
 Conveyor drive (10 hp)-- feeds to machine; output capacity of 5 cords, or approximately 800 linear feet, per hour.

Barker installations: (on the West Coast)

Simpson Logging Company, Shelton, Washington
 (2, 3, 20)

Puget Sound Pulp and Timber Company Slab Barker

Manufactured by: The Puget Sound Timber Company (for own use), Bellingham, Washington, and Sumner Iron Works. Sold to Canadian Forest Products (1950)

Designed to: Bark slabs 12 inches wide and not less than 2 feet long.

Price: No figures available.

Operation: Slab is fed bark side up from a conveyor to powered bed and hold-down rolls which pass the slab beneath three hydraulic jets.

Nozzle pressure-- 1100 psi

Pump - - - - - 6-stage Worthington

Pump motor- - - 400 hp

Capacity- - - - - 60 to 180 linear feet per minute, or
approximately 5 cords per hour.

Crew- - - - - 1 man

Installations on West Coast: Puget Sound Pulp and Timber Company,
Bellingham, Washington

Weyerhaeuser, Everett, Washington

(50)

Sumner Improved Hydraulic Slab Barker

Manufactured by: The Sumner Iron Works, P.O. Box 1006, Everett, Washington.

Designed to: Bark slabs up to 30 inches thick.

Price: \$14,000 exclusive of pump, pump motor, and drive for feed chain. \$18,500 complete with controls. \$20,000 for new design (1953).

Operation: Slabs with bark side up are carried into, and through, a welded steel housing, 16 feet long and 5 feet wide, on six strands of C131 bed chain. Driven pressure chains in front of the oscillating nozzle hold the slab down during the barking process.

Nozzle Pressure - - - - - 1500 psi
 Feed works - - - - - Should operate at from
 75 to 150 fpm
 Pump - - - - - -600 U.S. gpm
 Power - - - - - Pump motor 600 hp
 Nozzle drive 5 hp
 Feed Rate- - - - - -75 to 150 fpm
 Capacity - - - - - -12 to 15 cords per hour
 Crew - - - - - -1 operator, plus
 optional assistant

Installations on West Coast (January 1952):

Bloedel, Stewart & Welch, Ltd.	Port Alberni,	Port Alberni, B.C.
Canadian Forest Products Ltd.	Eburne division,	Vancouver, B.C.
*Potlatch Forests, Inc.,		Potlatch, Idaho
*Potlatch Forests, Inc.,		Coeur d'Alene, Idaho
Rayonier, Inc.,		Hoquiam, Washington
Soundview Pulp Co.,		Everett, Washington
St. Regis Paper Co.,		Tacoma, Washington
Weyerhaeuser Timber Co.,	Pulp division,	Everett, Washington
Weyerhaeuser Timber Co.,	Pulp division,	Springfield, Oregon

*Oscillating nozzle machines
 (3, 20, 60)

POST, POLE, AND PULFWOOD BARKERS

	<u>Page</u>
1. Allis-Chalmers Stream Barker	11
2. Andersson-Soderhamn Barker (see sawlog barkers).	26
3. Astrom Chain Barker.	12
4. Burton Hydraulic Barker (see introduction)	1
5. Crouse Portable Rosser	13
6. Crown-Zellerbach Hydraulic Barker.	14
7. Effurd Hurricane Post Peeling Machine.	15
8. Hansel Ring Barker (see sawlog barkers).	35
9. Murco, Adams-Clark Fixed Drum Peeler	16
10. Nekoosa Portable Wood Peeler	17
11. Nelson Pole Shaver	18
12. Nicholson Rotobarker (see Sawlog-Peeler log barkers)	37
13. Sandy Hill "Peppy" Peeler.	19
14. Soderhamn D-3 Sawmill Barker	20
15. Thorne Barker (see introduction)	1
16. T V A Portable Drum Barker	22
17. T V A Tight Chain Post Peeler.	21
18. Waterous Disk Barker (see introduction).	1
19. Waterous Drum Barker (see introduction).	1
20. Waterous Friction Barker	23

Allis-Chalmers Streambarker

Manufactured by: Allis-Chalmers Company, Milwaukee, Wisconsin

Designed to: Bark pulpwood logs varying from 4- to 18-inch diameter, and from 4 to 5 feet long. (Capacity of improved Model "D" is 4- to 24-inch diameter and 2 to 8 feet long.)

Price: \$27,200, fob Milwaukee, Wisconsin. (Does not include 2 pumps, pipe between pumps and manifold, gearmotor or flared sheaves, starters, pumpmotors, etc.) (See Allis-Chalmers specifications).

Operation: Pulp logs are fed endwise into an intake cabinet where a special feeder chain equipped with buckhorn links, and a set of rolls, carries them to the crotch of 2 parallel bed rolls 24 inches in diameter and 10 feet long. One roll, fluted longitudinally, spins the log, while the other, bearing spiral flutes and turning in the same direction, feeds the log laterally beneath 3 high-velocity jets.

Nozzles-----3 nozzles, mounted in line above the bed rolls, operate from a single manifold.

Pumps-----750 gpm at 800 to 1200 psi (multiple-stage pump and booster)

Power-----480 hp (approximately)

Capacity-----Logs per hour-- 1000 four-foot logs, 5 to 8 inches in diameter. Cords per hour-- 11.1 (90 pieces of 6.5 inches average diameter per cord).

Crew-----One operator, plus optional assistants.

(3, 20, 49, 50, 60) (Fig. 5)

Installations on West Coast:

Rayonier, Inc.,
 Soundview Pulp Company,
 Weyerhaeuser Timber Company, Pulp Division,
 Weyerhaeuser Timber Company,

Seattle, Washington
 Everett, Washington
 Everett, Washington
 Longview, Washington

(3, 20, 49, 50, 60)

Astrom Chain Barker

Manufactured by: American Defibrator, Inc., 405 Lexington Avenue, New York
 17, New York.

Designed to: Bark small pulpwood logs and poles, and piling up to 15 inches in diameter (a 24-inch-diameter machine is being developed) with a minimum length of 8 feet.

Price: \$30,000 (approximately)

Operation: Bark is removed by a system of four chains suspended across the ends of two rotating drums, one within the other. As a log is fed in, and held from turning by a set of heavy rollers, the relative position of the drums is changed, tending to wrap the chains about the log. An abrading action then takes place as both drums rotate together about the log.

Operation Cost: Power, 30 hp (avg 2 kwh per cord)
 Chain --1/4-inch hardened steel in center
 Links replaced after peeling approximately 5,000
 seventeen-foot logs. Chain maintenance costs about 1/2 cent
 per cord peeled.

Capacity: Fourteen solid cords per hour of pieces averaging 10-inches in diameter and 15 feet long, or 150 logs per hour.

Crew: Minimum, 1 man; but 2 or 3 is usual crew.

Installations ~~Price Brothers, Ltd.~~:

Price Brothers, Ltd., Rimouski, Quebec, Canada

(3, 14, 60) (Fig. 2)

Crouse Portable Rosser

Manufactured by: Herbert L. Crouse, 22 Lane Street, Bangor, Maine.

Designed to: Bark pulpwood from 4 to 5 feet in length, but has been developed to handle 5- to 20-foot logs up to 32 inches in diameter.

Price: Ranges from approximately \$6,000 to \$9,000 fob car, Presque Isle, Maine.

Operation: The Crouse Rosser is equipped with a roller-type feed table from which the logs are loaded sidewise on to individually driven spur rollers that turn the log during the barking operation. The angle of these rollers may be varied to increase or decrease the feed rate. Bark is removed by a 10-inch-diameter planer head supported on the end of a floating ladder which is free to follow the log contour.

Cutterhead pressure on log - - - - - 150 pounds

Machine weight - - - - - 2500 pounds

Power - - - - - 10 to 12 hp

Capacity - - - - - 15 to 30 fpm

Crew - - - - - 3 or 4 men

Installations on the West Coast:

Kalispell, Montana

Sandpoint, Idaho

Weiser, Idaho

Several on West Coast not located (21 in all)

(3, 60) (Fig. 9)

Crown-Zellerbach Hydrobarker

Manufactured by: Sumner Iron Works, Everett, WashingtonDesigned to: Bark large pulpwoodPrice: Estimated cost \$70,000

Operation: Logs are lifted and centered between two lathe chucks. The nozzle carriage is located above the log, and supports the nozzle as it traverses the length of the latter much the same as a lathe tool might. The nozzle is lowered into position as rotation starts.

Nozzle pressure - - - - - 650 psi

Pump capacity - - - - - 500 gpm

Power - - - - - 1000 to 1200 hp

Capacity - - - - - 30 to 40 sec per log
 90 logs per hour; 18 in.
 diameter, 18 feet long

Crew - - - - - Operator and helper

Installations on West Coast:

Crown Zellerbach,	Port Townsend, Washington
Rayonier, Inc.,	Hoquiam, Washington
Rayonier, Inc.,	Port Angeles, Washington
Publishers Paper Co.,	Oregon City, Oregon

(3, 5, 8, 20, 60)

Efurd "Hurricane" Post Peeler

Manufactured by: Efurd Machine & Welding Company, Inc., Bossier City, LouisianaDesigned to: Peel posts, poles, mine props, etc., from 2 1/2 to 10 inches in diameter, and from 4 feet to 18 feet in length (12- to 14-inch diameters with loss of efficiency)

Price: \$3,516 (1952), with gasoline engine
 \$2,950 (1952), without engine
 \$385 additional for wheel-mounted unit

Operation: The post is loaded by placing one end on the two cogged bull wheels of the machine and the other on the supporting feed buggy which operates on rails. The bull wheels may be varied in pitch, and worm the post through beneath the floating cutterhead to the supporting off-bearing buggy. The cutter head consists of a single 6-inch unit which may be locked in position to prevent rounding off the ends of the post. Depth of cut is hydraulically controlled through adjustable shoes.

Power - - - - - 14 hp gas engine or
 15 hp electric motor

Capacity - - - - - 1000 to 1400 posts per 8-hour
day
24 to 30 cords per 8-hour day
15 to 17 cords (hardwood)

Weight - - - - - 3600 lbs (approximately)

Crew - - - - - 4 to 6 men

Installations on West Coast:

None

(3, 14, 60) (Fig. 11)

Murco Adams-Clark Portable Barker

Manufactured by: D. J. Murray Manufacturing Company, Wausaw, Wisconsin

Designed to: Bark pulpwood and posts from 3 to 14 inches in diameter
and from 48 to 110 inches in length.

Price: Depends on size -- 100-in.-capacity machine costs \$16,000,
fob Wausaw, Wisconsin.

Operation: This is a closed-type, non-rotating drum barker employing a
5-pocket rotor which turns inside the drum, causing a
tumbling action of the logs. Bark is removed by impact and
abrasion.

Power - - - - - 25 to 60 hp (depending on size)

Capacity - - - - - Available in 8 sizes

100-in. model holds 1/2 - 3/4 cord

2-6 minutes to peel charge, depending
on season and species.

Weight - - - - - 18,000 pounds

Crew - - - - - 3 to 4 men

Installations on West Coast:

None (Beginning production)

4 of these units have been built to date (March 12, 1953)

(27, 60)

Nekoosa Portable Peeler

Manufactured by: Nekoosa Foundry and Machine Works, Inc., Nekoosa, Wisconsin

Designed to: Bark pulpwood, poles and posts from 3- to 12-inch diameter and from 4 to 8 feet in length.

Price: \$12,500 (1952); includes truck with pneumatic tires, 10 lengths of portable conveyor, and a gasoline motor.

Operation: This is a trailer-mounted barker intended for woods barking of small logs which are fed to the machine by demountable conveyors. The logs then pass through a set of 3 rollers; a driven feed roll which turns the log and may be varied in pitch to change feed rate, an idler roll, and another driven roll carrying several sets of pivoted hammers that strike the log tangentially 36,000 times per minute to remove the bark.

Power - - - - - 30 1/2 hp (4-cylinder engine)

Capacity - - - - - from 40 to 60 cords per 8-hour day

6 to 7 cords per hour

Crew - - - - - 5 to 6 men

Installations on West Coast:

Puget Sound Pulp & Timber Co., Bellingham, Washington

(3, 14, 15, 40, 50, 60)

Nelson Pole Peeler

Manufactured by: Nelson Electric Manufacturing Company, 217 N. Detroit Street,
Tulsa, Oklahoma

Designed to: Bark poles and piling of 24-in. diameter by 65 ft long and
presently developed to bark saw logs up to 36 inches in
diameter. With slight modification, this machine is now
being produced as a log barker using conveyors in place of
tram cars for log feed (See Remarks, following page).

Price: \$12,075 (pole peeler)
\$12,075 (less tram cars and modified to bark sawlogs.)

Operation: This hydraulically controlled machine straddles a track on
which trams move the logs into and away from a set of float-
ing cutterheads (conveyor may be substituted for trams).
Two motors operate through a 4-speed drive to turn the log
and move it endwise. Each cutterhead is separately powered
as indicated.

Power - - - - - 1 - 15 hp (finishing head)
 1 - 25 hp (roughing head)
 Total -- 49 hp

Capacity- - - - - 5,000 - 7,000 lineal ft per day
(with conveyors) -- 50,000 board feet per 8-hour day

Weight - - - - - 16,000 pounds

Crew - - - - - 4 - one man can operate the machine
(automatic controls), 3 men to
assist. The log barker, equipped
with proper conveyor, may be
operated by one man.

Installations on West Coast:

Log Barking Machines:	Conally & Kroetch, Harrison, Idaho (1 machine)
	Potlatch Forests, Inc., Lewiston, Idaho (5 machines)

Pole Shavers:	Baxter Co. "Baxco", The Dalles, Oregon
	Cascade Pole Co., Tacoma, Washington
	Lichty Pole & Piling, Eugene, Oregon
	Long Bell Lumber Co., Longview, Washington
	McCormick & Baxter, Portland, Oregon & Stockton, Calif.
	National Creosoting Co., Oroville, California
	Pope & Talbot, St. Helens, Oregon
	Standard Pole & Piling, Albany, Oregon
	West Coast Wood Preserving Co., Seattle, Washington

Remarks:

The pole shaver has been converted to log barking through use of two or three simple modifications consisting of cutterhead V-belt guards; spacing log-turning mechanism to accommodate larger diameters; and constructing log conveyors to replace trams and track.

(14, 47, 60) (Fig. 6)

Sandy Hill "Peppy" Peeler

Manufactured by: The Sandy Hill Iron & Brass Works, Hudson Falls, New York.

Designed to: Bark pulpwood, posts, and small poles of from 3- to 20-in. diameter and approximately 4 feet long. Will handle poles 14 to 16 feet long having 10- to 12-inch diameters.

Price: \$4,868 (1953), less prime mover, fob Hudson Falls, New York.
\$5,333 complete with air-cooled gas engine.

Operation: This is a fixed-cutterhead machine sufficiently portable for woods operation. Posts are hand-fed endwise into the machine, where the swivel-mounted, hydraulically controlled feed sprocket is lowered to impart spin to the post during barking. This sprocket can be adjusted to increase or decrease feed rate while the posts pass above the rossing knives aided by a worm booster roll.

Power - - - - - 24 hp air-cooled Wisconsin engine

Capacity (softwoods)- - 2½ cords per hour (approximately)
Knives require sharpening after barking about 100 cords of clean wood.

Crew - - - - - 2 to 3 men

Installations on West Coast:

None (designed for smaller-diameter eastern species)

(3, 14, 15, 27, 60)(Fig. 12)

Soderhamn D-3 Sawmill Barker

Manufactured by: Soderhamn Machine Manufacturing Company, Talladega, Alabama

Designed to: Bark both soft and hardwoods having diameters from 5 to 30 inches and lengths from 8 to 20 feet. (Diameters over 30 inches on special order).

Price: \$12,950 (1953), fob Talladega, Alabama

Operation:

Mechanical-type machine readily installed in log haul or deck. Logs are fed to a motor-driven chain head by 3 pairs of 18-inch power-drive balls which may be swiveled to adjust rates of feed.

The barking mechanism travels on an overhead track and traverses the length of the log as it is turned.

Power - - - - either electric or air-cooled gasoline motors of 9 hp (each) as quoted. Two Model AHH, 3 5/8- by 4-inch Wisconsin Air-Cooled; 1 Berry Hydraulic Motor, Model 14-15B1-1750 rpm, p&i 1500.

Capacity - - Maximum feed rate 40 lineal feet per minute.
(New machine - No production figures quoted).

Crew - - - - One operator controls entire operation from central control panel.

Installations on West Coast:

None as yet. (New design)

Tight Chain Post Peeler
(Tennessee Valley Authority)

Manufactured by: (Commercial production of this machine must have approval of Tennessee Valley Authority.)

Designed to: Bark small poles and posts up to 5 or 6 inches in diameter (woods barking).

Construction Costs: \$100 All materials purchased new and cut to size
 150 Labor
 \$250 Approximate total cost to build

Operation: This is a cambium-rupturing machine in which 10 chains held in elastic tension by a peeling head, turning at about 800 rpm, beat and rub off the bark. Posts are hand fed, first one end and then the other coming into contact with the chains.

Machine cost per operating hour - - - - - about 18 cents

Power - - - - - 5 hp gas motor

Capacity - - - - - about 200 posts per 8-hour day

Crew - - - - - 1 or 2 men

Installations on West Coast:

Oregon Forest Products Laboratory, Corvallis, Oregon

(9, 60)

Portable Drum Post Peeler
 (Tennessee Valley Authority)

Manufactured by: (Commercial production of this machine must have approval of Tennessee Valley Authority.)

Designed to: Bark posts from 2 to 10 inches in diameter and from 6 to 10 feet in length.

Cost: \$150 all material purchased new and cut to size
 100 labor, 1 welder and 1 assistant (4 days)
 \$250 probable total cost to build

Operation:

This is a mechanical barker in which short logs are rolled and tossed about inside a revolving drum until the cambium layer is ruptured and the bark knocked off by impact and abrasion.

Space between the channel iron longitudinal members allows the bark to drop through during the process.

Feed - - - - - Machine is hand fed through open end.

Power - - - - - From power take-off of Jeep

Capacity - - - - - About 90 summer cut posts per hour,
at from 1.8 to 2.7 cents cost per post.

Crew - - - - - 2 men

Installations on West Coast:

None

(9, 60)

Waterous Friction Barker

Manufactured by: Waterous Ltd., Brantford, Ontario, Canada.

Designed to: Bark pulpwood up to 17 feet long.

Price: \$30,000 (1947)

Operation:

This is a friction-abrasion type barking operation which takes place in a V-shaped metal hopper holding about 60 logs at a time. Chain conveyors, extending across the bottom and up one side, impart a rolling motion to the logs until the bark is loosened and washed off by a water spray. As soon as logs are clean, they are allowed to be carried up and out of the hopper.

Power- - - - -175 hp (total)

Capacity - - - - - about 300 logs or 22 cords per hour

Crew - - - - -2 to 3 men

Installations on West Coast:

Canada - Matane, P. Q.

(14, 38, 50, 60) (Fig. 1)

SAWLOG AND PEELER LOG BARKERS

	<u>Page</u>
1. Andersson-Soderhamn Barker	26
2. Bamford-Premier Log Barker	27
3. Bellingham Hydraulic Log Barker.	29
4. Crown Zellerbach Hydraulic Log Barker.	(See pulpwood barkers, page 14)
5. Ederer Scraper-Type Barker	30
6. Globe Patented Peeler Barker	32
7. Hansel Hydraulic Ring Barker	35
8. Nelson Electric Log Barker	(See pole barkers, page 18)
9. Nicholson Roto Barker	37
10. Prentice Log Barker	38
11. Simons Hydraulic Log Barker	39
12. Weyerhaeuser Compression Barker	41
13. Weyerhaeuser Hydraulic Barker	42
14. Worthington Hydraulic Barker.	43

Andersson Log Barker

Manufactured by: Soderhamn Machine Manufacturing Co., Talladega, Alabama.

Designed to bark: Pulp and sawlogs

2
types

Type A: Stationary type designed to bark logs from 2 to 30 inches in diameter and 4 feet or more in length.

Type B: Portable type designed for logs from 3 to 12 inches in diameter, 4 feet and more in length.

Price (1952): Type A - Four Models:

16-inch diameter, \$21,800 26-inch diameter, \$27,700

20-inch diameter, \$25,100 30-inch diameter, \$28,700

Type B: One model, \$12,460

(See remarks on following page concerning recently developed Soderhamn Sawmill Barker D-3.)

Operation:

This mechanical-type barker consists of a steel housing which contains a rotating ring through which the logs are fed by four heavy rolls. A number of blunt tools, held within the ring, are forced against the log by air pressure to remove the bark. Logs are held from turning.

Type B uses centrifugal force and lever arms to apply pressure to the tools.

Power - - - - - Type A: 20 to 35 hp

Type B: 12-hp rotor; 6-hp conveyor

Maximum feed rates- - - Type A: 90 to 120 fpm

Type B: 60 fpm

Capacity - - - - - At maximum feed and 75 per cent efficiency:

5-inch average diameter logs-- 7 cords per hour

11-inch average diameter logs--36 cords per hour

15-inch average diameter logs--66 cords per hour

Crew- - - - - Type A: 1 man

Type B: May be operated without crew.

Installations on West Coast:

One machine in this country at present; Southern Lumber Company, Warren, Arkansas.

Recent Developments:

(New Soderhamn D-3 Sawmill barker)
(See post, pole & pulpwood barker-- Page 10)

(3, 14, 27, 60) (Fig. 10, 14)

Bamford Premier Log Barker

Manufactured by: Premier Gear and Machine Works, 17th and Thurman Streets,
Portland, Oregon.

Designed to: Bark large veneer logs. Series-50 will handle logs from 16- to
90-inch diameters and lengths from 78 to 110 inches.

Price: Depends on requirements of individual installations.

Operation:

This mechanical barker is of the lathe type in which the log is chucked between a head and tail stock that act as spindles for turning. Either a rosser head or a scraper head, or both, may be used in removing the bark. Tail spindle is air operated. Machine is of welded design throughout.

Power: Rossing Head - - - - - 25 hp 1800 rpm

Turning Motor(Syncrogear) 10 hp 100 rpm

Traverse Motor(Syncrogear) $1\frac{1}{2}$ hp 68 rpm

Capacity- -Adaptable for largest peeler logs

(3 to 5 minutes floor to floor.)

Crew - - -Operator and helper

Installations on West Coast:

Anderson Veneer Inc.,
Anderson, California

B. C. Forest Products,
Vancouver, B. C.

Arcata Plywood Co.,
Arcata, California

B. C. Forests Products,
Victoria, B. C.

Campbell McLean, Inc.,
Gold Beach, Oregon

Del Norte Veneer Co.,
Crescent City, California

Coquille Plywood, Inc.
Coquille, Oregon

Evans Products Company,
Roseburg, Oregon

Cottage Grove Plywood,
Cottage Grove, Oregon

Hedberg Veneer,
Harbor, Oregon

Lyons Veneer Division,
M & M Woodworking Company,
Lyons, Oregon

Stevenson Plywood Corp.
Stevenson, Washington

Western States Plywood Coop.,
Eugene, Oregon

(Fig. 8)

Bellingham Hydraulic Barker

Manufactured by: Sumner Iron Works, Everett, Washington

Vancouver, B. C.

Designed to bark: Heavy pulp and sawlogs from 8 to 44 feet long and from 6 to 10 feet in diameter.

Cost: From \$50,000 to \$80,000 (1953) includes log stops, loader and log bunkers (Pump works not included).

Operation: Logs to be barked are carried from the log slip on cross-transfer chains and kicked broadside onto the barker trunnion wheels which rotate the log at controlled speeds. A single overhead jet which may be raised and lowered or turned through 360 degrees (later models), traverses the length of the log to remove the bark. The barking cycle is completed when the log is kicked back onto the log slip. Feed works and nozzle carriage may be stopped to clean bark from around knots and in bark seams.

Power -- (estimated) 1200 hp supplying 1150 gpm at 1400 psi
1600 to 1800 hp (entire operation)

Capacity - - 4800 lineal feet per hour (may fluctuate depending on average log diameter)

Crew - - - - 1 operator

Installations:

Alaska Pine & Cellulose Ltd.,
Port Alice, B. C.

Publishers' Paper Company,
Oregon City, Oregon

Alaska Pine & Cellulose Ltd.,
Woodfibre, B. C.

Puget Sound Pulp & Timber Company,
Bellingham, Washington

Associated Pulp & Paper Mills, Ltd.,
Burnie, Tasmania

Rayonier, Inc., (Short log)
Hoquiam, Washington

Columbia Cellulose Co. Ltd.,
Prince Rupert, B. C.

Rayonier, Inc.,
Shelton, Washington

Columbia River Paper Mills,
Vancouver, Washington

*Scott Paper Company,
Coos Bay Division, Empire, Oregon

Crown Zellerbach Corporation,
Camas, Washington

*Union Lumber Co.,
Fort Bragg, California

Crown Zellerbach Corporation,
Port Townsend, Washington

Weyerhaeuser Timber Company,
Mill "B", Everett, Washington

Fibreboard Products, Inc.,
Antioch, California

*Weyerhaeuser Timber Company,
Mill "C", Everett, Washington

Ketchikan Pulp Company,
Ketchikan, Alaska

Weyerhaeuser Timber Company,
Enumclaw, Washington

Oregon Pulp & Paper Company,
Salem, Oregon

Weyerhaeuser Timber Company,
North Bend, Oregon

* On order but not yet shipped.

Remarks:

Recent modifications have reduced maintenance and improved efficiency.

- a. Nozzle rotation increased from 90 degrees to 360 degrees.
 - b. Flexible connections of original design required a number of hoses and approximately 64 individual connections in the water supply system. These were first reduced to 12 and at present are replaced by high-pressure steel swing joints.
- First hoseless machine at Enumclaw, Weyerhaeuser plant.

(1, 3, 20, 60)

Ederer Log Barker

Manufactured by: Ederer Engineering Company, 2931 First Avenue South, Seattle
4, Washington.

Designed to: Bark peeler logs

Price: No prices quoted. Each barker built to meet requirements of individual installations.

Operation: The Ederer barker is a mechanical scraper-type unit which consists of a hydraulically operated, heavy steel arm and scraper blade mounted on a combination infeed and crossfeed carriage. Cross carriage may also mount a dado head. The entire unit works in conjunction with air-operated chucks which turn the log while either or both heads move the bark. The carriage traverses the length of the log on heavy bed rolls powered by two heavy conveyor chains.

Air pressure - - - - - 100 pounds for most efficient
operation of air chucks. 60
pounds for scraper.

Capacity - - - - - Adaptable to any size log

Crew - - - - - 2 men

Installations on West Coast:

Associated Plywood Mills, Inc.,
Eugene,
Oregon.

Multnomah Plywood Corp.,
1500 S. W. Harbor Drive,
Portland, Oregon.

Associated Plywood Mills Inc.,
Willamina,
Oregon.

Northwest Door Company
1203 East D Street,
Tacoma, Washington.

Brookings Plywood Corp.,
Brookings,
Oregon.

Peninsula Plywood Corp.,
Port Angeles,
Washington.

Cascade Plywood Corp.,
Lebanon,
Oregon.

Paragon Plywood Corp.,
Crescent City,
California.

Elma Plywood Company,
Elma,
Washington.

South Fork Logging Co.,
Aberdeen,
Washington.

Gardiner Lumber Company,
Gardiner,
Oregon.

Springfield Plywood Co.,
Springfield,
Oregon.

Harbor Plywood Corp.,
Hoquiam,
Washington.

St. Paul & Tacoma Lumber Co.,
Olympia,
Washington.

Menasha Plywood Corp.,
North Bend,
Oregon.

United States Plywood Corp.,
4025 13th Avenue West,
Seattle, Washington.

Washington Veneer Company,
Olympia,
Washington

(3, 60)

Globe Peeler Barker

Manufactured by: Globe Machine Manufacturing Company, 301 E. 11th St.,
Tacoma, Washington.

Designed to: Bark peeler logs

Price: Depends upon customers' needs. May be as low as \$8,000 for
small, single-head machines, or up to \$30,000 for large
multiple-head machines.

Operation: The Globe is a mechanical barker manufactured in several types,
either separate from, or mounted with, driving and chucking
units of varying design as desired.

1. Rosser-head type (revolving knife head)
2. Scraper type with air cylinder
3. Roller-head type with air cylinder

4. Various combinations of other three. Log is lathe-mounted between 2 chucks, after which it is rotated and bark removed either by rosser head or forced off under compression or scraping action.

Power - - - -Rossing Head - - - 25 hp

Other- - - - - 29 1/2 hp

Capacity - - Barking of average peeler block requires from 4 to 5 minutes, floor to floor.

Spindle adjustment - 108-inch maximum, both spindles

Swing and diameter - 100-inch maximum, 14-inch minimum

Crew - - - - 2 men

Installations on West Coast:

Astoria Plywood Company,
British Columbia Forest Products,
Buffelen Manufacturing Company,
Calaveras Forest Products Corp.,
Calpella Plywood Company,
Canadian Forest Products Ltd.,
Cascades Plywood Corp.,
Edward Hines Lumber Company,
Elliott Bay Mill Company,
Evans Products Company,
Everett Plywood and Door Corp.,
Fruit Growers Supply Company,
Giustina Veneer Company,
Harbor Plywood Corporation,
Humboldt Plywood Corporation,
Kalpine Plywood Company,
Long Bell Lumber Company,
Lund Plywood and Mfg. Company,
Martin Brothers Box Company,
Myrtle Point Veneer Company,
North Pacific Plywood Inc.,
Northwest Door Company,
Potlatch Forests, Inc.,
St. Paul & Tacoma Lumber Company,
Shasta Plywood, Inc.,
Springfield Plywood Corporation,
Three Rivers Plywood & Timber Co.,

Astoria, Oregon
Vancouver, B. C.
Tacoma, Washington
San Andreas, California
Calpella, California
Vancouver, B. C.
Lebanon, Oregon
Westfir, Oregon
Seattle, Washington
Coos Bay, Oregon
Everett, Washington
Westwood, California
Eugene, Oregon
Aberdeen, Washington
Arcata, California
Klamath Falls, Oregon
Weed, California
Crescent City, California
Oakland, Oregon
Norway, Oregon
Tacoma, Washington
Tacoma, Washington
Lewiston, Idaho
Olympia, Washington
Anderson, California
Springfield, Oregon
Darrington, Washington

U. S. Plywood Corporation,
Walton Plywood Company,
Washington Veneer Corporation,
West Coast Plywood Co.,
Weyerhaeuser Timber Company,
Weyerhaeuser Timber Company,

Seattle, Washington
Everett, Washington
Olympia, Washington
Aberdeen, Washington
Longview, Washington
Springfield, Oregon

M and M Wood Working Companies:

Albany Plylock Corporation,
Eureka Plywood Company,
Idanha Veneer Company,
M and M Plywood Corporation,
The Plylock Corporation,

Albany, Oregon
Eureka, California
Idanha, Oregon
Longview, Washington
6507 N. Richmond
Portland 3, Oregon

Canadian Western Veneer Company

(3, 60) (Fig. 7)

Hansel Hydraulic Ring Barker

- Manufactured by: Hansel Engineering Company, Inc., 1500 Westlake Avenue North, Seattle 9, Washington, and Vancouver, B. C.
- Designed to: Bark pulpwood and sawlogs with diameters from 2 inches to 74 inches and lengths from 4 feet.
- Price: Depends on individual installation requirements. Generally speaking, the barker alone averages about \$1000 per inch of ring diameter. A complete installation may cost from \$250,000 to \$311,000.
- Operation: This is a compact hydraulic unit easily installed in line with the log slip. Logs may be carried through the rotating ring by either feed rolls or conveyor chain, while multiple jets remove the bark. Ring is adjustable through hydraulic controls both to center the log and move the entire unit short distances along length of log. Ring sizes are from 18 to 80 inches, inside diameters, including 9 standard sizes.
- Power: pump---800 hp (approx.) furnishing from 600 to 800 gpm at 1200 psi
ring---50 hp (for turning)
- Capacity:
- | <u>Size of avg log (fbm)</u> | <u>Vol peeled per day (fbm)</u> | <u>Cost per M fbm</u> |
|------------------------------|---------------------------------|-----------------------|
| 400 | 144,000 | \$ 3.94 |
| 600 | 216,000 | 2.63 |
| 800 | 288,000 | 1.97 |
| 1000 | 360,000 | 1.58 |
| 1200 | 432,000 | 1.31 |
- Crew - - - - - 4 to 6 men

Installations on West Coast:

(from Hansel Engineering Co, Inc.)

	<u>BARKER SIZE</u>
Bloedel Stewart & Welch, Port Alberni, Canada	60 inch
Bloedel Stewart & Welch, Port Alberni, Canada	36 inch
Canadian Forest Products, Eburne, Canada	60 inch
Canadian Forest Products, Eburne, Canada	36 inch
Crown-Zellerbach Corporation, Camas, Washington	30 inch
Crown-Zellerbach Corporation, West Linn, Washington	42 inch
International Paper Co., Natchez, Mississippi	Pulpwood Barker
Kirby Lumber Company, Silsbee, Texas	36 inch (two)
Pacific Mills, Ltd., Ocean Falls, Canada	42 inch
Pilot Rock Lumber Company, Pilot Rock, Oregon	48 inch
Potlatch Forests, Inc., Lewiston, Idaho	42 inch (two)
Potlatch Forests, Inc., Lewiston, Idaho	70 inch
Powell River Lumber Company, Canada	48 inch
Rayonier, Incorporated, Jessup, Georgia	Pulpwood Barker
St. Paul & Tacoma Lumber Company, Tacoma, Washington	60 inch
Weyerhaeuser Timber Company mills at:	
Springfield, Oregon	70 inch
Snoqualmie Falls, Washington	60 inch
Longview, Washington (Lumber Division)	48 inch
Longview, Washington (Pulp Division)	42 inch
Klamath Falls, Oregon	60 inch

Nicholson Roto Barker

Manufactured by: Nicholson Manufacturing Company, 5416 14th N. W., Seattle 7, Washington.

(Company also manufactures Nicholson Peeler Log Barker)

Designed to: Bark pulpwood, poles and sawlogs with diameters from 6 to 40 inches (modified to handle 60 inches), taking full tree lengths.

Price: \$50,000 to \$70,000 including all equipment, drives and controls.

Operation: The Nicholson is a mechanical unit which removes the bark from logs by means of air-actuated abraders. Heavy, fluted rolls feed logs to the barking mechanism where hold-down wheels under air pressure keep them from turning during the operation. The abraders revolve about the log and closely follow its contour through the action of a pneumatic mechanism. The entire machine is controlled by push buttons.

Power - - - - - 150 hp

Capacity - - - - - Above 125,000 fbm log scale, depending
on character of logs and feed rate
(from 20 to 60 feet per minute)

Crew - - - - - 2 men

Installations on West Coast:

Cascade Lumber Company, Yakima, Washington

Prentice Log Barker

Manufactured by: E. V. Prentice Company, 2303 N. Randolph Avenue, Portland 12,
Oregon

Designed to: Bark saw logs: minimum log diameter, 12 inches, minimum
length, 18 feet
maximum log diameter, 96 inches; logs up to
full tree lengths

Original design has been modified to bark redwood successfully.

Price: \$47,500 (1953); complete installation, including floats for
supporting machinery.

Operation: The Prentice is a mechanical, floating-cutter-head type machine
which barks the log while still in the pond. The log is
rotated and fed under the cutterhead by endless drive-chains
passed around the log with a slight off-set to give forward
motion. Complete operation is remotely controlled from a
central console. Fine adjustment of cutting depth is possible
through hydraulic guide shoes which rest on the log surface.
Refuse removal is made possible by a blower unit which draws
material from cutterheads.

Power as quoted - - - - - 223 hp, total

Capacity - - - - - typical output 118,560 fbm per
8 hours

<u>Output; M fbm</u>	<u>Cost of barking per M fbm</u>
50	\$ 2.39
60	1.99
70	1.71
80	1.45 (optimum)
90	1.33
100	1.20

(Prentice Log Barker, cont'd.)

Crew - - - - - 2 men (operator and helper)

Installations on West Coast:

Hammond Lumber Co., Eureka, California (redwood, 2 machines).

Ivory Pine Co., California (1 machine).

(3, 33, 60)

Simons Hydraulic Barker
(Rotary Head)

Manufactured by: Western Barkers, Ltd., 807 Holden Building, 16 E. Hastings
Street, Vancouver, B. C.

Designed to: Bark pulpwood and saw logs. Has been used successfully in
barking redwood in sizes ranging from 6 to 60 inches. Used
in South to bark gumwood.

Price: Estimated cost figures for 60-inch machine:

Barker - - - - - \$80,000 to \$90,000

Pump and drive - - - \$25,000

Control panel - - - \$ 1,500

Plus cost of equipment for log handling, water circulation
and power.

Operation: Barking is done by nozzles in 2 rotating heads turning about
460 rpm. The upper head is automatically adjustable to log
diameters. The lower head is fixed. Each head has 2 jets
inclined toward each other at from 14 degrees to 30 degrees

(Simons Hydraulic Barker, cont'd.)

which throw a cone of water as the log passes. Logs are not spun but may be indexed; and are carried on live rolls.

Barker sizes - - - - - 24 inch, 36 inch, 40 inch, 44 inch,
60 inch (log diameter)

Power - - - - - 1250 hp furnishing 1250 gpm at 1200
to 1300 psi

Capacity- - - - - should handle 50,000 fbm per hour (~~33-inch~~
log barked at about 90 lineal fpm)

Crew - - - - - Barker at Canadian White Pine runs
automatically without a crew. One
man usually.

(20, 35, 54)

Installations on West Coast:

British Columbia Forest Products, Victoria, Vancouver Island,
British Columbia

Canadian White Pine,
New Westminster, British Columbia

Canadian White Pine, "C" Mill,
Vancouver, British Columbia

Elk Falls Co. Ltd., Campbell River,
Vancouver Island, British Columbia

MacMillan & Bloedel, Chemainus Div.,
Vancouver Island, British Columbia

MacMillan & Bloedel, Pulp Division,
Harmac, Vancouver Island, British Columbia

Masonite Corporation,
Ukiah, California

(20, 35, 54)

Weyerhaeuser Compression Barker

Manufactured by: Non-commercial. Designed and patented by Robert Pauley and L. A. McCanna. Patent assigned to Weyerhaeuser Timber Company.

Designed to: Bark peeler logs. Recent tests prove it practical for use in barking redwood.

Cost: No cost data published.

Operation: Mechanical barker using a lathe to rotate the log while a pressure head consisting of 2 rollers applies sufficient force to rupture the cambium layer and force off the bark. Pressure head is readily removed to allow use of varying size rollers. The head and supporting frame traverse length of log.

Head Pressure - - - - - 75 psi in a 12-inch diameter cylinder
8,500 pounds force

Capacity - - - - - Using 30-inch diameter logs,
15 fpm assumed feed speed,
produces 207,000 fbm (approximately) per 8-hour shift

Crew - - - - - Probably 2 men

Installations on West Coast:

Plywood Plant, Weyerhaeuser Timber Company, Longview, Washington.

Springfield Plywood Plant, Springfield, Oregon.

Weyerhaeuser Hydraulic Barker

Manufactured by: Weyerhaeuser Timber Company, Longview, Washington (for own use).

Designed to: Bark sawlogs up to 9 feet in diameter; 26 feet long.

Cost: No cost figures published.

Operation: Conventional conveyor feeds logs to barker where it is indexed or rotated between passes of a single jet carried on a shotgun feed.

Power - - - - - Two 5-stage pumps supply 850 psi water and a 3-stage booster pump used for 1250 psi pressures. Each pump requires 500 hp.

Capacity - - - - - Average log barked in from 30 to 40 seconds.

Installations on West Coast:

Coos Bay Branch, Coos Bay, Oregon	1
Everett Lumber Division, Everett, Washington	2, *1 under construction
Everett Pulp Division, Everett, Washington	1
Klamath Falls Br., Klamath Falls, Oregon	1
Longview Lumber Division, Longview, Washington	2
Longview Pulp Division, Longview, Washington	1
Snoqualmie Falls Br., Snoqualmie Falls, Washington	1
Springfield Lumber Division, Springfield, Oregon	1
White River Branch, Enumclaw, Washington	1
TOTAL	11

(10, 20, 50, 51)

Worthington Whole Log Barker

Manufactured by: Worthington Pump and Machinery Corporation, 2616 Western Avenue, Seattle, Washington

Designed to bark: Saw logs

Price: No information

Operation: A reversible and variable-speed feeding system, composed of ribbed rolls, passes whole logs through a tri-segmented adjustable ring where multiple jets of water remove the bark. Of the 36 sets, only those needed to cover the log are used at one time. Ring segments are automatically adjusted to keep the nozzles 15 or 16 inches from the bark surface during barking.

Nozzles: 36 each. 1/4 by 3/4 inches delivering 160 gpm.

Pumps: 2 each. Provide 1200 to 1400 psi at velocities of 400 fps

Power: Pumps, each 1250 hp, plus additional power for feed.

Capacity: Large logs, 180 fpm

Crew: Operator

Installations on West Coast:

Soundview Pulp Co., Everett, Washington

St. Regis Paper Co., Tacoma, Washington

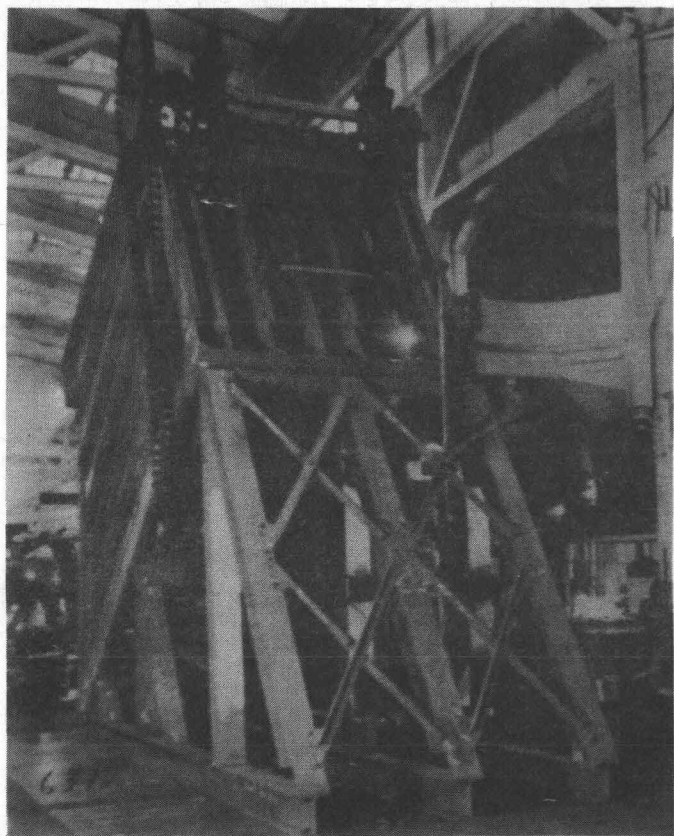


Fig. 1. Waterous whole log friction barker



Fig. 2. Astrom chain barker

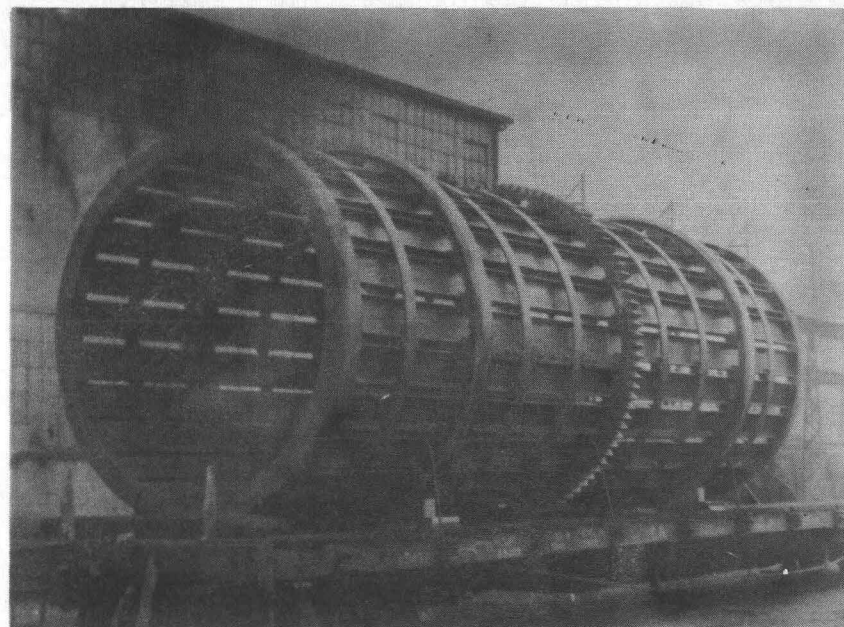


Fig. 3. Waterous drum barker

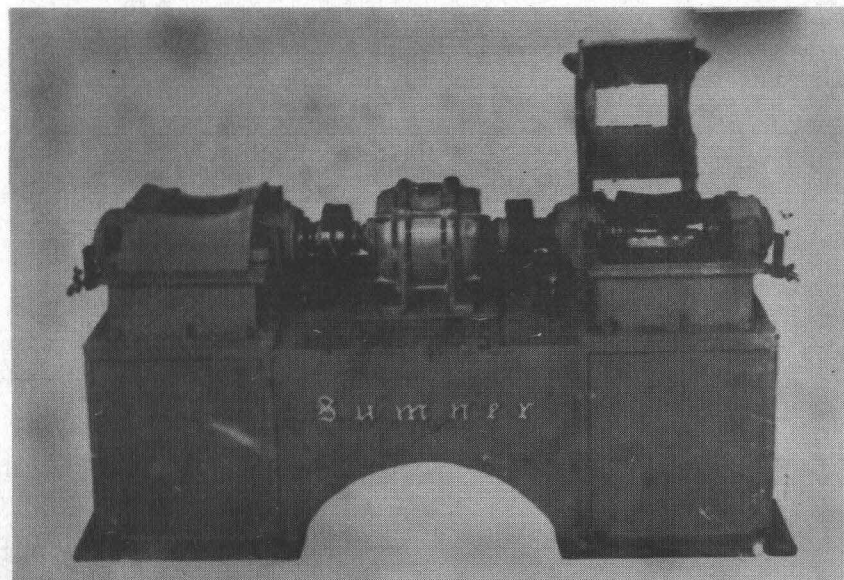


Fig. 4. Sumner slab barker

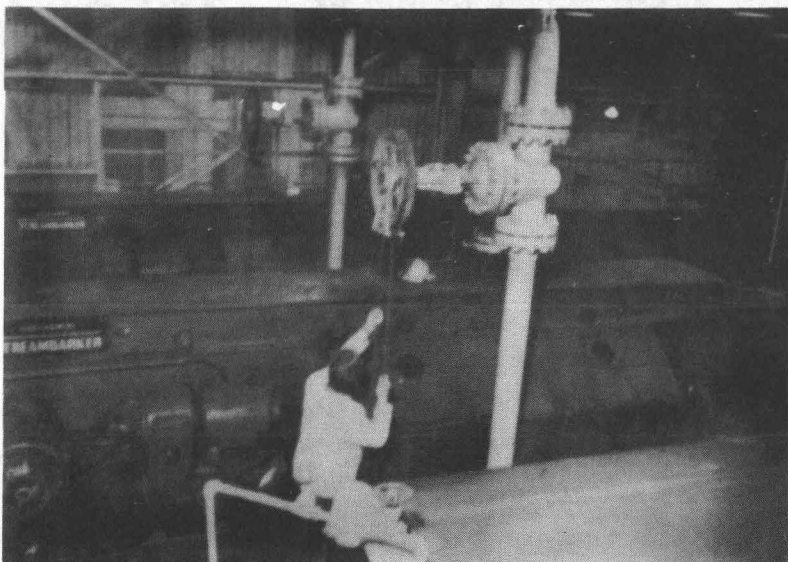


Fig. 5. Allis-Chalmers stream barker

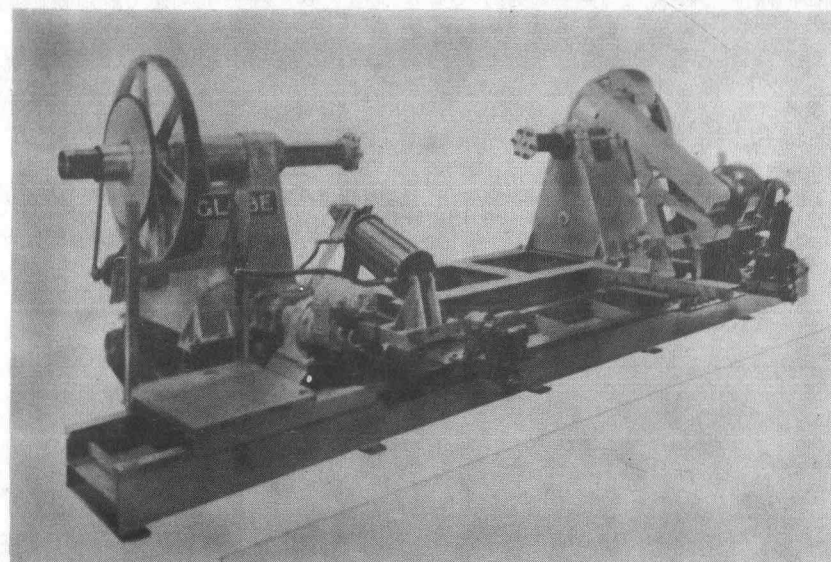


Fig. 7. Globe patented peeler barker

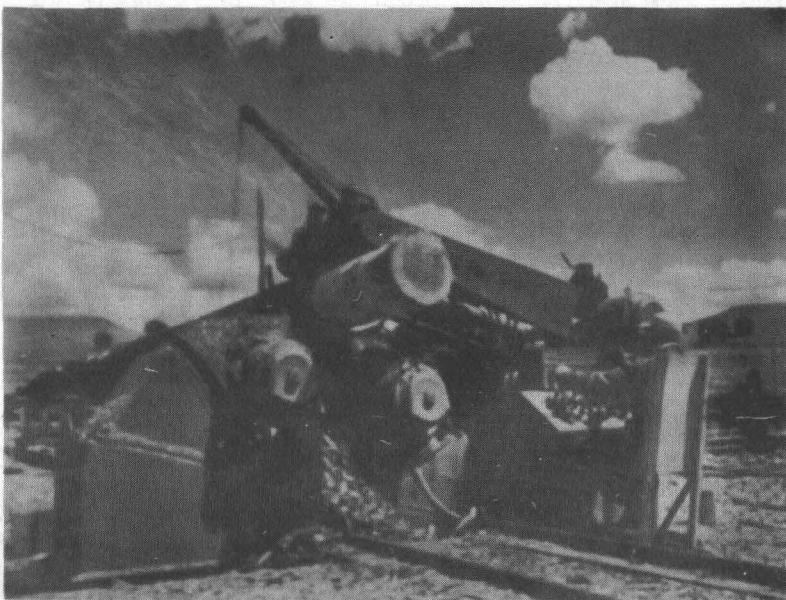


Fig. 6. Nelson pole shaver and log barker

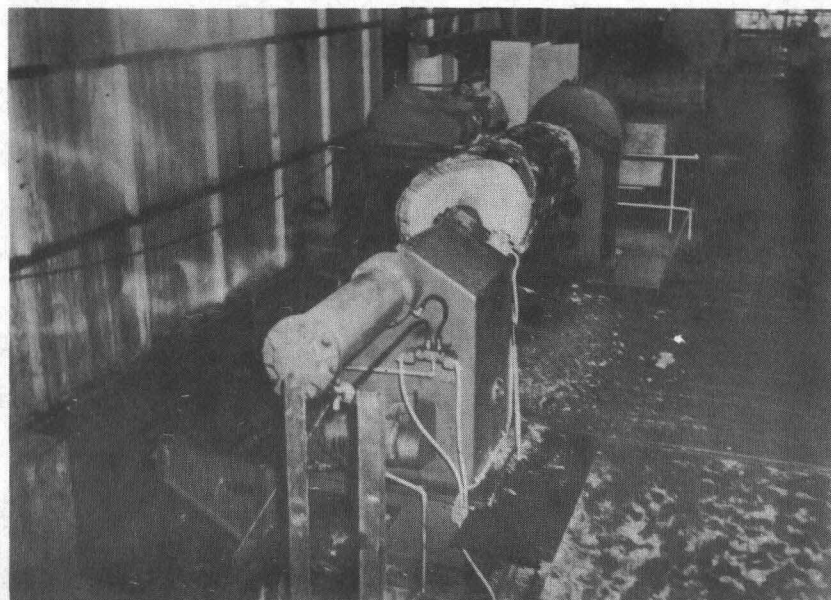


Fig. 8. Bamford-Premier log barker. Series 50

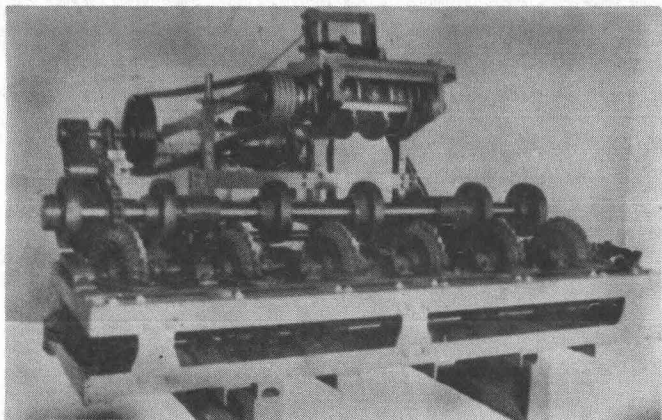


Fig. 9. Crouse portable rosser

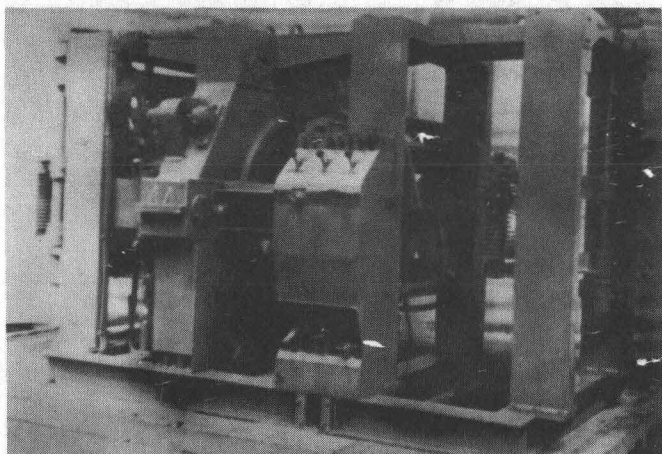


Fig. 10. Andersson debarker. Pneumatic type A

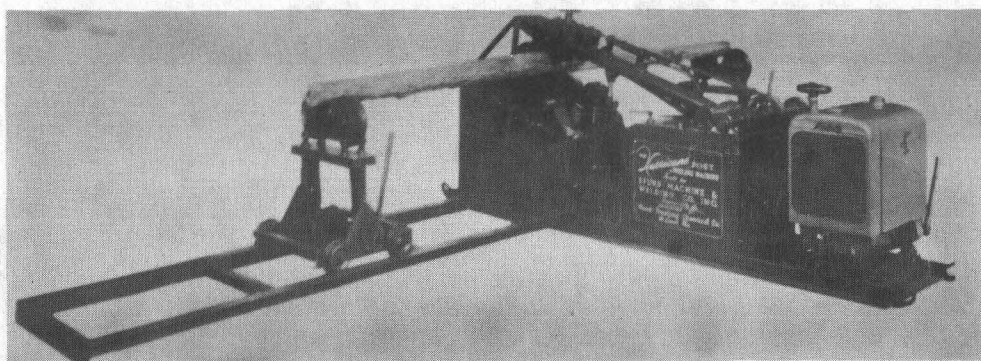


Fig. 11. Hurricane post peeler



Fig. 12. Sandy Hill peppy peeler

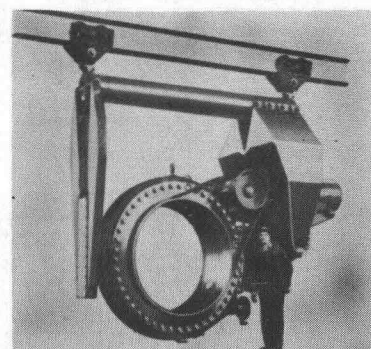


Fig. 13. Hansel ring barker

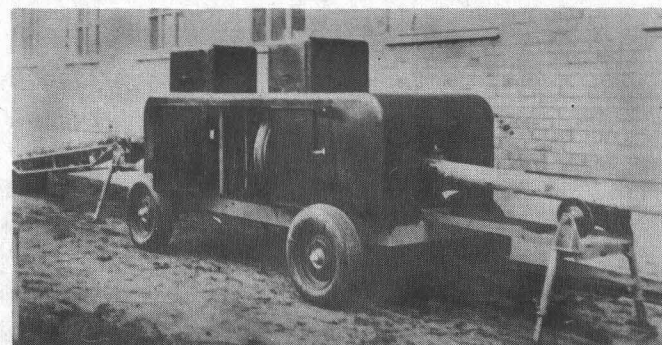


Fig. 14. Andersson debarker. Centrifugal type B

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