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FRAME

SAWMILLING OF WOOD

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MAIN MACHINE

FRAME SAW

↓

CIRCULAR SAW

↓

HORIZONTAL FRAME SAW

↓

BAND SAW

↓

CHIPPING MACHINES AND AGGREGATES

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FRAME

MAIN MACHINE

HORIZONTAL FRAME SAW

1814 - First design determined
for the production of veneers

1840 - Use for lumber production

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MAIN MACHINE

CHIPPING MACHINES AND AGGREGATES

1950 - Around the same time, the companies Kockums (Söderhamns) - Sweden, Linck - Germany and Can-Car - Canada offer chipping machines for sawmill processing technology. The chipping itself is already known from the paper industry, the production of so-called USO prisms by milling is also of an earlier date.

1970 - Application of chipping heads in combination with band and circular saws in one machine - creation of the aggregate. The Wurster-Dietz company (as well as others) also realizes aggregation with a frame saw.

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MAIN MACHINE

CIRCULAR SAW

1777 - Saw principle patented - S. Miller

1805 - First working sweeping machine - Marc Isambard Brunel (England)

1815 - Construction and production of a shortening saw –M. I. Brunel

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MAIN MACHINE

CIRCULAR SAW

With one cutting gap:

– single shaft – double shaft (cut of large diameters)

With multiple cutting gaps:

– double-disc (prismatic) – multi-disc – with fixed setting – adjustable trought the work

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MAIN MACHINE

CIRCULAR SAW

Feeding device

- mobile table
- clamping carriage
- central feed chain with drivers

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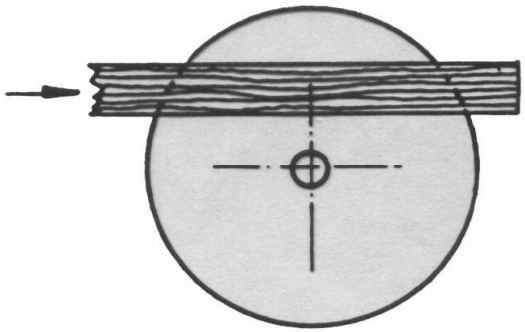
MAIN MACHINE

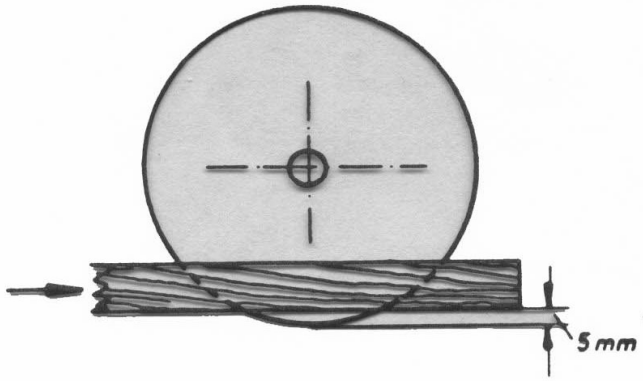
CIRCULAR SAW

ut orientation

top cut
(variable blade overlap)



bottom cut
(permanent disc overlap)



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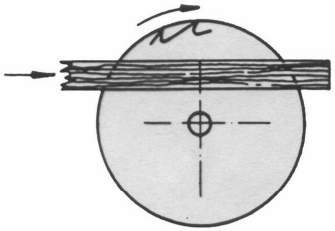
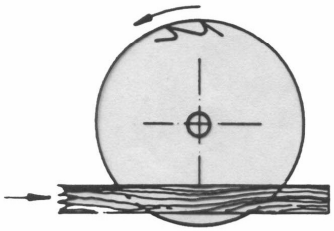
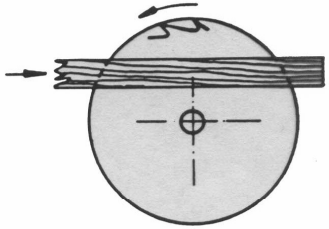
MAIN MACHINE

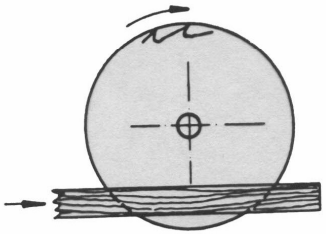
The same direction of feed rate direction and rotation of the disk





Counter-rotating direction of feed rate direction and rotation of the disk





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MAIN MACHINE

CIRCULAR SAW

Cutting height:

- single shaft machines up to 160 mm
- double shaft machines up to 300 mm
- special construction up to 480 mm

Shift speed:

- single-shaft machines up to 60 m/min two-shaft machines up to 70 m/min

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MAIN MACHINE

CIRCULAR SAW

Cutting gap: (for twin shaft sweepers)

Cutting height mm	Cutting gap mm:
up to 120	3.2
up to 160	3.6
up to 200	3.9
up to 220	4.2
Up to 300	4.8

For ∅ saw blades over 350 mm, saw blades are used thick. 3.0 - 5.2 mm with replaceable teeth.

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MAIN MACHINE - BAND SAW

1808 - Saw principle patented - W. Newburry

1852 - First working machine produced

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MAIN MACHINE - BAND SAW

- Mobile
- Stationary

- With an internal combustion engine
- With electric motor

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MAIN MACHINE - BAND SAW

Basic division of band saws used in sawmill production

Single band:

- vertical trunk band
- horizontal trunk band
- sweeping band saw
- vertical band saw with a mobile table
- mobile horizontal band saw

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MAIN MACHINE - BAND SAW

Basic division of band saws used in sawmill production

Multiband:

- double vertical trunk band (stands behind each other)
- double vertical stem band (stands facing each other)
- vertical band saw multiple (sweeping)

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MAIN MACHINE - BAND SAW

Basic division of band saws used in sawmill production

- Combined:
- reduction band (double band + chipper)
- vertical trunk band with integrated circular saw
- horizontal strain. band saw with integrated chipper (combined band saws can be classified under aggregate technologies)

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MAIN MACHINE - BAND SAW

Advantages of the band saw

- high cutting speed (40 m/sec)
- high feed rate (up to 60 m/min)
- narrow cutting gap (2.6...2.8 mm)
- smooth cutting surface
- simple basic design of the machine
- simple machine base
- the possibility of an individual sectional shape according to the parameters of the cutout
- the possibility of cutting unsorted cutouts, fast custom production
- the possibility of producing thin dimensions

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MAIN MACHINE - BAND SAW

Disadvantages of the band saw

- demanding maintenance and treatment of the saw band
- complications when guiding the belt into the cut
- frequent inaccuracy when setting the dimensions and inaccuracy of the cut
- high demand for operator qualification when choosing a cut. scheme
- requirement for the cleanliness of the cut (dullness and running-in of the band)
- problems when cutting in winter ☺
- the necessity of complex mechanization of the workplace

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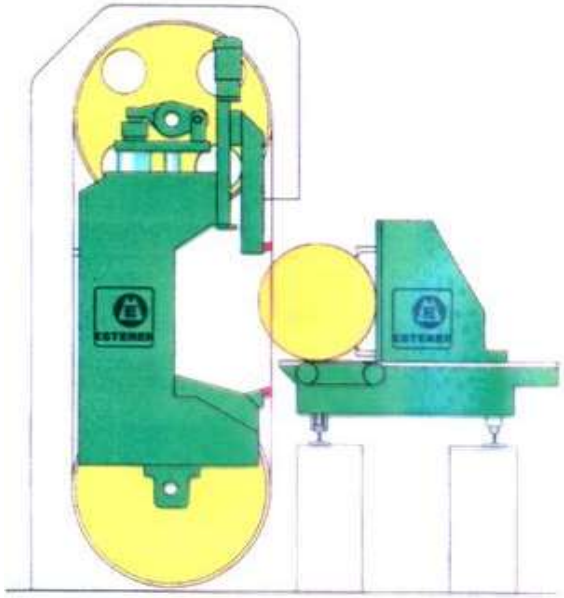
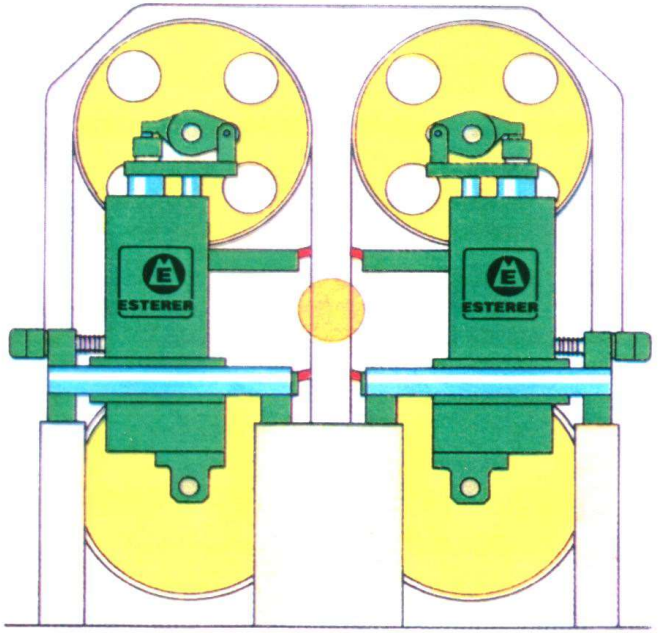
MAIN MACHINE - BAND SAW

Vertical log band saw (left)



Vertical log band saw double



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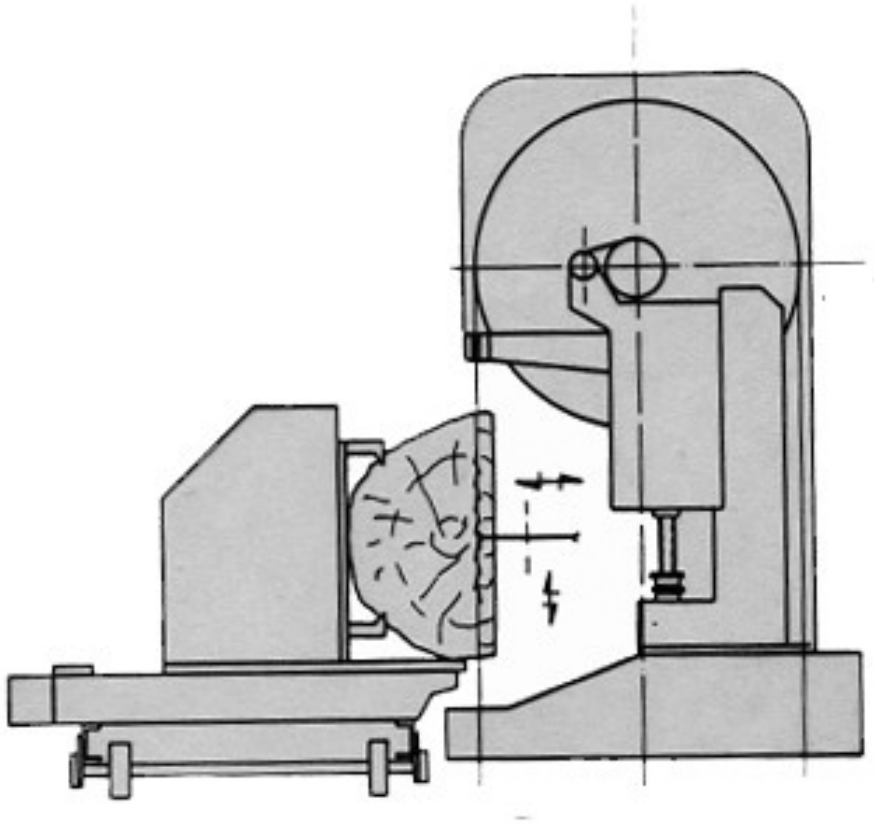
MAIN MACHINE - BAND SAW

Band saw with
dividing cut



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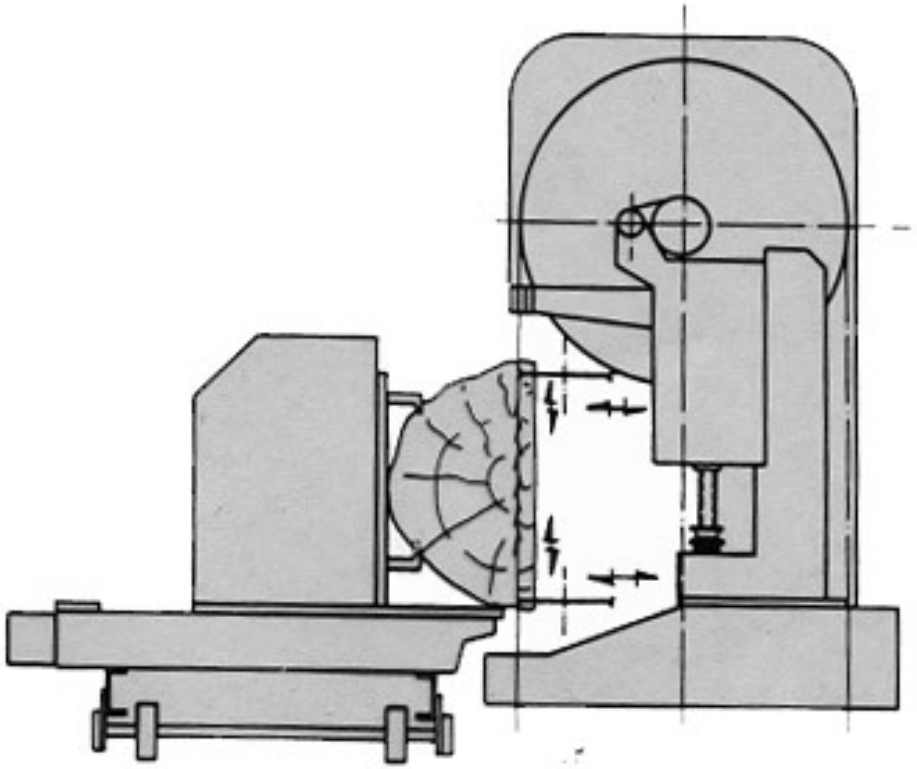
MAIN MACHINE - BAND SAW

Log band saw with plastering cut



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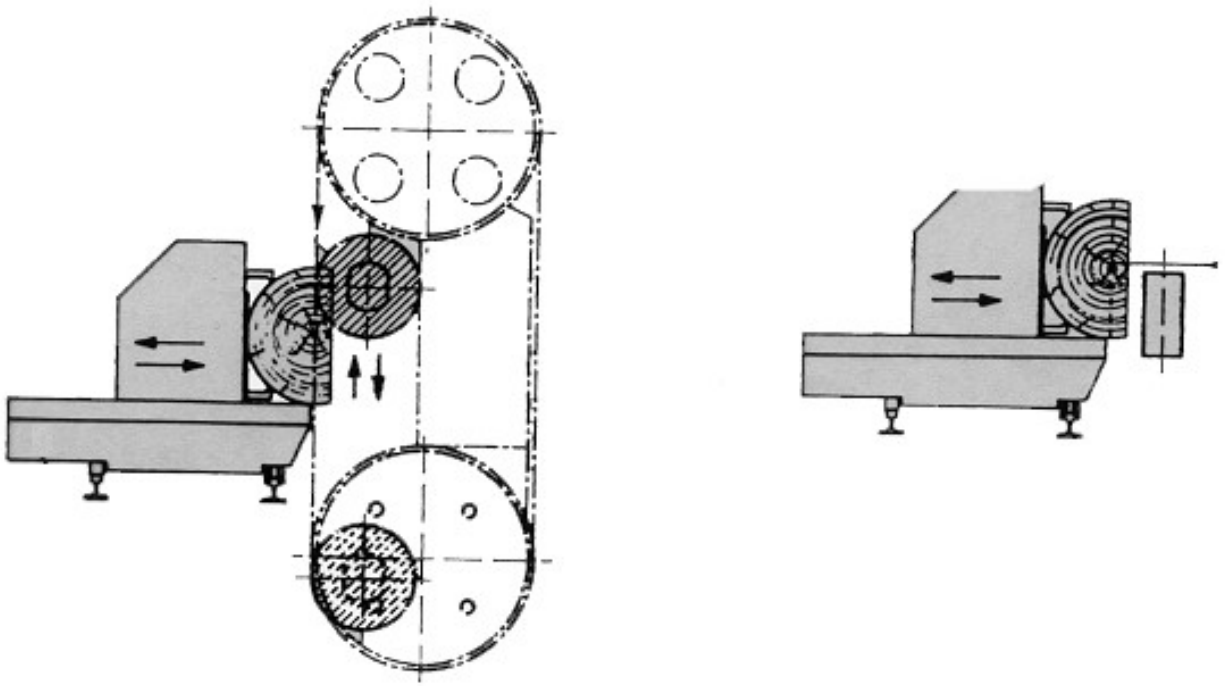
MAIN MACHINE - BAND SAW



Adjustable device for dividing (right) and shortening cut (left)

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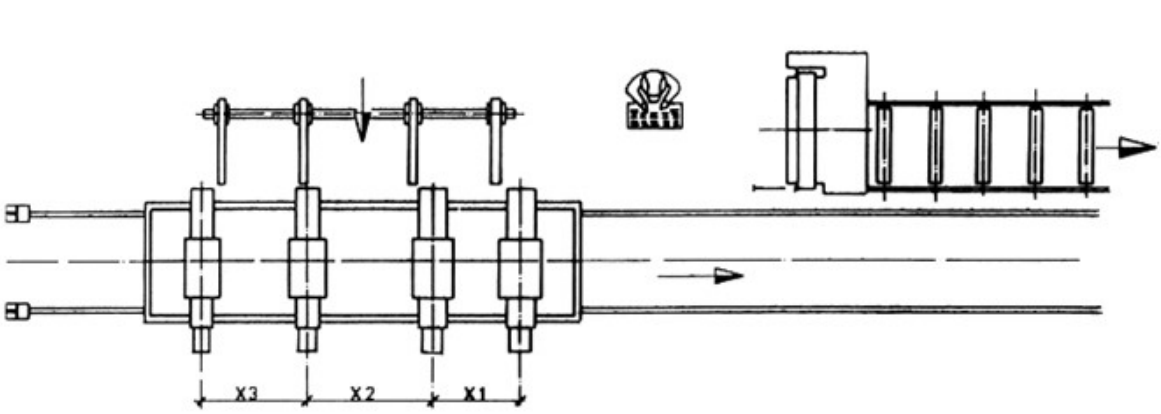
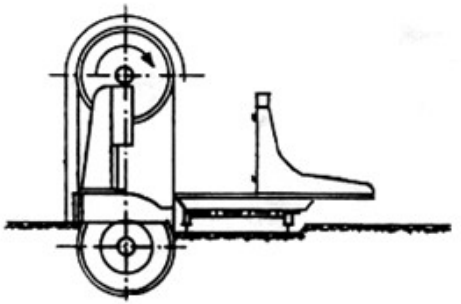
MAIN MACHINE - BAND SAW

The log band saw workplace





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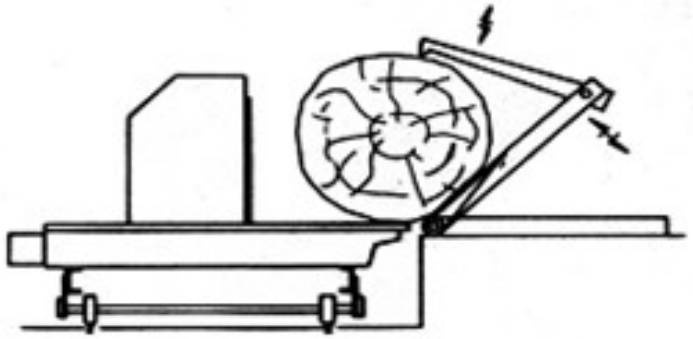
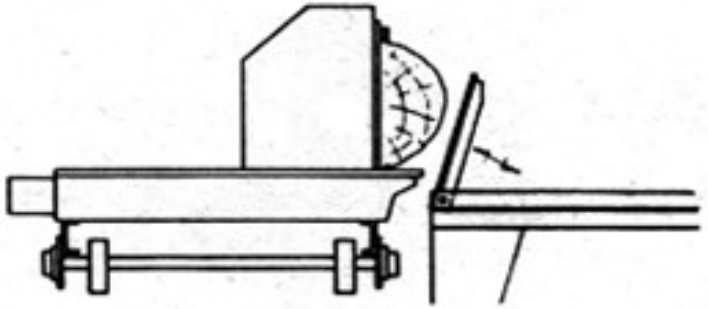
MAIN MACHINE - BAND SAW

Auxiliary devices for clamping and turning the cutout



Simonson



Flipper

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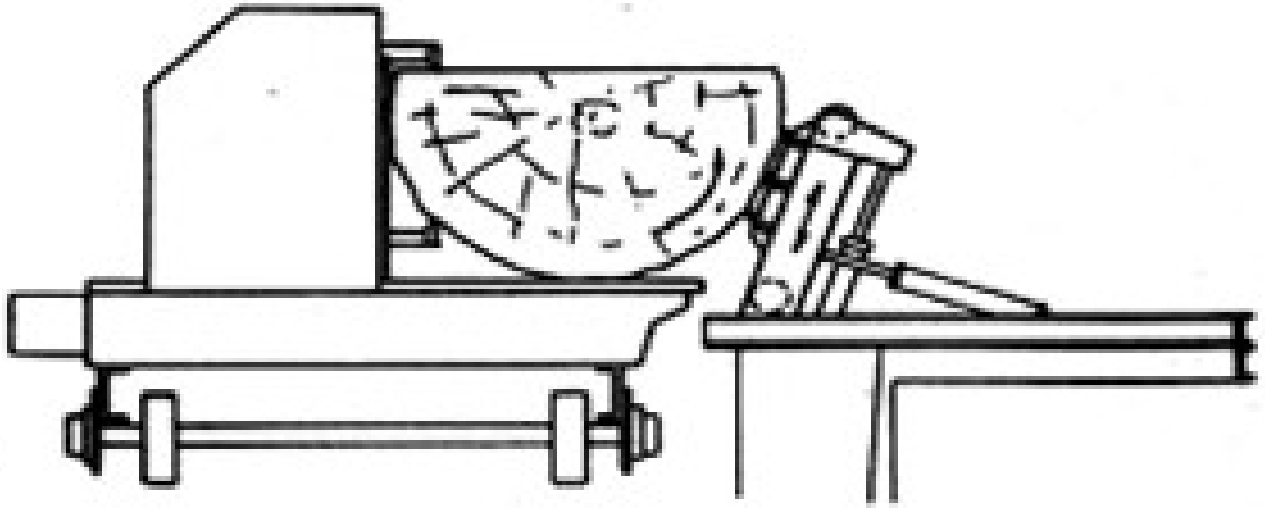
MAIN MACHINE - BAND SAW



Turner

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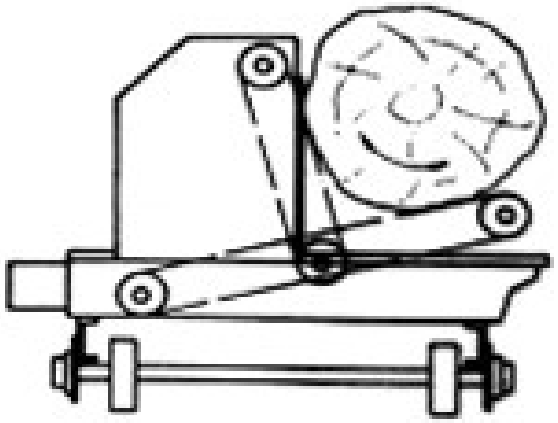
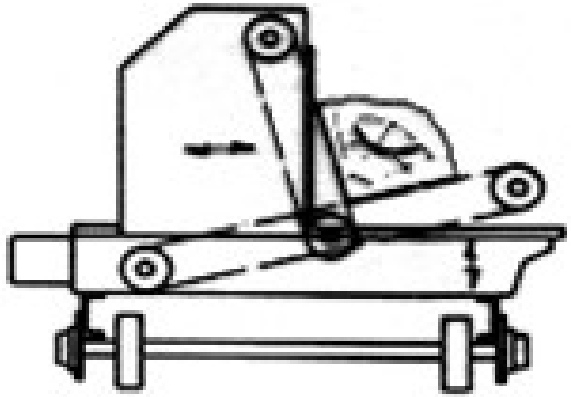
MAIN MACHINE - BAND SAW





Turner

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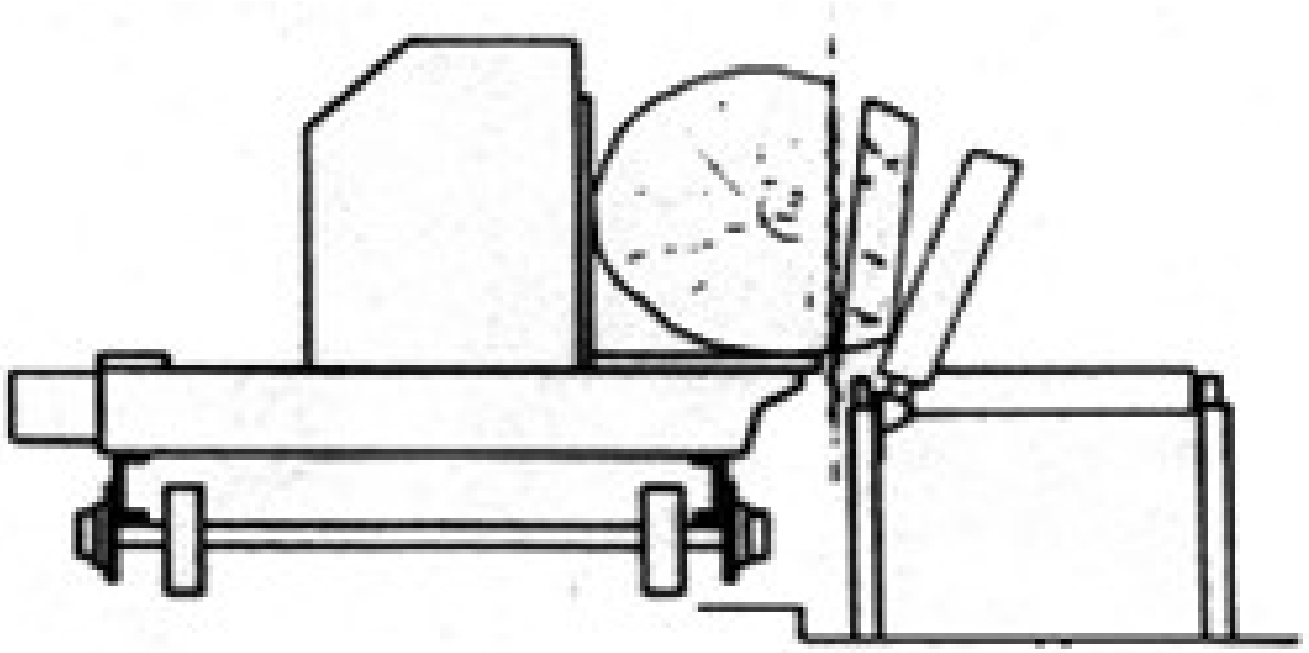
MAIN MACHINE - BAND SAW



Folding support for collecting cut material

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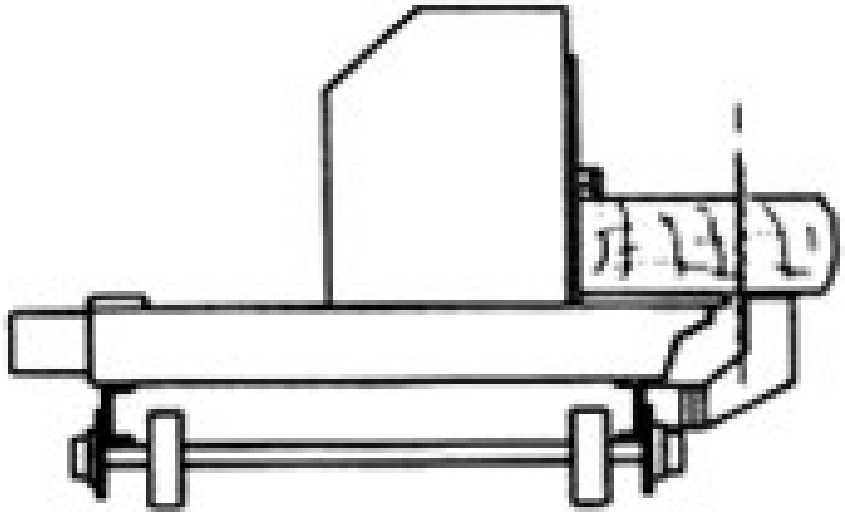
FRAME

MAIN MACHINE - BAND SAW



Folding support for collecting cut material

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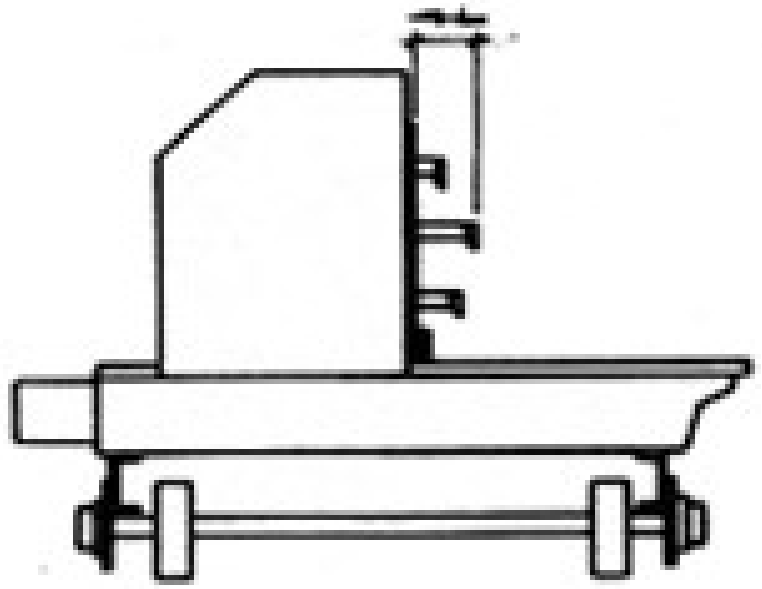
MAIN MACHINE - BAND SAW



Adjustable clamping hooks

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MAIN MACHINE - BAND SAW

Saw band parameters (trunk band saw)

Length: (2 x max. flywheel axis distance minus 30 mm tension reserve)
+ (flywheel diameter x 3.14)

Width: from 100 to 400 mm (measured from the tip of the tooth to the back of the band)

the heel of the tooth must be 5 mm in front of the edge of the flywheel

Thickness: 1/1000 of the flywheel diameter

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MAIN MACHINE - BAND SAW

Operational service of the saw band

It is important to perform an operational service after each cut:

- cleaning the band from dirt and resin
- check and correction of distribution (for saw bands with distributed teeth), tamping (for tamped tools)
- resharpening of tools - absolutely always, even if the tool is not blunt
- if the tools will be out of the working process for a long time (in the order of days), it is a good idea to treat the surfaces with preservative oil, this will prevent the unwanted onset of corrosion
- after every 5-6 regrinds, it is recommended to check the rolling of the band

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