Sept. 12, 1967 M. L. SUMMERLAND 3,340,910

SAWMILL

Filed Oct. 23, 1965

Fig. 1

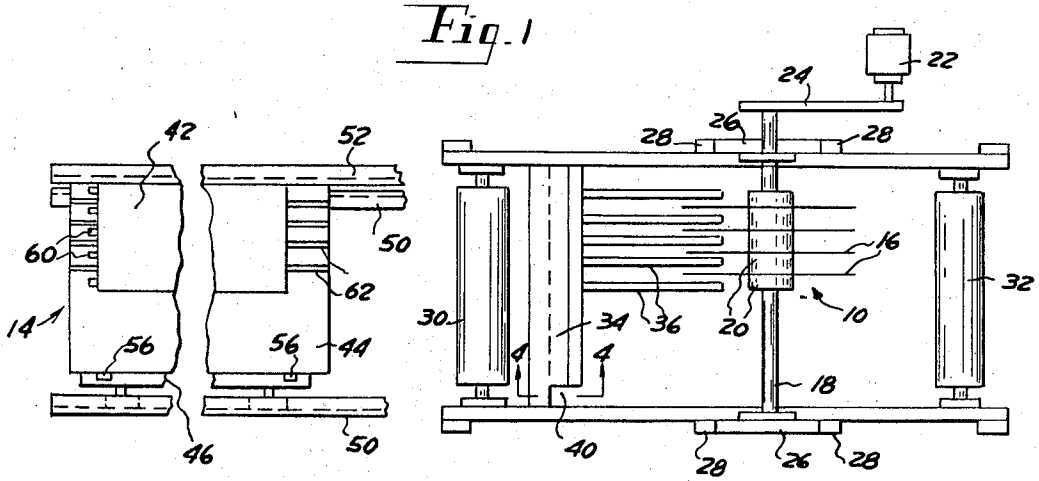
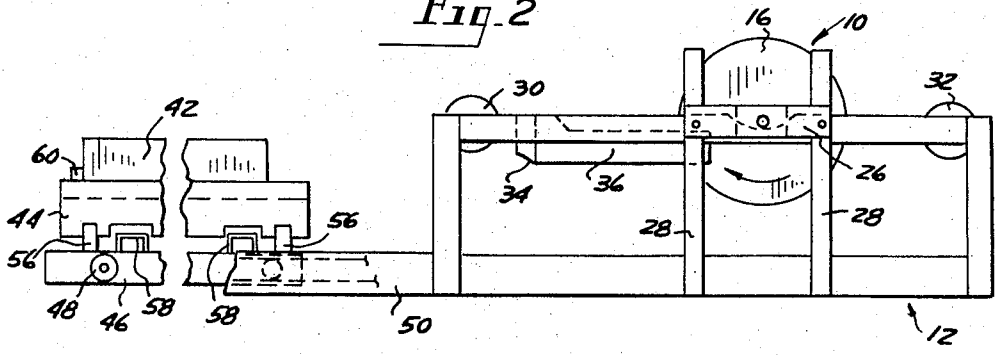


Fig. 2



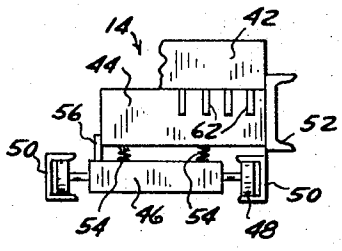


Fig. 3

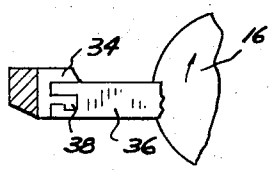


Fig. 4

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This invention relates generally to sawmills, and more particularly to sawmills having multiple disc saws.

In the cutting of semi-rough lumber into smaller strips or planks, it is desirable to improve efficiency by increasing the speed and accuracy of the saw cuts. Accordingly, it is an object of this invention to provide a sawmill with multiple disc saws for making several simultaneous cuts in a piece of rough timber.

It is a further object of this invention to provide a sawmill having multiple disc saws with an improved means for controlling the accuracy of simultaneously made cuts.

Other objects, advantages and novel features of this invention will become apparent from the following specification, of which the accompanying drawings form a part.

In these drawings:

FIG. 1 is a partially fragmented plan view of the sawmill of this invention;

FIG. 2 is a partially fragmented side elevational view of the sawmill of FIG. 1;

FIG. 3 is an end view of the table and carriage portion of the sawmill;

FIG. 4 is a cross-sectional view of the guide bar taken along line 4—4 of FIG. 1, and showing a portion of a pressure finger and saw blade.

Referring now to the drawings, the sawmill of this invention generally comprises a saw assembly **10**, a frame **12**, and a table assembly **14**.

Saw assembly **10** comprises a plurality of circular disc saws **16** mounted upon a single arbor **18**. The spacing and number of adjacent saws **16** is controlled by spacing collars **20** which may be mounted at any point along arbor **18**. Arbor **18** is driven by motor **22** and chain or belt drive **24**. Saw assembly **10** is supported on a pair of horizontal frame members **26** which in turn are mounted on a pair of upright frame members **28**. Frame members **28** are provided with slots or multiple holes (not illustrated) to permit adjustment of the height of the disc saws.

Parallel and horizontal front and rear rollers **30** and **32**, respectfully, are mounted upon frame **12** at equal elevations. Also mounted to frame **12**, at a point intermediate arbor **18** and front roller **30**, is a guide bar **34**.

A number of pressure fingers **36** are slidably mounted over L-shaped tongue **38** of guide bar **34**. Notch **40** in the guide bar provides a space for pressure fingers **36** to be added to or subtracted from the guide bar after guide bar **34** is assembled to the frame. As can be seen from FIG. 1, the pressure fingers **36** are intermeshed with saws **16**. Spacing elements (not illustrated) between the slotted ends of the pressure fingers establish the desired spacing.

Means may be provided (not illustrated) for varying the heights of rollers **30** and **32** and bar **34**. The function of these elements will be described below.

The piece of wood to be processed by the sawmill, known as a cant, is illustrated at **42** in the drawings. A cant is a portion of a log which has been rough cut on three sides. Cant **42** is supported on table **44** which is in turn mounted upon carriage **46**. Carriage **46** is provided with four wheels **48** which ride in parallel channel shaped tracks **50**, best seen in FIG. 3. A channel shaped side guide **52** fixed to frame **12** provides a fixed lateral locating means against which cant or workpiece **42** abuts during its progress through the saws.

Table **44** is resiliently mounted to carriage **46** on springs **54**, which can be seen in FIG. 3. Relative movement between the table and the carriage is constrained to lie purely in a vertical direction by means of side stops **56**, which prevent lateral displacement of the table, and by transverse channels **58**, which lie within grooves in the underside of table **44** and prevent longitudinal movement of the table relative to the carriage.

The table may be fed through the saws by hand or by power means (not illustrated). To transmit the feeding force from the carriage and table to the cant, lugs **60** are provided in the top surface of table **44**.

Slots **62** are cut in the top surface of table **44** to provide passage for the saws **16** as they cut completely through the cant.

Operation

As cant **42** is fed by table **44** and carriage **46** toward the saws, the leading upper edge of the cant first encounters roller **30**. The bottom edge of roller **30** is set at a height off the top surface of the table less than the thickness of the cant. The cant and table are therefore cammed downwardly with respect to carriage **46** against the resistance of springs **54**. This initial compression of springs **54** securely clamps the cant or workpiece to the table. As the table progresses toward the saws, the front upper edge of the cant contacts the beveled under face of guide bar **34** and pressure fingers **36** are set an elevation slightly lower than that of the lowermost surface of front roller **30**. The cant and table are therefore cammed downwardly still further as the cant encounters guide bar **34**, thus further compressing springs **54** and securing the cant to the table with still greater force.

Since pressure fingers **36** extend well into the spaces between the disc saws **16**, the cant **34** remains securely clamped to the table throughout its passage through the saws. Rear roller **32** assists the pressure fingers in maintaining this clamping pressure after the cant has begun to leave the saw zone.

Without the provision of pressure fingers **36** extending all the way into the space between the saws, the upward motion of the left hand portion of the saws (as viewed in FIG. 2) would tend to lift the cant off the table surface. This would result in slippage or relative movement between the cant and the table and would simultaneously reduce the accuracy of the cuts.

Thus, the efficiency of the sawmill has been greatly improved by making a plurality of simultaneous cuts during a single pass and by providing means for securely and firmly clamping the workpiece to the table throughout its passage through the saws.

This invention may be further developed within the scope of the following claims. The above specification is descriptive of only a single operative embodiment of the invention and is not to be interpreted in a strictly limited sense.

I now claim:

1. A sawmill comprising:

a supporting frame including a pair of parallel horizontal guide tracks running from a first to a second end of said frame;

a carriage having a plurality of wheels rotatably mounted thereon, said wheels so disposed as to ride on said guide tracks;

feed means for causing said carriage to travel between said first and second ends of said frame;

a table disposed directly above and resiliently supported on said carriage;

a horizontal arbor having a plurality of disc saws fixed at spaced intervals thereto, said arbor being mounted on said frame above said table and transverse to said guide tracks;

drive means for rotatably driving said arbor;

first and second horizontal rollers parallel to said arbor and spaced on opposite sides thereof;

said first and second rollers being secured to said frame and equally spaced above said table a distance only slightly less than the height of said arbor above said table;

a guide bar parallel to said arbor and fixed to said frame intermediate said arbor and said first roller, said guide bar having a plurality of spaced horizontal pressure fingers mounted thereon, said pressure fingers being parallel to said guide tracks and extending into the spaces between said disc saws, the lower edge of said guide bar and said fingers being slightly below the level of the lower most edge of said first and second rollers;

the height of said guide bar and pressure fingers above the normal height of said table, being set to a dimension less than the height of a workpiece to be processed by the sawmill;

whereby as a workpiece placed on said table is fed towards said disc saws by said feed means, it is cammed downwardly by said first roller, said guide bar, said pressure plate, and said second roller, thereby to securely clamp the workpiece to said table as it passes through said saws.

2. A sawmill comprising:

a supporting frame;

a carriage mounted for horizontal reciprocal movement along said frame;

a table disposed directly above and resiliently supported on said carriage for vertical displacement relative thereto;

a horizontal arbor having a plurality of disc saws fixed at spaced intervals thereto, said arbor being mounted on said frame above said table and transverse to the reciprocal path of said carriage;

drive means for rotatably driving said arbor;

a guide bar parallel to said arbor fixed to said frame, said guide bar being horizontally displaced from said arbor;

said guide bar having a plurality of spaced horizontal pressure fingers mounted thereon, said pressure fingers extending perpendicularly from said guide bar into the spaces between disc saws;

the lowermost surface of said guide bar and said pressure fingers being spaced above the normal height of said table a distance less than the thickness of a workpiece to be processed by the sawmill;

whereby as a workpiece is fed on said table toward and through said disc saws, it and the supporting table are cammed downwardly by said guide bar and said pressure fingers, thereby securely clamping the workpiece to said table during the sawing operation.

3. The sawmill of claim **2**, which further comprises:

a horizontal roller parallel to said arbor and mounted to said frame on the opposite side of said arbor from said guide bar, the height of said roller above said table being substantially equal to that of said guide bar;

whereby said roller maintains downward clamping pressure on the workpiece after it passes out from beneath said pressure fingers.

4. A sawmill comprising:

a supporting frame including a pair of parallel horizontal guide tracks running from a first to a second end of said frame;

a carriage slidably mounted upon said guide tracks;

feed means for causing said carriage to slidably travel between said first and second ends of said frame;

a table disposed directly above and resiliently supported on said carriage for upwards vertical movement relative to said carriage;

a horizontal arbor having a plurality of disc saws fixed at spaced intervals thereto, said arbor being mounted on said frame above said table and transverse to said guide tracks;

drive means for rotatably driving said arbor;

first and second horizontal rollers parallel to said arbor and spaced on opposite sides thereof above the plane of said table;

said first and second rollers being secured to said frame and equally spaced above said table a distance only slightly less than the height of said arbor above said table;

whereby as a workpiece placed on said table is fed towards said disc saws by said feed means, it is pressure held downwardly by the opposition force of said first roller and said second roller opposing the upwards pressure of the resilient support of said table, thereby to securely clamp the workpiece to said table as it passes through said saws.

References Cited

UNITED STATES PATENTS

201,198	3/1878	Randolph	143—37
2,305,170	12/1942	Jackson	143—105
2,673,581	3/1954	Dornath et al.	143—37 X
3,245,440	4/1966	Bauml et al.	143—52
3,275,045	9/1966	Beely	143—37

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