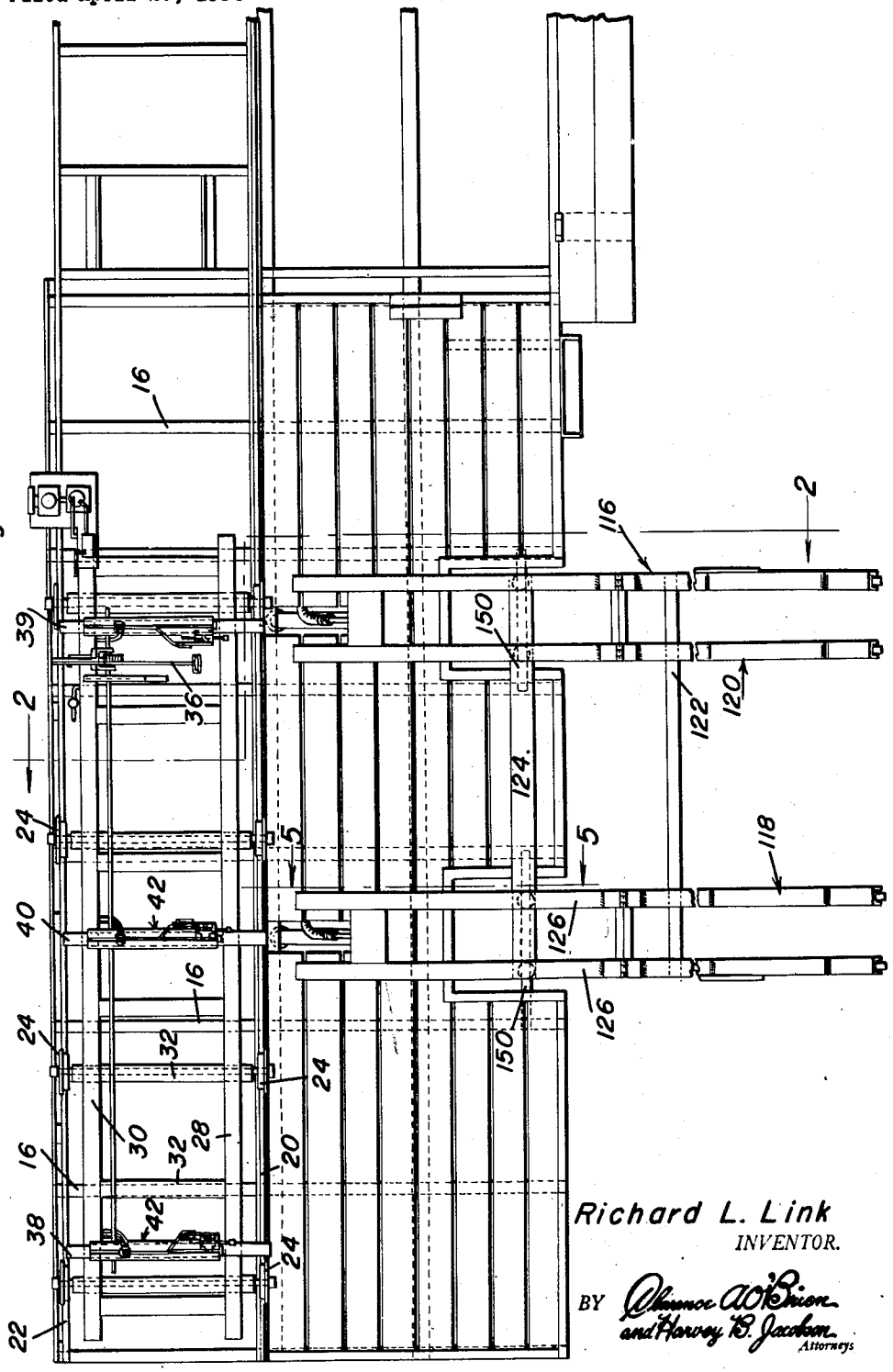
March 5, 1957 R. L. LINK 2,783,791

PORTABLE SAW-MILL LIFTING AND DOGGING APPARATUS

Filed April 20, 1954 4 Sheets-Sheet 1

Fig. 1



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March 5, 1957 R. L. LINK 2,783,791

PORTABLE SAW-MILL LIFTING AND DOGGING APPARATUS

Filed April 20, 1954 4 Sheets-Sheet 2

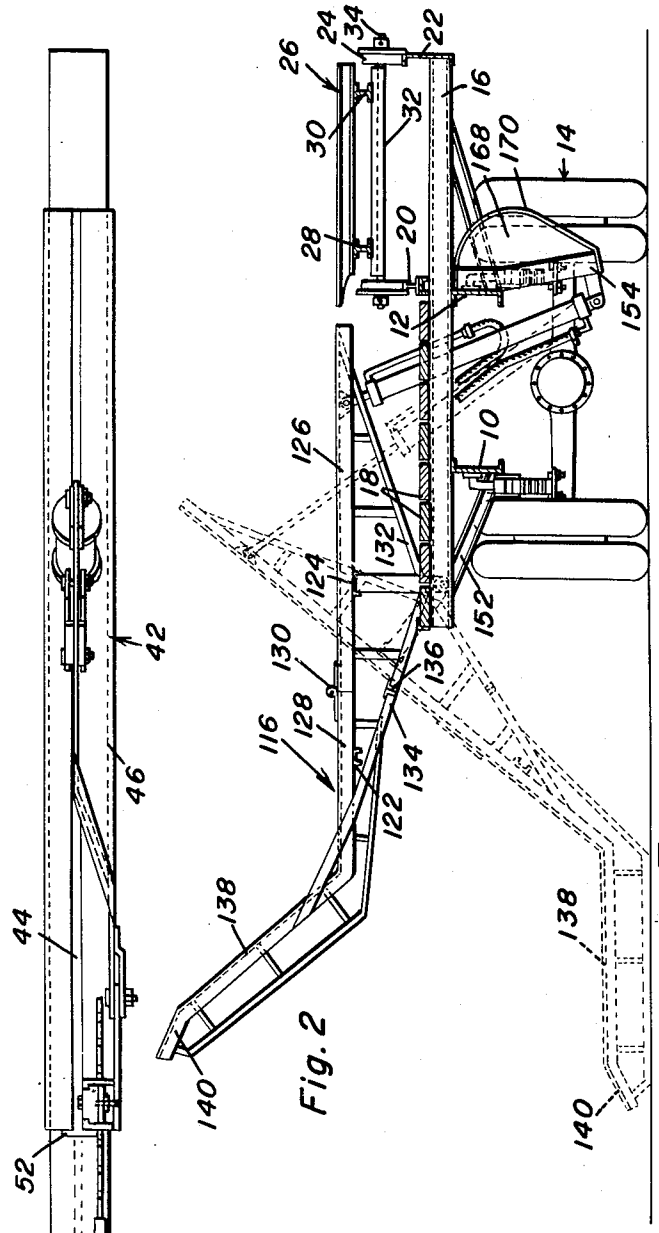


Fig. 2

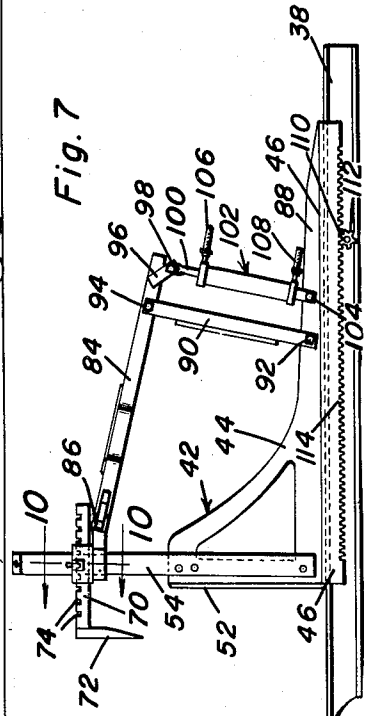


Fig. 7

Fig. 8

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March 5, 1957 R. L. LINK 2,783,791

PORTABLE SAW-MILL LIFTING AND DOGGING APPARATUS

Filed April 20, 1954 4 Sheets-Sheet 3

Fig. 10

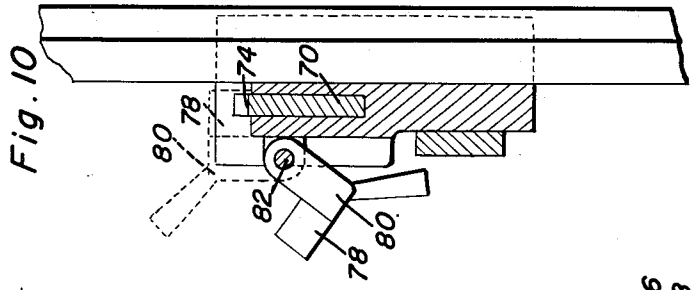


Fig. 9

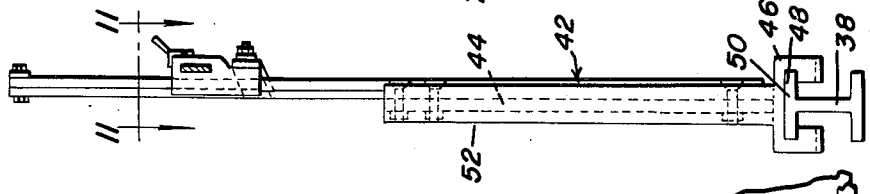


Fig. 3

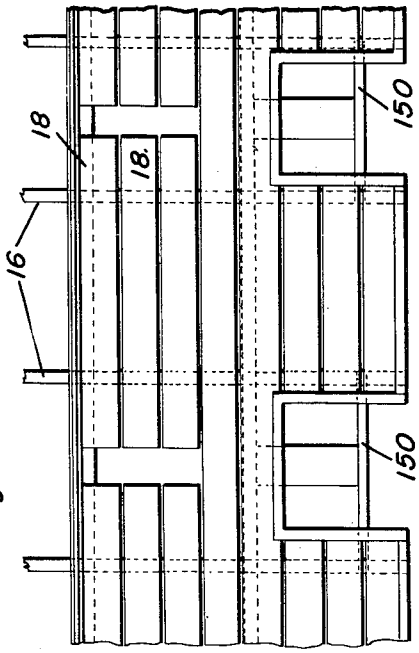
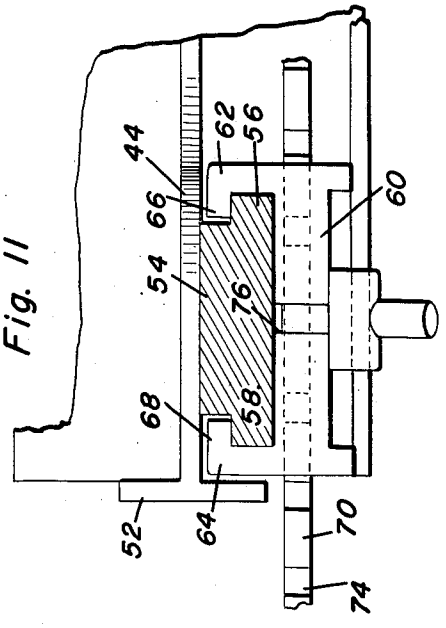


Fig. 11



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March 5, 1957 R. L. LINK 2,783,791

PORTABLE SAW-MILL LIFTING AND DOGGING APPARATUS

Filed April 20, 1954 4 Sheets-Sheet 4

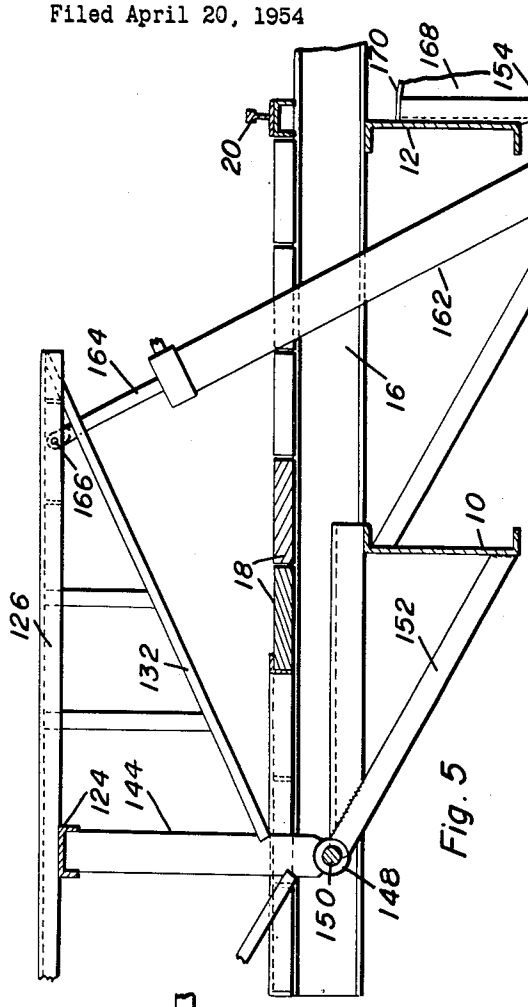


Fig. 5

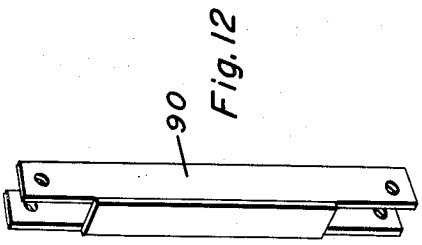


Fig. 12

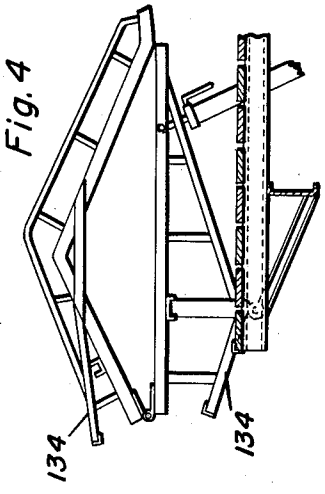


Fig. 4

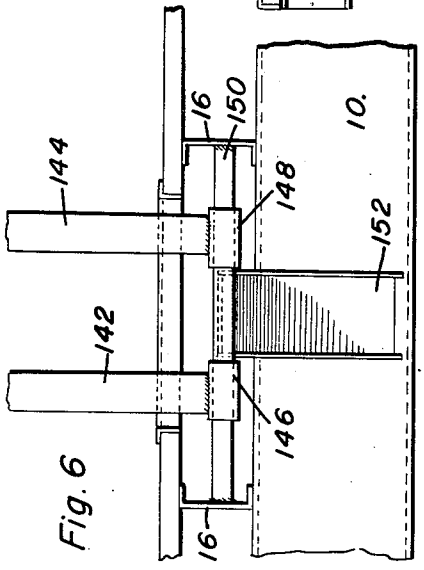


Fig. 6

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United States Patent Office 2,783,791 Patented Mar. 5, 1957

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PORTABLE SAWMILL LIFTING AND DOGGING APPARATUS

Richard L. Link, Star City, Ind.

Application April 20, 1954, Serial No. 424,398

3 Claims. (Cl. 143—92)

This invention relates generally to wood cutting, and pertains more particularly to an improved form of portable sawmill.

A primary object of this invention is to provide an improved sawmill structure of the portable type wherein the entire cutting operation is performed on an elevated platform which forms the bed of a powered vehicle or a trailer and wherein elevator mechanism is provided for transferring logs from ground level to the level of a sawmill carriage movably mounted on the platform.

Another object of this invention is to provide an improved sawmill construction of the character described above wherein the elevator mechanism is articulated so as to be collapsed to a stored or transporting position.

Still another object of this invention is to provide an improved sawmill construction incorporating a novel log holding dog mechanism on the carriage thereof for receiving logs from the elevator mechanism and holding the same in fixed relation on the carriage.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a plan view of a portion of the sawmill constructed in accordance with this invention;

Figure 2 is a transverse vertical section taken substantially along the plane of section line 2—2 of Figure 1;

Figure 3 is a plan view of a portion of the mechanism shown in Figure 1, but with the elevator mechanism removed;

Figure 4 is a sectional view showing the elevator mechanism in stored position;

Figure 5 is an enlarged transverse vertical section taken substantially along the plane of section line 5—5 in Figure 1;

Figure 6 is an enlarged fragmentary elevational view showing the manner of connecting the elevator mechanism to the sawmill chassis;

Figure 7 (Sheet 2) is an enlarged elevational view of the hydraulic dog assembly;

Figure 8 is a further enlarged plan view of the assembly shown in Figure 7;

Figure 9 (Sheet 3) is a further enlarged end view of the hydraulic dog assembly with the end portion of arms 70 removed and shown in section;

Figure 10 is a further enlarged vertical section taken substantially along the plane of section line 10—10 in Figure 7;

Figure 11 is a further enlarged horizontal section taken substantially along the plane of section line 11—11 in Figure 9; and

Figure 12 (Sheet 4) is an enlarged perspective view of a portion of the dog assembly.

Referring now more particularly to Figure 2, reference

numerals 10 and 12 indicate a pair of spaced channel members which form the main frame of the portable sawmill assembly and to which are attached the wheel assemblies 14 by means of which the sawmill is supported for movement along the ground, it being appreciated that a suitable source of power, such as an internal combustion engine (not shown) may be mounted upon the sawmill frame for driving one of the wheel assemblies. Although not herein shown, a suitable conventional saw assembly such as that disclosed, for example, by the patent to Johnson, No. 2,574,974, is suitably mounted on the portable sawmill assembly frame.

The frame members 10 and 12 have a plurality of transverse frame members 16 secured thereto which form a platform on the upper surface of the vehicle which is partially covered by the planking members 18 in the manner shown. Along one side of the sawmill and disposed longitudinally thereof are a pair of rail members 20 and 22 upon which the wheels 24 of a carriage assembly indicated generally by the reference character 26 are engaged. The carriage consists essentially of the longitudinal frame members 28 and 30 interconnected by cross-frame members 32 some of which form supports for the axles 34 of the previously mentioned wheels 24.

The carriage includes the usual control members for the operator standing thereon, and includes the set works control member 36 (Figure 1) and similar mechanisms which are conventionally provided in this art. Additionally, the carriage is provided with a pair of longitudinally spaced transverse rail members 38, 39 and 40 which overlie the longitudinal frame members 28 and 30 and are, as will be seen most clearly in Figure 9, of I-beam configuration to provide rails or guides for the hydraulic dog assemblies, indicated generally by the reference character 42.

As will be seen most clearly in Figures 7–9, each hydraulic dog assembly consists of a standard or knee 44 having an elongated base portion 46 provided with T-groove 48 in its undersurface to embrace the upper flange 50 of the rails 38, 39 and 40, and it is to be noted that these standards are of plate-like configuration, having transverse stiffening flanges 52 at their forward ends.

Each standard 44 is provided along its forward edge with an upstanding vertical extension 54 which has longitudinally extending side flange portions 56 and 58 disposed in spaced relation to the standard plate 44, as will be seen most clearly in Figure 11. A carrier member 60 is vertically slidable on the extension 54 and is provided with spaced leg portions 62 and 64 having inturned finger portions 66 and 68 to embrace the extension 54 to effect the vertical sliding movement. The carrier member 60 is provided with a horizontally extending rectangular bore therethrough which slidably receives the arm 70 which carries at one end thereof a depending spike dog member 72. The upper edge of the arm 70 is provided with a series of notches 74 which are selectively registerable beneath a slot 76 in the carrier such that the finger 78 of the locking lever 80 pivoted to the carrier by means of the pin 82 may engage through the slot 76 within one of the notches 74 to selectively position the dog 72 with respect to the carrier, as will be seen most clearly in Figure 10.

A link member 84 is pivoted at one end, as at 86, to the carrier 60 and extends rearwardly therefrom in spaced substantially parallel relation to the rear web portion 88 of the standard 44. An upstanding bracket member 90 is pivoted at its lower end as at 92 to the web 88 and at its upper end, as at 94, to an intermediate portion of the link 84 to provide a fulcrum for the link. The rear end of the link is provided with depending bracket arms 96 carrying a pivot pin 98 therebetween to

which the piston rod 100 of a hydraulic jack assembly 102 is secured, the lower end of the jack member being pivotally connected, as at 104, to the web 88. In this manner, it will be evident that manipulation of suitable controls for introducing fluids under pressure to the line 106 or 108 of the jack assembly will cause vertical sliding movement of the carrier on the extension 54.

Each guide 38, 39 and 40 journals a drive shaft 110 therein to which is secured a pinion member 112 engaging with the rack teeth 114 formed on the lower edge of the base 46 for selectively positioning the hydraulic dog assemblies transversely with respect to the carriage assembly.

Referring now more particularly to Figures 1–6, the elevator mechanism is indicated generally by the reference character 116 and will be seen to consist of a pair of boom assemblies 118 and 120 disposed transversely of and projecting laterally from the platform of the sawmill. The booms 118 and 120 are interconnected for simultaneous movement by the cross-pieces 122 and 124 and it will be noted that each boom assembly consists of longitudinal stringer members 126 disposed in spaced parallel relation and provided with forward extension portions 128 hingedly secured thereto, as by the hinge members 130. Each boom assembly is of truss-like configuration and includes the lower diagonal brace portions 132 and 134, the latter being separable, as at 136, and provided thereat with any suitable means for selectively locking the pieces together to provide a rigid and unitary structure when the boom assemblies are in operative position. In respect to this, reference is had most particularly to Figure 4 wherein the diagonal brace member 134 is shown disconnected such that the outer end portion of the boom may be folded back over onto the platform of the sawmill so as to provide no unnecessary obstructions during transporting.

The outer extensions 128 are provided with upwardly angulated free end portions 138 which, when the elevator mechanism is in the lowered position, as shown in dotted lines in Figure 2, are adapted to be disposed horizontally with respect to the ground surface.

The extremities of the extensions 128 are angulated downwardly to present the apron portions 140 whereby logs may be most easily skidded upon the horizontal portion 138 thereof.

As will be seen most clearly in Figures 5 and 6, a pair of depending leg members 142 and 144 are secured to the undersurface of the cross-member 124 and are provided at their lower ends with the sleeves 146 and 148 receiving the pivot shaft 150 rigidly secured between a pair of the cross-frame members 16, there being provided a diagonal brace member 152 between the central portion of the shaft 150 and the frame member 10. A depending brace arm 154 is secured to the other frame member 12 and is provided with bracket ears 156 thereon receiving a pin 158 therebetween secured to the piston rod 160 of the hydraulic jack assembly 162 such that the piston rod 164 extending from the opposite end of the jack assembly when pivotally connected as at 166 to the inner end of the booms will impart pivotal motion thereto about the pivot shaft 150 between the full and dotted line positions shown in Figure 2. The member 154 may be suitably braced by a gusset plate member 168 and a peripheral stiffening strap 170.

It is to be noted that the portions 126 of the boom assembly which form the elevator mechanism are disposed horizontally and flush with the upper surface of the carriage 26 when the elevator mechanism is in the full line position shown in Figure 2, such that logs elevated onto the platform by the elevator mechanism may be easily rolled off the elevator mechanism onto the carriage for engagement by the hydraulic dog members 42 previously described.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. In a portable sawmill, an elevated elongated platform, a frame on which said platform is supported, track members extending longitudinally adjacent one side of said platform and supporting thereon a movable raised carriage which includes a horizontal surface and means for engaging logs to be sawed, an angular elongated elevator boom assembly pivotally mounted adjacent the other side of said platform, said elevator boom assembly including a base portion adapted to be disposed horizontal and adjacent the ground surface for receiving a log thereon, and an upper portion including means for pivotally mounting said boom assembly on the side of said elongated platform, said pivotally mounting means including a mounting bracket, a pivot pin connected to said frame and having said bracket mounted thereon, the upper portion of said boom assembly being operable to be pivoted to a substantially horizontal position level with the horizontal surface of the raised carriage, and power means connected between the upper portion of said boom assembly and a portion of said frame that supports said elevated platform for pivoting said boom assembly between a position at which the base portion thereof is horizontal and adjacent the ground surface to a position where the upper portion of the boom assembly is substantially horizontal and level with the horizontal surface of the raised carriage.

2. A portable sawmill as set forth in claim 1 wherein the upper portion of the boom assembly includes articulated sections for permitting said boom assembly to be folded during transport of the portable sawmill.

3. The sawmill of claim 1 wherein said platform has laterally opening notches in one side accommodating said mounting brackets, and openings in said platform between one notch and said rails through which said power means passes.

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