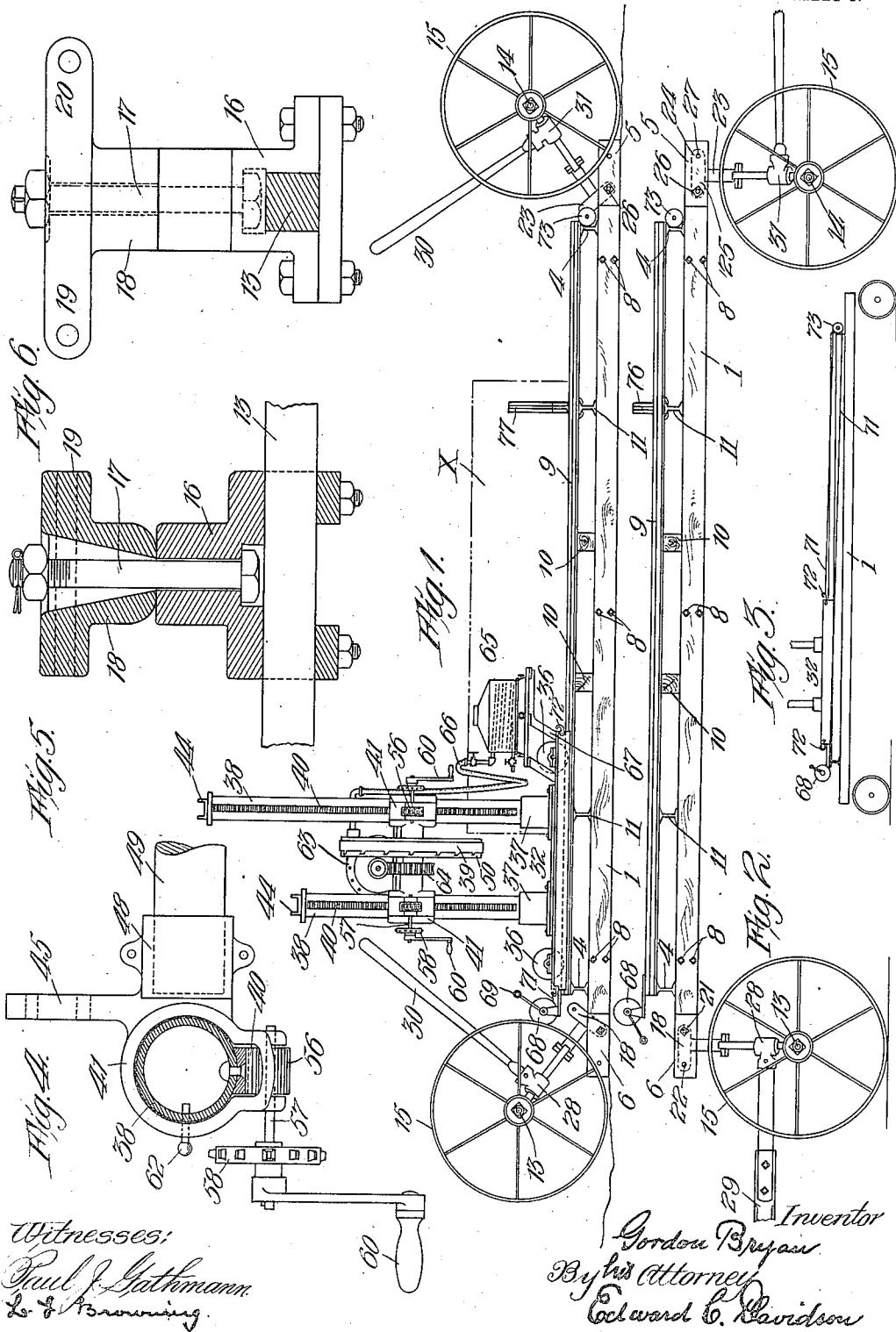


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APPLICATION FILED NOV. 14, 1908.

Patented Mar. 15, 1910.

4 SHEETS—SHEET 1.

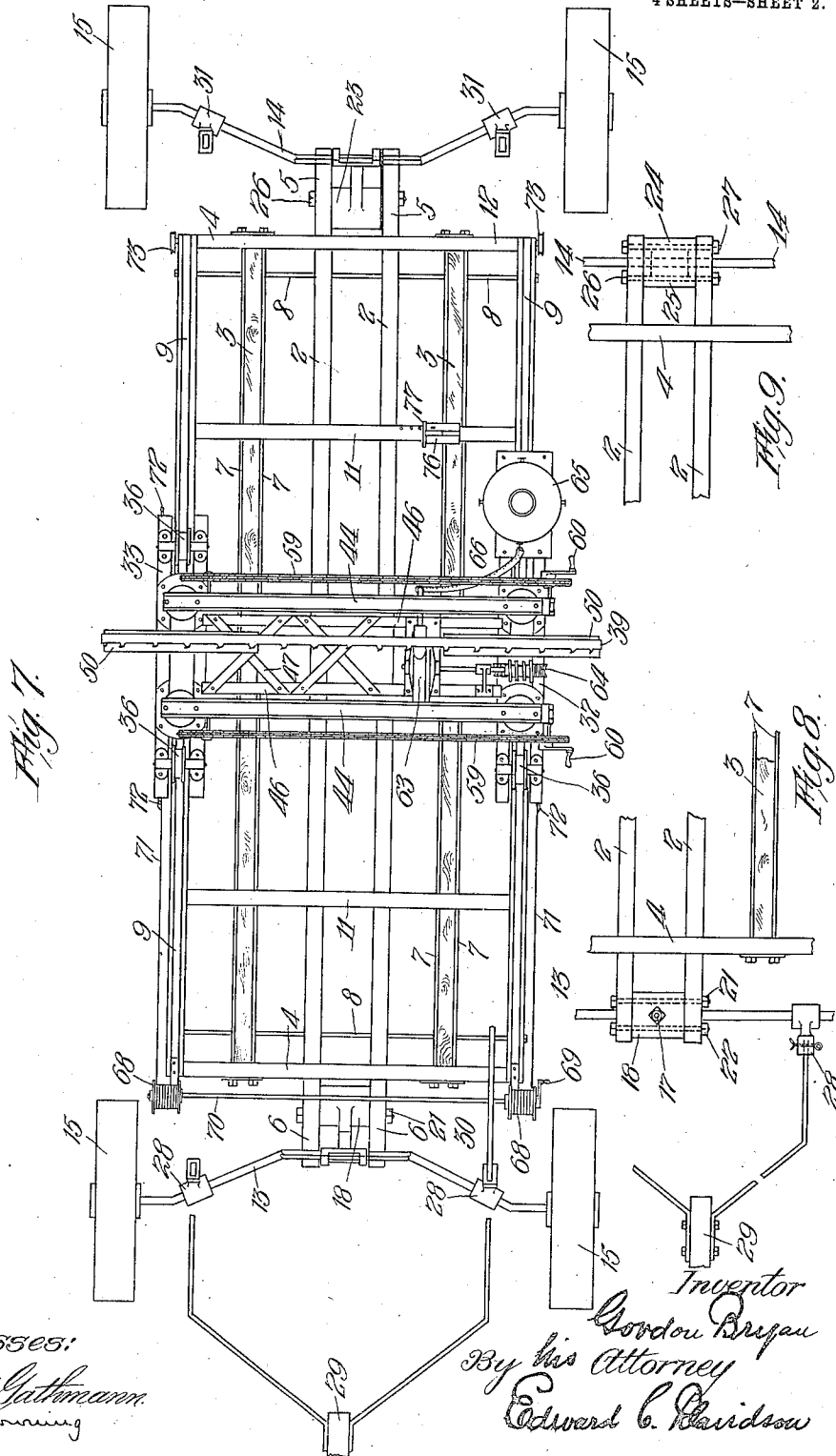


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4 SHEETS—SHEET 2.



Witnesses:
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Edward C. Davidson

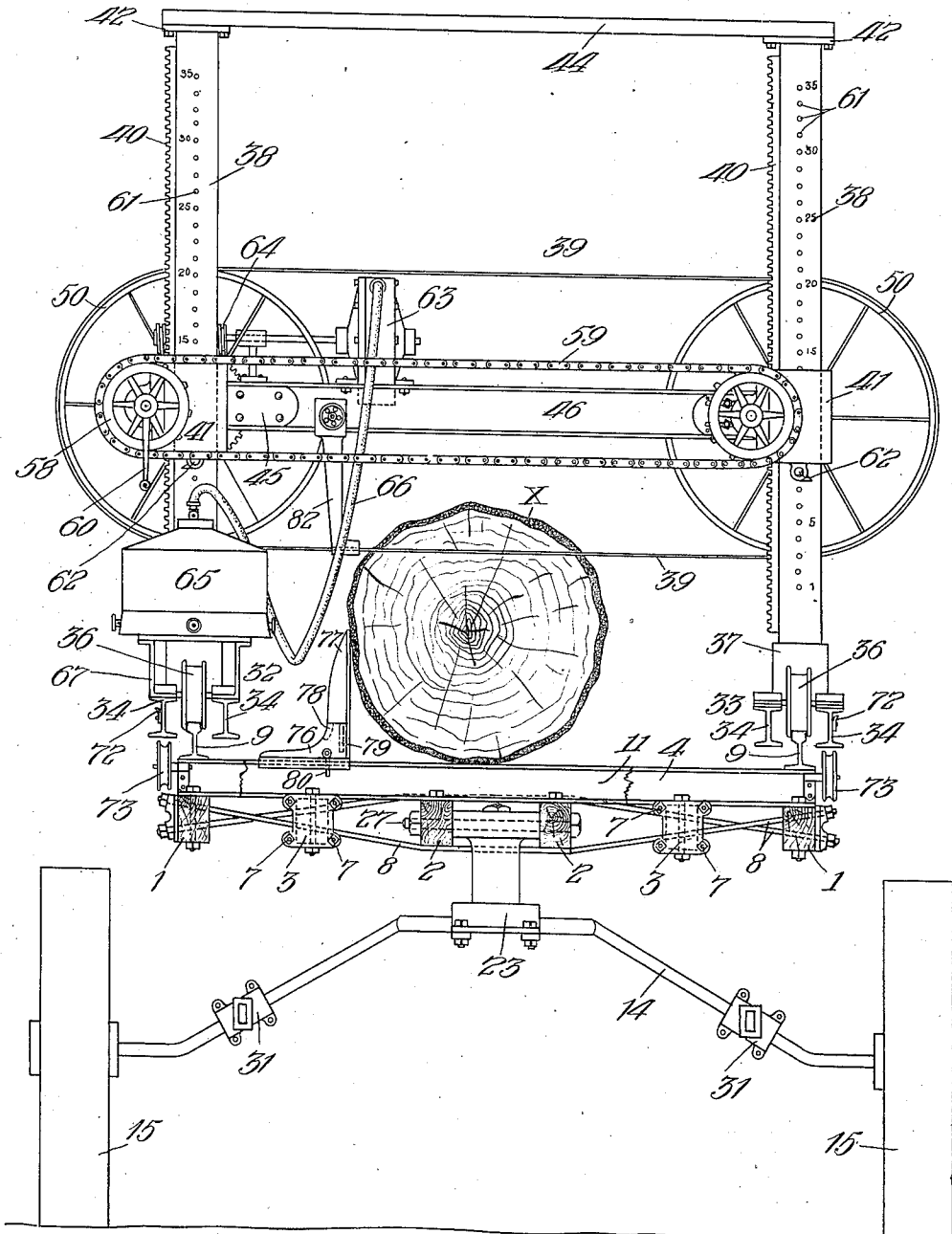
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4 SHEETS—SHEET 3.

Fig. 10.



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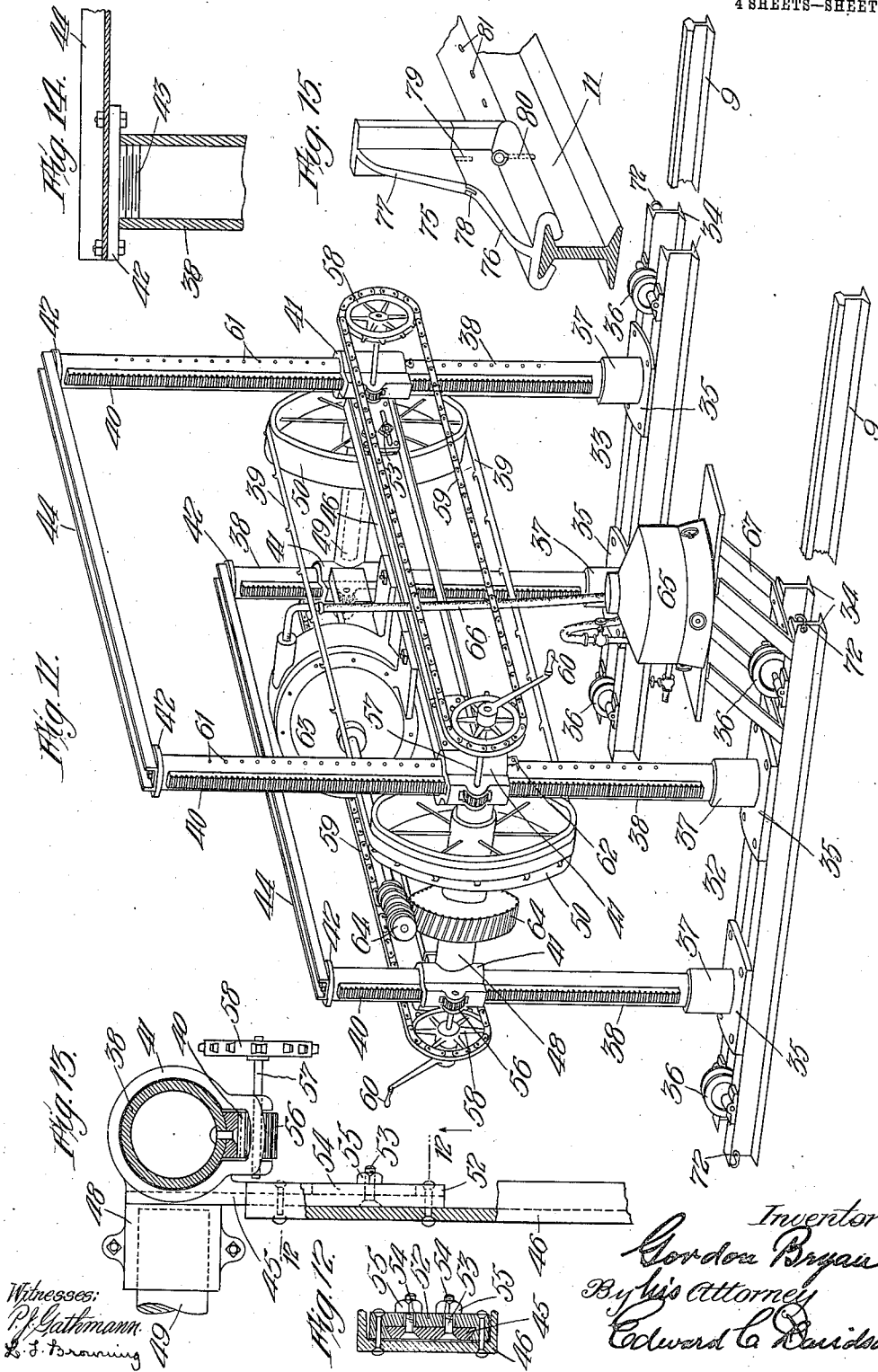
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4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

GORDON BRYAN, OF DALLAS, TEXAS, ASSIGNOR TO BENJAMIN F. WATKINS, OF MORRISTOWN, NEW JERSEY.

PORTABLE SAWMILL.

951,937.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed November 14, 1908. Serial No. 462,569.

To all whom it may concern:

Be it known that I, GORDON BRYAN, a citizen of the United States, residing in Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Portable Sawmills, of which the following is a specification.

The object of this invention is to provide a saw mill that may readily be transported upon carrying wheels of standard wagon gage or thereabout and be drawn by a single team of horses. Such an apparatus, may be drawn over ordinary roads, lanes and wagon-trails through standing timber. Lightness must, of course, be attended by adequate strength and rigidity. This object is attained by the employment of a light, strong, non-reciprocating log bed having ways longitudinally thereof upon which the saw carriage reciprocates, combined with carrying wheels and means whereby the log bed may be held elevated for transportation, or be lowered to the ground for work. When lowered the ground affords the most stable of foundations for the log bed which may, therefore, be made as light as is consistent with the work to be done. The motor, if of appropriate character, may be mounted on the saw carriage or be otherwise disposed. When a steam motor is employed the generator may be mounted and transported in any desired way.

The embodiment of the invention illustrated in the accompanying drawings comprises a band saw, such a saw being, for some reasons, preferred.

Details of construction may be varied by those skilled in such matters without departing from the spirit of the invention.

Figure 1 is a side elevation with the log bed lowered and resting on the ground; Fig. 2, a side elevation with the log bed in elevated position; Fig. 3, a side elevation showing diagrammatically the devices for moving the saw carriage back and forth on the log bed; Fig. 4, a detail plan view showing part of the mechanism for raising and lowering the saw; Figs. 5 and 6 are, respectively, a vertical section and a side elevation of the bolster for the front axle showing how the front axle may turn about the axis of the king bolt and be swung outward and inward to raise and lower the log bed; Fig. 7, is a plan view of the machine with the log bed lowered; Fig. 8, a detail view in plan

showing the connection between the front axle and the log bed; Fig. 9, a similar view showing the connection between the rear axle and the log bed; Fig. 10, a view on an enlarged scale and in rear elevation of the machine with some parts broken away; Fig. 11, a perspective view of the saw carriage and parts carried thereby; Fig. 12, a section on the line 12—12 of Fig. 13; Fig. 13, a detail view partly in plan and partly in section showing the means for adjusting the bearings of the band saw shafts to tighten the band saw; Fig. 14, a detail view in section showing the manner of connecting the upper ends of the posts of the saw carriage; and Fig. 15, is a perspective view of a special form of knee.

Preferably the log bed comprises two outside longitudinally disposed beams or sills 1, two centrally disposed longitudinal beams 2, and two intermediate beams 3 on opposite sides of the middle beams. These beams are (Fig. 10) connected at or near their ends by cross-beams 4. The middle beams 2 are prolonged as shown at 5 and 6 for a purpose hereinafter explained. Longitudinal truss rods 7 on opposite sides of the beams 3 and transverse truss rods 8 serve to strengthen and stiffen the log bed. Rails 9 on which the saw carriage is mounted are supported on the cross beams 10, transversely arranged beams 11 and cross beams 4. These cross beams are all supported on the longitudinal beams of the frame.

Crank axles 13 and 14 on which the carrying wheels 15 are mounted are provided at opposite ends of the log bed and are so mounted that they can be turned in such manner as to hold the wheels below the log bed or beyond its ends so as to lower it to the ground. Preferably the front axle 13 is secured to a metal block or casting 16 (Figs. 5 and 6), in turn connected by a vertical king bolt 17 with another block or casting 18 (Fig. 5) so that the lower casting with the axle may turn about the axis of the king bolt. The arrangement is such that the axle may rock transversely of the longitudinal axis of the log bed. The upper casting 18 is formed with arms 19 and 20 attached by horizontal bolts 21, 22 (Figs. 2 and 8), to the extensions 6 of the beams 2. The bolt 21 serves as a pivot for the axle and is permanently connected with the extensions 6, while the bolt 22 is removable.

When the wheels are in the position shown in Fig. 2 and the bolt 22 is in position, the front axle will be firmly held in place to hold the wheels under the log bed; but when bolt 22 is withdrawn, the castings will swing about the axis of bolt 21 and the wheels and axle will assume the position shown in Fig. 1.

In like manner the rear axle 14 is attached to a casting 23 having arms 24, 25, the arm 25 being pivotally connected by a bolt 26 with the extensions 5 of beams 2, while the arm 24 is connected therewith by a detachable bolt 27 so that the casting may be connected to the extension 5 in such manner as to hold the rear wheels under the log bed or permit them to assume the position shown in Fig. 1 with the log bed resting on the ground. The castings to which the axles are attached are really bolsters and are hereinafter referred to as such.

The front axle 13 carries socketed casting 28 to which the tongue 29 may be attached in the manner indicated. The sockets are also adapted to receive levers 30 employed to rock the axle to elevate and lower the log bed. Similar socketed castings 31 adapted to receive levers 30 are attached to the rear axle.

The saw is mounted on a carriage that reciprocates longitudinally of the log bed. Preferably this carriage comprises two trucks, 32, 33, each of which consists of a frame constructed of two parallel I-beams 34 connected by two plates 35 and having trolley wheels 36 that travel on the rails 9. Each of the plates 35 is formed on the top with a socketed boss 37 in which is seated vertical post 38. The posts are preferably tubular and are so spaced as to accommodate the band saw 39 and its operating mechanism. Two of the posts are made higher than the other two to allow the saw and its supporting wheels to be elevated to such an extent above the shorter posts as to permit the saw to be removed from and applied to its supporting wheels. Each post 38 is provided with a vertical rack bar 40 and a vertically movable sleeve 41 has at the top a removable flanged cap 42 (Figs. 11 and 14) with a threaded boss 43 engaging the post. The two posts of each pair are connected by transverse cross pieces 44 bolted to the flanged caps 42. The sleeves 41 have each an inwardly extending lug 45 and such lugs, of corresponding sleeves, are connected by transverse cross bars 46, cross braced by truss rods 47. The pairs of sleeves are each formed with opposite bearings 48 to receive the two shafts that carry the saw-supporting wheels 50.

To adjust the tension of the band saw, I may employ the construction shown in Fig. 13 where the bearing 48 has an arm 45 extending into a dove-tailed slideway formed between the cross-bar 46 and a plate 52 se-

cured to the cross-bar. The arm 45 carries bolts 53 that extend through slots 54 in plate 52 and have nuts 55 by means of which the bearing may be securely held when once adjusted to hold the saw under desired tension.

In order that the saw may be adjusted to the log the following mechanism for this purpose is provided: Each sleeve carries a pinion 56 meshing with the rack 40 on its post, and fast on a shaft 57, carrying a sprocket wheel 58, and corresponding sprocket wheels on diametrically opposite sides of the carriage are connected by a sprocket chain 59. The two shafts on one side of the carriage are provided with crank handles 60 by means of which all four pinions may be operated to elevate and depress the saw. The sleeves may be held in place by means of pins 62 adapted to engage holes 61 in the posts 38 (Fig. 10). The holes 61 are arranged vertically in posts and they may be, if desired, numbered or the posts be provided with scales to indicate the elevation of the saw above the log bed.

An engine for driving the saw is shown mounted on the saw carriage. It may be a steam turbine 63 supported as shown on the frame bars 46 and connected by worm, or other suitable gearing 64, with one of the saw shafts or arbors 49.

A flash boiler 65, connected by a flexible pipe 66 with the turbine, is shown supported on bracket arms 67 on one of the trolley trucks of the saw carriage.

The saw carriage may be moved back and forth on the log bed directly by hand, but preferably windlass mechanism is used. Winding drums 68 are connected with a shaft 70 operated by a crank handle 69 at the front end of the log bed, and ropes 71 connect the drums with hooks 72 at the front end of the apparatus. In this way the saw carriage may be moved in one direction and it may be moved in the opposite direction by hand, but if it is desired to move it in the opposite direction by power, I may provide hooks 72 at the opposite end of the saw carriage and lead the ropes 71 over the pulleys 73 at the rear end of the apparatus and connect these ropes with the hooks 72 at the rear end of the carriage.

Any suitable means may be employed, if necessary, for holding the log on the log bed. Fig. 15, shows a knee 75 of novel construction. It is made in two parts. The lower part 76 is made to engage one of the I-beams 11 so as to be held against vertical movement while free to slide thereon, and is held securely in place by means of a pin 80 passing through holes 81 in the I-beam. The upper part 77 of the knee is detachable and is made to engage the lower part by means of tongues 78 and 79 that enter corresponding recesses in the upper end of the lower section 76. By removing the upper

section 77, a log may be easily rolled over the lower section of the knee and then the upper section may be replaced. Furthermore, when a log is partially cut the upper section 77 may be removed so that the saw may operate to a lower level on the log.

Other necessary appurtenances of a saw mill may, of course, be used, such as saw guides, one of which I have indicated at 82.

10 When it is desired to remove a band saw from its supporting wheels, the cross-bar 44 and the caps 42 of the front or shorter posts 38 are removed and the sleeves 41 on the rear or longer posts are elevated to the level of 15 the tops of these posts. In this position the band wheels are held so as to permit the band saw to be easily withdrawn or replaced.

I claim:

20 1. A portable saw mill comprising a saw carriage, a log bed having ways longitudinally thereof upon which the saw carriage reciprocates, transporting carrying wheels supporting the log-bed, and means for at 25 lowering the log-bed to rest upon the ground.

2. A portable saw mill comprising a saw carriage, a log bed having ways longitudinally thereof upon which the saw carriage reciprocates, front and rear transporting 30 carrying wheels, their crank axles, connections between the ends of the log-bed and the respective crank axles, and means for rocking the axles to lower the log-bed upon the ground or to bring the carrying wheels 35 under it for transportation.

3. A portable saw mill comprising a saw carriage, a log bed having ways longitudi-

nally thereof upon which the saw-carriage reciprocates, transporting carrying wheels supporting the log-bed, means for at will 40 lowering the log-bed to rest upon the ground and a saw actuating motor mounted to reciprocate with the saw-carriage.

4. A portable saw mill comprising a saw-carriage, a log bed having ways longitudinally thereof upon which the saw carriage 45 reciprocates, front and rear transporting carrying wheels, their crank axles, connections between the ends of the log-bed and the respective crank axles, means for rock- 50 ing the axles to lower the log-bed upon the ground or to bring the carrying wheels under it for transportation and a saw actuating motor mounted to reciprocate with the saw carriage. 55

5. The combination of a stationary log bed adapted to lie upon the ground and having on it ways longitudinally thereof adjacent its sides and means between the ways 60 for holding the log to be cut, a traveling saw carriage comprising trucks traveling on said ways and vertical posts carried by the trucks, a saw mounted on the carriage above the log bed and adapted to make a cut parallel with the plane of the log bed, means for 65 vertically adjusting the saw on said posts to successively cut the log, and a motor mounted on the saw carriage.

In testimony whereof, I have hereunto subscribed my name.

GORDON BRYAN.

Witnesses:

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W. L. DIAMOND.