

No. 693,630.

Patented Feb. 18, 1902.

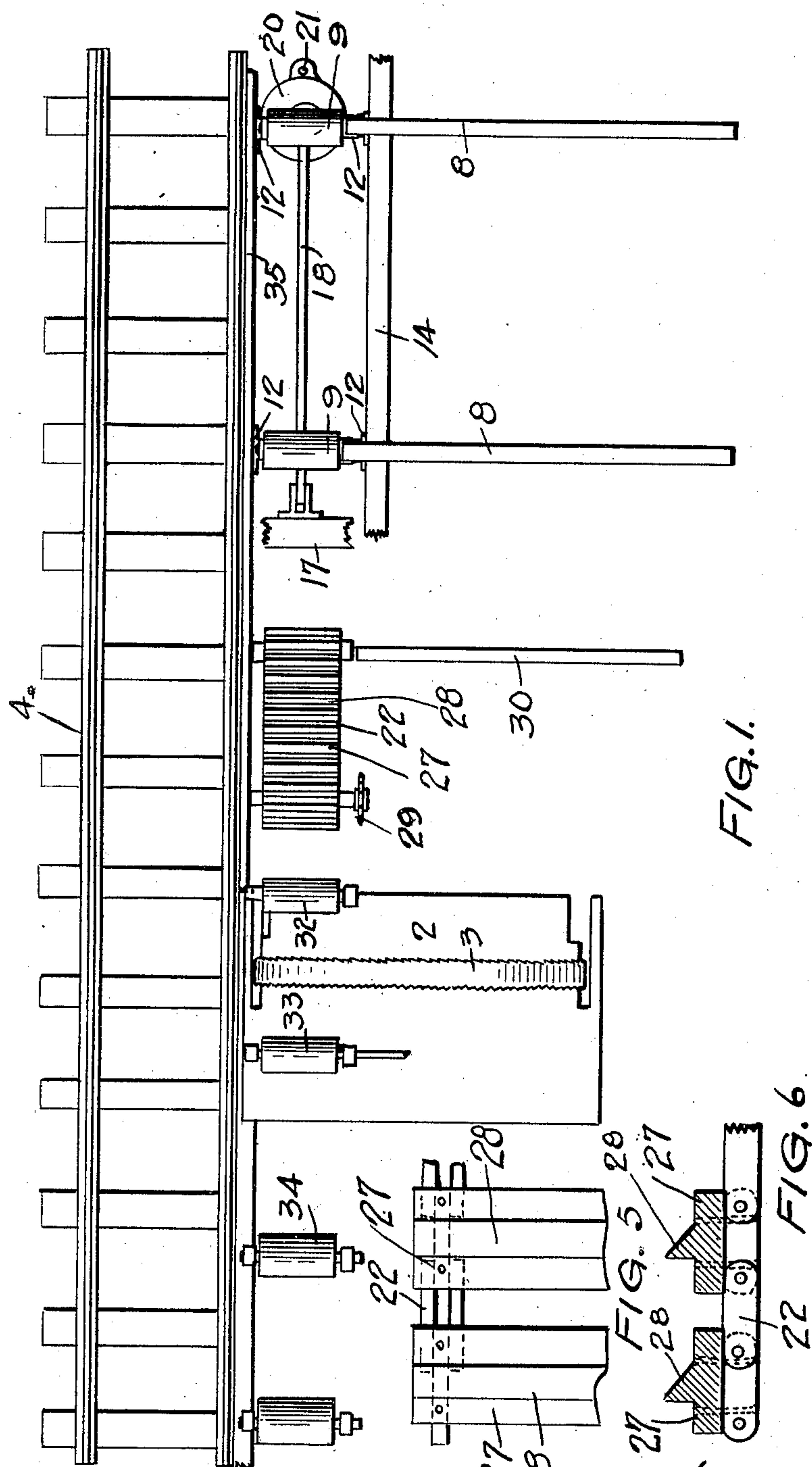
E. E. THOMAS.

LUMBER CONVEYER FOR DOUBLE CUTTING BAND MILLS.

(Application filed Nov. 29, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES
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28
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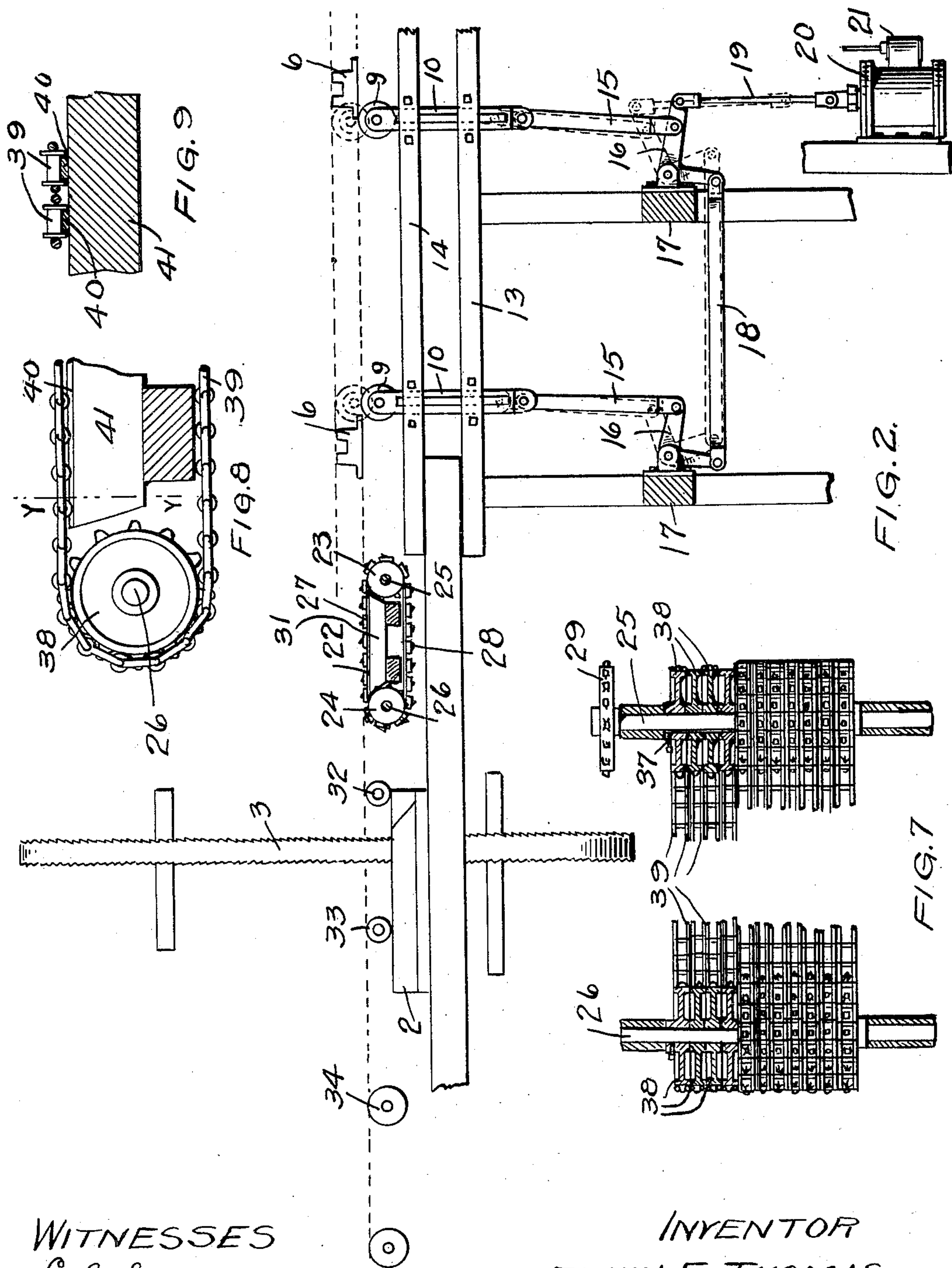
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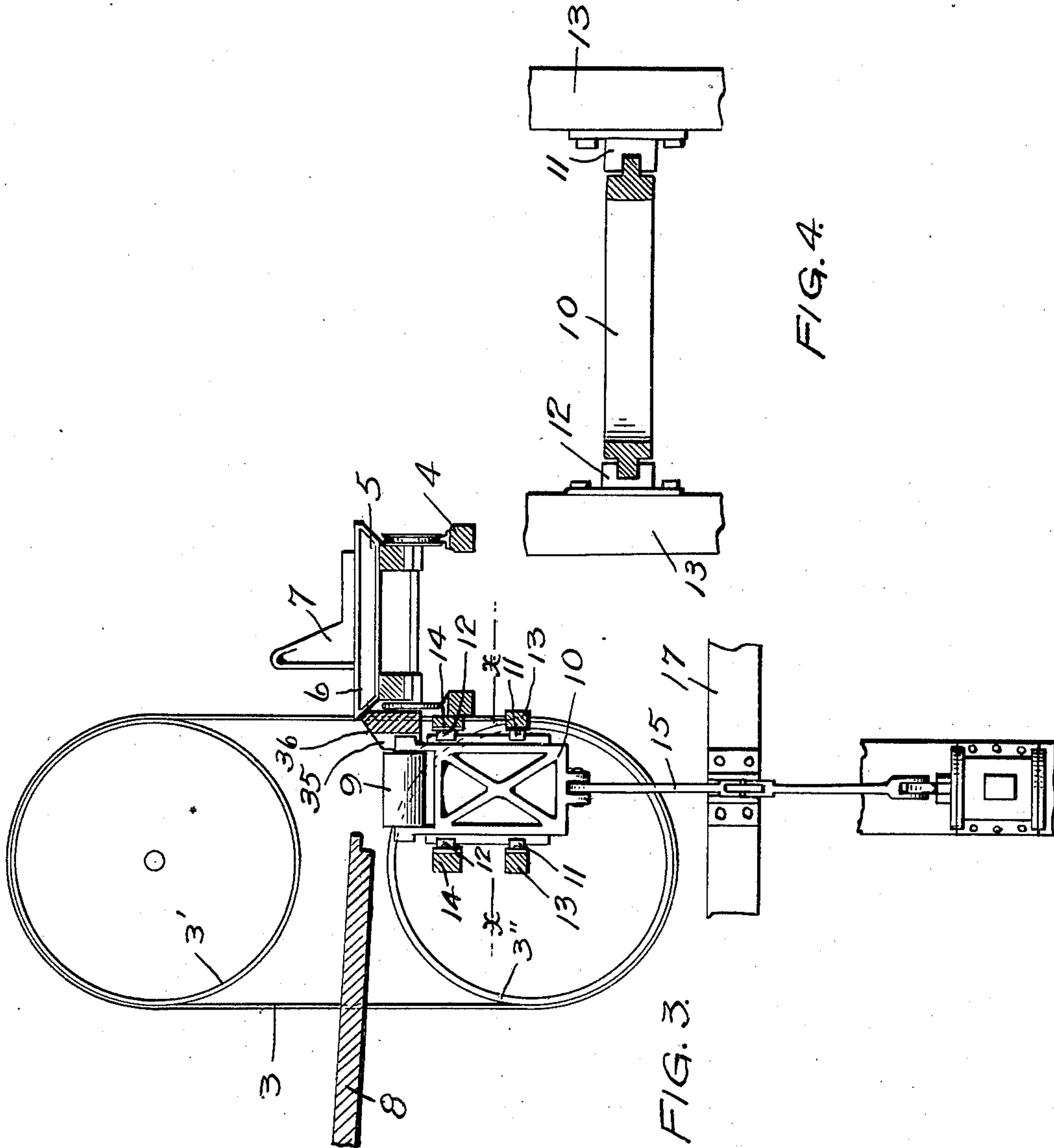
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UNITED STATES PATENT OFFICE.

EDWIN E. THOMAS, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-HALF TO UNION IRON WORKS, OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

LUMBER-CONVEYER FOR DOUBLE-CUTTING BAND-MILLS.

SPECIFICATION forming part of Letters Patent No. 693,630, dated February 18, 1902.

Application filed November 29, 1901. Serial No. 83,997. (No model.)

To all whom it may concern:

Be it known that I, EDWIN E. THOMAS, of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Lumber-Conveyers for Double-Cutting Band-Mills, of which the following is a specification.

The invention relates to band-mills, particularly to those of the double-cutting type, and is designed as an improvement over the construction shown and described in a companion application herewith, filed August 20, 1901, Serial No. 72,649.

The primary object of my invention is to dispense entirely with all skids and other bridging devices and provide means upon which the lumber may fall and be moved away and upon which the logs may be rolled from the deck to the carriage as fast as they can be sawed. A further object is to cause the lumber as it falls from the carriage to assume a proper carrying position on the lumber-conveying means.

A further object is to provide a lumber-conveying means between the saw and log-deck which will not only carry away lumber, but also the bark and other refuse which in mills as usually constructed accumulate between the live conveying-rolls and delay or stop the movement of the lumber.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in providing a lumber-conveying belt or bed between the saw and the log-deck, said belt being adapted to convey away the refuse and bark as well as the lumber falling thereon.

Further, the invention consists in providing rolls movable vertically between the log deck and carriage, said rolls serving as supports for the lumber falling thereon and as skids upon which the logs may be rolled from the deck to the carriage.

Further, the invention consists in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan

view of a double-cutting band-mill and lumber-conveyer embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an end view. Fig. 4 is a section on the line xx of Fig. 3. Figs. 5 and 6 are details of the lumber-conveyer shown in Fig. 1. Fig. 7 is a plan view, partially in section, of a modified form of lumber-conveyer. Fig. 8 is a detail of a portion of the form of conveyer shown in Fig. 7. Fig. 9 is a section on the line yy of Fig. 8.

In the drawings, 2 represents a double-cutting band-mill; 3, the saw; 3' and 3'', the upper and lower band-wheels, respectively; 4, the track whereon the log-carriage moves, and 5 the log-carriage, provided with head-blocks 6 and knees 7.

8 represents the log-skids, provided in the top of the log-deck, and 9 represents idle rolls mounted in bearings in frames 10, that are vertically movable in guides 11 and 12, provided on timbers 13 and 14. The frames 10 are each pivotally connected by links 15 with bell-cranks 16, that are pivoted on timbers 17 and are connected by a bar 18. The arm of one of said bell-cranks is pivotally connected to the piston-rod 19 of the cylinder 20, whose valve 21 is within control of the operator. Movement of the cylinder-piston will raise or lower the frames 10 and the idle rolls carried thereby. I prefer to arrange these rolls so that when in their normal position they will be below the level of the carriage head-blocks, as indicated by full lines in Fig. 2, as I have found that in this position the lumber can be more conveniently delivered to the rolls and will be more likely to assume the proper carrying position thereon than when the rolls are substantially on a level with the head-blocks. When the rolls are in their raised position, as indicated by dotted lines in Fig. 2, they will be substantially on a level with the log-skids and with the top of the carriage head-blocks and will serve as skids on which the logs may be rolled from the deck to the carriage, thus dispensing with all bridging devices and with the permanent fixed skids that heretofore have been used for this purpose.

Between the saw and the log-deck I provide an endless conveyer belt or bed on a level substantially with the rolls 9 when in their normal position. This belt consists of chains 5 22, provided on sprocket-wheels 23 and 24, that are mounted on shafts 25 and 26, having bearings in suitable timbers, which for clearness of illustration I have omitted from the drawings. The belts are connected at intervals by metal bars or slats 27, provided with longitudinal ribs or teeth 28, that are adapted to dig into the under side of the lumber and prevent it from slipping on the conveyer. The shaft 26 is provided with a driving-sprocket 29. I have shown in Fig. 1 a lumber-conveyer extending to a point substantially opposite the log-deck guard 30; but it may be continued to a point near the rolls 9, if preferred. The conveyer operates preferably over a floor or bed 31, upon which the bark and refuse material fall and are carried away by the slatted conveyer with the lumber. The conveyer is also on a level, preferably, with the rolls 32 and 33, provided, respectively, upon opposite sides of the band-saw and over which the lumber is advanced between the band-wheels to the rolls 34, where it mingles with the lumber that is cut on the forward movement of the carriage. 30 Between the rolls 9, the conveyer-belt, and the carriage I provide a timber 35, having an inclined face 36, upon which the lumber falls and is directed to a proper carrying position upon the rolls and the lumber-conveyer.

35 In Figs. 7, 8, and 9 I have shown a modification in the construction of the conveyer, which consists in providing the shafts 25 and 26 with feathers 37 and arranging thereon a series of sprocket-wheels 38, the outer wheels 40 on each shaft being held in place by set-screws. These sprockets are connected by chains 39, the upper sections of which slide on metal bars 40, provided on the floor or bed 41.

The operation of my improved lumber-conveying means is as follows: The mill being ready to begin sawing, the operator will admit steam to the cylinder 20 and raise the rolls 9 to the position indicated by dotted lines in Fig. 2, where they will be substantially on a level with the log-skids and the top of the carriage head-blocks, and being securely held in that position can be utilized as skids on which the logs may be rolled from the deck to the carriage, thus dispensing with the fixed skids 55 used in many cases and with the oscillating bridging-arms that are frequently employed in connection with the conveying-rolls. As soon as a log is placed on the carriage the rolls are dropped back to the position indicated by full lines in Fig. 2, where they will be on a level with the lumber-conveying belt and will serve as supports for the ends of the lumber that fall upon the conveyer on the return movement of the carriage. The conveyer being constantly in motion will carry away the lumber as fast as it falls on the rolls and keep them clear, so that as soon as

one log is sawed the operator can again raise the rolls and roll another log from the deck to the carriage. By this very simple construction I am able to make the idle rolls 70 serve a double purpose—as skids for the logs and as supports for the lumber—and dispense with a considerable portion of the mechanism which heretofore has been necessary in a mill 75 of this character. The idle rolls might be arranged on fixed supports on a level with the head-blocks, as described and claimed in the companion application above referred to; but in that case it would be necessary to elevate 80 the lumber-conveying belt also, and I prefer not to do this, as I have found that the lumber would be less apt to assume the proper carrying position on the conveyer and be more likely to come in contact with the saw when 85 the conveyer is elevated than when it is depressed.

I claim as my invention—

1. In a band-mill, the combination, with a saw, log deck and carriage, one or more idle 90 rolls between the said deck and carriage, means for raising and lowering said rolls, in their raised position said rolls being on a level substantially with the carriage head-blocks and adapted to act as skids over which the 95 logs are rolled from the deck to the carriage and in their depressed position said rolls acting as supports for the lumber that falls from said carriage.

2. In a double-cutting band-mill, the combination, with the saw, log deck and carriage, of toothed lumber-conveying means provided between said saw and deck and whereon the lumber falls that is cut on the backward or return movement of the carriage, and idle 105 rolls provided between said deck and carriage and on substantially the same level with said lumber-conveying means, said rolls serving as skids over which the logs are rolled from the deck to the carriage and as supports for 110 the ends of the lumber that fall upon said lumber-conveying means.

3. The combination, with the saw, log deck and carriage, of lumber-conveying means provided between said saw and deck and whereon 115 the lumber falls that is cut on the backward or return movement of the carriage, said conveying means being below the level of the carriage head-blocks, idle rolls provided between said deck and carriage and normally on substantially the same level with said lumber-conveying means and serving as supports for the ends of the lumber that fall upon said conveying means, and means for raising said rolls 120 to a point on a level with the carriage head-blocks to serve as skids whereon the logs are rolled from the deck to the carriage. 125

4. In a double-cutting band-mill, the combination, with the saw, log deck and carriage, of a lumber-conveying belt provided between 130 said saw and deck and below the level of the carriage head-blocks and whereon the lumber falls that is cut on the backward or return movement of the carriage, and vertically-

movable idle rolls provided between the log deck and carriage and normally on substantially the same level with said lumber-conveying means to serve as supports for the ends of the lumber that fall thereon, said rolls when raised being on a level substantially with the carriage head-blocks and serving as skids over which the logs are rolled from the deck to the carriage.

5. In a double-cutting band-mill, the combination, with the saw, log deck and carriage, of lumber-conveying means provided between the saw and deck whereon the lumber falls that is cut on the backward or return movement of the carriage, idle rolls provided between the deck and carriage, vertically-movable frames wherein said rolls are supported, means for raising and lowering said frames, said rolls in their depressed position being substantially on a level with said lumber-conveying means and adapted to support the lumber thereon, and in their raised position being substantially on a level with the carriage head-blocks and acting as skids whereon the logs may be rolled from the deck to the carriage.

6. In a double-cutting band-mill, the combination, with the saw, log deck and carriage, of a lumber-conveyer provided between the saw and deck below the level of the carriage head-blocks and whereon the lumber falls that is cut on the return or backward movement of the carriage, idle rolls provided between the deck and carriage and normally on a level with said lumber-conveyer to aid in supporting the lumber thereon, means for raising said idle rolls to a point substantially on a level with the carriage head-blocks where they will serve as skids on which the logs may be rolled from the deck to the carriage, and a lumber-guiding means provided between said rolls and lumber-conveyer and said carriage.

7. In a double-cutting band-mill, the combination, with a saw, log deck and carriage, of a toothed lumber-conveyer provided between said saw and deck and below the level of the carriage head-blocks and whereon the lumber falls that is cut on the backward or return movement of the carriage, idle rolls provided between said deck and carriage and normally on a level with said lumber-con-

veyer to support the ends of the lumber thereon, and means for raising said idle rolls upon a level substantially with the carriage head-blocks where they will serve as skids on which the logs may be rolled from the deck to the carriage.

8. In a band-mill, the combination, with a saw, log deck and carriage, of one or more idle rolls between said deck and carriage, vertically-movable frames whereon said rolls are supported, means for raising and lowering said frames, said rolls in their raised position being on a level substantially with the carriage head-blocks, and adapted to act as skids over which the logs are rolled from the deck to the carriage and in their depressed position serving as supports for the lumber that falls from said carriage.

9. In a band-mill, the combination, with a saw, log deck and carriage, of one or more supports provided between said deck and carriage, means for raising and lowering said supports, in their elevated position said supports being on a level substantially with the carriage head-blocks and adapted to act as skids over which the logs are rolled from the deck to the carriage and in their depressed position said supports being adapted to receive the lumber that falls from said carriage.

10. In a double-cutting band-mill, the combination, with a saw, log deck and carriage, a lumber-conveying means provided between said saw and deck and whereon the lumber falls that is cut upon the backward or return movement of the carriage, movable supports provided between said deck and carriage and normally on substantially the same level with said lumber-conveying means, means for raising or lowering said supports, in their raised position said supports being adapted to act as skids over which the logs are rolled from the deck to the carriage and in their depressed position said supports being adapted to receive the ends of the lumber that falls upon said lumber-conveying means.

In witness whereof I have hereunto set my hand this 26th day of November, 1901.

EDWIN E. THOMAS.

In presence of—

RICHARD PAUL,
M. C. NOONAN.