No. 699,120. Patented Apr. 29, 1902.

E. E. THOMAS.

SKID ARM FOR DOUBLE CUTTING BAND MILLS.

(Application filed Aug. 20, 1901.)

(No Model.) 3 Sheets—Sheet 1.

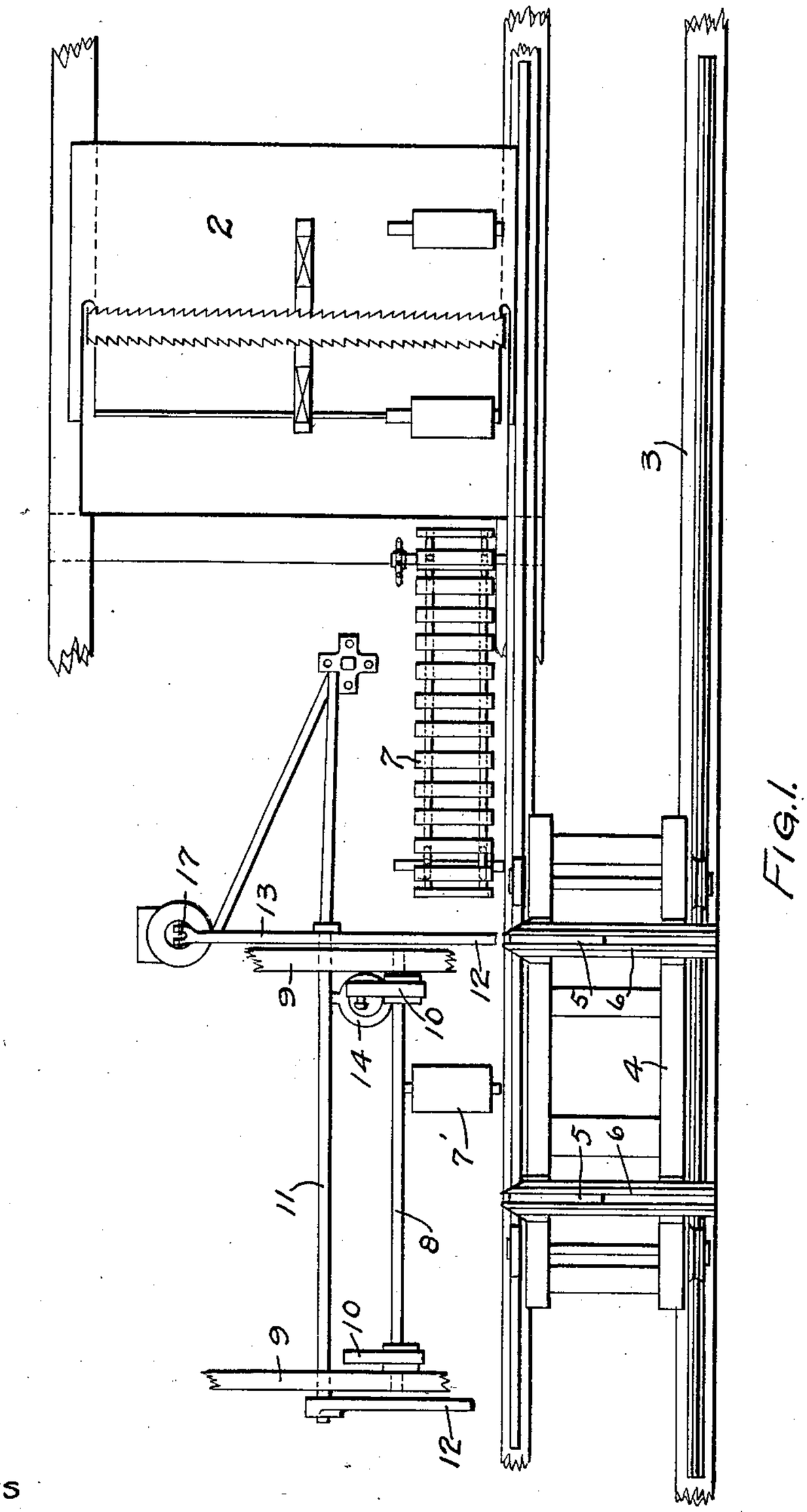

FIG. 1.

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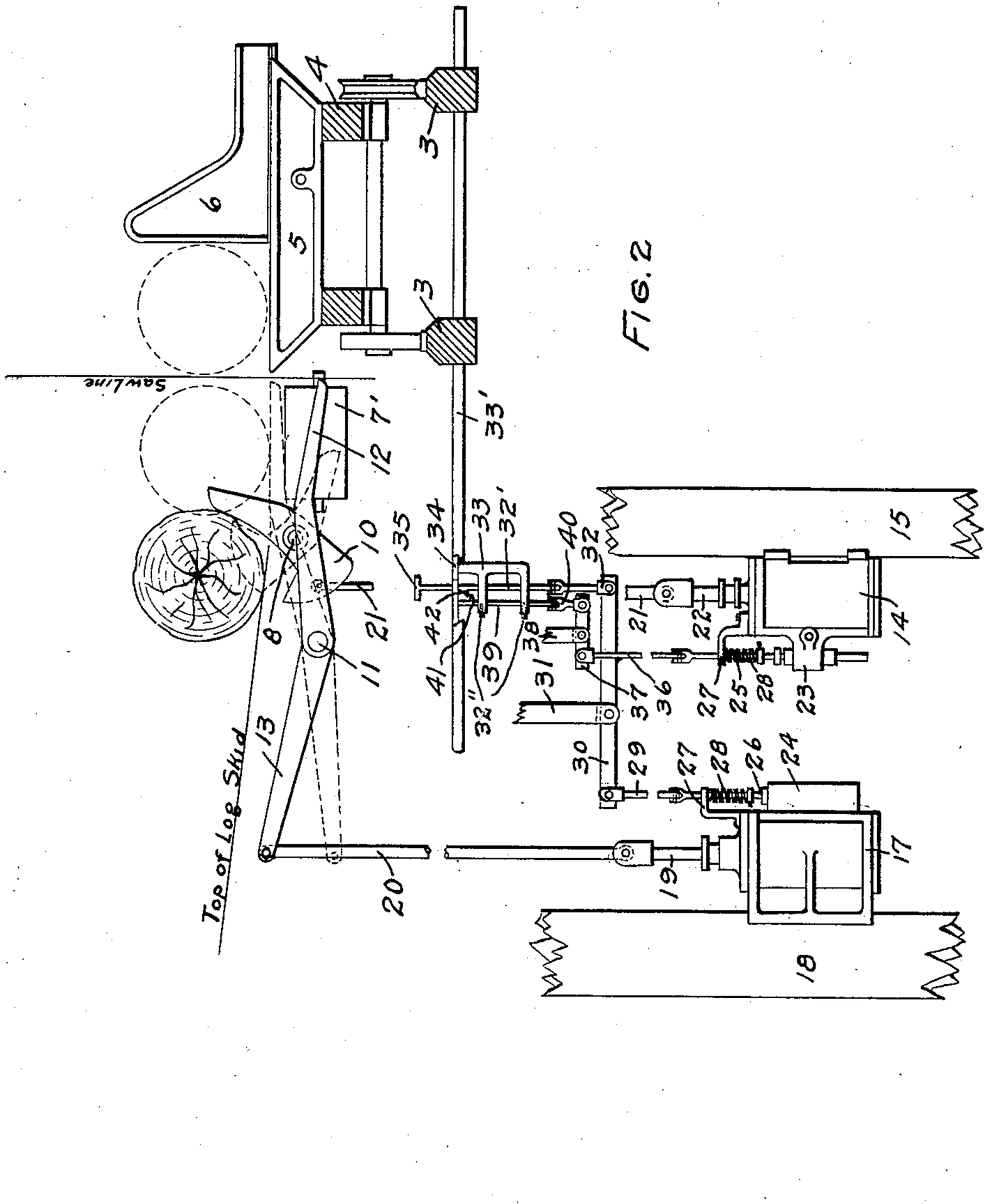

FIG. 2

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(No Model.) 3 Sheets—Sheet 3.

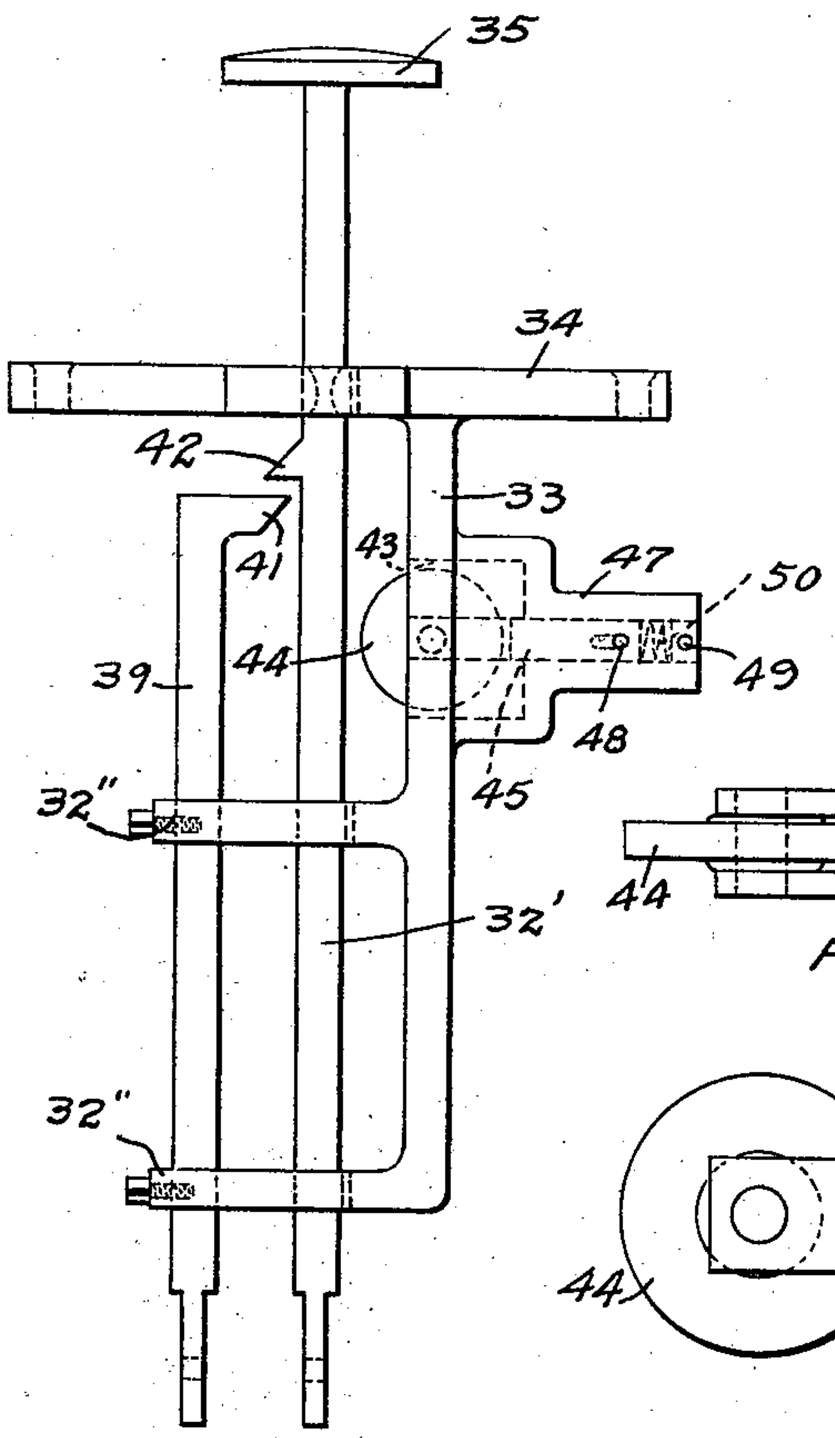

FIG. 3.

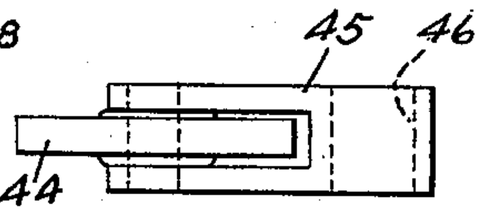

FIG. 6.

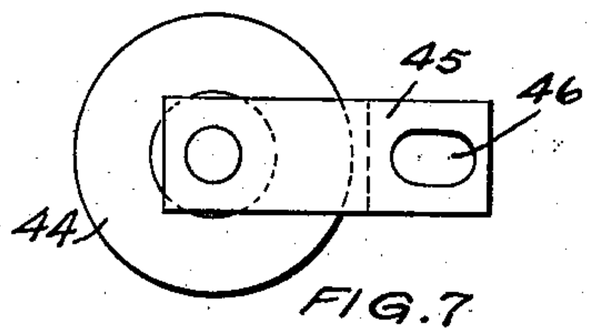

FIG. 7.

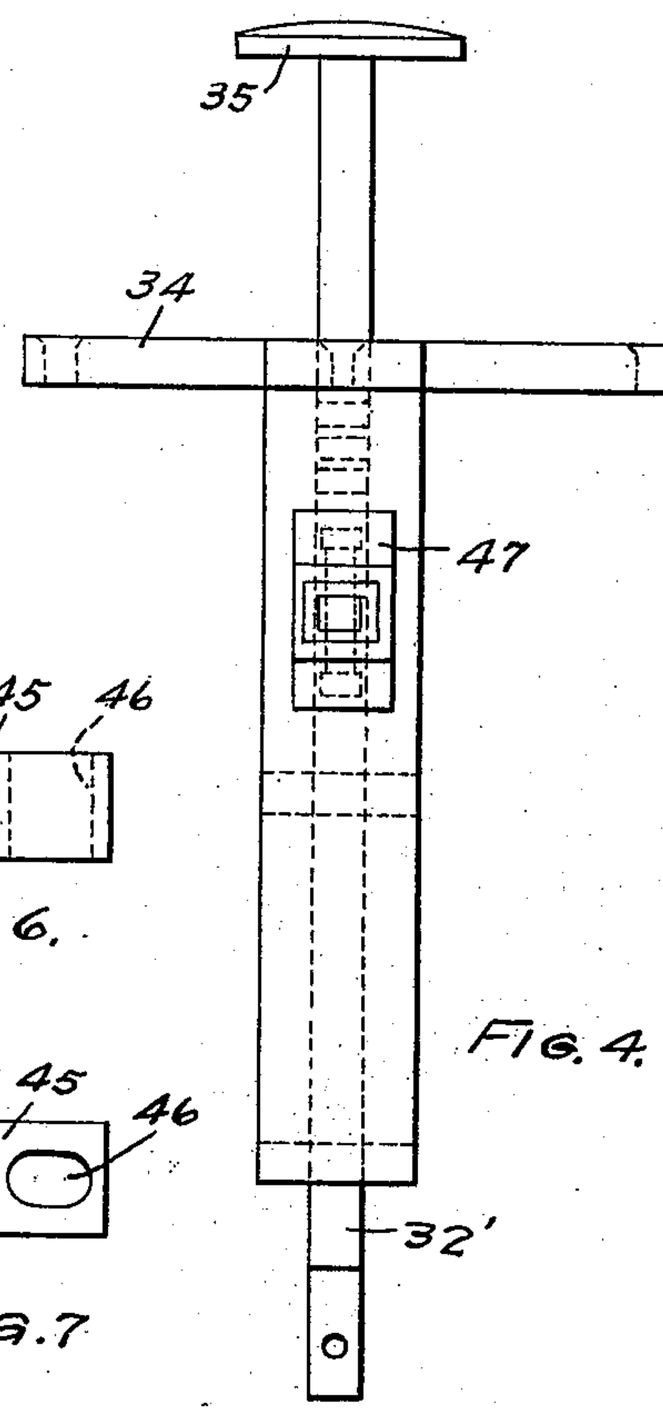

FIG. 4.

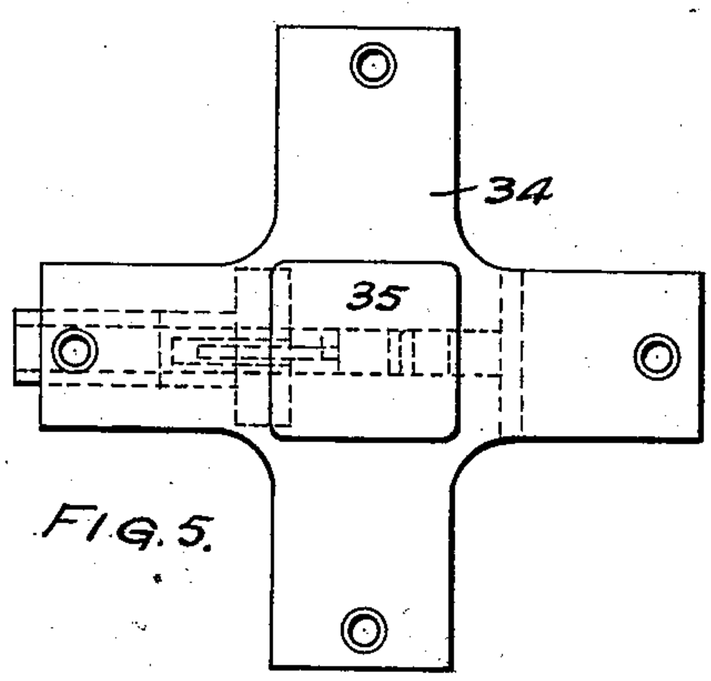

FIG. 5.

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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.

SKID-ARM FOR DOUBLE-CUTTING BAND-MILLS.

SPECIFICATION forming part of Letters Patent No. 699,120, dated April 29, 1902.

Application filed August 20, 1901. Serial No. 72,648. (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 Skid-Arms for Double-Cutting Band-Mills, of which the following is a specification.

The invention relates to double-cutting band-mills.

The object of the invention is to provide means that are adapted for use with the well-known type of log stop or kicker for skidding or bridging the logs over the lumber-conveyer, which in a double-cutting mill is located between the log deck and carriage.

A further object is to provide means onto which a log may be rolled from the carriage should it be necessary to repair the carriage, clear away the bark under or around the log, or for any other purpose.

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

The invention consists generally in providing rocking skid-arms whereon the logs roll from the deck to the carriage.

Further, the invention consists in providing rocking skid-arms that are adapted for use in connection with the common log stop or loader.

Further, the invention consists in providing means within the control of the sawyer for simultaneously operating the combined log stop and loader and said skid-arms or for operating the latter independently of the former.

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, a carriage, and a portion of a log-deck with my invention applied thereto. Fig. 2 is an end view. Fig. 3 is a side view of the foot-operated mechanism. Fig. 4 is an edge view of the same. Fig. 5 is a plan view of the floor-plate for said mechanism, the operative parts being indicated by dotted lines. Figs. 6 and 7 are details of the antifriction device for said foot-operated mechanism.

In the drawings, 2 represents a double-cutting band-mill of the ordinary type, 3 a track, and 4 a log-carriage having the usual head-blocks 5 and knees 6.

For the sake of clearness of illustration I have omitted the timbers composing the log-deck, merely indicating the surface of the same by the simple line.

7 represents a lumber-conveyer used with a double-cutting mill for taking away the lumber cut on the backward or return stroke of the carriage, and said conveyer is located between the deck and the band-mill. An idle roll 7′, forming part of the conveyer, is placed between the carriage and the deck, which are suitably spaced for that purpose. If preferred, the conveyer-belt may be extended back in front of the deck.

8 is a rock-shaft mounted in timbers 9, beneath the log-deck, and carrying combined log stops and kickers 10 of the type in general use. The devices are shown in their usual position in Fig. 2 acting as stops to prevent the logs from rolling off the deck. When the shaft is rocked, the stops will be swung down beneath the deck, and the heel of each device or the kicker portion will be elevated to set the log in motion toward the carriage.

In the rear of the shaft 8 is a second rock-shaft 11, also mounted in the timbers 9 and provided with rocking skid-arms 12 near each end, the free ends of said arms extending across the space between the deck and the carriage normally below the level of the conveyer. One of said skid-arms preferably has a backward extension or projection 13, to which the mechanism for rocking the skid-arm shaft is connected. An independent arm may be provided on the shaft for this purpose, if preferred.

The stops, loaders, and skid-arms are within the control of the sawyer, as is customary in mechanisms of this kind.

Beneath the rock-shafts is a steam-cylinder 14, supported on a timber 15. A corresponding cylinder 17 is secured on a timber 18 beneath the extension 13, and the piston-rod 19 is connected with said extension by a rod 20. A similar rod 21 connects the piston-rod 22 of the cylinder 14 with one of the log-kickers. The cylinders 14 and 17 are provided, respectively, with slide-valves 23 and 24, which, with

the cylinders, are of ordinary construction and need no detailed illustration or description. The valves have stems 25 and 26, that are slidable in guides 27 on their respective cylinders and are provided with coil-springs 28, that normally hold the valves in their closed position. The valve-stem 26 is connected by a link 29 with one end of a lever 30, that is pivotally supported at one side of the center on a bar 31. The long arm of the lever 30 is pivotally connected by a forked link 32 with a pedal-bar 32′, that is vertically movable in guide-arms 32″, provided on a hanger 33, which depends from the mill-floor 33′. The pedal-bar 32′ projects above the floor through a plate 34 and is provided with a foot-pedal 35, within reach of the sawyer. When the pedal-bar is depressed, the valve 24 will be opened against the tension of its spring to allow steam to enter the cylinder 17, rock the shaft 11, and raise the skid-arms above the level of the conveyer.

The valve-stem 25 is connected by a link 36 with one end of a lever 37, that is also pivotally supported at one side of its center on a bar 38 and has its long arm pivotally connected with a bar 39 by means of a fork-shaped link connection 40. The bar 38 is movable in the guide-arms 32″ and has a projection 41 near its upper end in position to be struck by a lug 42 on the bar 32′ when it is depressed. The hanger 33 is provided with a slot 43, within which I arrange an antifriction bearing or guide wheel 44, mounted in a frame 45. The frame is provided with a slot 46 and is inclosed by a housing 47, having an open outer end. A pin 48 passes through said housing and the slot 46 and limits the horizontal movement of the wheel 44. A second pin 49 is provided in the housing near its open end, and between said pin 49 and the end of the wheel-frame I arrange a coil-spring 50, accessible through the open end of the housing and normally holding the antifriction-wheel forward to act as a guide for the pedal-bar 32′ and cause its lug to positively engage the other bar 38. The simultaneous depression of the two bars will therefore take place when the sawyer places his foot on the pedal, the stop and kicker piston will be operated to actuate the stops and kickers, and the skid-arm shaft will be rocked to raise the arms above the lumber-conveyer. The opening in the floor-plate through which the pedal-bar projects is sufficiently large to allow lateral movement of said bar, and should the sawyer at any time wish to operate the skid-arms independently of the stops and kickers he can do so by pressing the bar 32′ to one side against the wheel 44 and forcing said wheel back into the housing until the lug 42 clears the projection 41, when the pedal-bar may be depressed, as before, and the stops and kickers will remain inoperative while the skid-arms are elevated. This operation of the skid-arms independently of the stops and kickers enables the millmen to roll a log back off the carriage upon the skids should they wish to repair the carriage or clear away the bark without releasing any of the logs on the deck. The mechanism may be readily attached to a log-deck without changing the construction or affecting the operation of the ordinary log stops and kickers that may be in use, and is in consequence especially adapted for mills already in operation.

The operating parts of the device may of course be modified, the essential features being its adaptability to mills equipped with the common form of stops and kickers and the mechanism which permits simultaneous operation of the stops, kickers, and skid-arms or the independent use of the latter.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a double-cutting band-mill, the combination, with a log-deck, of a carriage spaced therefrom, a lumber-conveyer, log stops and kickers, oscillating bridging means extending across said conveyer normally below its level, a single operating-bar within the control of the sawyer and means governed by the movement of said bar for operating said stops and kickers and bridging means simultaneously, or said bridging means independently of said stops and kickers, substantially as described.

2. In a band-mill, the combination, with the log stops and kickers, of the carriage and its track spaced therefrom, a lumber-conveyer, oscillating skid-arms, cylinders having their pistons connected respectively with said stops and kickers and said skid-arms and provided with suitable valves, bars adapted to be actuated by the foot of the sawyer, one of said bars being provided with means for operating the other bar and operative connections provided respectively between said bars and said valves.

3. The combination, with a log-deck, of the carriage spaced therefrom, lumber-conveying rolls provided between said deck and carriage, a rock-shaft, arms mounted on said shaft beneath said deck and having their free ends projecting across the space between said deck and carriage and normally below the level of said rolls, log stops and kickers, cylinders having their pistons connected respectively with said rock-shaft and said log stops and kickers and provided with suitable valves, bars adapted to be actuated by the foot of the sawyer, one of said bars being operable by the movement of the other and operative connections provided respectively between said bars and said valves.

4. In a double-cutting band-mill, the combination, with the log-deck, of a carriage spaced therefrom, a lumber-conveyer, log stops and kickers, a rock-shaft, skid-arms thereon projecting across and normally below the level of said conveyer, a pedal-bar and means controlled by the movement of said

bar for simultaneously operating said stops and kickers and rocking said shaft to raise said arms, substantially as described.

5. In a double-cutting band-mill, the combination, with the log stops and kickers, of a carriage and its track spaced therefrom, a lumber-conveyer, oscillating skid-arms, cylinders having their pistons connected respectively with said stops and kickers and said skid-arms, and provided with suitable valves, a pedal-bar within reach of the sawyer, a second bar operated by the movement of the first, and operative connections provided respectively between said bars and said valves, substantially as described.

6. In a double-cutting band-mill, the combination, with the log-deck, of a carriage and track spaced therefrom, a lumber-conveyer provided between said deck and carriage, bridging means for said conveyer, a cylinder connected with said bridging means and having a suitable valve, a pedal-bar having a lug, a second bar engaged by said lug when said pedal-bar is depressed, a second cylinder connected with said stops and kickers and also having a valve, and operative connections provided between said bars and said valves respectively, substantially as described.

7. In a double-cutting band-mill, the combination, with a log-deck, of a carriage and track spaced therefrom, a lumber-conveyer between said deck and carriage, log stops and kickers, skid-arms projecting across said conveyer and normally below its level, means for operating said stops and kickers, independent means for operating said arms, a bar operatively connected with said stop and kicker operating means, and a pedal-bar having means for engaging and actuating said first-named bar when depressed, and suitable connections between said pedal-bar and said skid-arm-operating means, substantially as described.

8. In a double-cutting band-mill, the combination, with the log-deck, of a carriage and track spaced therefrom, a lumber-conveyer, oscillating log stops and kickers, skid-arms projecting across said conveyer normally below its level, means for operating said stops and kickers, independent means for operating said arms, a bar operatively connected with said stop and kicker operating means, a pedal-bar having means for engaging and actuating said first-named bar when depressed, yielding means for holding and guiding said pedal-bar during its depression, and suitable connections provided between said pedal-bar and said skid-arm-operating means, substantially as described.

9. In a double-cutting band-mill, the combination, with a log-deck, of a carriage spaced therefrom, lumber-conveying rolls provided between said deck and carriage, oscillating skid-arms supported beneath said deck and bridging the space between the same and said carriage and normally below the level of said rolls, log stops and kickers near said skid-arms, a pedal-bar, means controlled by the movement of said bar for operating said skid-arms and said stops and kickers simultaneously, and means permitting the movement of said bar to cause the operation of said skid-arms independently of said stops and kickers, substantially as described.

10. The combination, with a log-deck, of a carriage and track spaced therefrom, lumber-conveying rolls provided between said deck and carriage, oscillating skid-arms projecting across the space between said deck and carriage and normally below the level of said rolls, log stops and kickers provided near said skid-arms, means for operating said skid-arms, means for operating said log stops and kickers, and a single operating device for releasing with one movement said skid-arm and said stop and kicker operating means to actuate them simultaneously or for releasing, with a similar movement, said skid-arm-operating means independently of said stop and kicker operating means.

11. The combination, with the log stops and kickers, of a carriage and its track spaced therefrom, a lumber-conveyer, oscillating skid-arms, cylinders having their pistons connected respectively with said stops and kickers and said skid-arms and provided with suitable valves, an operating device within reach of the sawyer, a second operating device operated by the movement of the first, and suitable connections provided respectively between said operating devices and said valves.

In testimony whereof I have hereunto set my hand, this 15th day of August, 1901, at Minneapolis, Minnesota.

EDWIN E. THOMAS.

In presence of—
RICHARD PAUL,
M. E. GOOLEY.