No. 799,837. PATENTED SEPT. 19, 1905.

H. G. DITTBENNER.

GANG CUT-OFF SAWING MACHINE.

APPLICATION FILED MAR. 25, 1905.

4 SHEETS—SHEET 1.

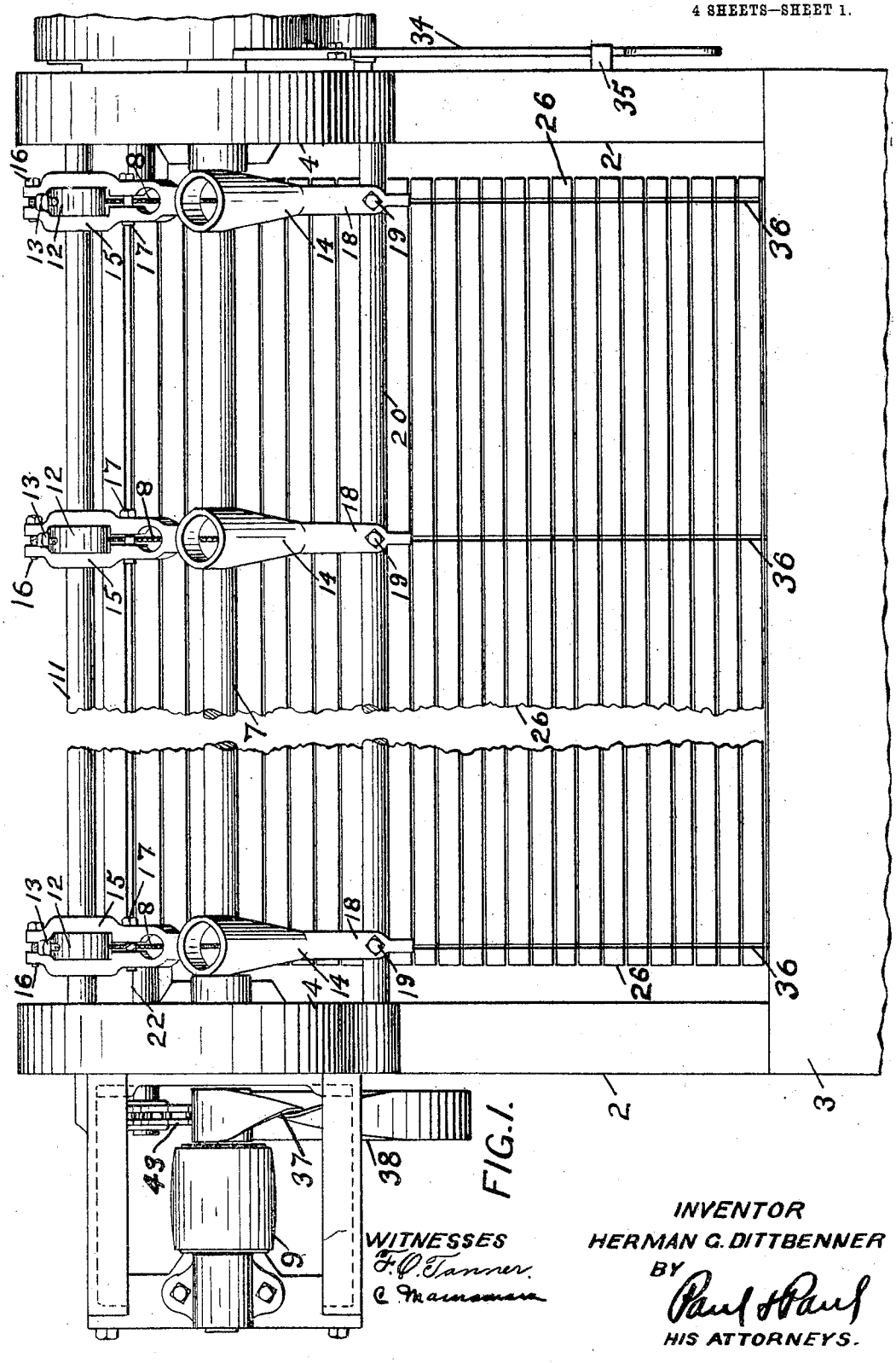


FIG. 1.

WITNESSES
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C. Mannamara

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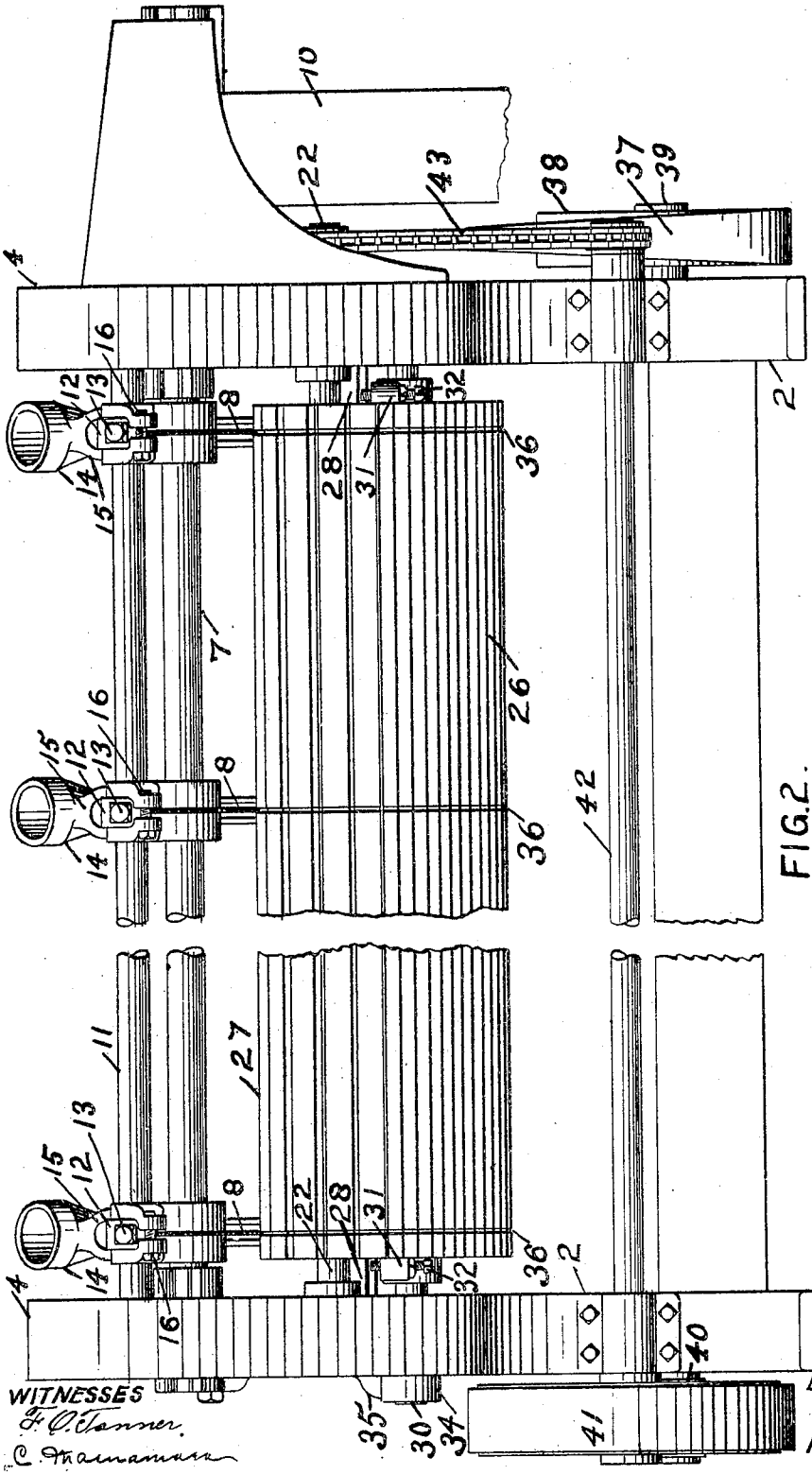


FIG. 2.

WITNESSES

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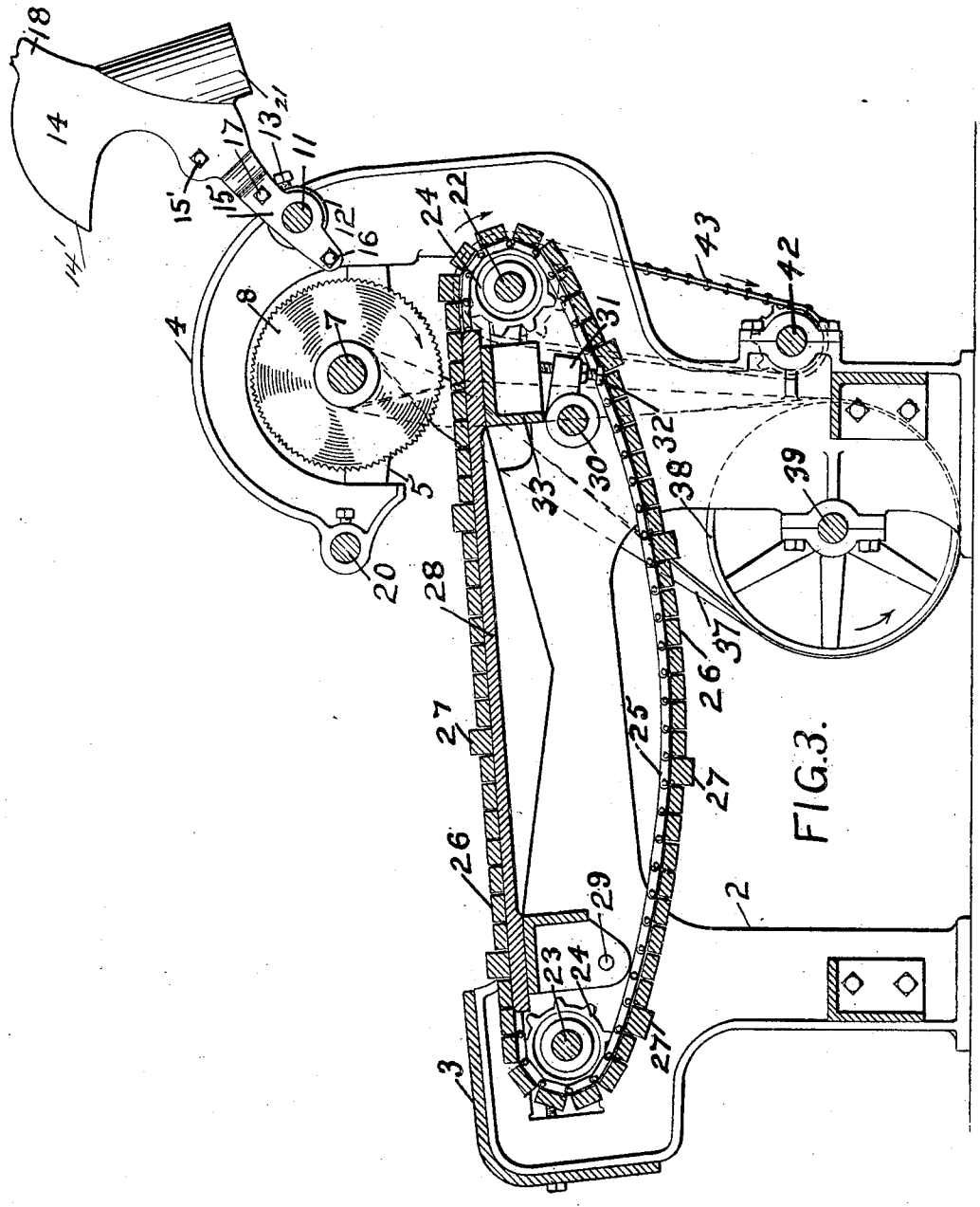


FIG. 3.

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4 SHEETS—SHEET 4.

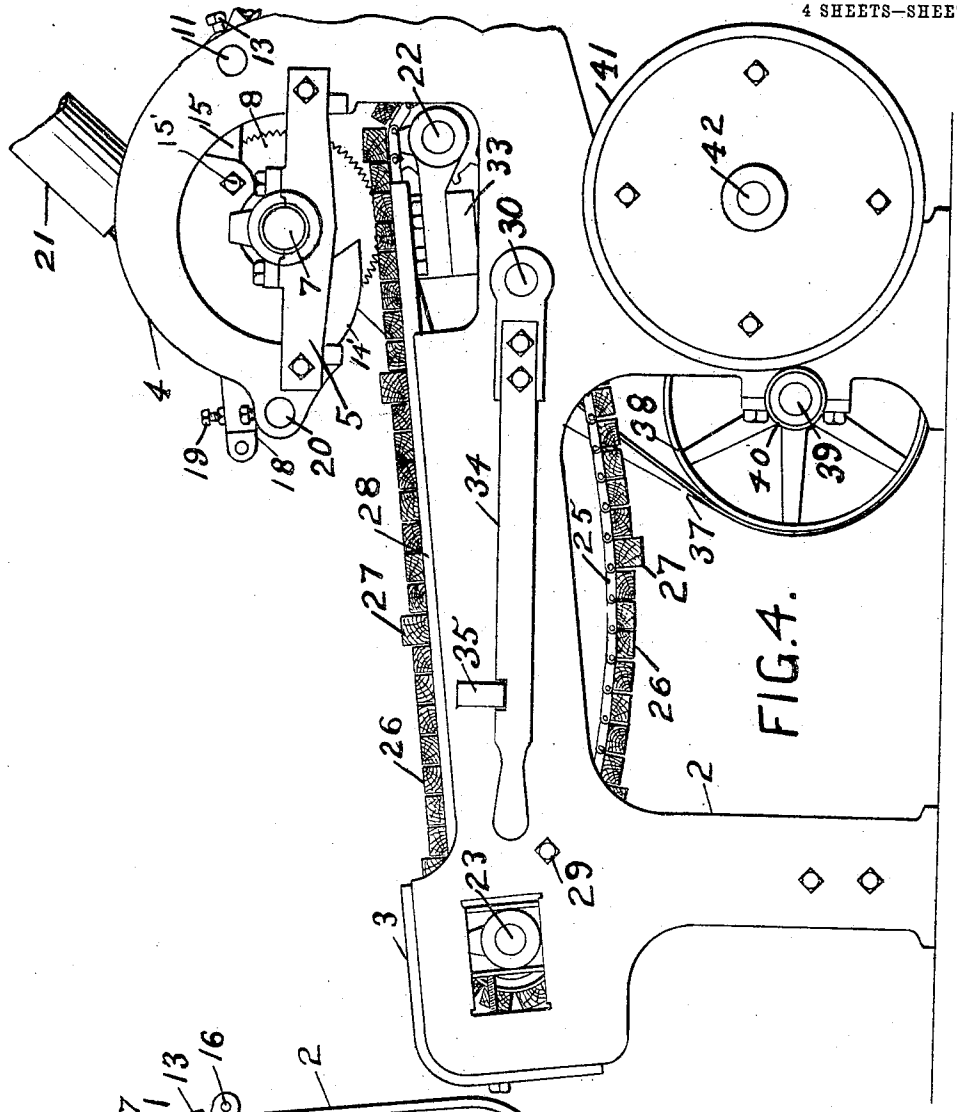


FIG. 4.

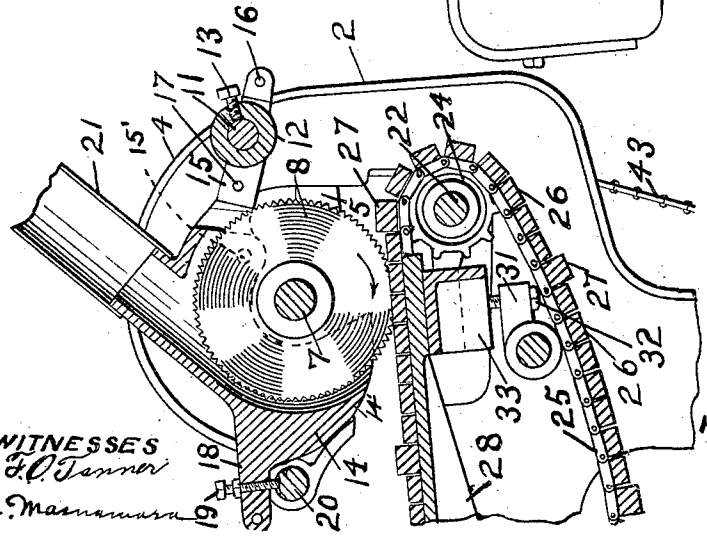


FIG. 5.

WITNESSES
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UNITED STATES PATENT OFFICE.

HERMAN G. DITTBENNER, OF MINNEAPOLIS, MINNESOTA.

GANG CUT-OFF SAWING-MACHINE.

No. 799,837. Specification of Letters Patent. Patented Sept. 19, 1905.

Application filed March 25, 1905. Serial No. 251,928.

To all whom it may concern:

Be it known that I, HERMAN G. DITTBENNER, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Gang Cut-Off Sawing-Machines, of which the following is a specification.

My invention relates to sawmill machinery; and the object of my invention is to provide a machine for cross-cutting lumber to separate the waste or unsalable part from that which is salable.

A further object is to provide a machine that will require no clamping devices to hold the lumber as it is fed to the saws.

A further object is to provide a machine of large capacity and one that can be easily adjusted to accommodate pieces of lumber of different lengths.

The invention consists generally in providing a feed-belt having a series of slats some of which are higher than others and serve as backings for the lumber to hold it up to the saws.

Further, the invention consists in providing a feed-belt having a series of slats that are adjustable to be partially cut through by the saws to allow the backing or supports for the lumber to be brought close up to the edge of the saws.

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 gang cut-off sawing-machine embodying my invention. Fig. 2 is a rear view of the same. Fig. 3 is a longitudinal vertical sectional view of the same. Fig. 4 is a side elevation, and Fig. 5 is a detailed sectional view illustrating the saws and feed-belt in their working position.

In the drawings, 2 represents a suitable frame having at one end the plate 3, over which the lumber is advanced into the machine, and at the other end brackets 4, that overhang the machine. Bridge-trees 5 are secured to said brackets and have bearings for a saw-arbor 7, upon which a series of saws 8 are adjustably secured to allow them to be moved back and forth on the arbor and adjusted at different distances from one another, according to the character or quality of the lumber that is being sawed. These bridge-trees are readily detachable from the brackets 4 to allow the saws to be slipped off their arbor for substitution or repairs.

The saw-arbor is provided with a pulley 9, driven by a belt 10 from a suitable source of power. A shaft 11 is mounted in the brackets 4 in the rear of said saws and provided with a series of collars 12, secured on the shaft by set screws or bolts 13. Hoods 14 are provided to overhang the saws and have forks 15 at their rear ends that straddle the collars 12 and are loosely mounted on the shaft 11, the ends of each fork being connected by bolts 16, by means of which the forks can be drawn up snugly against the collars. Bolts 17 are also provided in the forks on the opposite side of the collars from the bolts 16, and when the hoods are swung back away from the saws the bolts 17 will engage the bolts 13 and limit backward movement of the hoods. The hoods are also provided with lugs 18, to which a suitable lifting means may be attached (not shown) for lifting all the hoods simultaneously, and bolts 19 are adjustably mounted in the lugs 18 and engage a rod 20, supported in the brackets 4 to limit the forward swinging movement of the hoods. These hoods are designed primarily as guides for the saws and also receive and conduct the sawdust into spout connections 21, through which it is discharged from the machine. The hoods terminate in lower forward edges 14′, that are suspended above the feed-belt in front of the saws in position to engage the lumber before it reaches the saws and straighten it on the feed-belt and seat it against the high slats. At the same time these edges act as drags to bear on the surface of the lumber and hold it firmly during the sawing operation. Pins 15′ are carried by the hoods on each side of the saws and form wearing-blocks therefor.

In the frame of the machine below the saws I mount two shafts 22 and 23, the latter having adjustable bearings to permit it to be moved toward or from the shaft 22 for the purpose of loosening the belt or taking up the slack therein These shafts are provided on each end with sprocket-wheels 24, over which chains 25 pass, and these chains are connected by a series of wooden slats 26 and 27, the slats 27 being arranged at suitable intervals and being of greater depth than the slats 26 and

project above the upper surface of the same and against which the boards or pieces of lumber are placed and fed to the saws by the movement of the belt.

The shaft 22 has bearings at its ends in a plate or bed 28, that is pivoted at 29, and has a flat upper surface to support the belt in a straight line during the feeding operation. A rock-shaft 30 is provided below the bed 28 and has arms 31, carrying adjustable screws 32, that engage a cross-bar 33 on the under side of the bed 28 for the purpose of raising the free end of the same and adjusting the belt in working position beneath the saws.

A lever 34 is secured on the rock-shaft, and a stop 35 is provided on the frame of the machine to engage the lever and hold it in its depressed position and the bed 28 in its elevated position, as shown in Fig. 5. When the lever 34 is disengaged from the stop, the bed and belt will drop down away from the saws to the position indicated in Fig. 3. When the bed and belt are in their depressed position, the saws can be loosened and readjusted on their arbor or removed therefrom.

It is desirable in a machine of this kind to provide a feed mechanism and a backing or follower for the lumber that will hold it up to the saws and will support it up to the point where the cut is made. I therefore arrange to raise the belt a sufficient distance to allow the saws to cut part way through the slats and form continuous slots or slits 36 therein, extending entirely around the belt, those in the slats 27 being deeper, of course, than in the other slats, and as the slats 27 on both sides of the saw slits or cuts therein will be close up to the faces of the saws it follows that the lumber will be braced and held at that point and there will be no danger of its being twisted or thrown to one side when it contacts with the saw, as its backing will be on both sides of the saw and almost directly in line with the plane thereof. The saws will be adjusted on their arbor the desired distance apart, either fourteen, sixteen, eighteen, or twenty inches or more, according to the character of the lumber that is being cut off, and the distance between the middle saw and the outside one at one end of the machine may be less than the distance between the middle saw and the one at the opposite end of the machine, and the operator having glanced at the lumber and determined how much waste to cut off will place it on the belt in front of the saws that will cut off such amount of waste and leave an intermediate piece corresponding in length to the distance between the saws.

The slats can be suitably marked to represent the distance between the slots or slits therein and aid the operator in feeding the lumber to the machine.

In case it is desired to cut off a long piece it can be placed on the belt, run through the machine, and then the pieces trimmed as desired. If it is desired to readjust the saws and change the length of the salable pieces, the belt is lowered, the saws adjusted the desired distance apart, and then when the belt is again raised new slots or slits will be cut in the slats, and this operation may be repeated until the slats are worn out, when others can be easily substituted therefor.

I prefer to drive the feed-belt from the saw-arbor by a belt 37, connecting said arbor with a pulley 38 on a shaft 39. A friction-wheel 40 on said shaft engages a larger similar wheel 41 on a shaft 42, that is connected by a sprocket-chain 43 with the shaft 22. A reduction-gearing is thus provided for driving the feed-belt at a comparatively slow speed from the rapidly-revolving saw-arbor.

The operation of the machine is as follows: The saws having been adjusted the desired distance apart and the feed-belt having been raised so that the edges of the saws will enter the slots in the belt, the operator will place a piece of lumber upon the belt with one edge bearing upon the slat that projects above the surface of the belt. The lumber will be fed toward the saws and engaging the same will be held by the slat and prevented from twisting or turning in either direction. After leaving the saws the pieces of lumber will be carried along by the belt and discharged at the rear end of the machine.

I claim as my invention—

1. The combination, with a circular saw, of a feed bed or belt composed of a series of transversely-arranged wooden slats and flexible means connecting the same, means for moving said belt into engagement with the saw to form a continuous saw-slit therein, and means for holding the lumber placed on said belt in engagement with the saw, substantially as described.

2. The combination with a circular saw, of a feed-belt composed of a series of transversely-arranged wooden slats and flexible means connecting the same, some of said slats being thicker or deeper than others and projecting above them, and all of said slats having transverse slits formed therein by the edge of the saw, substantially as described.

3. The combination, with a plurality of circular saws, of a feed-belt composed of transversely-arranged slats and flexible means connecting the same, said slats having transverse saw-slits in their surfaces formed by the saws, and means for holding the lumber placed on said belt in engagement with the saws, substantially as described.

4. The combination, with a plurality of circular saws, of a feed-belt composed of a series of transversely-arranged wooden slats and flexible means connecting the same, some of said slats being deeper than others and all of them having transverse slots formed in their surfaces by the saws, and mechanism for raising or lowering said belt to cause the saws

to enter said slots or to separate them therefrom, substantially as described.

5. The combination, with a plurality of circular saws, of a feed bed or plate pivotally supported beneath the same, a feed-belt operating over said bed and composed of a series of transverse wooden slats and means flexibly connecting them, some of said slats projecting above the level of others and all of them having transverse slots in their upper surfaces formed by the saws, and mechanism for tilting said bed or plate on its pivot to raise or lower said feed-belt and move said slots into or out of the path of said saws, substantially as described.

6. The combination, with a frame, of a feed-belt mounted therein, brackets provided at one end of said frame and overhanging said belt, a saw-arbor journaled in bearings on said brackets, circular saws mounted on said arbor, a rod connecting said brackets in front of said saws, hoods pivoted in the rear of said saws and adapted to be swung down over the same or lifted up to expose them, and adjustable stops provided on said hoods and arranged to engage said rod to limit their downward movement, substantially as described.

7. The combination, with a suitable frame, of a saw-arbor mounted therein, a series of circular saws adjustably secured on said arbor, a feed-belt operating beneath said saws and composed of a series of transversely-arranged wooden slats and flexible means connecting the same, some of said slats projecting above the level of others and all of them having transverse slits formed in their surfaces by the cutting edges of the saws, the upwardly-projecting portion of said slats forming a backing for the lumber fed to the saws, and the edges of said slits being close to the saws on each side to support the lumber at the point where the cut is made, substantially as described.

8. The combination, with a frame, of a saw-arbor mounted therein, a series of circular saws secured on said arbor, a shaft 23 mounted in said frame, a plate having a flat upper surface pivotally supported at one end near said shaft 23, a shaft 22 carried by the opposite end of said plate, a feed-belt passing over said shafts and adapted to slide on the flat surface of said plate beneath said saws, and means for raising or lowering the free end of said plate to adjust said belt toward or from the saws, substantially as described.

9. The combination, with a suitable frame, of a saw-arbor mounted therein and provided with a series of circular saws, a shaft 23 mounted in said frame, a bed or plate 28 pivoted at one end near said shaft 23, a shaft 22 carried by the opposite end of said bed, a feed-belt arranged to pass over said shafts and said bed, a rock-shaft having arms provided with adjusting-screws arranged beneath the free end of said bed and whereby the distance between said bed and the saws may be regulated, substantially as described.

10. The combination, with a suitable frame, of a feed-belt mounted therein, brackets provided at one end of said frame and overhanging said belt, a saw-arbor supported by said brackets and provided with a series of circular saws, a shaft 11 supported in said brackets in the rear of said saws, hoods 14 loosely mounted on said shaft 11 and arranged to overhang said saws, and said hoods having spout connections and terminating in forward edges which engage the lumber on said belt to straighten it thereon before it reaches the saws, substantially as described.

11. The combination, with a suitable frame and a feed-belt mounted therein, brackets arranged to overhang said belt at one end of said frame, a saw-arbor supported by said brackets, circular saws mounted on said arbor, a shaft 11 mounted in said brackets in the rear of said saws, a shaft 20 carried by said brackets in front of said saws, hoods loosely mounted on said shaft 11 and arranged to overhang said saws and having spout connections to receive the sawdust from said saws, and forward bearing edges to engage the lumber on said belt, and means carried by said hoods and arranged to engage said shaft 20 to limit the movement of said hoods toward said belt, substantially as described.

12. The combination, with a suitable frame, of a feed-belt mounted therein, brackets provided at one end of said frame and overhanging said belt, a saw-arbor carried by said brackets, circular saws mounted on said arbor, a shaft 11 mounted in said brackets in the rear of said saws, a shaft 20 carried by said brackets in front of said saws, hoods loosely mounted on said shaft 11 and arranged to overhang said saws and having spout connections and provided with lugs 18 having bolts 19 adjustably mounted therein and adapted to engage said shaft 20 to limit the travel of said hoods toward said belt, substantially as described.

13. The combination, with a suitable frame, of a feed-belt mounted therein, brackets provided on said frame and overhanging said belt, a saw-arbor carried by said brackets, a series of saws mounted on said arbor, a shaft 11 carried by said brackets in the rear of said saws, a series of collars 12 having set-screws 13 secured on said shaft 11, hoods 14 arranged to overhang said saws having forked rear ends to straddle the collars 12 and loosely mounted on said shaft 11, the ends of said forks being connected by bolts 16, and bolts 17 provided in said forks on the opposite side of said shaft 11 from said bolts 16 and adapted to engage the said bolts 13 when the hoods are raised to limit backward movement of the same, substantially as described.

14. The combination, with a frame and a feed-belt mounted therein, of a saw-arbor, a series of saws secured on said arbor, a shaft in

the rear of said saws, hoods loosely mounted on said shaft and having spout connections and adapted to overhang said saws, said hoods having forwardly-extending bearing edges adapted to engage the lumber on said belt and hold the same by gravity thereon during the sawing operation, substantially as described.

In witness whereof I have hereunto set my hand this 18th day of March, 1905.

HERMAN G. DITTBENNER.

Witnesses:
RICHARD PAUL,
C. MACNAMARA.