(No Model.)

2 Sheets—Sheet 1.

J. LYNCH.

SIDING MACHINE.

No. 343,328. Patented June 8, 1886.

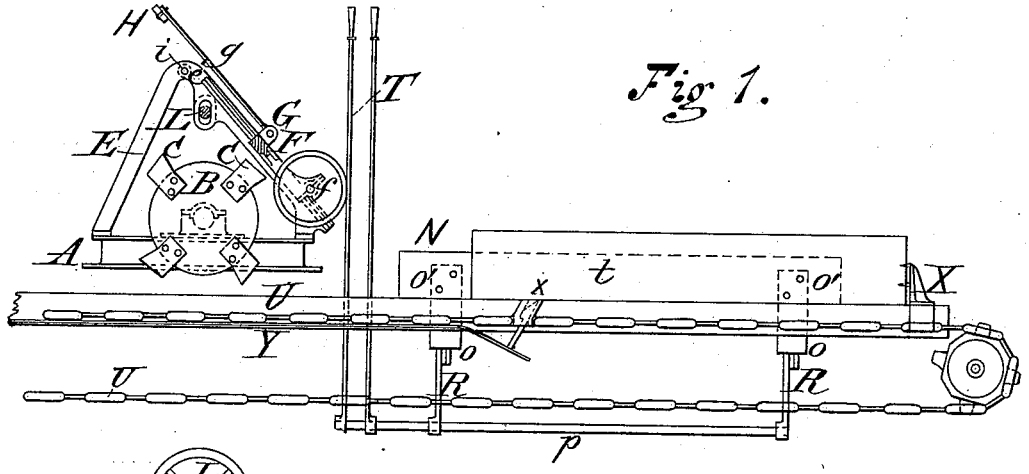

Fig. 1.

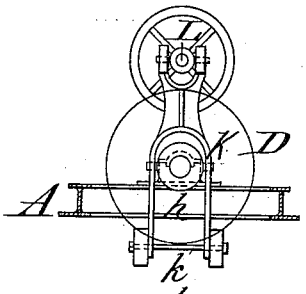

Fig. 4.

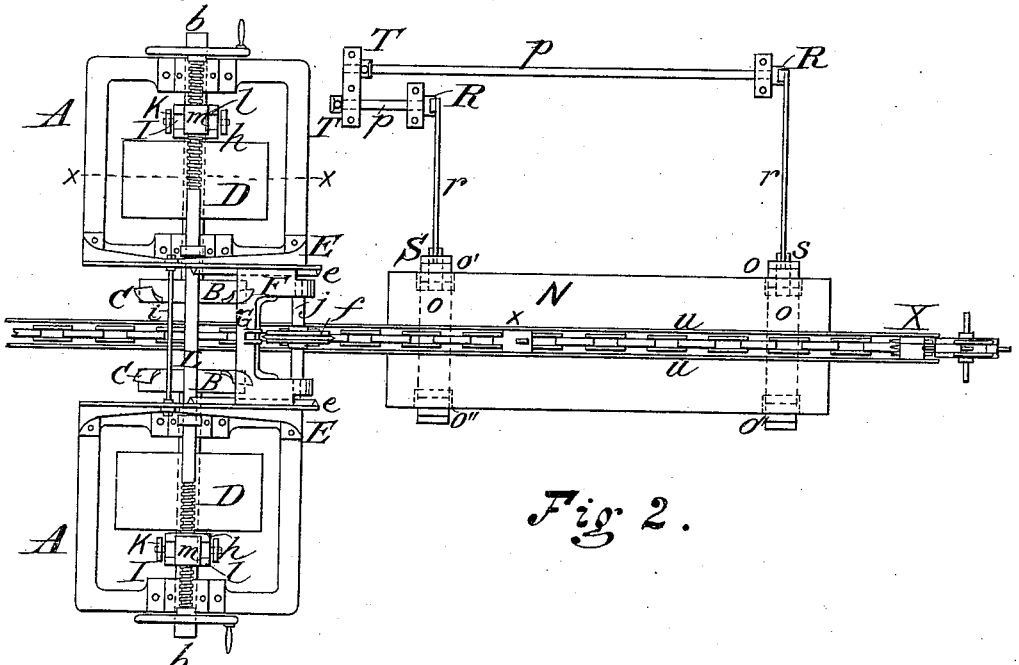

Fig. 2.

Witnesses.
W. S. Hofstra.
John Vogel,

Inventor.
John Lynch

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

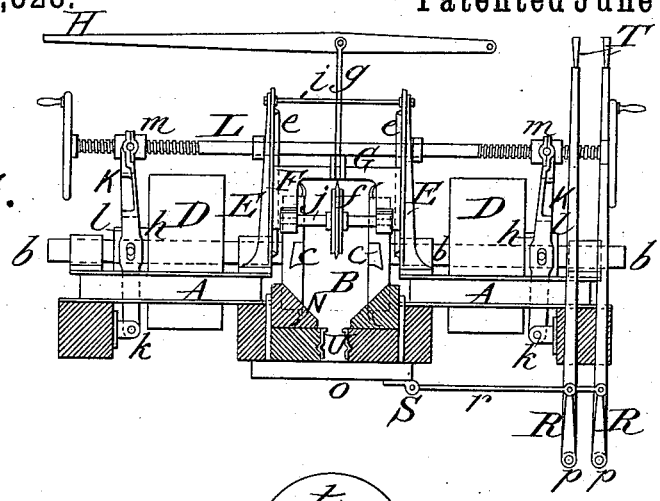


Fig. 5.

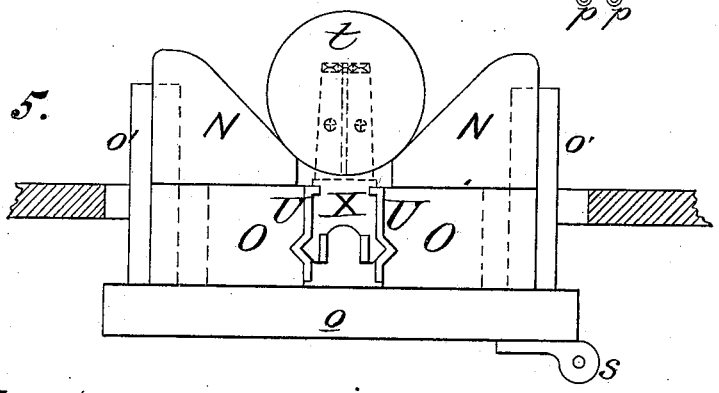


Fig. 6.

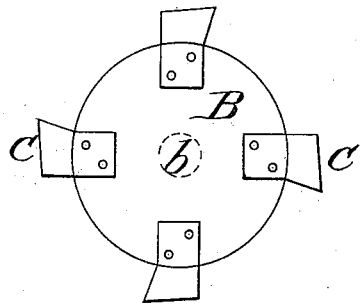


Fig. 8.

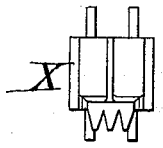


Fig. 9.

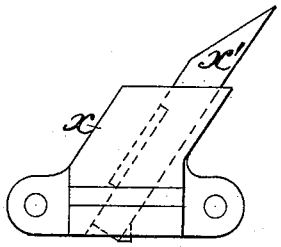


Fig. 7.

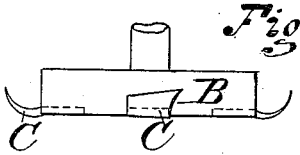
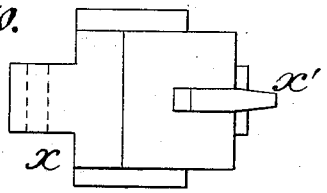


Fig. 10.



Witnesses.
W. S. Hofstra.
John Vogel

Inventor.
John Lynch

UNITED STATES PATENT OFFICE.

JOHN LYNCH, OF NORTH MUSKEGON, MICHIGAN.

SIDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 343,328, dated June 8, 1886.

Application filed February 23, 1886. Serial No. 192,821. (No model.)

To all whom it may concern:

Be it known that I, JOHN LYNCH, a citizen of the United States, residing at North Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Siding-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in double siding-machines, whereby logs, ties, &c., are flattened on two sides at one operation; and more particularly the invention relates to that class of siding-machines which are used in saw-mills for canting logs for stocking the gang, such machines being commonly provided with circular saws; and the invention consists, primarily, in two rotary movable disks securely fastened upon their respective shafts, which are journaled in frames located equidistant from the center line of the log-chain, on either side thereof, the said disks being provided with knives or cutters, whose cutting-edges project slightly past the face of the disks and extend backward sufficiently far to cut the necessary width of timber from the opposite sides of a log during its passage between the disks. These cutting-disks are moved laterally toward or away from each other with a uniform motion, in order to suit whatever thickness it is desired to leave the log after its sides are flattened, this movement of the disks being accomplished by means of a rod extending across both of the above-mentioned frames, provided on either end with hand-wheels and connecting by suitable mechanism with the shafts which carry the disks, so that the rotation of the rod may impart an endwise motion to the disk-carrying shafts, for this rod is screw-threaded throughout portions of its length near each end, the portion near one end being cut with a right-hand screw, while the portion near the other end is cut with a left-hand screw. Suitable nuts having pins on each side are arranged to travel on these screw-threaded portions. These nuts are connected with the upper ends of forked perpendicular brackets, which brackets, at the part opposite the center line of the disk-carrying shafts, are slotted to receive projecting pins on loose rings which surround sleeves on the disk-shafts, and the lower ends of the brackets are pivoted upon pins in the frame in such a manner as to oscillate. By moving the hand-wheels in either direction the nuts will advance toward or recede from each other; consequently the brackets will oscillate and the cutter-carrying disks and their shafts will move toward or away from each other.

The invention further consists in mechanism for dogging the log preparatory to its passing between the cutters. The rear dog, which engages the end of the log farthest from the cutters, is formed opposite the center line of the chain on each side with a V shape, and at the upper end of the slide through which the chain passes the dog is formed also with a lip, so that the V shapes and the lip may keep the dog from tipping when it engages with the log. The forward dog is self-acting in its operation, and consists in a sliding block provided with an inclined slot, in which a wedge moves upward and downward. This dog is forced into the log by means of the lower end of the wedge or dog proper coming into contact with an inclined plane before the log reaches the machine, which drives the said dog proper upward through the inclined slot and into the log.

The invention also embraces a movable trough for centering the logs before they enter the machine, so as to overcome the inequalities in them and provide for leaving the body of the log in the best possible shape after being cut; and also it includes a rotary binder carried in a movable frame and operated by suitable mechanism for holding the binder firmly against the top surface of the log during its passage through the machine, and for adjusting the binder to suit any size of log which is to be cut; and the invention further consists in certain peculiarities in the construction and combination of parts, as will be hereinafter fully set forth.

In the annexed drawings, illustrating my invention, Figure 1 is a sectional side elevation through the middle of the machine along the line of the chain, and showing the trough and a log in position. Fig. 2 is a top plan view of

the whole machine, with the levers for moving the binder-frame and log removed. Fig. 3 is a front end elevation of the machine, showing trough and slide in section. Fig. 4 is a vertical section through the line *x x* of Fig. 2. Fig. 5 is an enlarged end view of the trough, the slide, the rear dog, and the log. Figs. 6 and 7 are an end and an edge view, respectively, of one of the disks and its cutters. Fig. 8 is a plan view of the rear dog; and Figs. 9 and 10 represent in enlarged detail the forward dog and the block for carrying the same.

Like letters of reference designate like parts in the several views.

A A represent frames which are securely fastened in place on opposite sides of the log-chain, and sufficiently far apart to allow the largest-sized log which it may be desirable to cut to be carried between them by the chain. These frames are provided with bearings on each side for the shafts *b*, which carry upon their inner extremities the disks B B. The shafts project over the outer edges of the frames A A sufficiently far to allow the disks to be brought together to cut the smallest width of log without the ends of the shafts entering the boxes. The disks B B are each provided with steel knives or cutters C, the bodies or main portions of which are fitted into recesses in the disks and fastened in place by means of screws or bolts whose heads are flush with the face of the disk. (See Figs. 6 and 7). When the knives are fastened in place, their cutting-edges will project just enough past the face of the disk to allow the log that is already cut to pass between the disk-faces without binding. Futher, these knives are curved backward, away from the face, sufficiently far to allow a goodly-sized chip to be taken from the log, if desired. This is the preferable construction and arrangement of the cutters and disks; but I do not confine myself to what is here stated.

D D represent the driving-wheels fastened upon the shafts *b b* in such a position as not to interfere with the endwise adjustment of these shafts in varying the distance between the disks to suit the desired width of the log. These wheels are actuated by belt-connection with any suitable driving-power. Upon the corresponding inner parts of the frames A A, which directly confront each other on opposite sides of the log-chain, are mounted vertical frames E, preferably triangular in form, and the inner faces being fashioned with a V-shaped tongue, *e*. These frames are connected at the top by a stanchion, *i*.

F represents a sliding frame grooved to slide on the tongues *e*, (see Figs. 2 and 3,) which frame carries the binder-wheel *f*, fixed upon a shaft, *j*, which is journaled in suitable boxes on the frame F. The middle portion of the binder-wheel *f* consists, preferably, of a circular steel disk, beveled on both sides to a sharp edge and bolted between flanges on either side. If so desired, two or more of these binder-wheels may be used, in which case they will best be placed on the shaft equidistant from the center line of the chain.

The frame F is provided with lugs G, to which is attached a rod, *g*. This rod is secured at its upper end to a lever, H, by means of a pin or other suitable connection, and lever H is fulcrumed near one end to some convenient part of the mill, while the opposite end, which constitutes the handle, is conveniently placed near the operator. Evidently the operator by grasping the lever H is enabled to lower the wheel *f* until it binds tightly upon the log while the latter is passing through the machine, and also to raise the wheel from the log when it is desirable that it cease to bind, and likewise he may vary the pressure of the binder by varying the pressure upon the leverage by which it is manipulated.

The shafts *b b* are provided with flanged sleeves *h h*, fastened thereto in any suitable manner.

In Figs. 2 and 3, I I are rings formed on the opposite sides of their diameters with projecting pins. These rings are bored to slip over the body of the sleeve *h*, and then a loose flange, *l*, is fastened to the sleeve, and when this is securely set the rings I I are free to revolve.

K K represent forked perpendicular brackets, which are used to give the lateral or endwise movement to the disk-shafts *b*. The lower ends of these brackets are pivoted by bolts *k* into suitable boxes secured to the frame or timber of the mill. (See Fig. 4.) The portions of the brackets K opposite the central line of the shafts *b* are provided with slots to receive the pins projecting from the rings I, the lower portions of said brackets being forked. The rings, sleeves, &c., are inclosed within the fork, each prong of which is slotted, and consequently each pin enters a slot. The upper ends of the brackets are also provided with forks, which inclose a shaft, L. The shaft L extends across the full width of the machine, and is journaled in bearings or slots in the vertical frames E E, the said shaft being provided with collars which abut against the frames just outside the slotted portions, and prevent any endwise movement of the shaft. Shaft L is furnished on each end with a hand-wheel for rotating it, and a portion of the shaft near one end is cut with a right-hand screw, while a portion near the other end is cut with a left-hand screw, the screw-threaded portions being of sufficient length to allow nuts *m m*, that are cut to suit the different threads, to travel thereon the desired distance. The nuts *m m* are provided with pins or trunnions on the opposite ends of their diameters, and the upper forked ends of the brackets K are constructed with suitable boxes to receive the projecting pins on the nuts.

The movable log-trough consists of the two inclined sides N N, which are rigidly connected together by means of the standards *o' o'* and the cross-braces *o*.

O O represent the timbers on which the trough is carried and slides in the manner to be hereinafter set forth, and they are secured to the mill-frame.

p p are two shafts journaled in suitable bearings, and provided each with a lever, R, (see Figs. 1 and 3,) and with lever-handles T for operating the same. Each of the cross-braces *o* is provided with a bracket or other suitable device, S. These brackets connect with the levers R by means of the rods *r*. By means therefore of the levers T T and the intermediate connections with the log-trough just described the operator is enabled to move either one or both ends of said trough, as well as the log carried thereon, to one side or the other longitudinally, for the purpose of getting the greatest amount of timber from the log.

In Figs. 1 and 5 is represented a log, *t*, in place upon the log-trough. Extending the whole length of the chain (see Fig. 1 also) are two vertical plates, U U, each one provided with a V-shaped slot, said slots being opposite to each other and inclosing the chain V. The chain V is endless, passing around suitably-constructed drums or sprocket-wheels, and is provided at intervals with two kinds of dogs for dogging each log. The rear dog—*i. e.*, the dog which engages the end of the log away from the cutters before it passes between them—is composed of a block having V-shaped sides and grooves, the sides being fitted loosely enough to slide in the vertical plates U. An enlarged view of this construction of dog is shown in Figs. 5 and 8. The top of the dog extends above the slide a distance equal to about half the diameter of the largest log that the machine will cut, and is formed on the upper portion with teeth across the whole face. Two inserted teeth are preferably used, for the purpose of more securely grappling the log, and they are inserted at points between the top of the dog and the slide. The forward dog, *x*, detail views of which are shown in Figs. 9 and 10, is adapted to be automatically operated, so as to engage the forward end of the log. It also consists of a block V-shaped to adapt it to slide on the vertical plates U U. This block is pierced in the middle with an inclined slot, which contains a sliding piece, *x'*, which constitutes what is more properly termed the "dog." The dog *x'* is of the shape shown in Fig. 9, being formed with a stop or rabbet near the top of the dog, which comes into contact with another corresponding stop or rabbet in the block *x* near the bottom, and being also provided with a stop at the lower end. The upper stop on the piece *x'* allows the extremity of said piece to drop to the level of the top of the slide, and the lower stop serves to keep the dog *x'* from falling out of the block when returning on the under chain, and in a position upside down.

Y, Fig. 1, represents a movable track formed on the front end with an incline, which is for the purpose of thrusting the forward dog into the log as the latter is borne onward by the chain toward the machine.

The track Y may be attached adjustably to some portion of the mill, so that it can be raised or lowered to suit the required thrust for the different kinds of logs.

The operation therefore of my improved machine for canting logs is as follows: A log is first placed in the trough. Then the operator, by means of the handles T T, adjusts or sets the log in such a position as to get the greatest amount of resulting lumber, for these handles, connecting with said trough by suitable leverage, enable him to move either one or both ends of the trough to one side or the other, and thus place the log in the proper position to go through the machine. The chain V in the lower part of the trough is supposed to be in continual motion. The rear dog, X, will therefore engage the rear of the log, grapple it tightly, and carry it forward until the lower extremity of piece *x'* in the forward dog strikes the inclined stationary end of the track Y and forces the dog *x'* up and into the log. The dog *x'* will continue to be forced upward until its lower end reaches the horizontal plane. The log will then be firmly dogged and ready to go through the machine. The operator then turns the hand-wheels and adjusts the cutters the proper distance apart. The continued travel of the log-chain carries the log between the cutters. After the log has entered between the disk-faces a sufficient amount of clearance is given to the log by the cutting-edges of the knives to constitute the disk-faces in themselves a guide for the log, thus overcoming all liability of the log to tip while passing through the machine. After the log has been cut it is carried along by the dogs any convenient distance. When the forward dog reaches the chain-wheel, its motion over the wheel releases it from the log, the log is then removed from the chain, and the machine is ready for a repetition of the same operation. When the forward dog first begins to pass the center, its action is to disengage the log from the rear dog before it is released from the front one. The point of the tooth travels faster while going over the wheel than the speed of the chain; consequently it pulls the log away from the rear dog and then releases itself from the log, after which the log is removed, as above stated.

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

1. The combination of the frames A A, shafts *b b*, journaled therein and carrying the disks B B, the vertical frames E E, mounted on the frame A, the rod L, and the brackets K K, pivotally connected at their upper ends with the rod L, pivotally secured to the frame at their lower ends, and pivotally connected with the shafts *b b*, so that the rotation of the said rod L will adjust the disks toward or away from each other, substantially as specified and shown.

2. The combination of the V-grooved vertical guide-plates U U, the log-chain V, adapted to slide within said grooved plates and provided with forward dog, *x* and *x'*, and rear dog, X, mounted thereon, the movable log-trough having inclined sides, the disks and cutters B B, carried by the adjustable shafts *b b*, the sliding frame F, carrying the binder-wheel *f*, and the operating-levers for the binder-wheel, substantially as shown and described.

3. In a double siding or slabbing machine, the combination, with the movable log-trough having inclined sides N N, connected by standards *o' o'* and cross-beam *o*, of the beams O O, on which said trough is carried, and the system of levers consisting of levers *r r*, levers R R, shafts *p p*, and operating-handles T T, arranged and operating substantially as shown and described.

4. The combination of the movable track Y, having one end inclined downwardly, the log-chain V, and the self-acting dog carried by said chain and consisting of a block, *x*, and a wedge, *x'*, the lower end of which projects from the block, and during the movement of the chain rides up the inclined track, so as to force the other end into the log, substantially as shown and described.

5. The combination, with the endless log-chain, of the self-acting forward dog, consisting of the slotted block *x* and the wedge *x'*, and the rear dog, X, formed with an upper toothed extension for engaging the log, and with V-shaped sides for inclosing said log-chain, substantially as shown and described.

6. The combination, with an endless log-chain, of a self-acting dog consisting of a block, *x*, provided with an inclined slot which contains a wedge, *x'*, having stops at each end for retaining it within the slot, substantially as shown and described.

7. The combination of the frames A A, disk-carrying shafts *b b*, journaled therein, frames E E, sliding frame F, carrying a binder-wheel, *f*, and operated by suitable levers, rod L, supported by said frames E E, brackets K K, pivotally secured at their upper ends to nuts *m* on the rod L, pivotally secured at their lower ends to the frame, and pivotally connected with rings I upon sleeves *h*, surrounding the disk-shafts *b*, all arranged and operating substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN LYNCH.

Witnesses:
D. J. MORIARTY,
ROBERT WEIR.