October 25, 1913.

DRAWING

2,566

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UNITED STATES PATENT OFFICE.

JOHN SHEFFIELD, OF WILLIAMSON, NEW YORK.

METHOD OF SETTING LOGS FOR SAWING BOARDS.

Specification of Letters Patent No. 2,566, dated April 16, 1842.

To all whom it may concern:

Be it known that I, JOHN SHEFFIELD, of Williamson, in the county of Wayne and State of New York, have invented a new and useful Machine for Setting Logs for Sawing; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the head and foot blocks, the stub and stub seats for the foot block. Fig. 2 is a longitudinal section of the head block. Fig. 3 is a transverse section of the head block; Fig. 4, front elevation of crutch, arm, axle, and lever; Fig. 5, side view of ditto the lever being shown by dotted lines; Fig. 6, section of the notched segments and key for securing the lever.

Make the carriage and blocks the same as those in common use, except the head block, which should be about twenty six inches wide, and both the head and foot blocks should be, at the top, about nine inches above the carriage.

a, *a*, Fig. 1, are common dogs fitted into the crotched dogs *b b*, *b b*, Fig. 1, by means of elliptical holes drilled and chipped out so as to allow the pivots of the common dogs to play in them and allow either of the crotched dogs to be driven in or pulled out without breaking the pivots of the common dogs, *a a*.

c, *c*, Fig. 1, are cast iron slides for the two blocks, made alike except their length; the slide of the head block should be about one fourth the length of the head block; the slide for the foot blocks I make about thirty inches, and both the slides five inches wide at the bottom and four and a quarter inches at the top and about one inch thick or of any convenient size, and proportion.

The T's or fastenings D D which hold the crotched dogs *b b*, *b b* project one inch from the top edges of the slide *c c* and rest on the top of the guides *e e*, *e e*. In the center and on the bottom of the slides *c c* is a rack or row of notches and teeth about two inches wide and one half or three eighths of an inch apart for the hands *n n* to catch against, to move the slide. The cast iron guides *e e*, *e e*, for the slides, *c c*, I make about one half of an inch thick and three inches wide; the guides *e*, *e*, that are nearest the end of the log I make with a lip projecting downward to keep them from working loose by prying against them with the mill bars in slipping the log endwise on the bottom of one of these guides for the head block is a bearing for the lever *f* Fig. 1, to rest on about one and a half inches from its center toward the saw as shown at *f*, Fig. 2, and *i f* Fig. 3.

The bearing (5) on the bottom of the guide for the lever *f* for the foot block I make about nine inches from the center toward the end of the block which the lever *f* is placed on. The levers *f f* I make of wrought iron about seven eighths of an inch wide at the largest ends and three eighths of an inch square at the smallest ends with a protuberance on the top of them near the fulcrum to touch the bottom of the slides *c*, *c*, when the longest ends of the levers *f*, *f* are raised. I make a groove across the bottom where they rest on the bearings of the guides *e*, *e*, see Fig. 2.

g, *g*, Fig. 1 are connecting straps riveted to the ends of the levers *f*, *h*.

h h, Fig. 1, are levers let in to the ends of the blocks. About six inches from the connecting straps *g g* are plates let in and fastened to the ends of the blocks to keep the levers *h h* from slipping out of the notches of the plates *k k*, but not so tight as to prevent the levers *h h* from being sprung out of the notches and worked by hand to raise and lower the ends of the levers in order to tighten or loosen the slides *c c* at pleasure.

m m, Fig. 1, are pieces of band iron fastened on the blocks for the log to rest on. *o*, *o*, Fig. 1, are cast iron stub seats made to receive the stub n^2 Fig. 1 with wedging dovetails.

Place a suitable number of stub seats about one foot apart in a row on the floor of the mill, on timber, or some other convenient place that will be solid and at the right height to raise the top of the stub n^2, Fig. 1, when slipped into the stub seats three quarters of an inch above the bottom of the clapper *x* Fig. 3 of the prime mover *t* Figs. 2 and 3 to set different lengths of logs.

s s s s Fig. 1 are cast iron, knees fastened to the bottom of the head block to keep it in

its proper place on the ways of the carriage *w* the knees, *s*, *s*, *s*, *s*, have pins about one inch in diameter projecting out about two and a half inches to receive the cast iron jaws *q q q q*.

r r are wrought iron connecting straps.

p p are wooden wedges driven in between the jaws *q q q q* to tighten or clamp the head block to the carriage.

y y, Fig. 2, and *y y*, Fig. 3, are sections of a cast iron boxing or case three inches wide in the inside, with a wing about three inches wide on one side of it made to receive the axle K of the prime mover *t x* Fig. 3 and on which it vibrates. This boxing may be dispensed with and a cast horizontal frame with vertical ears substituted.

The iron box or case for the foot block I make about fourteen inches long in the inside but the case for the head block, for some mills, may be made longer so that the prime mover *t x* may fall in between the ways of the carriage.

w, Fig. 2, are cast iron guides fastened to the bottom of the head block to keep it in its proper place on the ways *w* of the carriage and that the hands or hand *n* Fig. 2 may be the right distance from the saw to slip the slide *c*, Fig. 2, close to the saw without touching it. *n* Fig. 2 is one of two cast steel hands which I make about four inches long, and half an inch square with the upper end flattened out to about three quarters of an inch wide and made so as to fit into the notches on the bottom of the slide *c*, Fig. 2.

The lower end of the hand is made larger than the upper end to admit of a hole to fasten it between wrought iron straps *o*, Figs. 2, 3, with a bolt. One of the hands *n*, Fig. 2, is longer than the other one half the distance that the notches on the bottom of the slide *c*, Fig. 2, are apart so that the hands will singly or alternately slip the slide *c*, Fig. 2, to any required distance not less than one half the distance that the notches are apart.

P′ is a cast iron vibrating crutch nearly three inches wide and five inches long from the center of the bolt or axle A on which it vibrates (which passes through ears E of the cast frame F, Fig. 2, or through the box or case Y Y, Fig. 2,) to the bolt 9 in the upper end of the crutch which fastens the three straps *o o o* and the hands *n* to keep them in their proper places.

o Fig. 2 is one of the three wrought iron connecting straps fastened by its end in the groove at the top end of the elbow *r*, Fig. 2, and in the vibrating crutch P′, Fig. 2, at the other end with cast steel bolts.

p′, Figs. 2 and 5, is one of two steel springs fastened between the three connecting straps (*o o o*, Fig. 3) with a small bolt G which passes through the three connecting straps (*o o o*, Fig. 3) and one end of the spring P′, Fig. 2. The springs P′ are made to press up against the bottom of the hands *n* by means of a bolt 10 passing through the connecting straps upon which they rest, see Fig. 5. The springs are curved to prevent the saw dust from clogging between the hands and springs.

r, Fig. 2, is a cast iron elbow fastened at its angle in the box or case *y*, *y*, with a bolt, on which it vibrates; or it may vibrate on a horizontal bolt H passing through ears I of the frame F. It has three grooves at the top to receive the connecting straps *o o o*. At the bottom it is connected with the prime mover *t x*, Fig. 2, by means of two universal joints *u* and one connecting rod made in the usual manner. The cast iron elbow *r*, Fig. 2, extends five inches from its angle to the connecting straps *o o o*, Fig. 3.

s is a spring fastened to the head blocks and pressing against the elbows *r*.

t, Fig. 2, is the prime mover. It is about five inches long from the center of its vibration to the center of its universal joints nearly three inches wide, and one and a half inches thick—it has a lip or projection T on the bottom of it for the clapper *x*, Fig. 2, to strike against to prevent it from forming a less angle than eighty eight degrees with the prime mover *t*, Fig. 2.

x, Fig. 2, is a cast iron clapper of the prime mover it is about five inches from its center of vibration to its lower end. The lower half of this clapper I make about two inches wide and seven eighths of an inch thick—the top end is about 1¼ inches wide to be fastened with a joint in the end of the prime mover *t*, Fig. 2 (see *x t*, Fig. 3) with a bolt K passing through the wing 8 of the case *y* of the prime mover *t* and the clapper *x* or through ears or standards of frame F or any convenient bearing for said bolt K. The clapper is so fixed or hinged on the bolt K that it will raise up slip over and drop down about one quarter of an inch below the top of the stub n^2 with a block *z* gaged for setting the log for thick boards while the saw is cutting and will strike against the stub n^2 when the carriage is being jigged back by which it will be tripped and then by starting the machinery contained in the box or case or spaces in the head and tail blocks the hands or hand *n*, Figs. 2, 5 strikes a tooth of the slide and moves it toward the saw with the dogs that are fastened to the slide by which motion the log is set for a new cut the spring *s* throwing the hand *n* back for another operation.

Z, Fig. 2, is a wooden block to drop in the case Y, Y, Fig. 2 between the vibrating crutch *q′*, Fig. 2, and the end of the box or case when used to gage the head and footblocks for sawing the required thickness.

To gage or regulate the length of move-

ment of the head and foot blocks for sawing different thicknesses of lumber make wooden blocks of different thickness to drop in between the end of the case Y, Y, Fig. 2, and the aforesaid vibrating crutch to determine its movement.

To gage the movement of the crutch for sawing thick boards make the blocks thin and for sawing thin boards make the blocks thick; by increasing or diminishing the sweep of the crutch, the distance of the movement of the log is also erased or diminished. The blocks should be numbered to show the different thicknesses they are designed to gage. The right thickness of the block is found by sawing and altering them until they are found to produce the required thickness of board sawed.

n^2, Fig. 3, is a stub and o is a stub seat for the head block about siz inches in length to receive about four different sizes of stubs n^2, Fig. 3, that will slip into the stub seat o, Fig. 3, at equal distances from each other. Fasten the stub seat to the timbers of the mill under the head block so that the clapper x, Fig. 3, of the prime mover will strike against the narrowest stub when slipped into the stub seat just as the log leaves the saw when jigging back and the head block is gaged for sawing its full thickness. Instead of the blocks z I prefer to use an adjustable arm behind the crutch as will be described hereafter.

S Fig. 3 are cast iron knees fastened to the head block to keep the block in its proper place on the ways w of the carriage on which knees the cast iron jaws q, Fig. 3, vibrate between which the wedges p are driven to cause the jaws to grip the ways, w.

W, W, Fig. 3, are cast iron guides fastened to the bottom of this head block to assist in keeping it in its proper place on the ways w of the carriage.

m, Fig. 3, is a piece of band iron fastened on the head block for the log to rest on.

To set the head block for slabbing and sawing thicker lumber than the blocks will themselves set for—spring the lever h, Fig. 1, out of the notches k, Fig. 1, and raise it up which will lower the small end of the lever f, Fig. 1, and consequently loosen the slide c, Fig. 1. Then slip the slide near to the saw. Then tighten the slide by again pressing down the end of the lever h, Fig. 1, into the notches k, Fig. 1. Fasten the log with the dog a, which is made like those in common use.

To set the foot block take a piece of hoop iron about two and a half feet long and slip it lengthwise under the bottom of the slide c, Fig. 1, between the notches on the bottom of the slide and the hands n, Fig. 2 to prevent the hands n acting on the teeth of the slide C. Then spring the lever h, Fig. 1, out of the notches k, and raise it up which depresses lever f and loosens the slide c. Slip the slide c back to a convenient place to dog the log. Take out the piece of hoop iron and tighten the slide by pressing down the end of the lever h, Fig. 1, into the notches k,—fasten the log with the dog a, Fig. 1, as those in common use. While the saw is slabbing knock out the stub n, Fig. 1, for the foot block that the slide C, Fig. 1, of said foot block may not be set or slipped while the carriage is jigging back.

To adjust the head block take out the wooden block Z, Fig. 2, and put in a thinner one, if the block Z sets for too thin boards and take out the stub n^2, Fig. 3, and put in a thinner one to prevent the log being driven against the saw before the log is clear from the saw; take a thin plate or piece of hoop iron about 18 inches long and slip it under the bottom of the slide between the notches and the hands, spring the lever h, Fig. 1, out of the notches k and raise it up which loosens the slide. Slip the slide back to a convenient place to dog the log. Take out the piece of hoop iron and tighten the slide by pressing down the end of the lever h, Fig. 1, into the notches k. Drive in the crotched dog b and the half bale dog a and secure them the same as those in common use. Gage and fix the foot block in the same manner as above described for the head block. Slip in the stub n^2, Fig. 1, into one of the stub seats o o—that is at the right distance from the saw to set the log as the carriage is driven back. Instead of making use of different sized blocks z to gage the distance of the movement of the hands in determining the several thickness of boards to be cut as before described I prefer to make use of a lever L as before stated fixed on the outer end of the axle A of the vibrating arm M fixed to axle A by which I turn the said arm to the right or left toward or from the crutch the lever being held by a notched segment N and a key Q in the required position by means of a tooth R on the lever and by which lever the distance of movement of the crutch q' is regulated and of course that of the hand and of the slide and log in the manner to be presently described.

When the end M^2 of the arm M is moved from the crutch and held securely in its required position by keying the lever to the fixed segment fastened to the side of the head block the same effect is produced as by inserting the block z before described, against which the crutch strikes and by which its back movement is arrested.

For sawing thin boards the end M^2 of the arm M must be brought nearer to the crutch by bearing down the lever L and securing it to the notched segment N. This will prevent the crutch from having so great a sweep as when the arm is receded from the

crutch and of course will prevent the hands from taking so great a hold of the toothed slide C as in the other case.

The end of the lever is formed with a mortise to allow it to rise and fall in the segment of a curve when the key is withdrawn from between said segment and the lever. The tooth of the lever is in one side of said mortise opposite to that in which the key is inserted. This tooth enters a notch of the segment. The key is then driven in between the lever and segment which secures the tooth in the notch.

The crutch q' vibrates loosely on the axle A.

Operation: The log being dogged and everything about the saw mill in order start the mill in the usual manner. As the carriage advances toward the saw the clapper x will drag loosely over the stub n^2 without producing any change in the position of the machinery. The operation of cutting a board being finished and the carriage W being run or jigged back for a new cut and the saw having left the log and being in the groove in the head block, the clapper x of the prime mover t comes in contact with the stub n^2, is carried back against the shoulder or lip T of the prime mover, against which stub the clapper is arrested and the carriage continuing to retreat the end of the prime mover connected with the elbow by the universal joint is raised, which moves the elbow and with it the connecting rod o, crutch q', and hand n, which hand being in one of the notches of the slide c moves said slide c with the log dogged thereto toward the saw as far as the hold or reach of the hand on the slide will admit, determined by the arm M or block z, at the same time contracting the spring s, which, as soon as the carriage begins to advance toward the saw for a new cut throws the crutch back against the arm M or block z. Thus it will be seen that in order to cut a thicker board the crutch q' must be permitted to retreat farther from the log in order to give the hand n a greater hold of the slide c, or slip back over a greater number of teeth of the slide to which the log is fastened, which retreat of the crutch cannot be effected until the end M^2 of the arm M against which the crutch is arrested is first retracted therefrom. In order to change the position of said arm M to correspond with the required sweep of the crutch the key Q must be withdrawn or loosened and the tooth of the lever L disengaged from the segment rack N and the lever L raised, which lever being fixed permanently to the axle A of the arm M will consequently cause it to move, but will have no immediate effest upon the crutch as the axle A passes loosely through the crutch, which merely turns, or vibrates on it, by the action of the prime mover t and of the spring s, the former advancing it with the hands in setting the log for a new cut and the latter retreating it as far as the arm M will allow it to retreat. It will therefore be evident that in order to cut a thinner board it will be necessary to reverse the before described movement of the lever, which will bring the end of the arm M^2 nearer to the crutch and of course diminish its sweep and also the hold of the hand on the notched slide and the movement of the log toward the saw.

During the before described changes of the position of the crutch q' and consequently of the clapper of the primer mover the required position of the stub n^2 must be attended to, to prevent the log being moved sidewise before it has retreated longitudinally from the saw and thereby breaking it, for when the crutch is moved in one direction the clapper is moved in an opposite direction and consequently the position of the stub must be altered to correspond thereto; otherwise the clapper would strike the stub before the log was clear of the saw cause the log to move sidewise and thus break the saw.

What I claim as my invention and which I desire to secure by Letters Patent is—

1. The method of setting the log for cutting thick or thin boards at pleasure as before described by means of the aforesaid combination of hands, springs, vibrating crutch, connecting rods, knee, universal joints and clapper, said hands acting on the toothed slide to which the log is dogged by the clapper striking against adjustable stubs attached to the frame work or timbers of the mill arranged for various lengths of logs to be sawed.

2. Likewise the combination of the arm, axle and lever with the vibrating crutch and hands for altering the movement of the slides to saw thick plank or thin boards at pleasure as described.

3. The mode of fastening the head block to the carriage by means of the jaws q q and wedges p in the manner described.

JOHN SHEFFIELD.

Witnesses:
WM. P. ELLIOT,
E. MAHER.