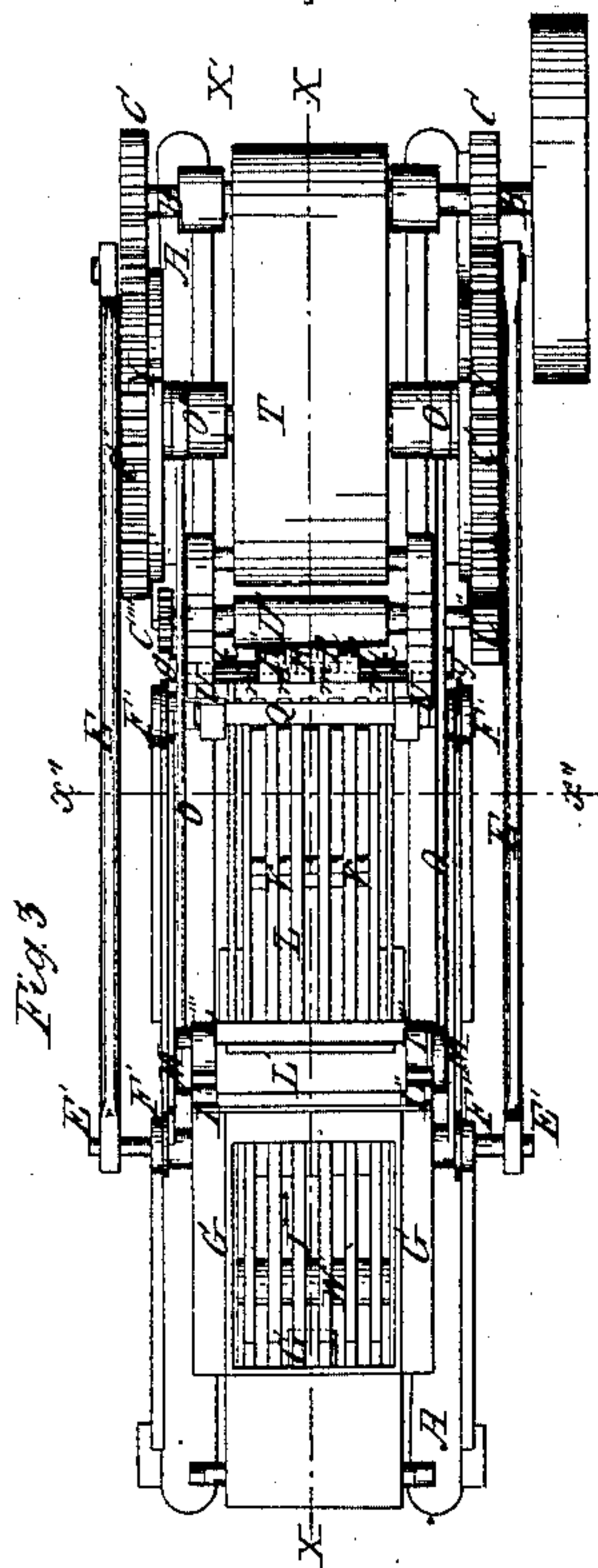
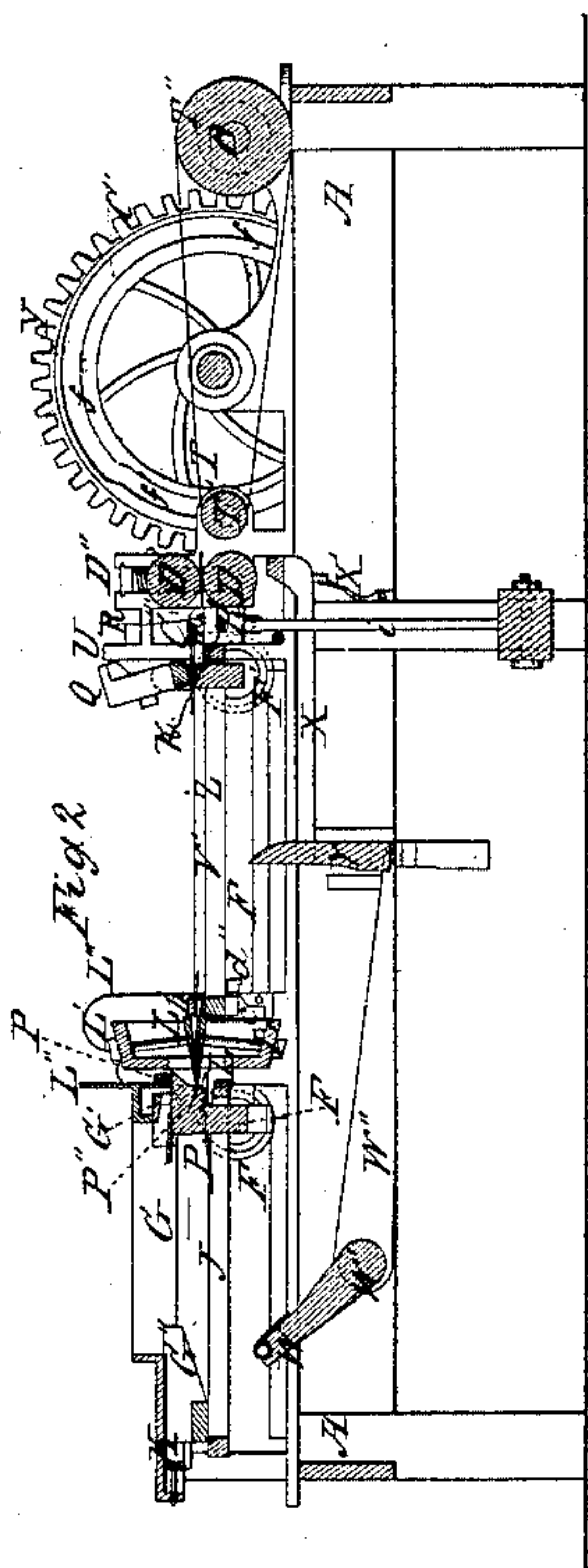
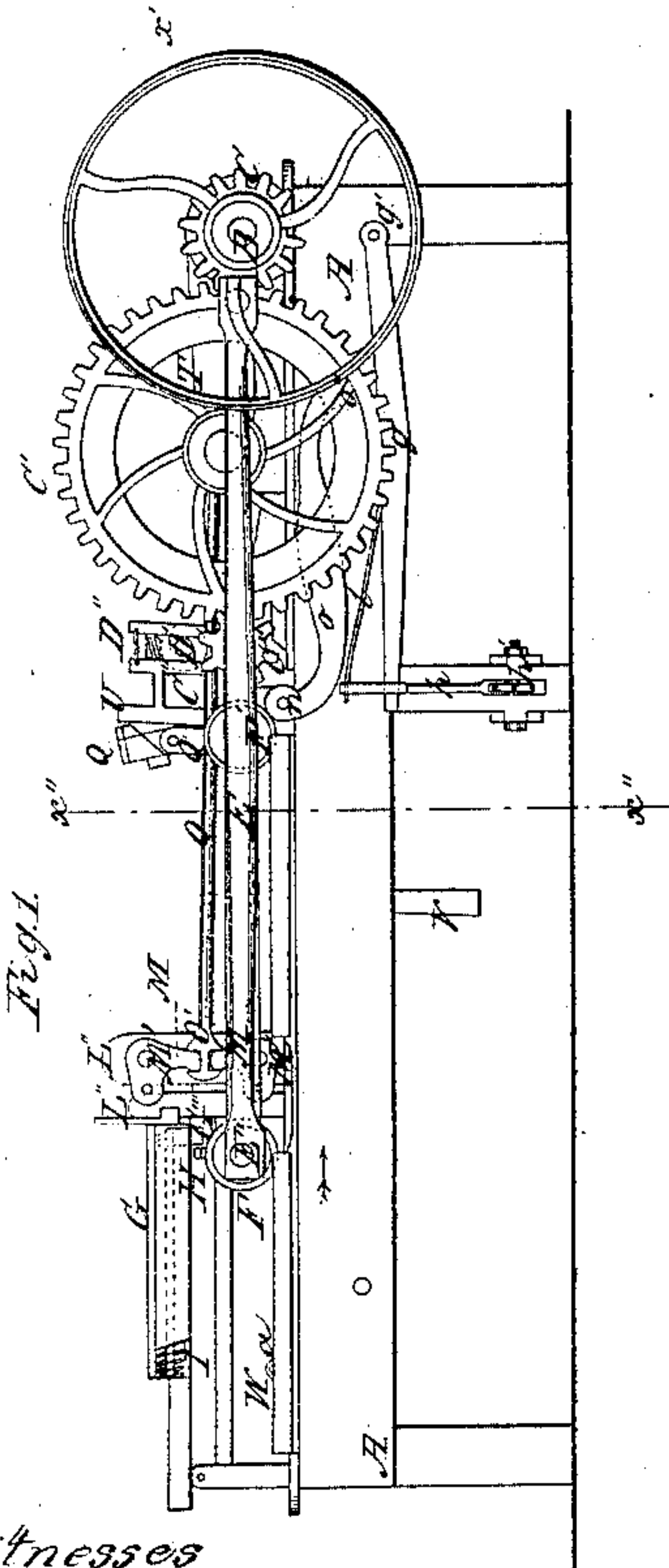
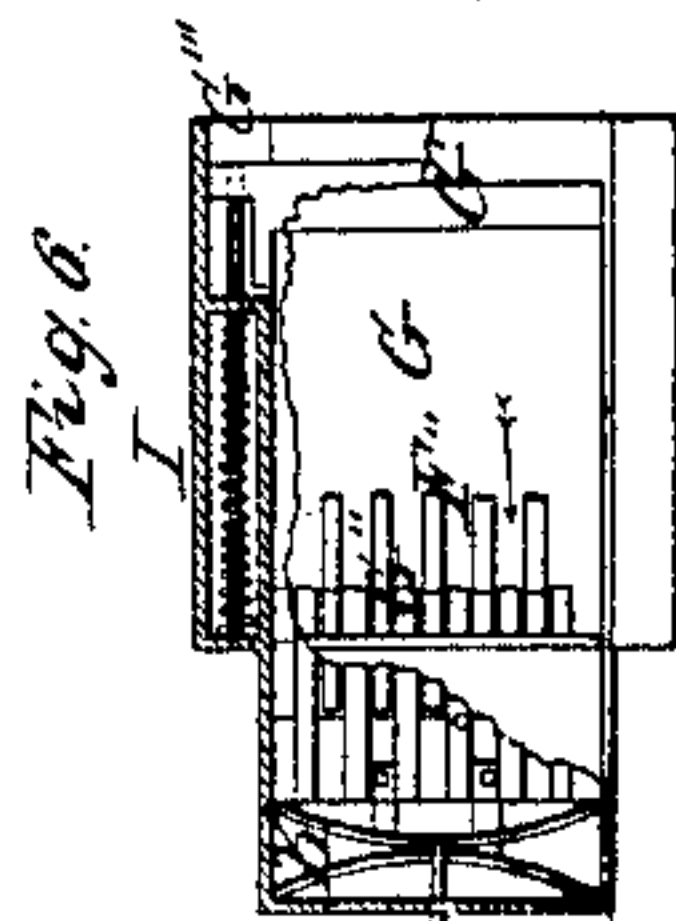
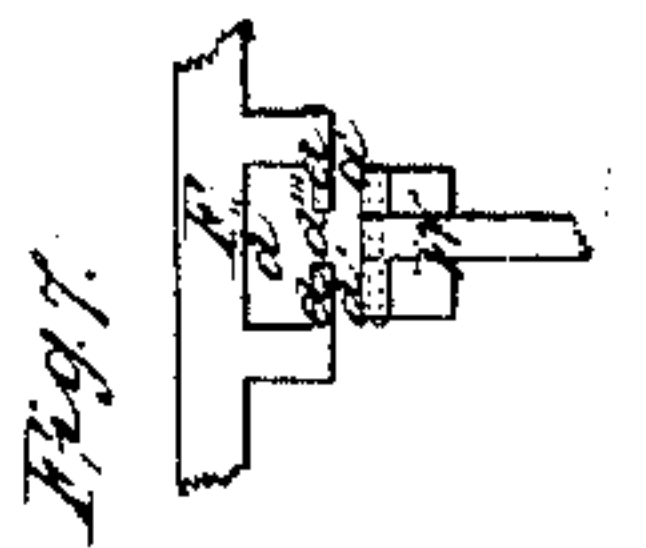
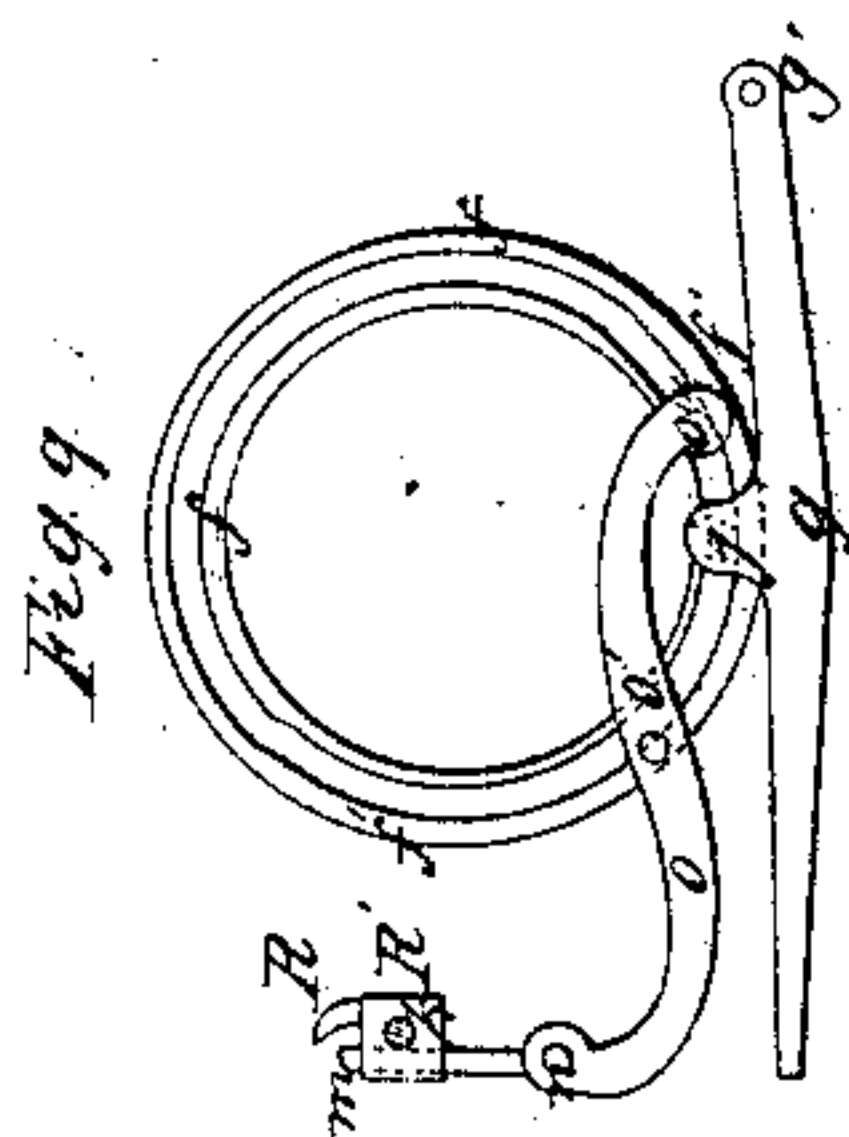
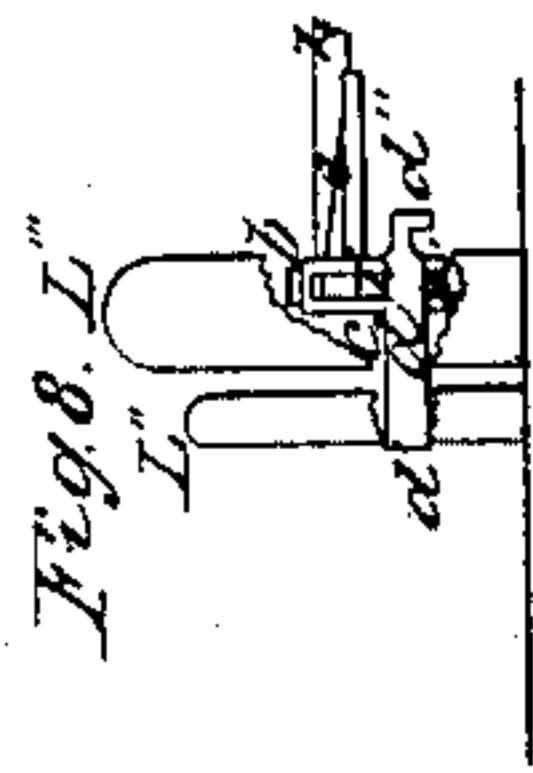
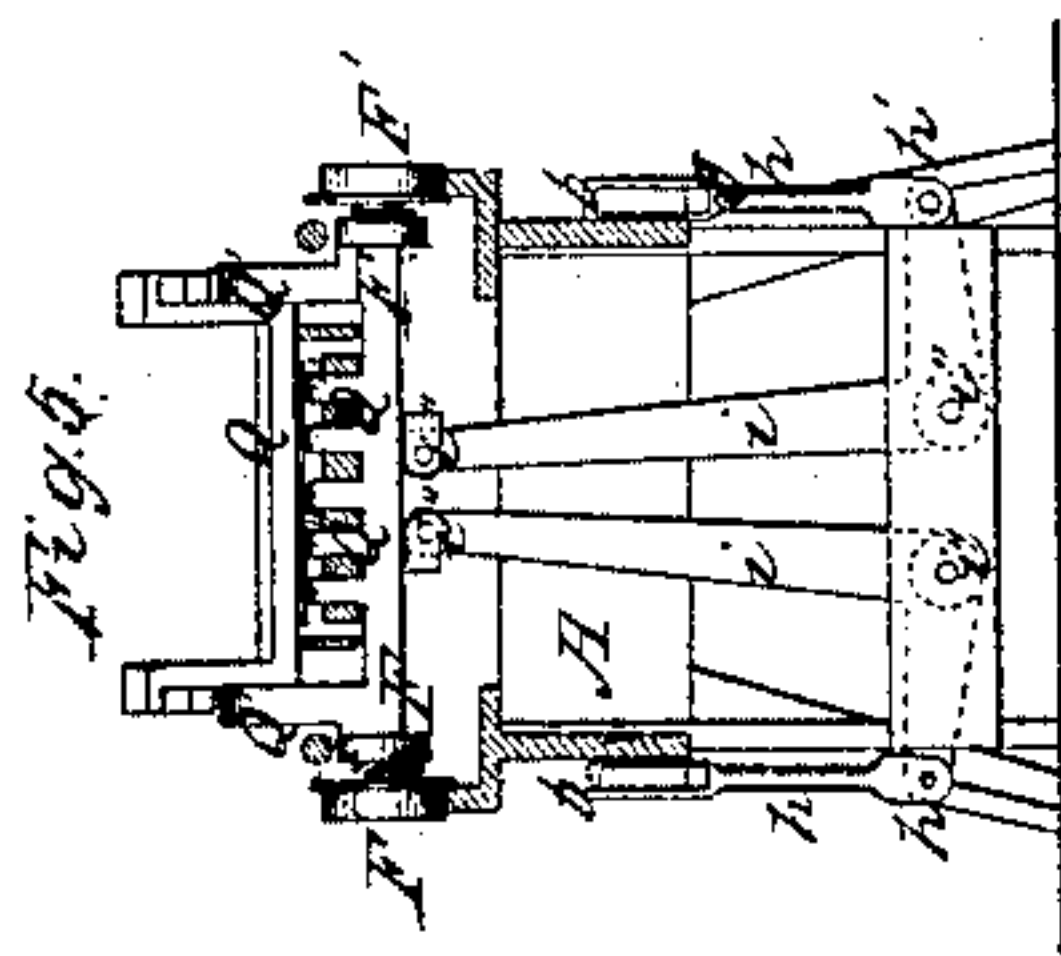
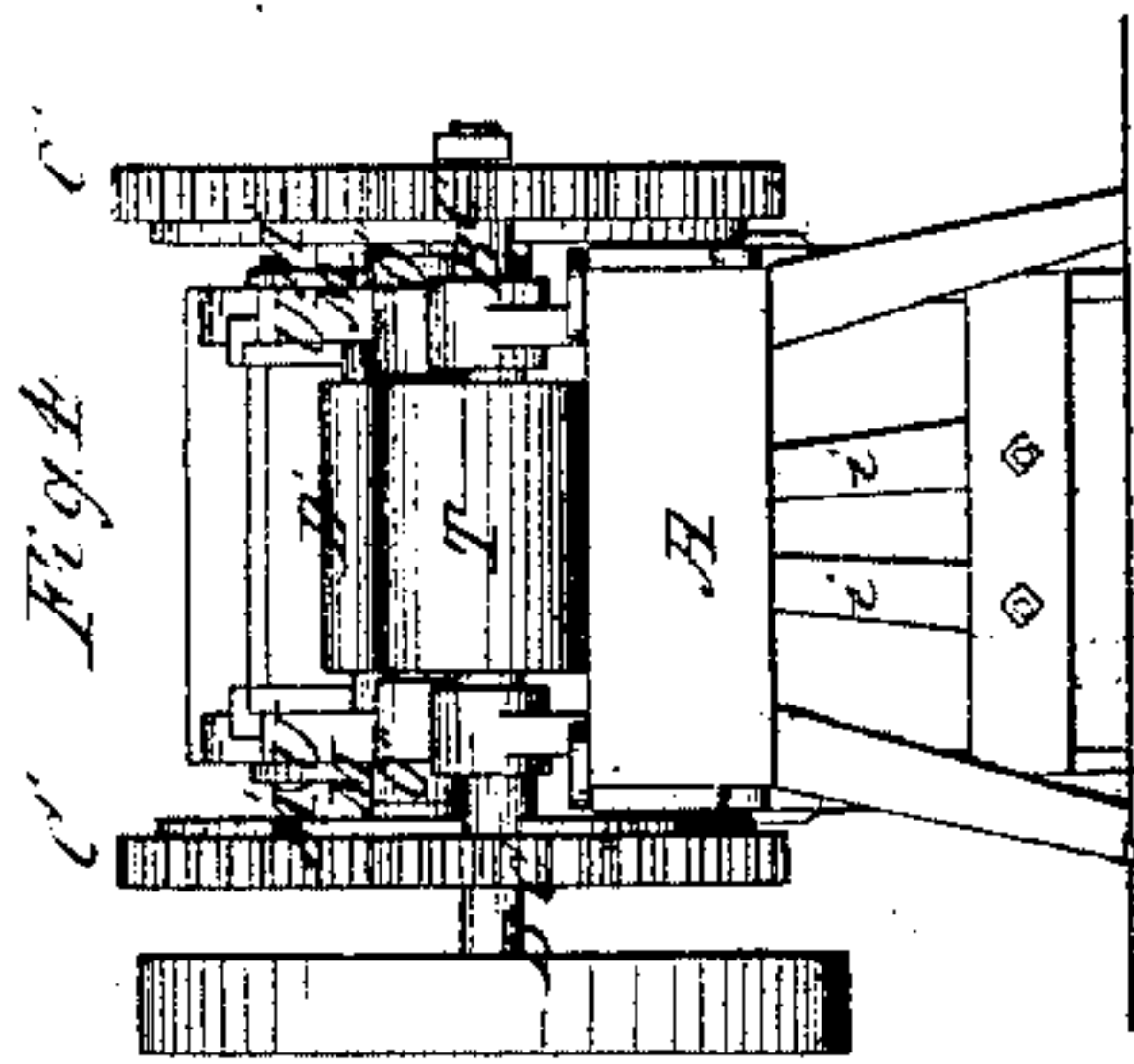


A. Kendall,
Cutting Shingles.

N^o 11,965.

Patented Nov. 21, 1854.



Witnesses
James S. Gregory
John B. Lucas

Inventor
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UNITED STATES PATENT OFFICE.

ADONIRAM KENDALL, OF CLEVELAND, OHIO.

SHINGLE-MACHINE.

Specification of Letters Patent No. 11,965, dated November 21, 1854.

To all whom it may concern:

Be it known that I, ADONIRAM KENDALL, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Shingle-Machines; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my improvement consists in the means employed in shaving and jointing shingles, by which the rived timber is taken from the hopper and successively conveyed to a pair of approximating knives, which shave the shingles, on both sides at once, to the proper taper; the shingle after being shaved, is squared with the butt, and carried forward to jointing knives, by which the shingle is jointed square with the butt. The jointing knives are so arranged that they adjust themselves to any width of shingle. After the shingles are jointed, they are conveyed off the machine by a revolving apron.

Figure 1 is a side elevation; Fig. 2, a longitudinal section in the direction of the lines X X in Fig. 3; Fig. 3 a plan view, Fig. 4 a view of the end marked X' X', and Fig. 5 a transverse section in the direction of the lines X'' X'', Figs. 1 and 3; the other figures are detached sections, which will be referred to in description.

Like letters refer to like parts in the different views.

A represents the frame work, B the driving shaft, which revolves in boxes, attached to the frame. To this shaft is keyed the driving pulley, and the pinions C C. These pinions are in gear with the large wheels C' C'; one of the large wheels meshes into the pinion C'', which is on the shaft of the roller D, and directly over it is the roller D'; the rollers are geared together by two pinions at C''', on the shafts of the rollers. These rollers have their bearings in boxes connected with the frame.

Upon the journals of the roller D', are spiral springs D'' Figs. 1 and 2, which are retained in place by a cap at the top. These springs are for the purpose of adjusting the rollers to the shingles in passing through.

Attached to the large gears by means of wrists in the ordinary manner, are the two connecting rods E E, Figs. 1 and 3; one end of each rod is attached to the arms of the

carriage F, at E' E'; this carriage is mounted upon four wheels F' F' F' F', which roll upon a track upon the frame. The carriage receives a reciprocating motion from the wheels C' C', and carries forward the shingles from the hopper G, to the shaving knives, and from the shaving knives to the jointers.

The rived timber is placed in the hopper G, of which Fig. 6 is a detached section, and may be piled up in the form of layers to any desirable extent, and first rests upon the slide catch G', and slide rest G'', but as the driver F'', which is attached to the axle of the carriage, passes in the direction of the arrow, the pin H, Fig. 1 strikes the arm G''', of the slide catch, which turns down at right angles to the pin, and pushes the slide catch back, as seen at G', Fig. 2, which allows one piece to drop down on the driver F'', and as the driver returns, in a reverse direction of the arrow, the next piece above, comes in place and is held by the force of two spiral-springs acting on the slide catch, by which the piece is held at one end by the spring catch, and the other end is held by being forced against the opposite side of the hopper by the springs acting on the slide catch. These spiral springs are placed in a chamber, one each side of the hopper, and connected to the slide catch by a rod, in the manner seen at I, Fig. 6. The ends of the spring catch turn down at right angles, so that the pins H H in the axle, corresponding to the pin H, are brought in contact with the ends of the spring catch, by which the catch is thrown back in the direction of the arrow as the carriage passes, and the piece is released, as before described. The piece which has dropped down on the driver, rests also upon the slide rest G'', which is pushed by the driver, and passes with it under the hopper which allows the piece to drop on the grate plates J, and as soon as the driver returns, the slide rest is forced out again, by the springs K, Figs. 2 and 6, and the piece carried on the grate plate by the driver to the shaving knives L L; by this arrangement it will be observed, that as the driver traverses backward and forward the pieces drop down from the pile in the hopper to the grate plates at regular intervals, one at time, and are carried forward to the shaving knives; these shaving knives are

5 bolted to the knife frame $L' L'$, Fig. 2, the ends, or arms of which, slide up and down between the stands $L'' L'''$. To the knife is connected by a pin, joint, four right angled levers, two on each side, one for oper-
 10 ating the upper knife, and one for the lower, corresponding to the levers $M M$, Fig. 1. These levers move upon the wrist $M' M'$, attached to the stand; one end of each are in connection with the connecting rod O , at
 15 O' , and the opposite end of the rod is connected with the eccentrics $O'' O''$ seen in Fig. 3. By this connection of the knives to the eccentrics, the desired taper is given to the shingles, in the process of being shaved, in passing through between the knives. The eccentrics are so placed upon the shaft, that the knives approximate gradu-
 20 ally as the shingle passes through.

20 $P P$ are springs or guides for holding the piece in the desired position, and direction, for the knives.

25 As soon as the piece is shaved, the driver returns for the purpose of conveying another piece to the knives, and as it returns, the conveyer Q does so at the same time, as it is attached to the same carriage F ; this conveyer is hung upon a pin joint at $Q Q'$, to the stands, which form a fulcrum upon
 30 which it moves. As the conveyer returns to L''' , the shingle passes between the conveyer Q , and fingers Q'' as indicated by the red line Fig. 5. The upper ends of the conveyer are brought in contact with the stands $L''' L'''$, which turn the conveyer upon the
 35 pin or fulcrum Q' , thereby holding the shingle between the conveyer Q , and fingers Q'' , as indicated by the red line Fig. 5. It is thus held and carried forward, to the jointing knives $R R$, Figs. 2 and 3; at the same time another piece is being conveyed to the shaving knives. The conveyer carries the shingle, far enough past the joint-
 40 ing knives, to be received by the rollers $D D'$ which draw the shingle through, on to the revolving apron T , by which it is conveyed from off the machine, for bundling. The tendency of the pressure of the shingle, against the jointing knives is to
 45 tighten the hold of the conveyer, but as soon as it strikes the stands $U U$, the conveyer is thrown back, as seen in Figs. 1 and 2, in time for the shingle to be taken by the rollers. The apron T , passes around the
 50 pulleys $T' T''$.

55 For the purpose of squaring the shingle so that the sides will be jointed at right angles to the butt, in case the shingle is turned in shaving, I use the fingers V , which are raised to V' after the shingle is passed through the
 60 knives, by the front of the carriage F acting upon the arm W , connected to the shaft W' , from which extend two levers to the fingers V , one on each end of the shaft correspond-
 65 ing to the lever W'' , that is, the end at W

is depressed by the carriage, and the fingers raised correspondingly to V' , at the same time the fingers are pushed in a reverse di-
 70 rection of the arrow, by two slides, on each side of the inside of the frame correspond-
 75 ing to X Fig. 2; these slides are operated by two cams, $Y Y$, on the wheels $C' C'$; these cams acting on the slides, cause the fingers to square the butt of the shingle. As the fin-
 80 gers are at right angles to the face of the knives, as soon as the cam has passed the slides, they are thrown back in place by springs acting on a pin as seen at X' , Fig. 2; at the same time, the fingers drop down as the carriage leaves the end of the lever
 85 at W , which allows the shingle to be carried forward to the jointing knives, by the conveyer. The fingers move up and down in guides on the inside of the frame, the fingers pass up and down between the bars of the
 90 grate plate Z . F , fig. 7, represents the axle, or end of the carriage, and the arms of the lever by which the carriage raises the fingers V . As the carriage returns in a reverse di-
 95 rection of the arrow, the points $a a$ depress the lever W , in passing over the tumbler $a' a'$ which is attached to the lever by a hinge joint and forms an inclined plane as seen at
 100 a' fig. 2, as soon as the carriage has passed over, the fingers drop down and the arm W is raised in place, and as the carriage re-
 105 turns in the direction of the arrow, the tumbler $a' a'$ passes through the opening a'' , and the arm W , through the opening a''' , the tumbler raises to let the carriage pass, and then drops down in place directly after. For the purpose of holding the shingle in place when it is being squared by the fingers, it is held between the grate plate Z , and cross
 110 peice b , as indicated by the red line fig. 2, in passing from the knives to the conveyer.

The end of the cross peice passes into the strap c , Fig. 8, and from the side of the grate plate Z , extends an arm which passes through the strap c , directly over the key d ,
 115 as seen at Z' . Under the key projects a shoulder, c' , from the strap, so that the key is between the shoulder and the end of the grate plate Z' , and on both sides of the machine, are corresponding devices; by which
 120 arrangement, as the driver F'' , arrives at the point seen in Fig. 2, the shingle is shaved and the carriage acts on the end of the key at d' pushing it in as seen in Fig. 8, by which the strap is drawn down, and the
 125 cross peice with it, and the grate raised correspondingly, thereby holding the shingle between the cross peice and grate plate, as seen by the red line at b , Fig. 2. As soon as the conveyer Q , returns for the shingle at b ,
 130 the carriage acts on the end d'' of the key, and as the key is tapering to this end, and by the action of the spring e , the cross peice is raised, and the grate plate Z , lowered, thereby the hold upon the shingle is released

in time for it to be taken by the conveyer; and the end d'' of the key, is a lip to hold the key in place when pushed back.

For the purpose of adjusting the edging or jointing knives, to shingles of various width, they are first thrown out, the width of the grate plate Z, by the cams $f f$, acting on the levers $g g$, connecting rod $h h$, and right angled levers $i i$. The cams form grooves in the sides of the wheels $C' C'$, in which is fitted a wrist secured to a lever, at j Fig. 9, one end of the lever is attached to the frame by a pin or bolt at g' , upon which it moves; the other end is connected to the rod h , which is connected to the levers $i i$, by a pin joint at $h' h'$, Fig. 5, the levers move upon bearings or fulcrums $i' i'$; the upper ends of the levers are connected to the knife block $R' R'$, by a strap and pin joint at $i'' i''$; these knife blocks slide upon the shaft, k . It is by this combination of devices connecting the cams to the knife blocks, that they are thrown apart the required distances, when the wrist j , is in the cam f , but as soon as the wrist passes into the cam f' , it being of a smaller circle, than f are brought together the width of the shingle, and remains until the edges are jointed when the knives are again thrown apart by the wrist entering the cam f ; thus alternately, as the cams revolve, the wrist enters the cam f , and the knives are thrown apart, and as soon as the wrist enters the cam f' , the knives approximate the width of the shingle.

The springs $l l$, Figs. 1 and 5, are for the purpose of adjusting the knife blocks to shingles of various widths, and easing the action of the cams on the wrists and levers.

In front of the knives $R R$, are two guides, $m m$, Figs. 2, 3, and 9, which slide up and down in the knife block and are so fitted to the shaft n , that they move transversely with the blocks; and the shaft n is attached to a lever on each side of the frame corresponding to O , Figs. 1, and 9, which levers move upon the pin O' in the frame; at the end O'' is a wrist fitted to the cams $f f'$.

The cams revolve with the wheels in the direction of the arrow, and the guides m , are raised and lowered in accordance with the position of the knife blocks and shingle; as soon as they are thrown out by the cam f , the guide m is thrown up; as the wrist enters the cam f , directly after the wrist j ; and as soon as the knives are brought together, by the cam f' , the guides are raised in place, as seen in Figs. 2 and 9, which hold the shingle in the proper direction, to be shaved, and as soon as the edge of the shingle laps on to the side of the knives $R R$, the guides drop down by the action of the cam f' on the wrist O'' , and lever O . As soon as the guides drop, the sides of the knives and the rollers become the guides, and the rollers draw the shingle through the knives as soon as released by the conveyer.

What I claim as my improvement, and desire to secure by Letters Patent, is:

1. The hopper G , slide catch G' , and slide rests G'' , with the attachment of the spiral springs I , and elliptic springs K , this combination I claim separately, and combined with the driver F'' , for the purpose specified.

2. The combination of the sliding key d , strap c , cross piece b , and spring e , for the purpose of holding the shingle, while it is being squared by the fingers V , as described.

3. The levers $W W'$, tumbler a' , fingers V , slide X , and spring X' , operating by means of the grooves $f' f$, and cams Y, Y , for the purpose of squaring the shingle by the fingers so that the edges will be jointed square with the butt.

4. The circular grooved cams f , and f' , in combination with the levers $g g$, connecting rod $h h$, spring $l l$, right angled levers $i i$, and adjustable knife blocks $R R$, operating in the manner specified; which I claim, either separately, or in combination with the guides m, m , levers $O O$, and $O'' O''$, for the purpose set forth.

ADONIRAM KENDALL.

Witnesses:

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JOHN B. LUCAS.