

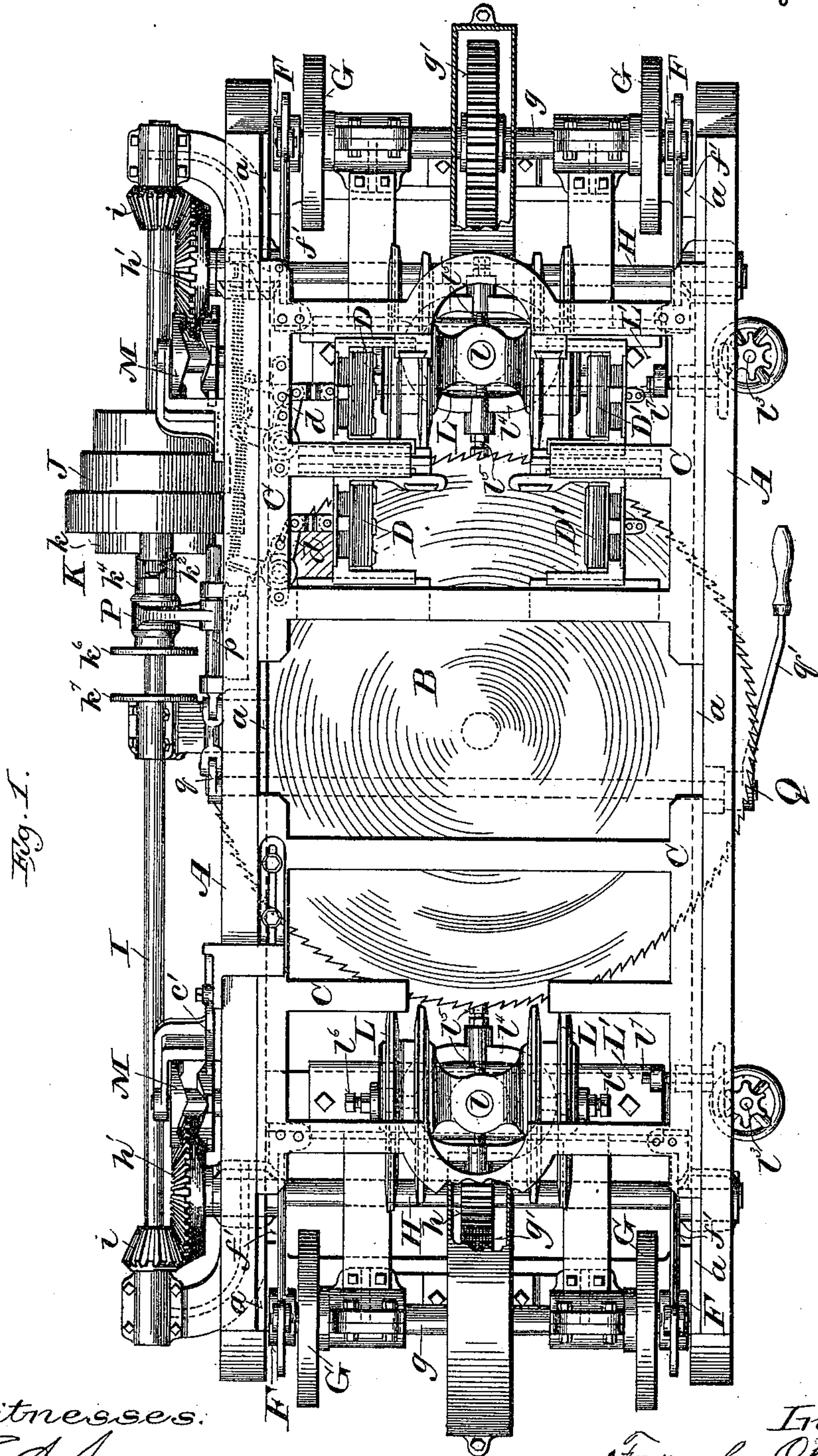
(No Model.)

4 Sheets—Sheet 1.

F. CHALLONER.
SHINGLE SAWING MACHINE.

No. 582,602.

Patented May 11, 1897.



Witnesses:
E. C. Smith
Chas. L. Good.

Inventor:
Frank Challoner,
By Walter Henderson Smith & Arthur Viles
Attorneys.

(No Model.)

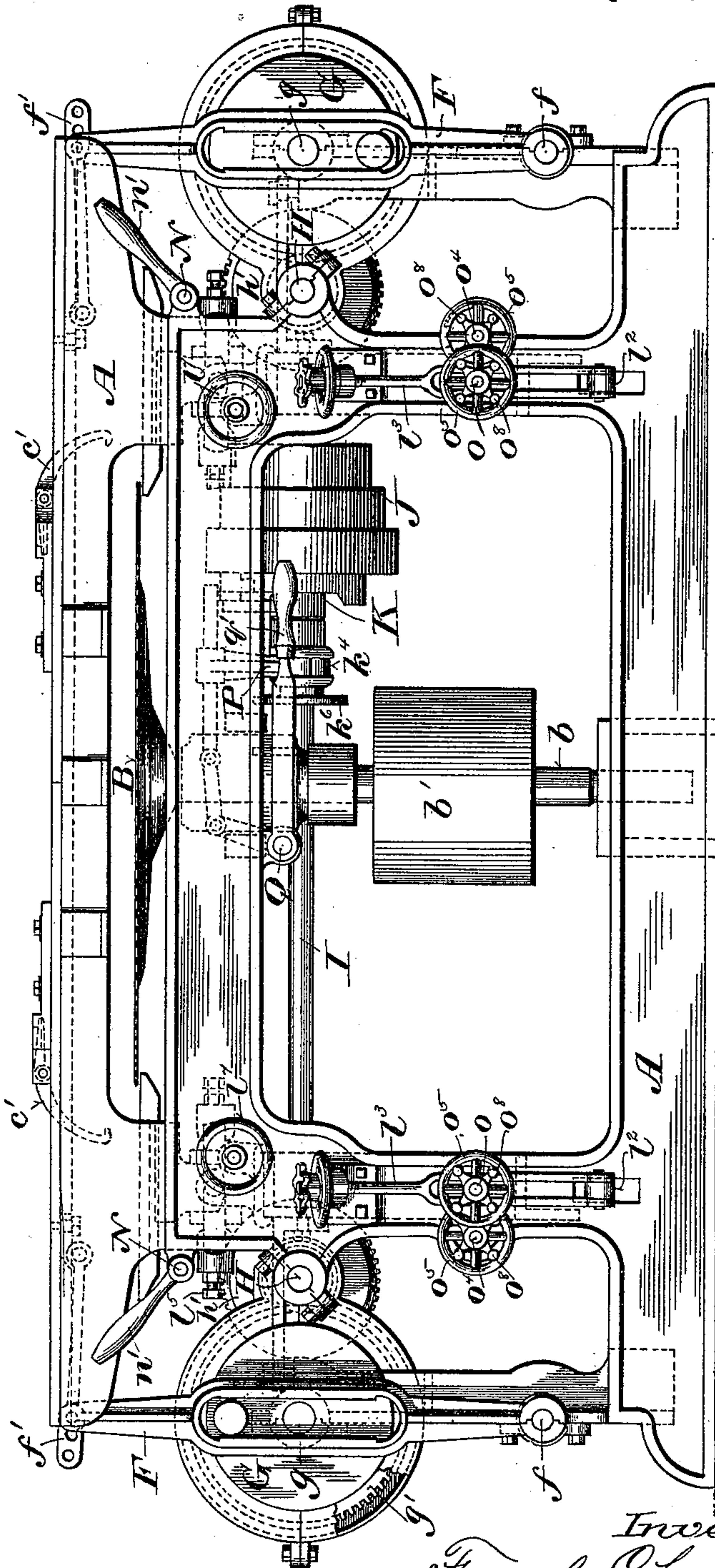
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Patented May 11, 1897.

Fig. 2.



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Inventor:

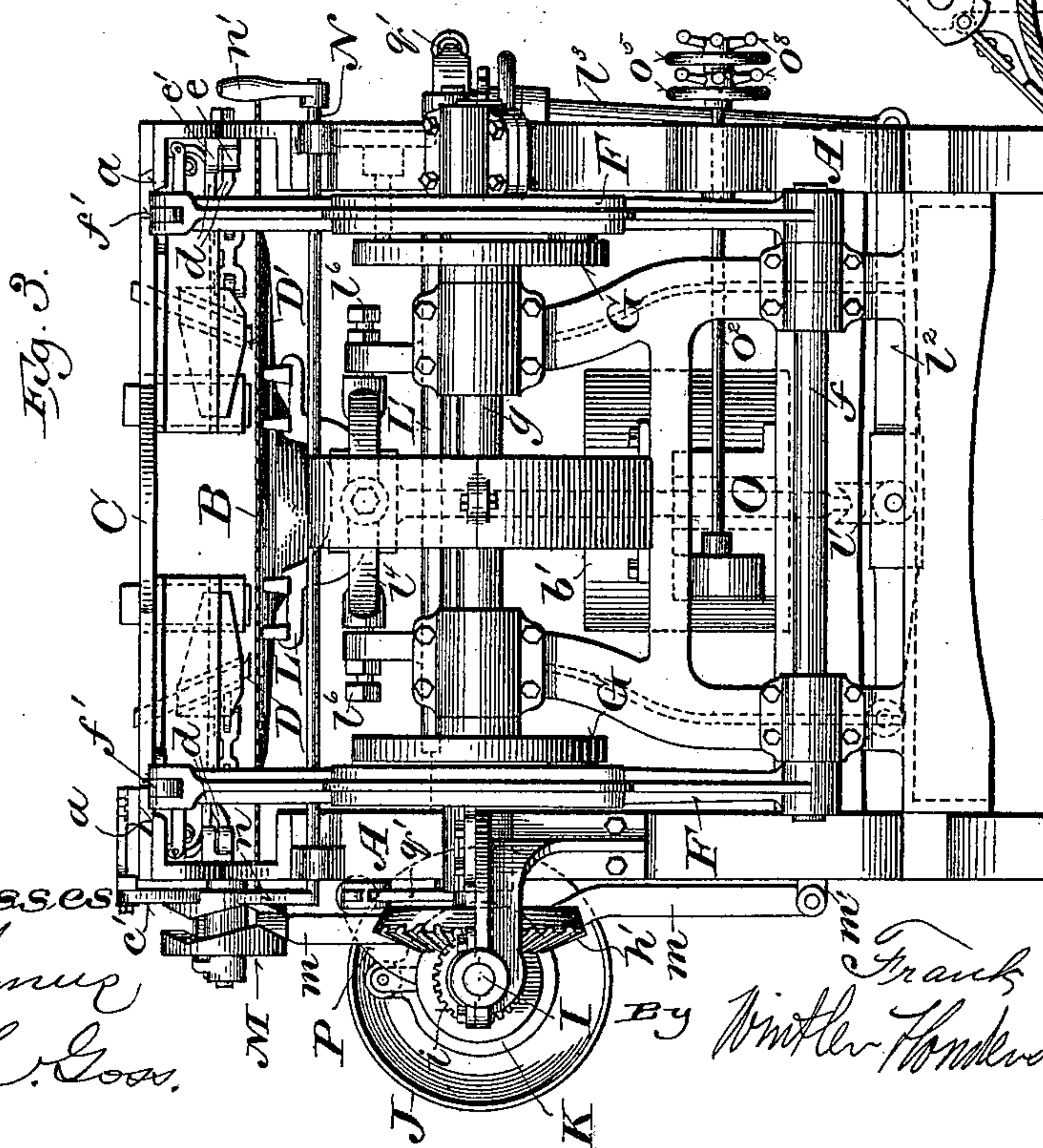
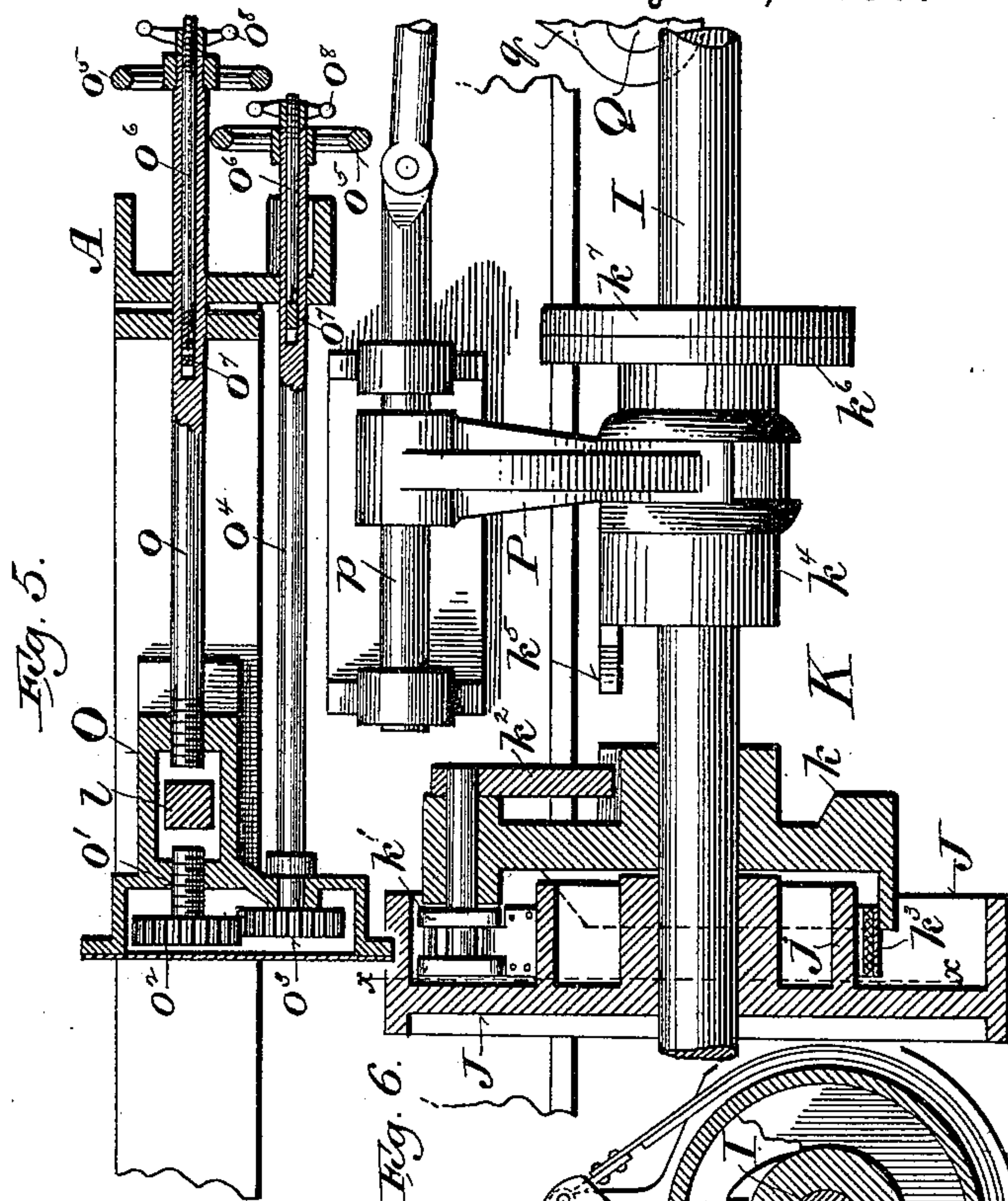
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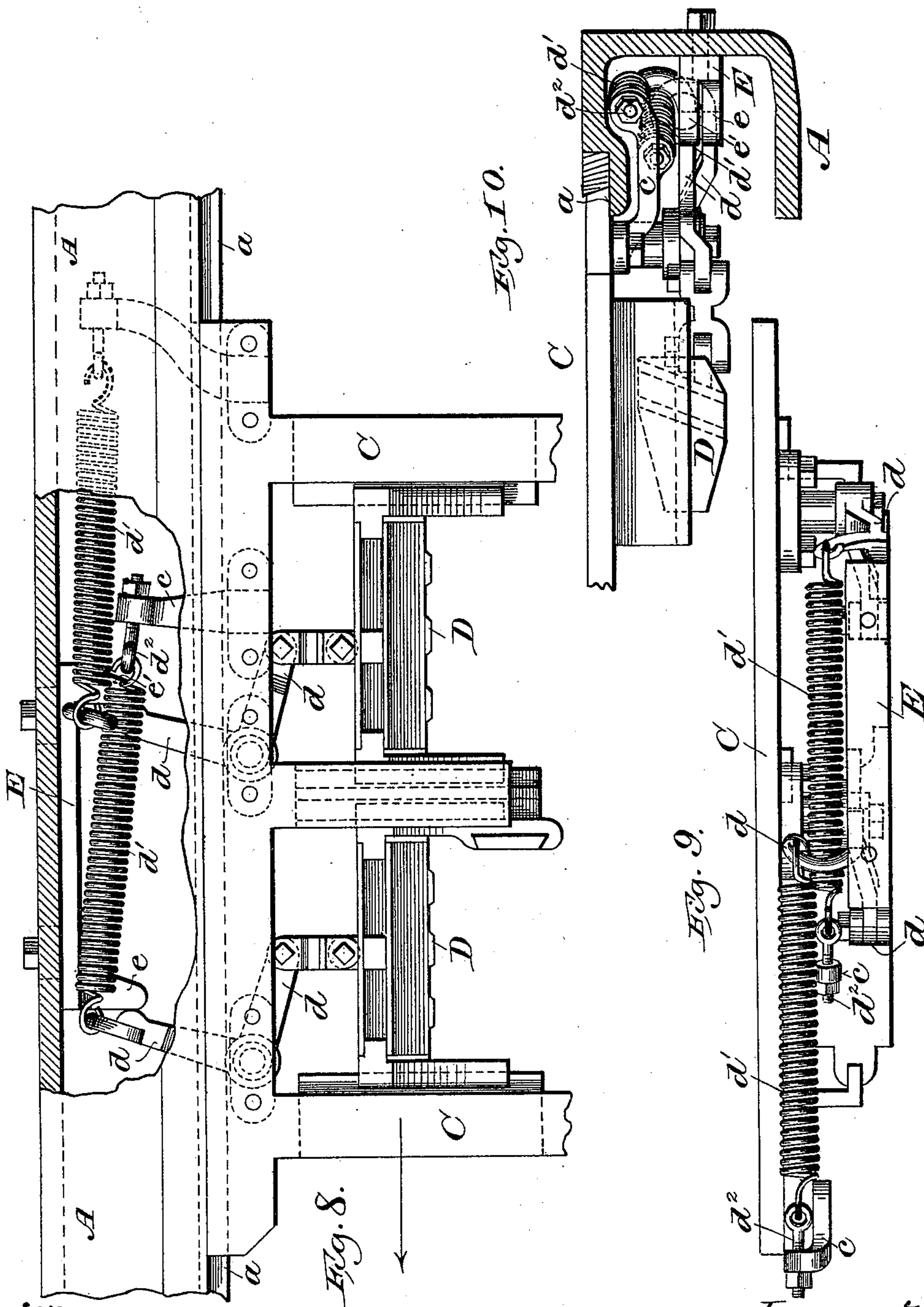
(No Model.)

4 Sheets—Sheet 4.

F. CHALLONER.
SHINGLE SAWING MACHINE.

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Patented May 11, 1897.



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UNITED STATES PATENT OFFICE.

FRANK CHALLONER, OF OSHKOSH, WISCONSIN.

SHINGLE-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 582,602, dated May 11, 1897.

Application filed February 17, 1894. Serial No. 500,460. (No model.)

To all whom it may concern:

Be it known that I, FRANK CHALLONER, of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Shingle-Sawing Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of shingle-sawing machines in which two reciprocating carriages carry the shingle-blocks alternately back and forth over a horizontal saw which cuts a shingle from the underside of the blocks held therein during the advance movement of the carriages, and tilt-tables located below the carriages on opposite sides of the saw give the proper inclination to the blocks which are dropped thereon by the carriages at the end of their return movement to cause the butts and points of the shingles to be cut alternately from opposite ends of said blocks. Its main object is to facilitate the adjustment and operation of the machine; and it consists of certain novel features in the construction and arrangement of the component parts of the machine hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a plan view of a machine embodying my improvements. Fig. 2 is a side elevation as seen from the bottom with reference to Fig. 1. Fig. 3 is an end elevation as seen from the left with reference to Fig. 1. Fig. 4 is a partial elevation and vertical section showing a part of the supporting and adjusting connections of one of the tilt-tables. Fig. 5 is a horizontal section, on an enlarged scale, on the line 5 5, Fig. 4. Figs. 6 and 7 are detail views, on an enlarged scale, of the clutch and its connections employed to connect the driving-pulley with the driving-shaft through which the carriages and tilt-tables are actuated, Fig. 6 being a section lengthwise of the driving-shaft and Fig. 7 a section crosswise thereof on the line *x x*, Fig. 6; and

Figs. 8, 9, and 10 are detail views, on an enlarged scale, of a portion of one of the carriages, together with parts of the machine immediately associated therewith, Fig. 8 being a plan view, Fig. 9 a side elevation of the carriage, looking from the top with reference to Fig. 8, and Fig. 10 a front elevation of the carriage and vertical cross-section of the associated supporting-way.

Referring to Figs. 1, 2, and 3, A represents the frame, which is formed or provided on opposite sides lengthwise thereof with parallel horizontal ways *a a*.

B is a horizontal saw supported a short distance below said ways at the center of the machine upon the upper end of a vertical arbor *b*, which is provided with a pulley *b'* in the usual manner.

C C are reciprocating carriages mounted upon the ways *a a* and adapted to travel alternately back and forth thereon over the saw B.

In the machine shown in the drawings each carriage is formed with two block-receptacles, one in front of the other, and each receptacle is provided at one end with a movable dog D and at the opposite end with a relatively-fixed dog D'.

Referring to Figs. 8 to 10, inclusive, in connection with Figs. 1 and 3, *d d* designate bell-crank levers fulcrumed underneath to one side of each carriage adjacent to the block-openings therein and having one arm of each linked to the tailpiece of the adjacent movable dog D and the other arm connected by a spiral spring *d'* with a bracket or projection *c* on the carriage. The connections of these springs with the brackets *c c* are made by means of eyebolts *d²*, into which the springs are hooked and which pass loosely through said brackets and are provided on the opposite sides with nuts whereby the tension of said springs may be adjusted as desired.

E designates a trip-block adjustably attached to one side of the frame and provided with projections *e* and *e'*, which extend in different vertical planes into the paths of the outwardly-extending arms of levers *d d* and are so located as to engage with said arms and open the dogs D D as the carriage approaches the outward limit of its movement, the springs *d' d'* acting in the opposite direc-

tion and holding said dogs closed when the levers $d d$ are moved by the advance of the carriage out of engagement with the projections $e e'$, the direction of the advance movement of the carriage being indicated by an arrow on Fig. 8.

The mechanism at each end of the machine being the counterpart of that at the other end, I will describe in detail that at one end only.

10 $F F$ designate upright slotted arms or yokes which are mounted at their lower ends just within the sides of frame A upon a horizontal cross-shaft f . At their upper ends they are connected with the adjacent carriage C 15 by links $f' f'$, which are formed at their outer ends with a series of holes by means of which they may be adjustably connected with said arms, so as to determine the limits of the travel of the carriage as desired.

20 $G G$ are cranks, in the present instance consisting of disks provided with crank-pins which engage with the slots in the vibratory arms or yokes $F F$. They are fixed upon the ends of a shaft g , located directly above and 25 parallel with the rock-shaft f , by which said arms are pivoted at their lower ends to the frame of the machine. The shaft g is provided with a gear g' , which meshes with a pinion h on a parallel shaft H , and the shaft 30 H is provided at one end with a bevel-gear h' , which meshes with a bevel-pinion i on a shaft I , supported in bracket-bearings on the rear side of the machine lengthwise thereof. This shaft I has like connections at the opposite 35 end with the other carriage and is provided with a cone-pulley J , loosely mounted thereon and adapted to be engaged therewith at the will of the operator by a clutch K . (Shown in detail in Figs. 6 and 7.) This clutch is of 40 the general type known as the "Oesterlein" clutch, but is adapted by special connections for use in a shingle-sawing machine of the kind herein shown and described. It comprises, in connection with a flange j on the 45 driving-pulley J , which is loosely mounted on the shaft I , a disk or strap-carrier k , fixed upon said shaft and provided with a flange which surrounds a portion of the clutch-strap, a cross-head k' , to which the ends of the strap 50 k^3 are pivotally connected, having a spindle journaled in said disk or strap-carrier parallel with the axis of the clutch and provided at its outer end with an arm k^2 , which projects radially inward into a slot in the hub of said 55 disk, said slot being of sufficient width to permit a limited movement of said arm and cross-head, and a sleeve k^4 , movable endwise upon said shaft I and formed with a beveled projection k^5 , adapted to enter the slot in the hub of 60 the strap-carrier k between one side thereof and the arm k^2 and to force said arm to one side, thereby tightening the strap k^3 upon the flange j . Said sleeve is formed at its opposite end with a disk or flange k^6 , and the shaft I 65 is provided with a similar disk or flange k^7 , which limits the outward movement of said sleeve at the proper point.

P is a forked arm which engages an external annular groove in said sleeve and is fixed upon a sliding rod p , supported in suitable 70 bearings on frame A .

Q is a horizontal shaft extending transversely across the machine and provided at its rear end with an arm q , which is linked to the sliding rod p , and at its front end, 75 within convenient reach of the operator, with a handle-arm q' , by means of which the clutch may be engaged and disengaged by the operator without leaving the position usually occupied by him in the operation of the ma- 80 chine.

$L L$ designate the tilt-tables, of the usual construction and arrangement employed by me in machines of this class. They are fixed in the usual manner to the upper ends of 85 standards $l l$, which rest at their lower ends in steps $l' l'$, pivoted in horizontal levers $l^2 l^2$, as shown in Fig. 4. The levers l^2 are fulcrumed at one end to cross-pieces of the frame and are adjustably supported at the 90 other end in the usual way by screw-threaded rods l^3 . The tilt-tables are located on opposite sides of the saw below the path of the carriages in position to support shingle-blocks dropped thereon by the dogs when 95 said carriages are in their outer positions.

$M M$ are the usual toothed cams operating through upright levers m and rods m' , connecting their lower ends with the lower ends 100 of the standards $l l$ to change the inclination of the tilt-tables with each advance and return movement of the carriages, so as to cut the butts and points of the shingles alternately from opposite ends of the shingle-blocks. The cams M are turned in the usual 105 manner with each advance movement of the carriages by hooks $c' c'$, pivoted to the carriages. To prevent the shifting of either tilt-table by the mechanism just described and to cause two or more butts to be cut in 110 succession from the same end of a shingle-block for the purpose of bringing the cut parallel with the grain of the wood, an operation ordinarily called "graining," I provide at or near each end of the machine a 115 cross-shaft N , having an arm n at its rear end and a handle n' at its front end, by means of which said arm may be turned into engagement with a tooth of the adjacent cam and said cam turned backwardly the same 120 distance it is automatically advanced by the hook c' on the carriage.

The mechanism thus far described in connection with the tilt-tables is like or similar to that heretofore employed by me in ma- 125 chines of this class. For the purpose of facilitating the adjustment of the tilt-tables and the extent of their inclination in opposite directions the universal-joint connection between the upper end of each standard l and 130 the frame of the machine, comprising the ring l^4 and pivot-screws $l^5 l^5$ and $l^6 l^6$, is carried by a slide L' , adjustably mounted and movable lengthwise upon a cross-piece of the

frame. A screw l , threaded in an ear on said slide, journaled in the frame and having a hand-wheel or head projecting on the front side of said frame, affords convenient means of adjusting the tilt-table transversely to the line of travel of the carriages. At its lower end each standard l passes through a box O between the tips of stop-screws o o' , threaded in opposite ends of said box, as shown in Fig. 5. The screw o has a long stem which extends forwardly through an opening in one of the front legs of frame A , and the screw o' is provided with a gear o^2 , which meshes with a similar gear o^3 on a rod or shaft o^4 , extending parallel with the screw o forwardly through an opening in said leg. The front ends of the stem of screw o and rod o^4 are provided with heads or hand-wheels o^5 o^5 , conveniently accessible to the operator, and are axially bored to receive rods o^6 o^6 , which are provided at their inner ends with key-pieces o^7 o^7 , projecting through laterally-opening slots in the stem of screw o and rod o^4 , adjacent to the inner side of said frame-leg, as shown in Fig. 4. The key-rods o^6 are screw-threaded at their outer ends and provided with jam-nuts o^8 , by means of which the key-pieces o^7 are drawn tightly against the inner side of said frame-leg and the stop-screws o and o' are locked in place when properly adjusted.

The mechanism just described greatly facilitates the adjustment of the stops by which the inclination of the tilt-tables in opposite directions is limited for varying the thickness of the butts and points of the shingles.

From the foregoing description of the construction and arrangement of the component parts of the machine its operation will be clearly understood by those familiar with the subject to which it relates.

By means of the counter-shafts H H , I am enabled to locate the longitudinal driving-shaft I outside of the frame and thus afford a clear unobstructed space under the saw for the shingles to fall as they are severed from the under side of the blocks held in the carriages.

I claim—

1. In a shingle-sawing machine, the combination with a suitable frame provided with ways, of a horizontal saw, two reciprocating carriages movable on said ways alternately back and forth over said saw, vertically-slotted arms pivoted at their lower ends to said frame and connected by links at their upper ends with opposite sides of said carriages, cross-shafts provided at the ends with cranks engaging the slots in said arms, counter-shafts parallel with said crank-shafts and connected therewith by gears, and a longitudinal driving-shaft supported in bearings outside of the frame and connected by bevel-gears with said counter-shafts, substantially as and for the purposes set forth.

2. In a shingle-sawing machine, the combination with a suitable frame provided with

ways, of a horizontal saw, two reciprocating carriages movable on said ways alternately back and forth over said saw, vertically-slotted arms pivoted at their lower ends to said frame and connected by links at their upper ends with opposite sides of said carriages, cross-shafts provided at the ends with cranks engaging the slots in said arms, parallel counter-shafts connected by gears with said crank-shafts, a longitudinal driving-shaft supported in bearings outside of the frame and connected by bevel-gears with said counter-shafts, a pulley loosely mounted upon said driving-shaft, a clutch arranged to connect said pulley with said shaft, and a lever connection with the front side of said machine for operating said clutch, substantially as and for the purposes set forth.

3. In a shingle-sawing machine, the combination with a suitable frame, of a tilt-table mounted upon the upper end of a vibrating standard, a transversely-movable slide having a universal-joint connection with the upper end of said standard and an adjusting-screw connecting said slide and frame, substantially as and for the purposes set forth.

4. In a shingle-sawing machine, the combination with a suitable frame, of a tilt-table mounted upon the upper end of a vibratory standard which has a universal-joint connection at its upper end with said frame and rests at its lower end in a pivoted step, a box through which said standard passes, and stop-screws threaded in opposite ends of said box and provided with operating connections extending to and accessible at the front side of the frame, substantially as and for the purposes set forth.

5. In a shingle-sawing machine, the combination with a suitable frame, of a tilt-table mounted upon the upper end of a vibratory standard, a box through which said standard passes, stop-screws threaded in opposite ends of said box, one of said screws having a stem projecting through the front side of the frame and provided at its front end with a suitable head, and a parallel shaft connected at its rear end by gears with the other screw, and provided at its front end, which projects through the frame, with a suitable head, substantially as and for the purposes set forth.

6. In a shingle-sawing machine, the combination with a suitable frame, of a tilt-table mounted on the upper end of a vibratory standard, a box through which said standard passes, stop-screws threaded in opposite ends of said box, one of said screws being extended through the side of the frame and provided at its front end with a suitable head, a shaft connected by gears with the other screw and provided at its front end, which projects through the frame, with a suitable head, and key-rods inserted in axial bores in the front ends of said shaft and extended screw, and provided at their inner ends with key-pieces which project outwardly through slots in said shaft and screw next to the frame, the front ends of said rods being screw-threaded and provided

with jam-nuts, substantially as and for the purposes set forth.

7. In a shingle-sawing machine, the combination with a suitable frame, of a tilt-table 5 mounted on a vibratory standard, a transversely-movable slide having a jointed connection with the upper end of said standard, an adjusting-screw connecting said slide with 10 said frame through which it projects, being provided on the front side thereof with a suitable head, a box through which said standard passes, stop-screws threaded in opposite ends of said box, one being extended through 15 the front side of the frame, and a parallel shaft also projecting through the front side of the frame and connected at its end by gears with the other screw, substantially as and for the purposes set forth.

8. In a shingle-sawing machine, the combination with a suitable frame, of a tilt-table 20 mounted on a vibratory standard, a horizontal lever fulcrumed at one end to said frame and adjustably connected at the opposite end by a forked screw-rod with a projection on 25 said frame, said screw-rod being provided with a nut for adjusting said lever, a step pivoted to said lever and supporting the lower end of said standard, a box through which said standard passes, stop-screws threaded in 30 opposite ends of said box, the stem of one screw extending through the front side of the

frame and said forked screw-rod, and provided at its front end with a suitable head or handle, and a parallel shaft provided at its front end with a similar head or handle, and connected 35 at its rear end by gears with the other screw, substantially as and for the purposes set forth.

9. In a shingle-sawing machine, the combination with a frame provided with parallel 40 horizontal ways, a horizontal saw and a tilt-table located between and below said ways, of a reciprocating carriage provided with a number of block-receptacles arranged one in advance of another and each provided with a 45 fixed and a movable dog, bell-crank levers fulcrumed to the under side of said carriage and connected at one end with the movable dogs and at the other end with the carriage by extensible springs which tend to close said dogs, 50 and stops on the frame arranged in different vertical planes to engage with the outer ends of said levers when the carriage approaches the limit of its return movement, and thereby open the movable dog, substantially as and 55 for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

FRANK CHALLONER.

Witnesses:

W. W. KIMBALL,
ELLA F. JACKMAN.