(No Model.) 2 Sheets—Sheet 1.

C. J. RINDERKNECHT.

SAW MILL SET WORKS.

No. 370,413. Patented Sept. 27, 1887.

Fig. 1.

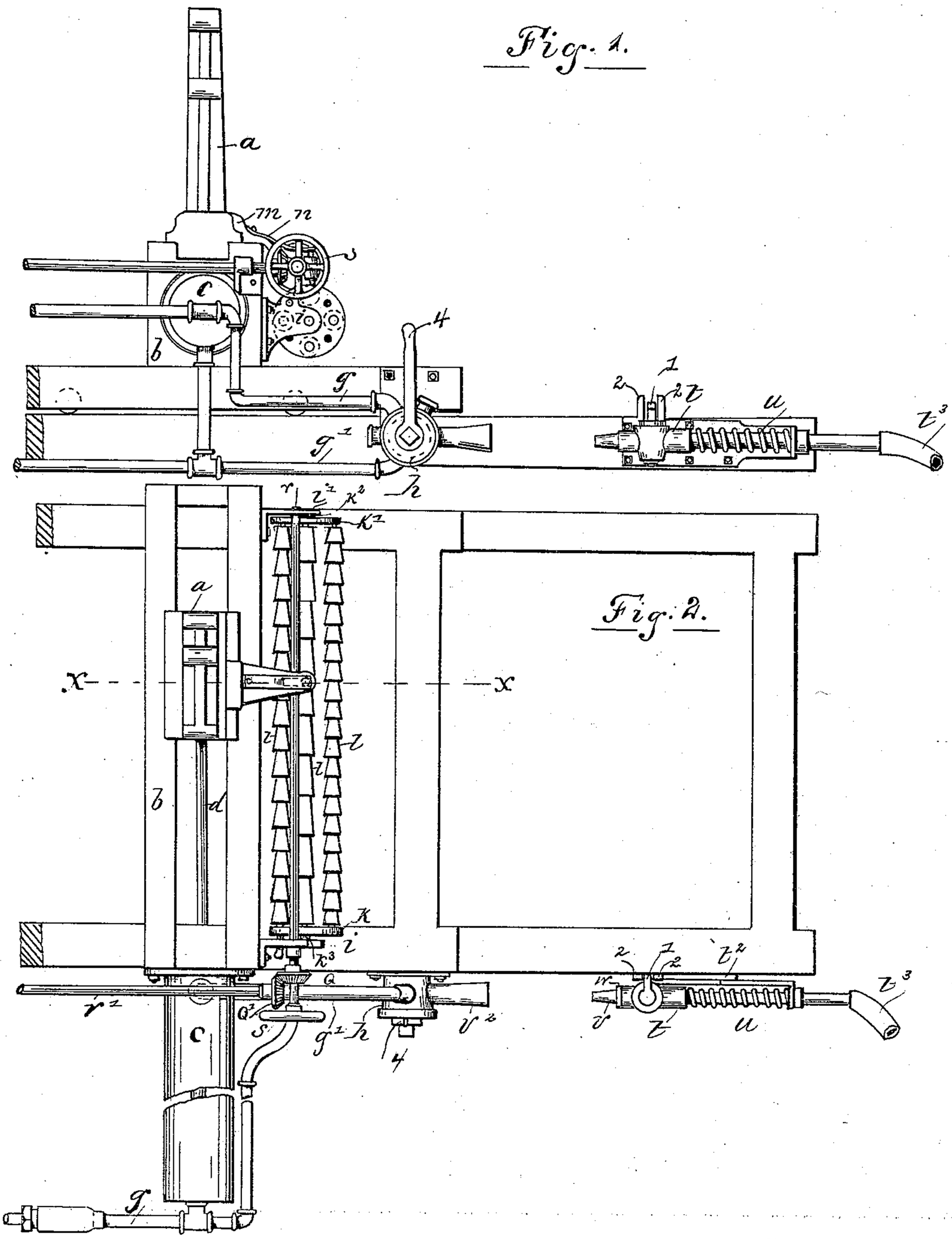

Fig. 2.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 4

Fig. 5

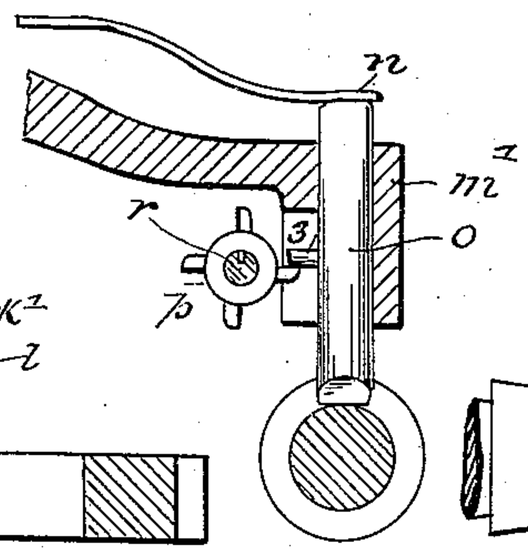


Fig. 6

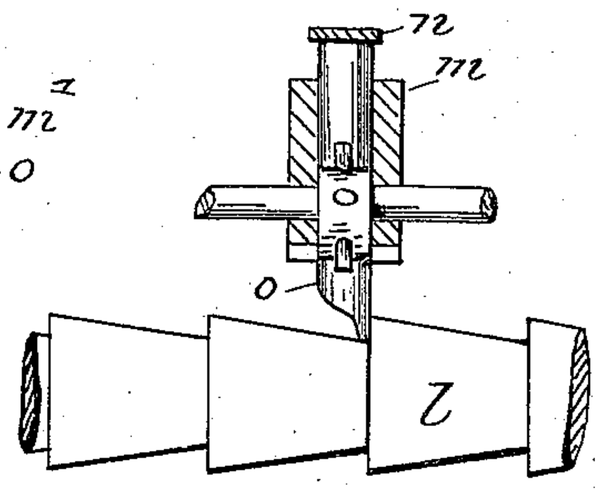
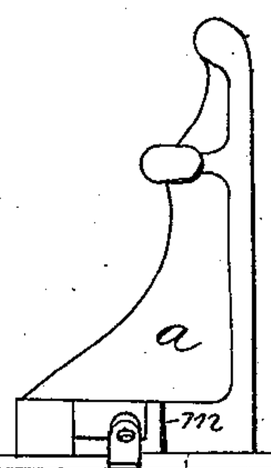


Fig. 3.



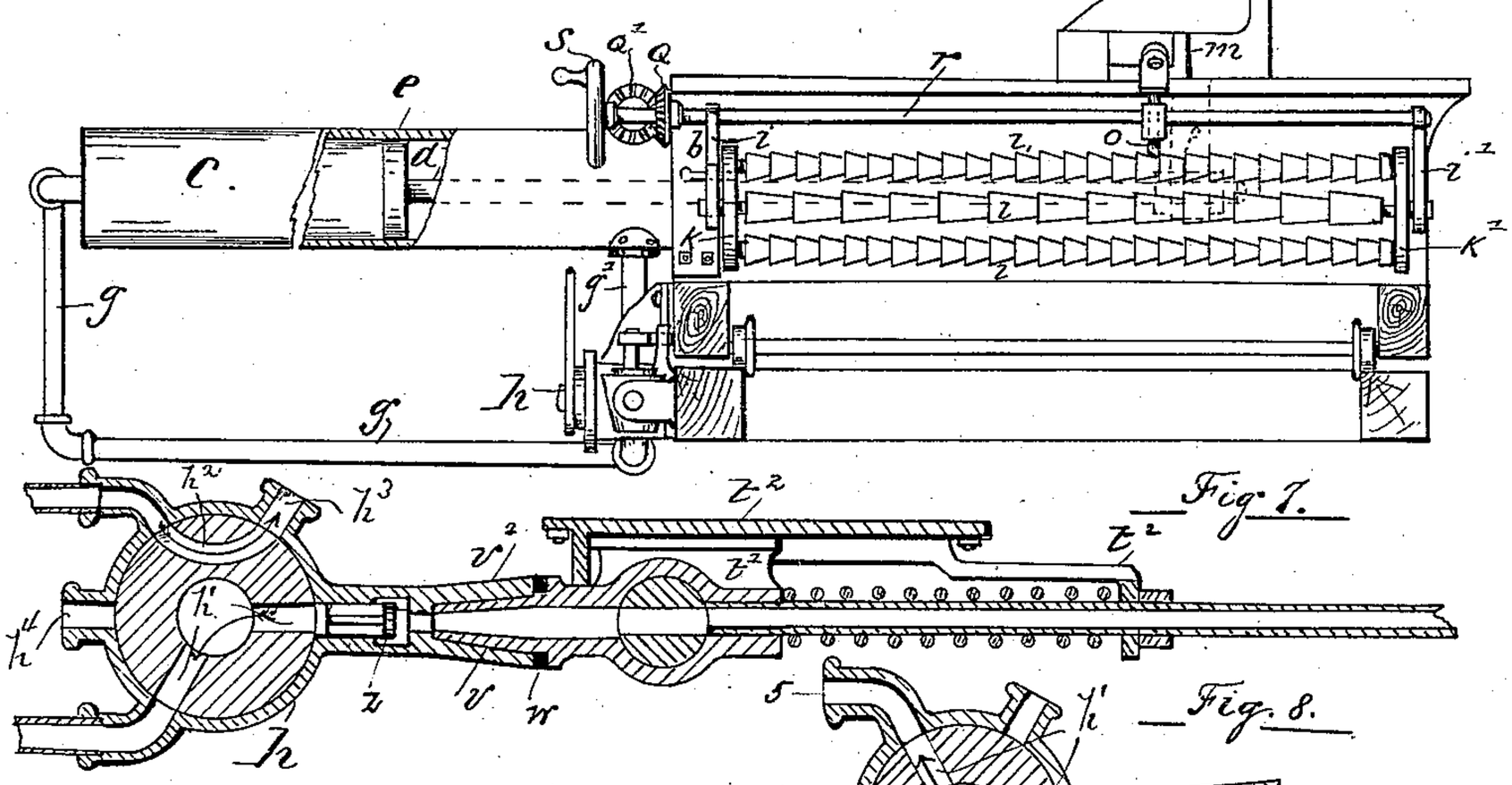


Fig. 7.

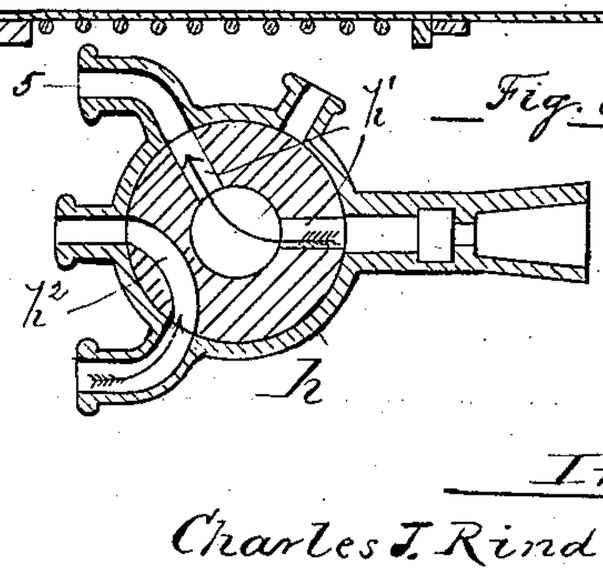


Fig. 8.

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UNITED STATES PATENT OFFICE.

CHARLES J. RINDERKNECHT, OF INDIANAPOLIS, INDIANA.

SAW-MILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 370,413, dated September 27, 1887.

Application filed January 10, 1887. Serial No. 223,946. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. RINDERKNECHT, of the city of Indianapolis, county of Marion and State of Indiana, have invented certain new and useful Improvements in Saw-Mill Head-Blocks, of which the following is a specification.

The object of my invention is to provide a saw-mill head-block with an automatic feeding attachment wherein the use of cog and gear wheels is dispensed with and said operation performed by the application of steam, air, or hydraulic pressure. I accomplish this object by means of the device described in this specification, and illustrated in the drawings filed herewith and made a part thereof, and in which similar letters and figures of reference relate to similar parts of the invention throughout the drawings.

Figure 1 of the drawings represents an end view of a saw-mill head-block with my feeding arrangement attached to the head-block and traverse-carriage. One, two, or more corresponding head-blocks might be placed to the left. Fig. 2 represents a top view of Fig. 1. Fig. 3 is a side view. Fig. 4 is a transverse vertical section through line *x x* of Fig. 2. Figs. 5 and 6 are enlarged detached views of parts. Figs. 7 and 8 are detached sectional views of parts.

a represents a saw-mill knee adapted to slide on the head-block *b* in the usual manner, on which the timber to be cut rests. To said head-block *b* is attached in the rear a pressure-cylinder, *c*.

d is a piston-rod, to which is attached at its cylinder end a plunger, *e*, and the opposite end of which is made to connect with a downwardly-depending arm of the knee *a* by means of counter-nuts or in any other well known or approved manner.

g is a pipe connected at one end to the rear end of cylinder *c*, and at the other end with the two-way faucet *h*.

g' is a pipe connecting also with the two-way faucet *h* and with the cylinder *c*, near the saw-mill head-block *b*. The pipes *g g'* are respectively used as inlet and outlet pipes and as power-conductors to operate the knee *a*.

i i' represent brackets bolted on the sides of the head-block *b*, and provided with bearing-boxes to receive the pivots k^2 and k^3 of the disks *k k'*.

l l, &c., are feed-spindles adapted to turn loosely in the disks *k k'*. Said spindles are provided with conical notches, as shown in Fig. 2. The length of each notch corresponds to the correct thickness of the board to be cut on the head-block.

As will be observed, I show in the accompanying drawings only four conical notched spindles, corresponding to four different thicknesses of boards.

m is an arm attached at right angles to the side of the knee *a*, and is provided on its end with a sleeve, *m'*, in which the stopping-pin *o* works loosely in a vertical direction.

n is a spring fastened to the arm *m*, and adapted to rest on the top of the stopping-pin *o*, as clearly indicated in Figs. 4, 5, and 6.

r is a rod loosely journaled in the brackets *i i'*, and *p* is a hub provided with radially-extending fingers, the said hub being secured on the rod in a longitudinally-sliding adjustment, but prevented from turning on the rod either by a feather and groove or by an angular construction of the rod and hole through the hub.

Q is a beveled gear-wheel secured on the shaft *r*, and adapted to engage a beveled gear-wheel, Q', secured on a shaft, *r'*.

s is a hand-wheel mounted on the end of the shaft *r*.

t is an ordinary faucet, and is provided with a sliding cross-head, *t'*, (see Fig. 7,) adapted to slide in the frame t^2, said frame being fastened to the lower sill of the saw-mill track. The outer end of the faucet is constructed so as to receive a hose, t^3, which is connected with the motive power.

u represents a coiled spring surrounding the inlet-pipe to the faucet, and pressing at one end against the end of the frame t^2 and at the opposite end against the faucet and cross head *t'*, as plainly shown in Fig. 7.

As will be observed, the faucet is provided with a conical discharge-nozzle, *v*, and a corresponding hollow cone, v^2, is attached to the two-way faucet *h* on the carriage, and in a position to engage the nozzle *v* when the carriage is moved toward it.

w represents an elastic washer slipped over the nozzle *v*, to cushion the end of the hollow cone v^2. A check-valve, *z*, is inserted in the passage leading from the cone v^2 to the two-way faucet to hold the pressure within the cylinder.

The valve of the faucet *t* is provided with an upwardly and laterally extending arm, 1,

the end of which is adapted to rest between a pair of lugs or fingers, 2, and when the faucet and cross-head *t t'* are forced backwardly against the tension of the spring *u* the arm 1, in engagement with one of the lugs or fingers 2, will cause the valve to turn and open the faucet to the discharge of air, water, &c., under pressure.

The two-way faucet *h* is provided with ports *h' h²*, Figs. 7 and 8, which serve, respectively, to admit pressure into the cylinder on opposite sides of the plunger and open an exhaust to the opposite ends of the cylinder, as the valve of the said faucet is turned by a suitable handle, 4. The casing of the two-way faucet is provided with exhaust-openings *h³* and *h⁴*.

The operation of the above-described mechanism is as follows: Having placed the log in the proper position to be sawed into boards or any other merchantable lumber, and having selected the conical notched spindle for the desired thickness, I insert the said spindle in its proper position in the disks *k k'*. The carriage is then traversed toward the saw and the first cut of the log is made. As the carriage returns away from the saw, the hollow cone *v²* slips over the nozzle *v* and forces the faucet backwardly against the tension of the spring *u*, opening the valve and admitting pressure into the cylinder *c* through the ports *h'* and pipe *g*, (see Fig. 7,) the exhaust from the opposite side of the plunger *e* being through pipe *g'*, port *h²*, and opening *h³*. The pressure within the cylinder *c* will now be in a direction to force the plunger *e*, and hence the knee *a*, laterally to carry the log into a position for a second cut, and such movement will promptly take place when the operator, by turning the hand-wheel *s*, rotates the hub *p*, and by the engagement of one of its arms with a pin or projection, 3, on the stop-pin *o*, lifts the latter, against the tension of the spring *n*, out of engagement with one of the conical notches. The movement of the knee *a*, and hence of the log, will continue until the pin *o* engages the next succeeding notch. The above operation may be repeated until the log is completely sawed into the desired boards or other lumber. The knee *a* is then traversed back to its position to receive another log by turning the valve of the two-way faucet *h* until the ports *h'* open into the pipe *g'*, when the port *h²* will be in a position to effect an exhaust through the pipe *g* and opening *h⁴* (see Fig. 8) and the plunger *e*, and hence the knee *a* will be forced back to the opposite end of the head-block.

By the above construction I am enabled to cut boards and other lumber with great exactness, the wear of the mechanism for feeding the log the proper distances laterally being much less than where cog-gear or ratchets are employed, and by constructing the conical notched spindles and stop-pin of hardened metal the wear will be so slight that a great number of boards may be cut which will not appreciably vary in thickness, a result which is highly desirable, and which has hitherto rarely or never been accomplished.

The change in thickness may be readily changed at any time by changing the notched spindle, and an important saving in lumber is made, while the cost of the feed mechanism is materially reduced.

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

1. In a saw-mill head-block, the combination, with a notched rod disposed longitudinally of the head-block, of a knee provided with a stop adapted to engage the notched rod, a cylinder, and a knee-actuating piston adapted to work in the cylinder, substantially as set forth.

2. In combination, a carriage, a knee mounted thereon, a bar removably secured to the carriage and provided with a series of feed-notches, a piston adapted to actuate the knee, and a spring-actuated stop secured to the slide and adapted to engage the notches on the removable bar, substantially as set forth.

3. In combination, the cylinder *c*, adapted to receive steam, air, liquid, and the like under pressure, the knee *a*, provided with a laterally-extending arm, a spindle provided with conical notches, a stop-pin, *o*, carried by the said arm and adapted to engage the said spindle, a sliding rotary hub adapted to engage and lift the pin, a shaft to the hub, a hand-wheel and gear-wheel on the shaft, and a shaft, *r'*, disposed at an angle to the aforesaid shaft and provided with gear adapted to mesh with the gear on the aforesaid shaft, whereby the knee *a* may be set free to slide and be locked at the will of the operator, substantially as set forth.

4. In a saw-mill head-block, the spindles having conical notches, and the disks *k k'*, in which the spindles are loosely journaled, the said disks being journaled in brackets attached to the block *b*, in combination with a knee, a stop, as *o*, attached to the knee, and mechanism for sliding the knee, substantially as set forth.

5. In a saw-mill, the combination, with the carriage having mounted thereon a cylinder, a two-way faucet having exhaust and inlet ports and provided with a hollow cone-shaped nozzle, *v²*, a piston to the cylinder, and the knee *a*, adapted to be slid by the piston-rod, of a spring-actuated yielding faucet, as *t*, mounted on the carriage-frame in line with the faucet on the carriage, adapted to be opened when forced backwardly as the carriage moves toward it, and having a V-shaped nozzle, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 2d day of November, A. D. 1886.

CHAS. J. RINDERKNECHT. [L. S.]

In presence of—
H. STURM,
M. LOEPER.