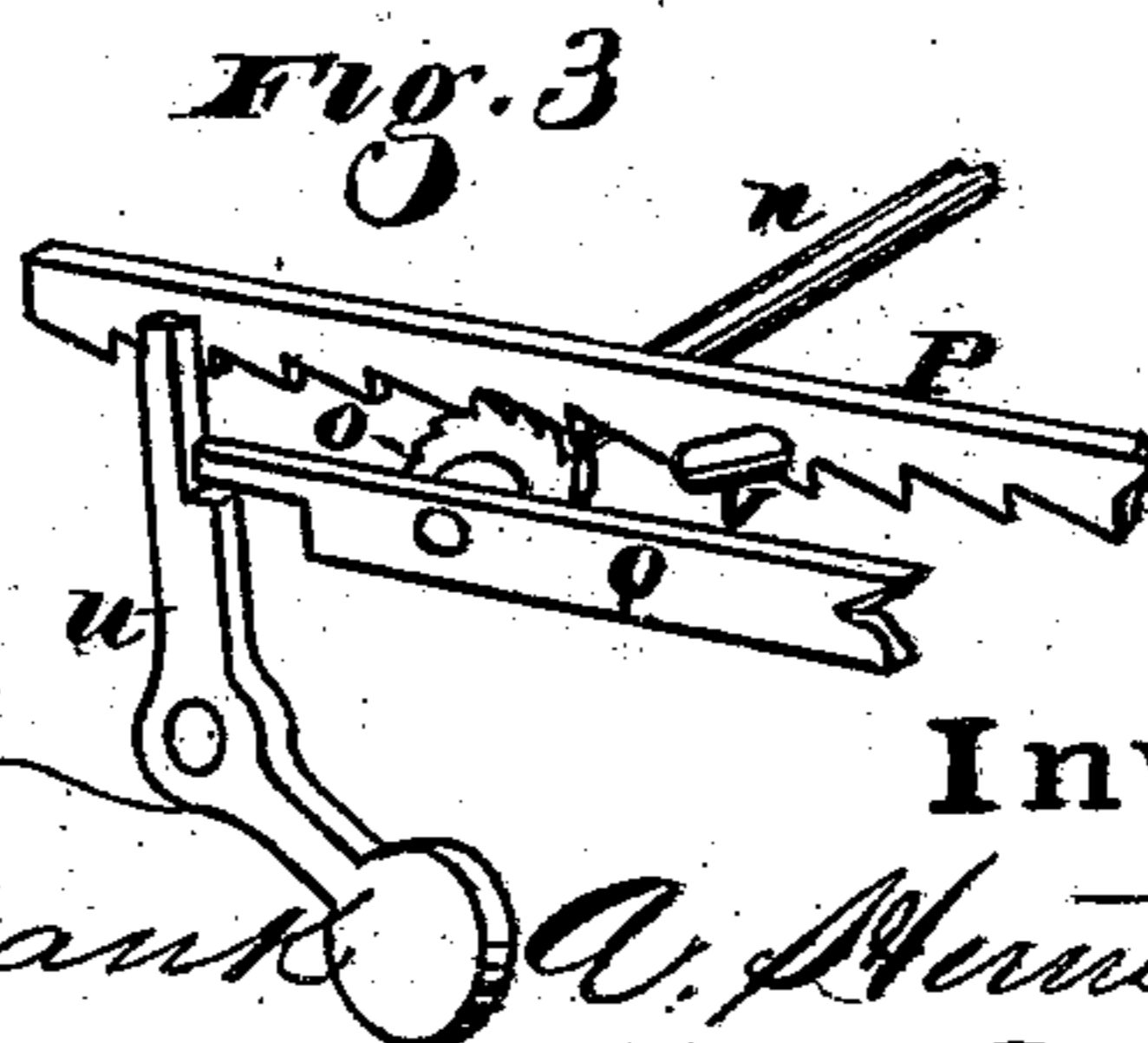
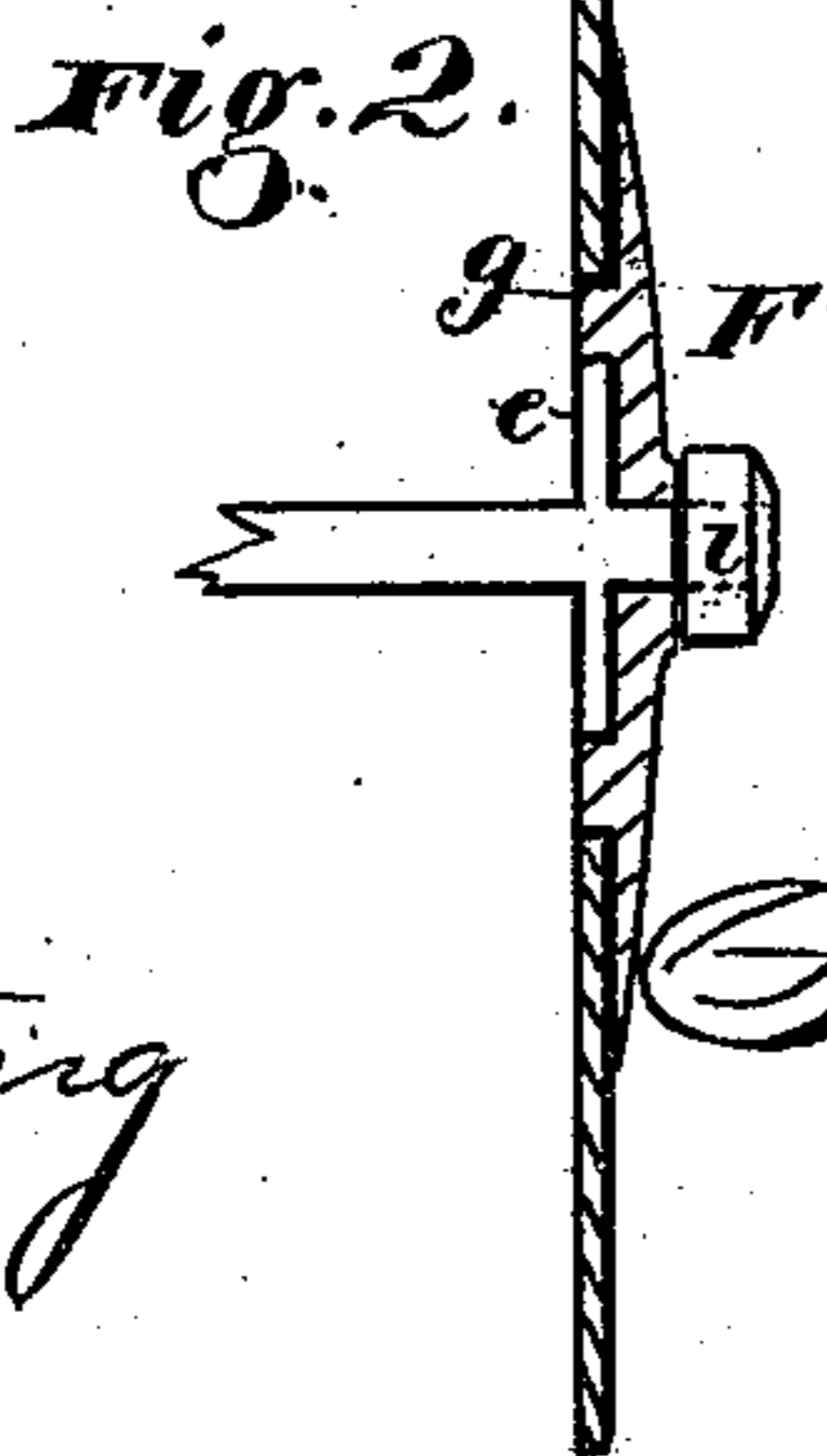
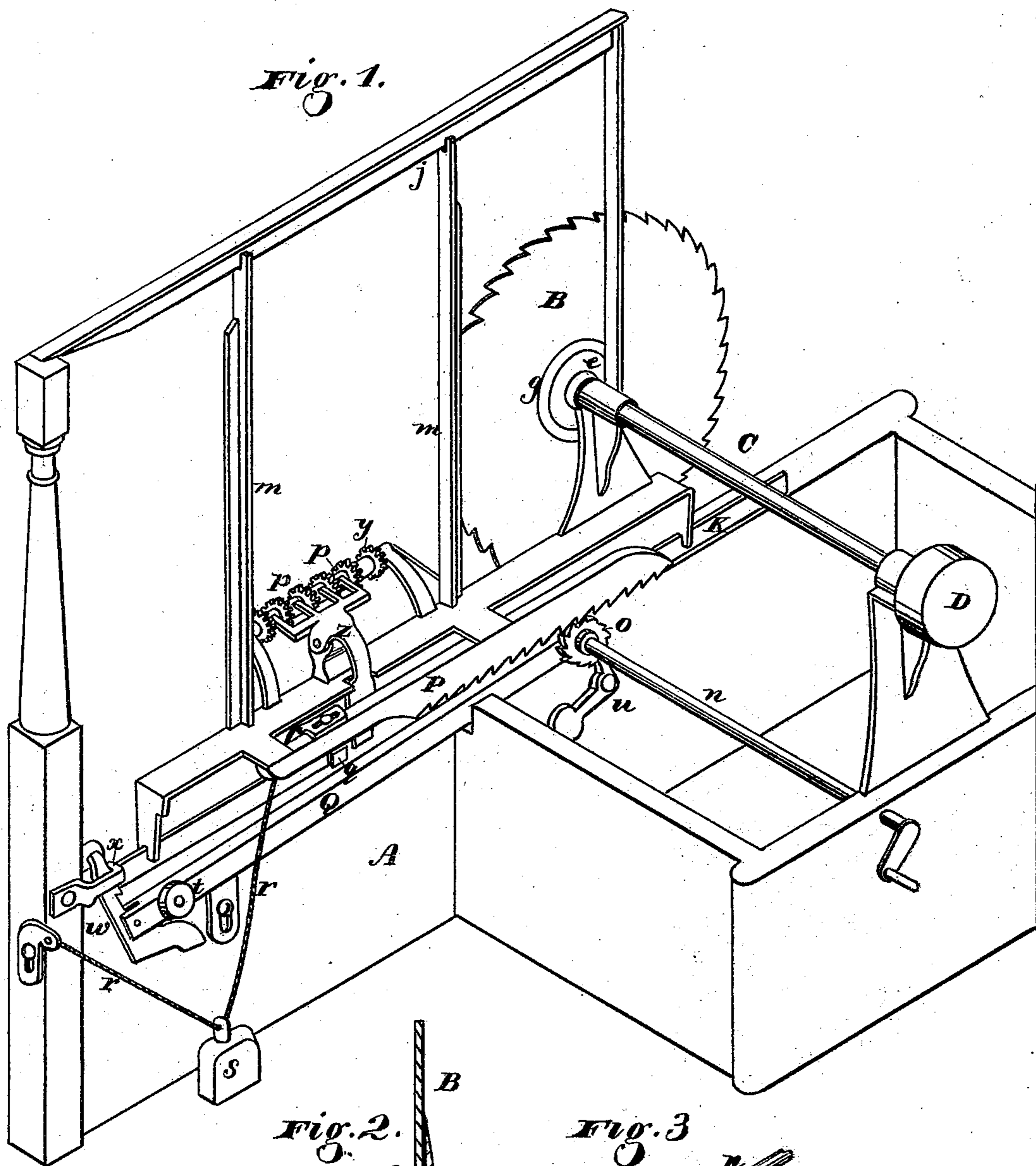


F. A. HUNTINGTON.

MACHINES FOR SAWING SHINGLES.

No. 179,021.

Patented June 20, 1876.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK A. HUNTINGTON, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN MACHINES FOR SAWING SHINGLES.

Specification forming part of Letters Patent No. **179,021**, dated June 20, 1876; application filed April 15, 1876.

To all whom it may concern:

Be it known that I, FRANK A. HUNTINGTON, of San Francisco city and county, State of California, have invented an Improvement in Machines for Sawing Shingles; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

In the first place I have invented an improved arrangement for securing saw-blades upon their arbors, which arrangement will be especially useful in a shingle-machine, because it allows me to carry the bolt or block close up against the saw-arbor, and thus utilize a greater portion of its blade, consequently, rendering a saw of smaller diameter capable of doing the work of a saw of larger diameter when mounted in the ordinary way, this invention being an improvement on the patent granted to me December 26, 1871.

I have also invented an improved arrangement for automatically operating the carriage which handles the bolt or block, and provided, in connection therewith, a novel feeding device and a stop for preventing the carriage from operating when the bolt or block has been sufficiently cut.

Referring to the accompanying drawings, Figure 1 is a perspective view of my machine. Fig. 2 is a section of same, showing the method of fitting it to the arbor. Fig. 3 is a detached view of part of the feed apparatus.

Let A represent the bed-frame of the machine. B is the saw, and C the saw-shaft, which is driven by a belt-connection with the pulley D. The usual method of securing the saw upon the end of this shaft has been to clamp its inner face against a hub or enlargement on the shaft. This hub or enlargement limited the reach of the saw-blade in proportion to the excess of its diameter over the diameter of the saw-shaft. I remedy this difficulty by making the hub or projection *e*, against which the inner face of the saw is clamped, a mere flange, and countersinking it in the face of the saw, so that it will allow the face of the projection or flange to be flush with the inner face of the saw-blade, and so that it will

present no obstruction to the free entry of the blade into the bolt close up to the saw-shaft.

To accomplish this in a convenient manner I construct the disk or collar F, which is secured to the outer face of the saw, with a hub or projection, *g*, on its inner face. This hub or projection is larger in diameter than the flange on the shaft, and is equal in width to the thickness of the saw-blade. I then make a hole in the center of the saw-blade corresponding to the size of the hub or projection *g*, so that when the disk or collar is fitted up against the outer face of the saw-blade its hub will fit in and project through the opening in the saw. The socket or recess for the reception of the flange on the saw-shaft, I then make in this hub *g*, so that it provides both a center and bushing for the saw-blade, and can be renewed as often as desired.

When the disk or collar F is firmly secured to the saw-blade, and the collar clamped against the flange *e* by turning the nut *i* against its outer face on the screw-end of the arbor, the saw will be firmly secured in place, and its sawing-diameter increased. The carriage which handles the bolt is operated horizontally between two parallel guides, *j k*.

L is the bed of the carriage, which moves upon the lower slide, and *m m* are the uprights between which the bolt is secured and carried, the upper ends of which are guided by the upper slide. *n* is the shaft which drives the carriage. On this shaft is a ratchet-toothed wheel, O, which engages with the horizontal rack P of the carriage, and advances the carriage with its bolt toward the saw. The inner end of the shaft *n* bears in the end of a pivoted bar, Q, which extends horizontally below the carriage-bed, and which is alternately raised and lowered by mechanism hereinafter described, so as to raise and lower the ratchet-wheel O as the carriage moves back and forth. A cord, *r*, has one end attached to the carriage-bed, while its opposite end is attached to the frame of the machine, as represented. In the middle of this cord I secure a weight, S, which serves to retract the carriage after the rack P is released from the ratchet-wheel O.

I am aware that a weight and cord has heretofore been used for retracting the carriage,

but the weight was invariably attached to one end of the cord, while the other end was secured to the carriage, and the cord passed over a pulley between them. By this arrangement the force increased as the weight descended, thus giving a slow motion as the carriage began to move back, and a quick motion at the end of the backward movement, thus too suddenly operating the latch which released the horizontal bar *Q*. Whereas by my arrangement of suspending the weight from the middle of the cords, the reverse action is obtained—that is, it gives a quick motion to start the carriage backward, and a slower motion at the end of the backward movement.

This I consider a valuable improvement, as it renders the operation of the carriage more uniform and certain, and prevents liability of injury or disarrangement of the mechanism. A spiral spring would answer the same purpose if one of its ends was secured to the carriage, and the other to the frame. The pivoted bar *Q*, which supports the end of the shaft *n*, is tilted in either direction upon its pivot, so as to alternately engage and disengage the wheel *O* and rack *P* in the following manner: The pivot or point of suspension is located between the middle of the bar and the end which supports the end of the shaft *n*, so that the longest end being on the opposite side of the pivot, its superior weight will elevate the short end until it engages with a notched trip-lever, *u*, thus raising the wheel *O* into engagement with the rack *P*. A pulley, *t*, is secured upon the long arm of the bar directly above the cord *r'*, so that as the carriage advances with its block to the saw, and the cord is drawn taut, it will strike the under side of the pulley and raise the long end of the bar at the same instant that a projection, *V*, on the rack-bar disengaged the trip-lever *u*, consequently lowering the short end and disengaging the wheel *O* from the rack *P*. The trip-lever *u* is made in the form of a bell-crank, and its lower arm is weighted, so as to constantly retain it in position to engage with the end of the bar when it is raised. A weighted latch-lever, *w*, is secured to the opposite or long end of the bar *Q*, and its latch engages with a stationary catch, *x*, when the long arm of the bar is elevated. This latch holds the bar in this position until the carriage, in its backward motion, trips it, and allows the long end to drop, and thus raise the ratchet-wheel at the opposite end into engagement with the rack again, thus automatically operating the carriage to and from the saw. The block or bolt of wood to be sawed into shingles rests upon a series of toothed wheels, *y*, between the uprights *m*

m, its upper end being held by a similar series. (Not shown.) The alternate rotation of the upper and lower series presents the block to the saw in the usual manner.

In order to provide a stop device for preventing the carriage from operating when the block of wood has been sufficiently sawed, I attach a bent bar or metal plate, *Z*, by a loose joint at *a'* to the upper end of a standard directly in rear of the series of the toothed wheels *y*.

This plate has one or more fingers, *p p*, which enter between the toothed wheels, while its opposite end is bent so as to hang down below the carriage. This latter end, being the heaviest, as the plate is suspended, will cause the fingers to stand above the upper edges of the rollers, and when in that position the downward-projecting end will strike a stop-bar, *q*, on the bed-frame, so as to stop the carriage midway between the trips, and prevent it from operating; but when the block rests upon the rollers the fingers *p p* will be depressed so as to move the lower end out far enough to pass the stop-bar. It will then be evident that when the block has been fed by the rollers far enough forward to free the fingers *p p*, the plate *Z* will act as a stop to prevent any further operation of the carriage.

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

1. The circular saw *B*, provided with the enlarged hole in its center, in combination with the disk or collar *F*, with its projecting hub *g*, which is arranged to fit in the hole in the saw, the same being countersunk on its inner face, so as to receive the flange *e* of the saw-arbor, substantially as and for the purpose described.

2. The pivoted bar *Q*, arranged to support one end of the shaft *n* at the extremity of its short arm, and provided with the pulley *t* at the extremity of its long arm, in combination with the rack-bar *P* of the carriage, automatic latch-levers *u w*, and weighted cord *r*, beneath said pulley, all combined and arranged to operate substantially as and for the purpose described.

3. In combination with the series of spur-gear feeders *y* the pivoted bent bar *Z*, having one or more fingers, *p*, which lie between the feeder-gears, and arranged to stop the motion of the carriage by striking a projection, *q*, on the bed-frame when the pressure is removed from the fingers, substantially as above specified.

FRANK ATWOOD HUNTINGTON.

Witnesses:

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