

P. Crosby,
Reciprocating Saw Mill.
No 771. Patented June 7, 1838.

Fig 1

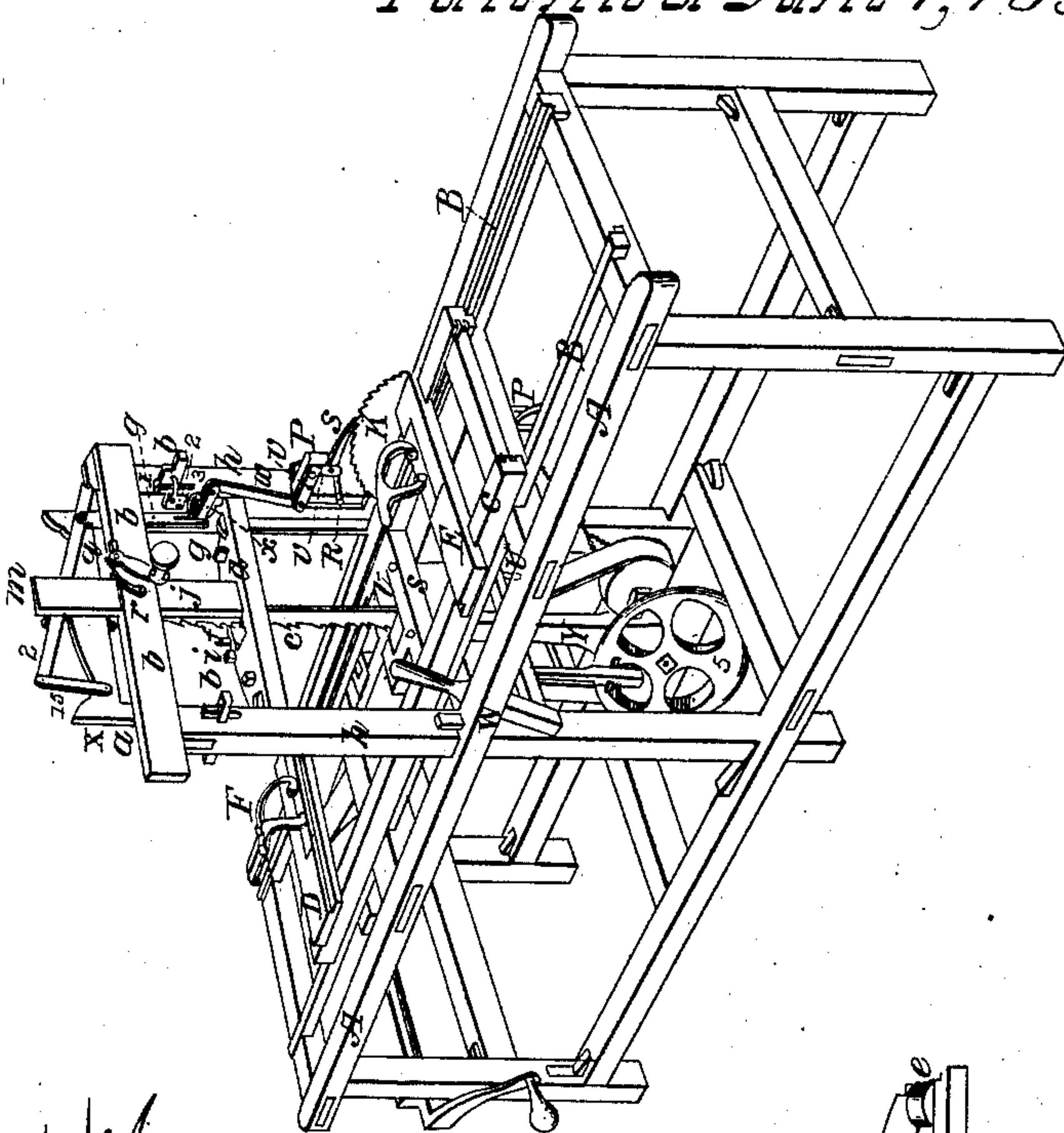


Fig 2

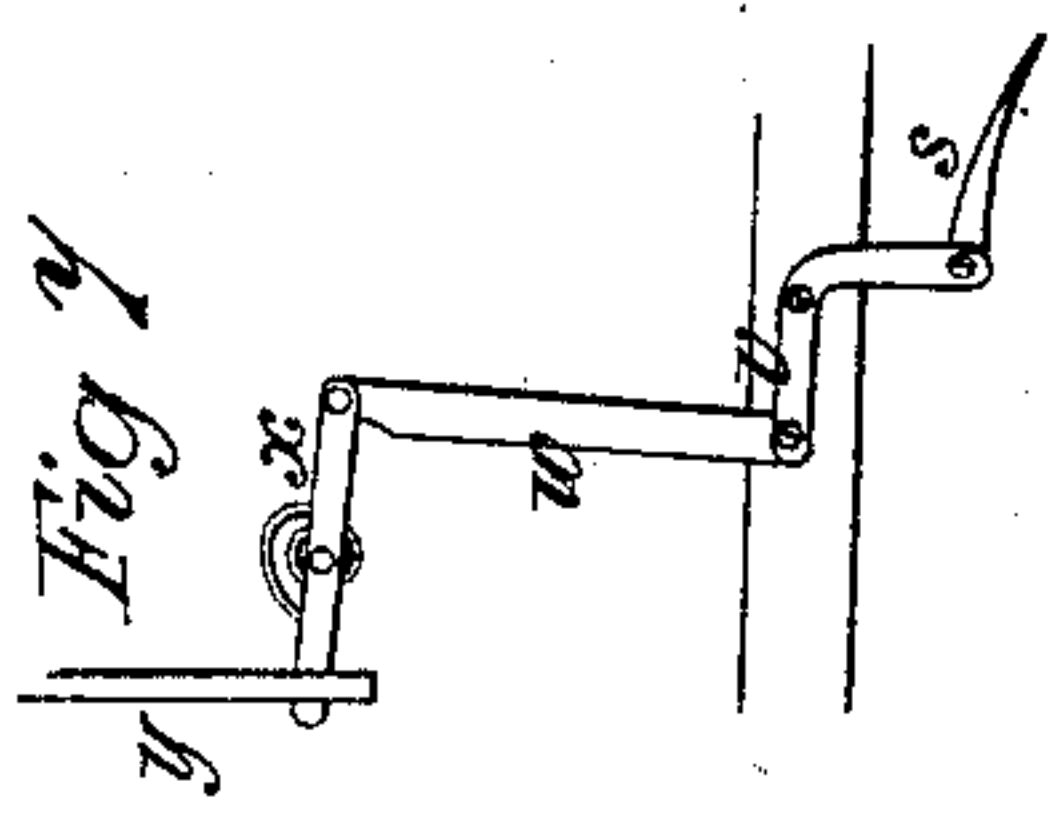


Fig 3

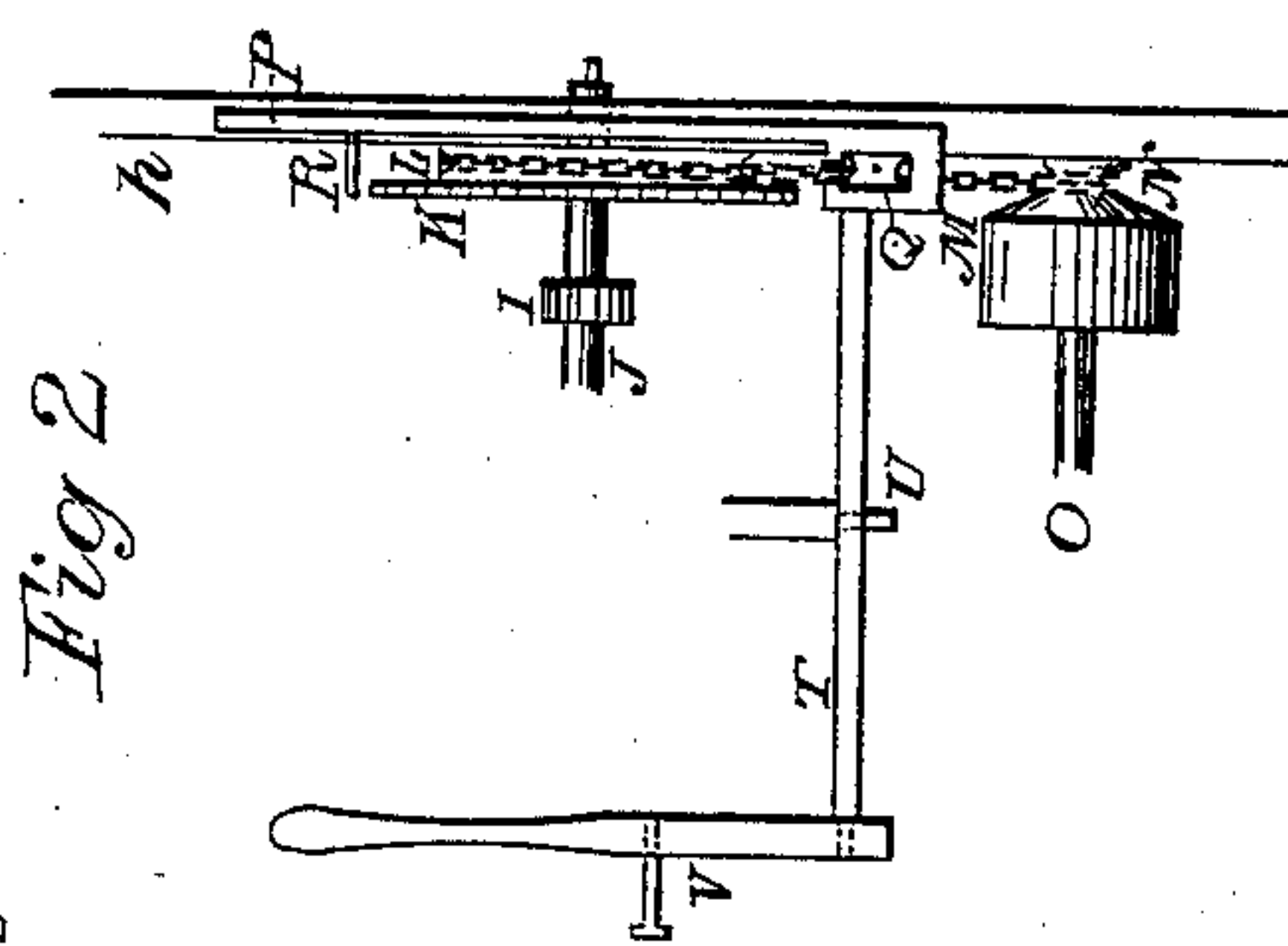
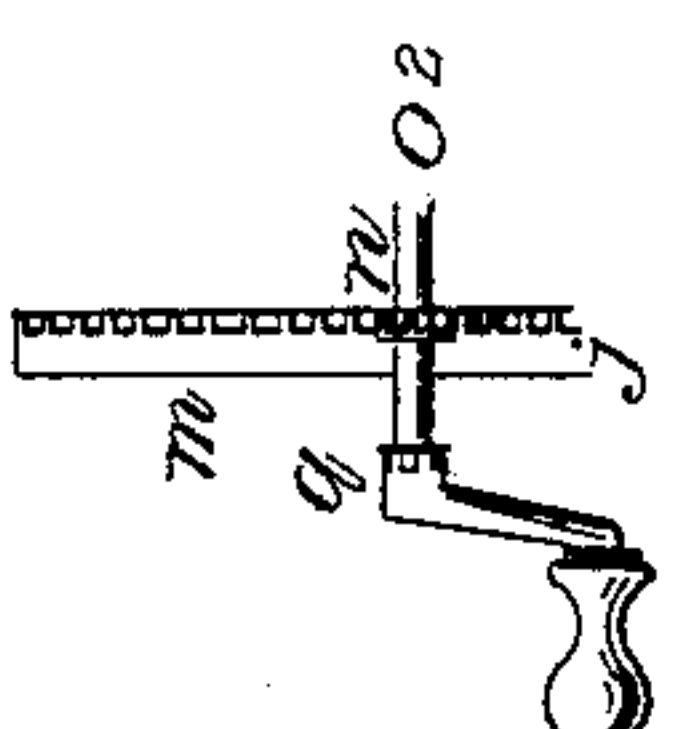


Fig 5



Fig 6



Fig 4



UNITED STATES PATENT OFFICE.

PEARSON CROSBY, OF FREDONIA, NEW YORK.

PORTABLE SAWMILL.

Specification of Letters Patent No. 771, dated June 7, 1838.

To all whom it may concern:

Be it known that I, PEARSON CROSBY, of Fredonia, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Machines for Sawing Timber, called "Crosby's Portable Prairie Sawmill," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

The frame A, Fig. 1, is made of suitable timber mortised and tenoned with dovetails and keys for a portable mill, and put together in the ordinary mode for a common mill. It is to be of suitable size and strength for the kind of timber to be sawed. On the top of this frame are placed two parallel ways B, B, for the carriage C, to travel on in the usual manner. On these ways moves the carriage C of the usual form, furnished with head and tail blocks D, E, and dogs F for confining the timber to be sawed and a rack H, Fig. 4, into which a pinion I works for moving it.

The axle J, pinion I, and ratchet wheel K, for moving the carriage are similar to others in use.

On the end of the pinion axle J is a grooved pulley L, Fig. 2, for running back the carriage, around which passes a chain M crossed and leading to a small grooved pulley N on the axle of the crank shaft O, which chain is loose while the saw is cutting and is to be made tight when the carriage is to be run back by an apparatus next to be described. This apparatus consists of a combination of levers and pulley. The first lever P, Fig. 2, vibrates on a pin inserted into the side of the top piece of the frame, said lever extending above and below the top of the frame having a grooved pulley Q turning in a slot in the lower end of it upon which the chain rests when out of gear, and a pin R projecting from its inner side at right angles for raising the feeding dog S from the ratchet wheel K when the carriage is to be run back. From this lever P, and between its fulcrum and the lower end, projects horizontally another lever T turning on a pin U as its fulcrum on the under side of the frame. To the other end of this last mentioned lever is attached at right angles to it, another lever V rising above the top of the frame and turning on a

pin W inserted in the side thereof, or other convenient place.

When the carriage is to be run back the upper end of the last mentioned lever V is pushed toward the saw frame. This causes the lower end to move in a contrary direction and with it the end of the second lever T which moves the end of the lever containing the pulley toward the saw frame which thus raises the pulley and tightens the chain and at the same time raises the dog by means of the pin. The pinion axle then turns in a contrary direction to its movement in advancing the carriage and the carriage is thus run back. By this apparatus the chain will receive just that degree of tension required to run back the carriage, so that should any obstruction catch the saw the movement of the carriage will be arrested by the slipping of the chain over the pulleys. These levers may be so arranged that by pushing the lever and pulley from the saw frame instead of toward it the same effect may be produced.

No essential change from the ordinary construction is made in the saw gate X, pitman-rod Y and crank shaft O, except that the parts are made much lighter. The fender posts *a, a* and hooks *b, b*, are also made lighter and are secured by screws and keys. And excepting that instead of the ordinary stirrups, screw bolts may be used which may pass through the centers of the girts of the saw-gate—the two lower ones being secured permanently by nuts and shoulders and the upper one is drawn up in straining the saw by a nut on the upper end.

In order to be able to use a very thin saw, such as is represented *a* and *c*, with teeth in pairs, each pair occupying the same space as the parts cut out between said pairs or of the duck bill shape, or of any convenient shape, I make use of the following addition to the machine for keeping the saw true and preventing it running sidewise. Between the two center posts of the frame and above it is placed a horizontal stock *d*, Figs. 1 and 5, containing four rollers *e, e*, and *f, f*, two at its ends and two in the center between which the saw moves. Those at the ends *e, e*, are for regulating the position of the stock and have a horizontal movement for that purpose, the gudgeons of

which turn in forked boxes moving in grooves in the ends of the stock and are regulated by keys g, g ; the rollers move against the insides of the two center posts h, h , of the frame.

The gudgeons of the center anti-friction rollers f, f , or guides, between which the saw moves turn in sliding boxes sliding in mortises in the stock and are advanced to, or received from the saw by keys i, i , the keys being applied vertically or horizontally. From the center of the stock rises a rod j , Figs. 1 and 3, which passes through a mortise in the cap l , of the frame. On the side of this rod is a rack m , Fig. 3, into which works a pinion n on a crank axle o turning in boxes on the cap for raising or lowering the stock. An anti-friction roller is also placed in this cap bearing against the side of the rod opposite the pinion for keeping it in gear with said pinion.

The crank axle is provided with a ratchet wheel q , into which drops a pawl r attached to the frame. In the center of the frame and below the carriage is placed another stock s , containing a pair of rollers or guides t, t , between which the saw moves. This stock is stationary. These rollers or guides are for the same purpose as those above described. The rollers may be grooved around their peripheries in the center in order to allow the irons of the saw to pass through in order to be able to use the whole length of the saw in cutting.

The feeding apparatus consists of a dog S working in the ratchet wheel, attached to the end of an elbow v moving on a pivot inserted into the frame. To the other end of this elbow is attached a vertical rod w ; to the upper end of which rod is attached a horizontal lever x moving on a pivot inserted into the frame. The other end of this last mentioned lever enters a slot in the lower end of a vertical rod y attached to a lever z , moving on a pin inserted through one of its ends into the frame, its other end being attached to the top of the saw-gate by a short rod 15 moving on a bolt in the gate. The vertical movement of the saw-gate gives motion to this combination of levers, connecting rods, and dog, for turning the

cog-wheel on the end of the pinion axle to bring forward the carriage. The feed is regulated by a screw 1 passing through a plate 2 on the frame; against which screw the first mentioned lever strikes as it rises.

A spiral spring 3 raises the end of the lever attached to the elbow which draws back the dog, the screw regulating the distance of the movement of said end of the lever and consequently the length of feed.

The slot in the lower end of the second rod is made sufficiently long to allow of the necessary play of the other end of the lever.

The crank motion of the driving shaft is obtained by inserting the wrist 4 to which the pitman rod (connected with the saw gate) is attached, into the face of the balance wheel on the end of said shaft, near its perimeter. This balance wheel has a centerbalance weight 5 added to the side of it opposite to that on which the wrist is placed to prevent the jerking motion of the saw-gate or to counterbalance it.

The power for propelling the machine is applied by pulley, band, or cog wheels to the crank shaft and may consist of steam, water, or horse power.

It was omitted to be mentioned in its proper place that there are tongues cut on the ends of the stocks moving in corresponding grooves in the posts to keep the stock in place. The dogs may be attached to slides with pinions working in permanent racks to draw forward the slides, dog, and log, the pinions being turned by levers on the upper ends of their axles.

The invention claimed and desired to be secured by Letters Patent consists—

1. In the arrangement of the stocks and rollers for keeping the saw steady and true, in combination with the reciprocating saw and gate.

2. The combination and arrangement of the levers, rods, spring, screw and dog for feeding and regulating the feed, as before described.

PEARSON CROSBY.

Witnesses:

WM. P. ELLIOTT,
J. B. WOOD.