

(No Model.)

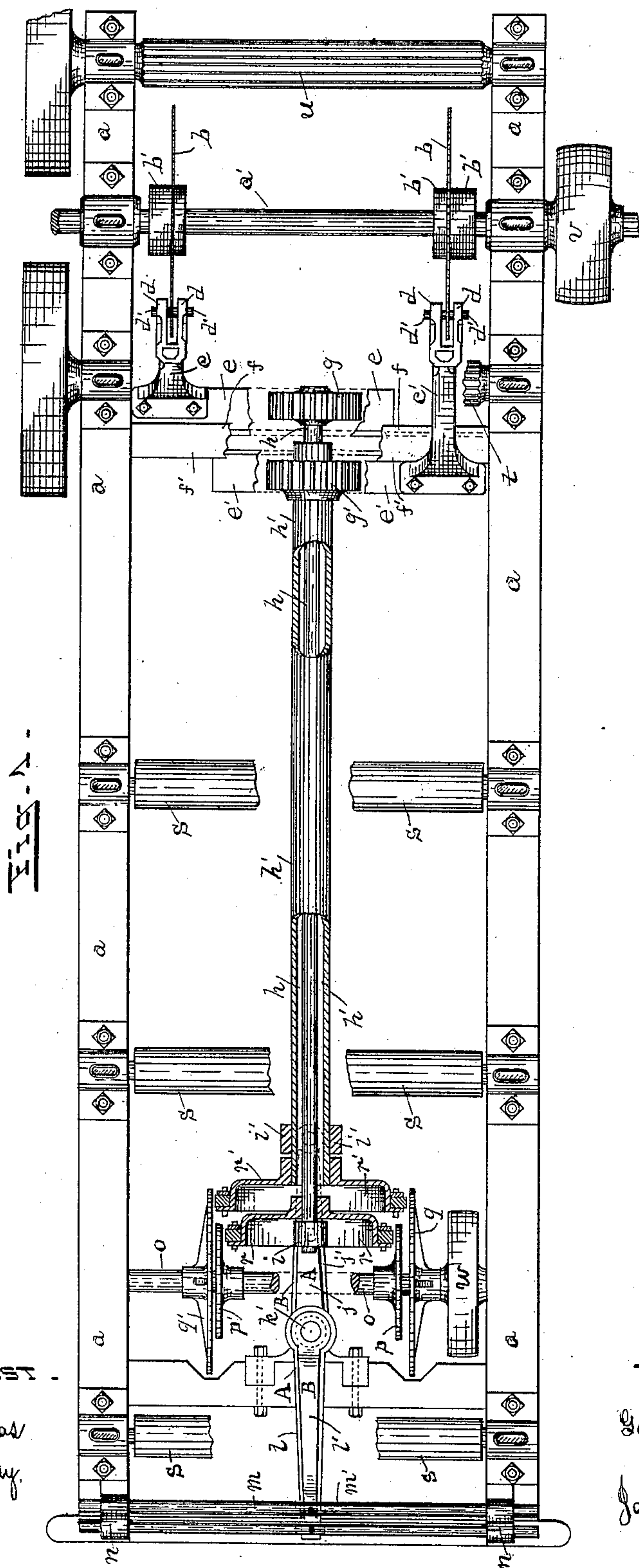
G. H. PATULLO.

2 Sheets—Sheet 1.

DEVICE FOR SHIFTING SAWS.

No. 428,940.

Patented May 27, 1890.



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INVENTOR.

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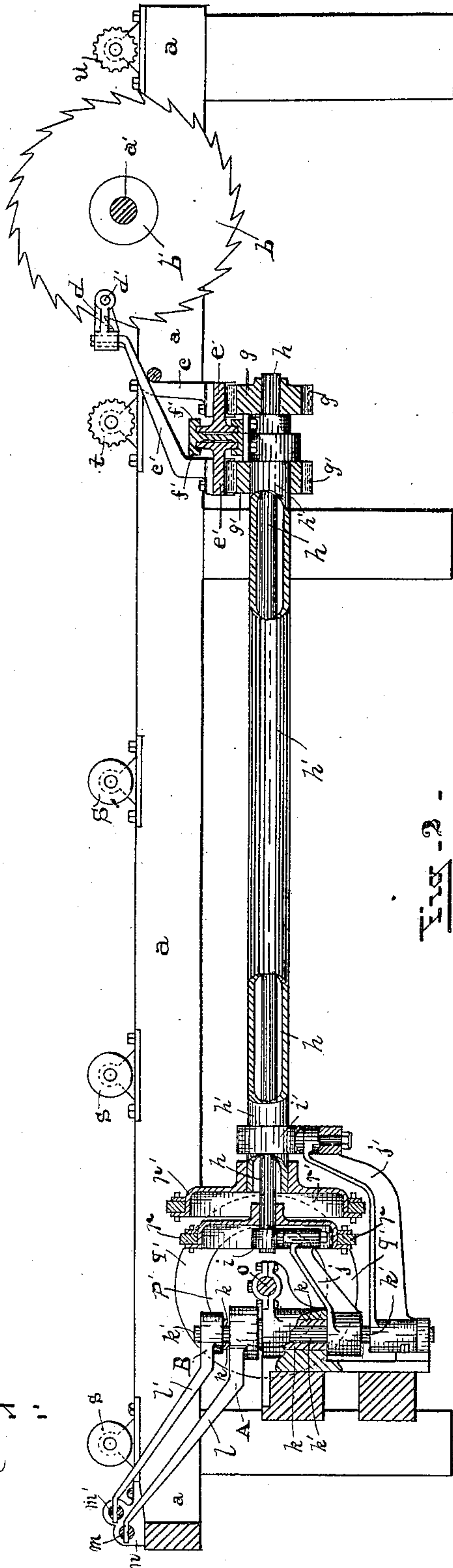
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UNITED STATES PATENT OFFICE.

GEORGE H. PATULLO, OF BAY CITY, MICHIGAN.

DEVICE FOR SHIFTING SAWS.

SPECIFICATION forming part of Letters Patent No. 428,940, dated May 27, 1890.

Application filed September 7, 1889. Serial No. 323,254. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PATULLO, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Devices for Shifting Saws; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in saw-shifting devices, and pertains more especially to sawing-machines which are provided with one or more saws arranged to be moved longitudinally upon the arbor, so as to cut timber to different widths and dimensions. Heretofore, as far as I am aware, the saws on machines of this class have been moved longitudinally upon their arbor by various devices operated by hand-power, but, while being effective and suitable to a certain extent under some circumstances, the operation thereof by hand-power is slow and laborious, besides being inconvenient, especially when very wide timber is to be operated upon, which would necessitate moving the saws to a considerable distance; and my invention consists in a novel arrangement and combination of devices and contrivances, which I will hereinafter proceed to clearly describe, and specifically point out in the claims of this specification, and whereby the saws may be shifted from one position to another upon the arbor by means of power obtained from the mechanism driving the saws.

The most important object of my invention is to so construct a sawing-machine that the saw may be shifted from one position to another upon the arbor by means of power other than hand-power, whereby the operation of shifting is performed more expeditiously and more accurately; and another object is to arrange a saw-shifting device which can be operated more easily and conveniently in cutting very wide lumber, or lumber of more than ordinary length.

In the accompanying drawings, I illustrate

my invention arranged in one of the most convenient and practical forms I have so far been able to operate it, and which is about the best form of which I am aware at present, although some modifications and changes may be made in the location, construction, and arrangement of the several parts, which may adapt the device to other forms of sawing-machines and to other circumstances.

In the drawings, in which the same letters of reference will be found designating the same part throughout the several views, Figure 1 represents a plan view, partly sectional, of a sawing-machine having two saws with my improved shifting devices attached thereto. Fig. 2 is a vertical longitudinal section of the same.

a represents the longitudinal side pieces of the machine-frame, and *a'* is a saw-arbor mounted upon suitable boxes, which are supported upon the side pieces *a*, and upon the arbor are mounted circular saws *b*, provided with collars *b'*, arranged to slide lengthwise of the arbor, as required, the arbor being provided with a feather or other suitable devices whereby the collars are made to revolve with the arbor.

c and *c'* are arms located in front of the saws and extending to the front edges of the saws, and are provided with fingers *d*, reaching for a short distance upon the opposite sides of the saws, and suitable guide-pins *d'* are passed laterally through each of the fingers and arranged with their inner ends bearing against the sides of the saw-plate. The opposite or forward ends of the arms are secured each to a rack plate or bar *e* and *e'*, which is supported by the slides *f* and *f'*, and in which they are fitted to move in the direction of their lengths, and thereby slide the collars *b* and *b'*, with their accompanying saws, upon the arbor.

g and *g'* are gear-wheels, which are arranged and supported beneath and with their teeth engaging with the teeth upon the under side of the rack-bars *e* and *e'*, respectively, the gear-wheel *g* being mounted upon a shaft *h*, which is centrally located and lies lengthwise of the machine, and extends nearly to the front end of the machine-frame, where it is mounted upon a box *i*, which is pivotally connected to

the rear end of an arm j of a lever A, the front end of the arm j being rigidly secured upon a vertical sleeve k , which is located a short distance from the front end of the side pieces a , and is suitably supported in boxes secured to cross-pieces upon the machine-frame, and in which it is arranged to oscillate as required, and to the opposite end of the vertical sleeve k is rigidly secured one end of the arm l of the lever A, which extends upwardly and to the front end of the side pieces a , where it is pivotally secured to the central portion of a cross-bar m , supported in suitable boxes n , which are secured upon the upper sides of the side pieces a , and in which the bar may be moved either way in the direction of its length.

o is a shaft suitably mounted and located in the rear of the vertical sleeve k and across beneath the bed-pieces a , and also in horizontal alignment with the shaft h , and upon this shaft o are mounted the friction-disks p and p' , equidistant from the middle of the shaft, and r is a friction-wheel placed between the rear side portions of the disks and mounted upon the front end of the shaft h , and of a size to allow the disks to run free of engagement therewith when the wheel is at rest centrally between the disks, or to be moved laterally for a short distance and placed in engagement with either disk, as desired.

Surrounding the shaft h is a hollow shaft h' , carrying the gear-wheel g' upon its rear end, while upon its front end, which reaches nearly to the friction-wheel r , is mounted a friction-wheel r' of a diameter greater than that of the wheel r , and q and q' are friction-disks mounted upon the transverse shaft o outside of the wheels p and p' , and arranged to engage with the friction-wheel r' when it is moved to either side, but to run free when the wheel r' remains at rest centrally between the disks. The front end of the hollow shaft h' is supported and carried by a box i , which is pivotally supported upon the rear end of an arm j' of a lever B, and which reaches rearwardly beneath the friction-wheels r and r' from a vertical shaft k' , to the lower end of which it is rigidly secured, and the shaft k' extends upwardly through and beyond the sleeve k , which forms a suitable support therefor, and to the portion of the shaft above the sleeve is firmly secured one end of an arm l' of the lever B, while the opposite end of the arm l' reaches to the front ends of the side pieces a , and is pivotally secured to the central portion of a cross-bar m' , which is located in close proximity to the bar m and secured in a similar manner to the side pieces a . The side pieces a are provided on their upper surfaces, in the usual manner, with rollers s , for carrying the lumber to be operated upon, and t and u are feed-rollers of the usual form and construction, placed in front and rear of the saws, and motion is imparted to the saws by means of a pulley v , while the

shaft o is provided with a pulley w , for imparting a continuous rotary motion thereto.

The proper motion being given to the saws and the shaft o and disks p p' and q q' , the lumber to be sawed is placed upon the rollers, and the bar m is moved to the right or left, as required, (say to the left,) moving the arm l in the same direction, while the rear end of the arm j , carrying the front end of the shaft h and friction-wheel r , is moved to the right until the periphery of the wheel r engages with the side of the disk p , which, revolving in the direction of the arrows on Fig. 2, imparts a rotary motion to the shaft h , and this, by the gear-wheel g , rack-bar e , and arm c , moves the saw b to the right, and when the required position for the saw is reached the bar is again moved in the opposite direction and the wheel r released from engagement with the disk, and the saw then remains in position until again moved by the operator, while to move the saw in the opposite direction, or to the left, the bar is moved to the right, which brings the wheel r in engagement with the disk p' and revolves the shaft h in the opposite direction and carries the saw to the left. The same result is obtained in operating the bar m' , as the movement of the bar m' , by means of the arms l' and j' , brings the friction-wheel r' in contact with one of the disks q or q' and imparts a rotary motion to the hollow shaft h' and gear-wheel g' , which, acting upon the rack-bar e' , causes the arm c' to move in a lateral direction and move the saw connected thereto upon the arbor.

It will be noticed that I have explained the device herein shown as arranged for operating two saws; but the same result is obtained when applied to a machine having only one movable saw, which, however, requires the use of one operating-lever only, one shaft carrying the friction-wheel and the two revolving disks and one rack-bar for operating the saw, while for operating a machine having four saws a second set of the appliances would be applied beside the first, (the machine for that number of saws being wider,) and the bars m and m' are in that case extended, and similar bars connected with the additional mechanism are placed in front of and in close proximity to the bars m and m' .

It will be observed that the sliding bars m and m' afford an exceedingly handy and convenient means of operating the levers A and B, as the bars are so close as to be both operated at the same time and by one hand if moved in the same direction, and extending to the sides of the machine they permit the operator to shift the saws from a free and easy position when the lumber to be sawed is of more than ordinary width or length, so as to cover up the front end of the machine, together with the shifting devices of the forms in common use.

Of course it will be seen that while the rearwardly-extending arms j and j' and the forwardly-extending arms l and l' are described

as being secured rigidly to a vertical sleeve and shaft, respectively, they form, in fact, the opposite arms of pivoted levers A and B, the vertical shaft and sleeve being arranged as herein described and illustrated, for the purpose of convenience, as the arms j and j' , being located below the friction-wheels, are out of the way of the operator and occupy space that would otherwise be vacant, while the arms l and l' , extending rearwardly from the upper portion of the vertical shaft and sleeve, form a connection with the cross-bars which allows the arms to be moved without forcing the operator to assume a stooping or uncomfortable position.

The arrangement of the double device or the two devices for operating two saws is shown as having a hollow shaft h' and a vertical sleeve k for connecting the two arms of the lever B; but while this construction is advantageous in many ways, still it is not essentially necessary, as the sleeve k , of course, can be formed as a solid shaft and placed directly in rear of or beside the shaft k' , and the shafts h and h' may be located in the same relative position, and the devices will then operate in the same manner; and I have also illustrated, for the purpose of fully describing the operation of my invention, the saws as being provided with a shifting device consisting of transverse rack-bars which carry rearwardly-extending arms engaging with the saws; but my improvement is not, however, confined to this form of shifting mechanism alone, as it can be applied for operating any other form of shifting devices as well by making slight changes in the mode of connecting to the different forms of devices for moving the saws; and hence I wish it to be understood that I do not confine my invention entirely to the precise form and arrangement shown in detail of my improved contrivance; but

What I claim, broadly, as my invention, and desire to secure by Letters Patent, is—

1. In a device for shifting saws, the combination, with a transverse shaft mounted upon the machine-frame and carrying friction-disks, of a longitudinal shaft carrying upon one end a friction-wheel between the said disks, and supported by a box capable of a lateral movement in either direction, and provided on its opposite end with a gear-wheel engaging with a sliding rack-bar, and devices for connecting the said rack-bar to the saws, substantially as and for the purpose set forth.

2. The combination, in a saw-shifting device, with a transverse shaft carrying two friction-disks, and a longitudinal shaft having on its rear end a gear-wheel engaging with a rack-bar provided with an arm connected with the saw and having on its oppo-

site or front end a friction-wheel between the said disks, of a pivoted lever having on the end of one arm a pivoted box carrying the front end of the said longitudinal shaft, and with the opposite arm of the said lever reaching to the front end of the machine-frame, substantially as and for the purpose set forth.

3. In a device for shifting saws upon their arbor, the combination, with a rearwardly-extending pivoted lever and saw-shifting devices, substantially as described, operated thereby, of a transverse bar pivotally secured to the front end of the said lever and extending to the sides of and supported in boxes on the machine-frame, substantially as set forth.

4. The combination, in a saw-shifting device, of the transverse shaft o , carrying the friction-disks p and p' , the longitudinal shaft h , provided on its front end with a friction-wheel r , and with its rear end engaging with suitable devices for shifting the saw, substantially as described, a pivoted lever A, having an arm j , carrying a pivoted box i , for supporting the front end of the shaft j , and having an arm l , reaching to the front portion of the machine-frame, and a cross-bar m , extending across the machine-frame and pivotally connected to the said arm l , substantially as set forth.

5. The combination, in a saw-shifting device, with the transverse shaft o , carrying the friction-disks p and p' and q and q' , the longitudinal shaft h , carrying on its front end the friction-wheel r between the disks p and p' , and having on its rear end the gear-wheel g , engaging with the rack-bar e , the arm c , extending from the bar and engaging with the saw, the hollow shaft h' around the said shaft h , carrying on its front end the friction-wheel r' between the said disks q and q' , and having on its rear end the gear-wheel g' , engaging with the rack-bar e' , and the arm c' , extending from the bar e' and engaging with the saw, of the lever A, having a rearwardly-extending arm j , carrying a box i upon the said shaft h , and provided with a vertical sleeve k , and an arm l , extending forwardly from the upper end of the said sleeve, the lever B, having a vertical shaft k' , passing through the said sleeve k , and provided on its upper end with a forwardly-extending arm l' , and on its lower end the rearwardly-extending arm j' , carrying the box i' , for supporting the front end of the said shaft h' , substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. H. PATULLO.

Witnesses:

JAS. E. THOMAS,
WM. WARD.