(No Model.) 6 Sheets—Sheet 1.

W. BESSER.

SAWING MACHINE.

No. 457,807. Patented Aug. 18, 1891.

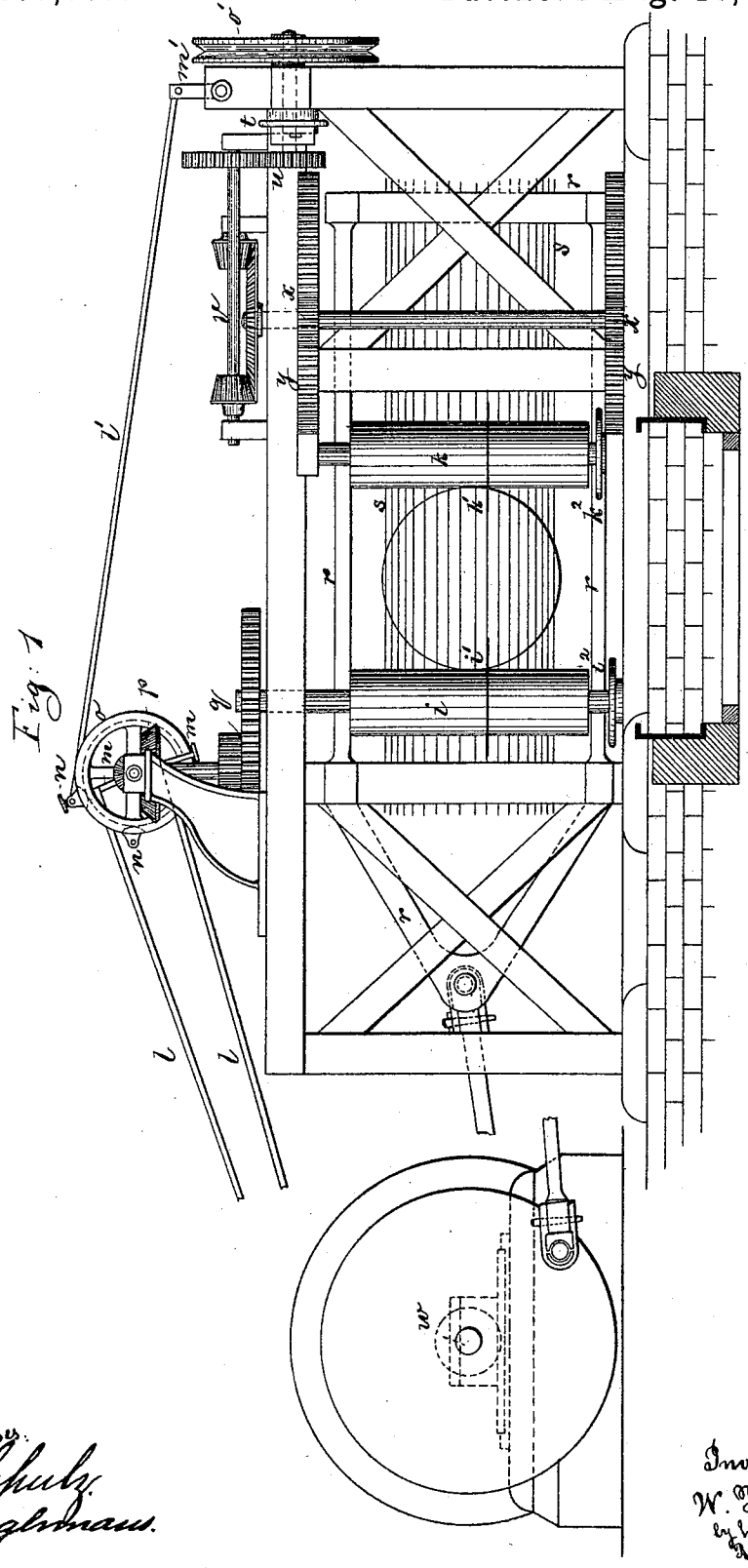


Fig. 1

Witnesses:
Wm. Schulz
A. Douglishaus.

Inventor:
W. Besser
by his attorneys.
Roeder & Briesen

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

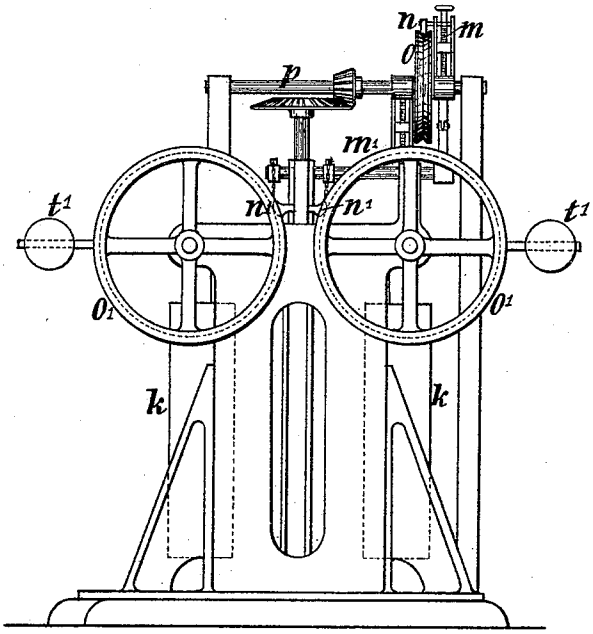
(No Model.) 6 Sheets—Sheet 2.

W. BESSER.

SAWING MACHINE.

No. 457,807. Patented Aug. 18, 1891.

Fig. 2.



Witnesses:
Wm. Wagner
A. Jongbmans

Inventor:
W. Besser
by his attorneys
Roeder & Briesen

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

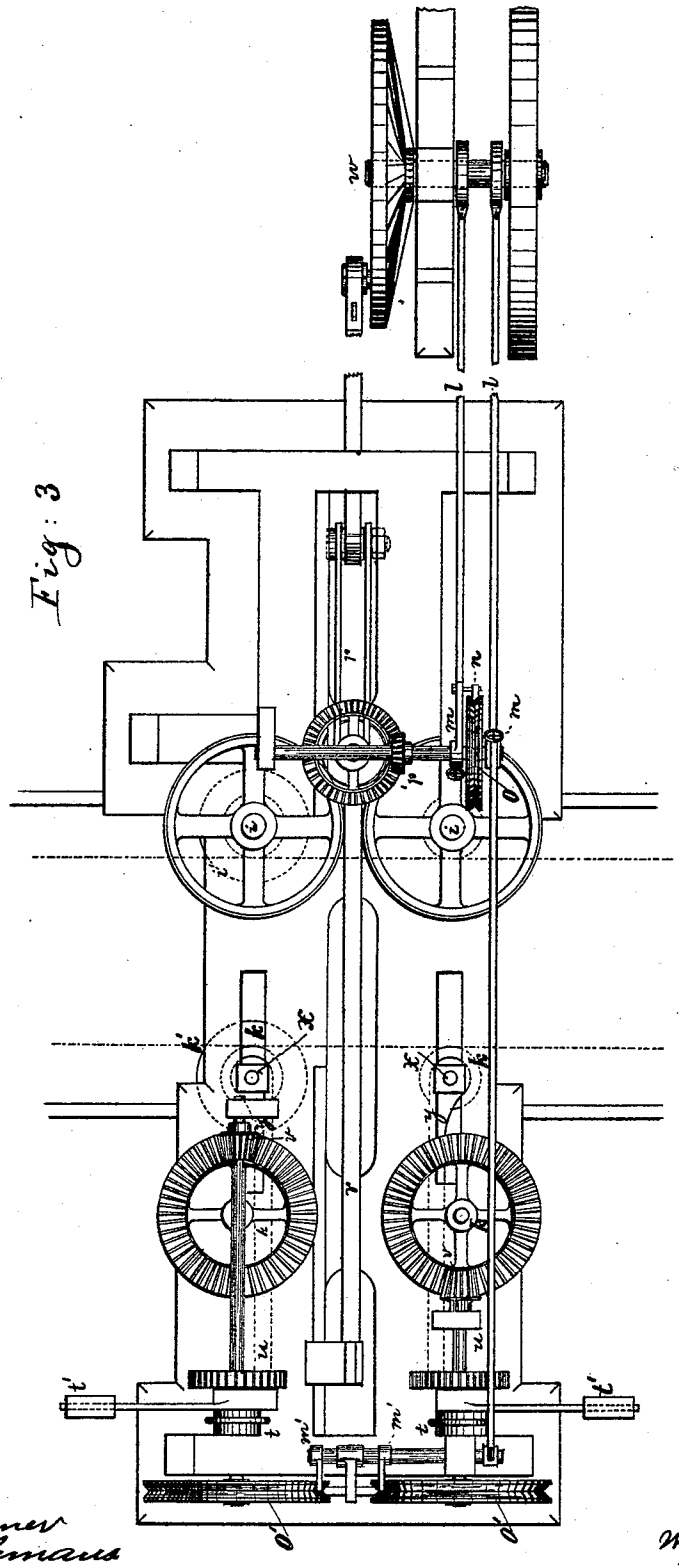
(No Model.) 6 Sheets—Sheet 3.

W. BESSER.

SAWING MACHINE.

No. 457,807. Patented Aug. 18, 1891.

Fig. 3.



Witnesses:
Wm. Wagner
N. Youngman

Inventor:
W. Besser
by his attorneys.
Roberts & Briesen

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

6 Sheets—Sheet 4.

W. BESSER.

SAWING MACHINE.

No. 457,807. Patented Aug. 18, 1891.

Fig. 4.

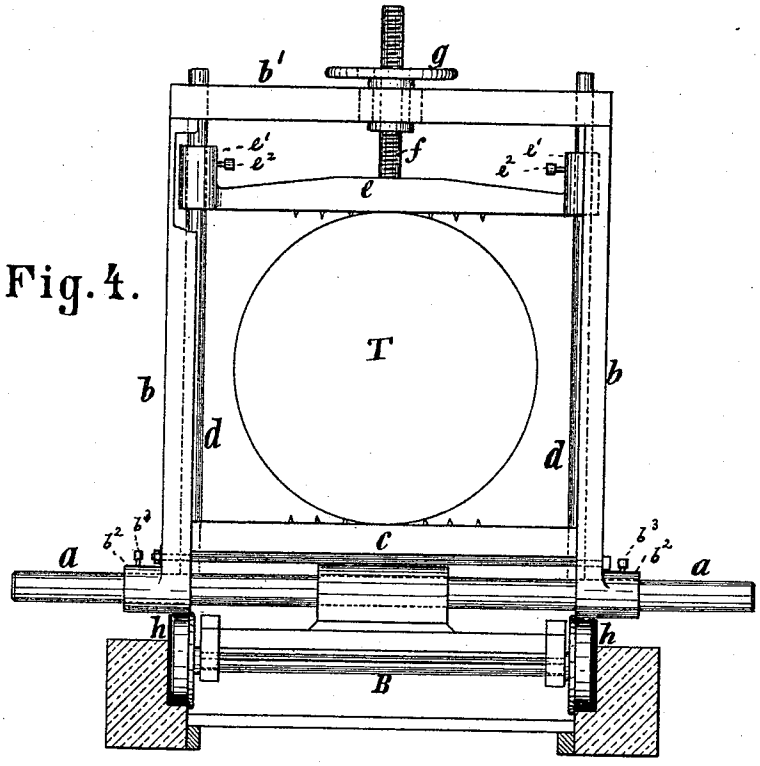
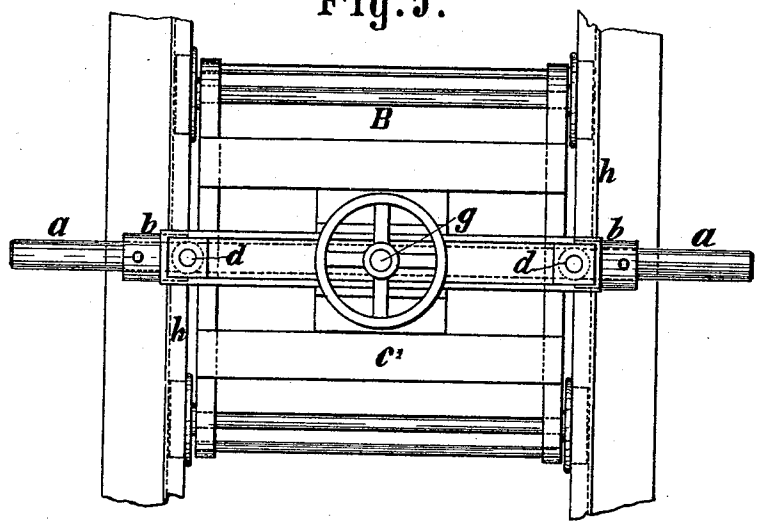


Fig. 5.



Witnesses:
Wm. Wagner
A. Longhmans.

Inventor:
W. Besser
by his attorneys
Roeder & Briesen

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 6 Sheets—Sheet 5.

W. BESSER.

SAWING MACHINE.

No. 457,807. Patented Aug. 18, 1891.

Fig. 6.

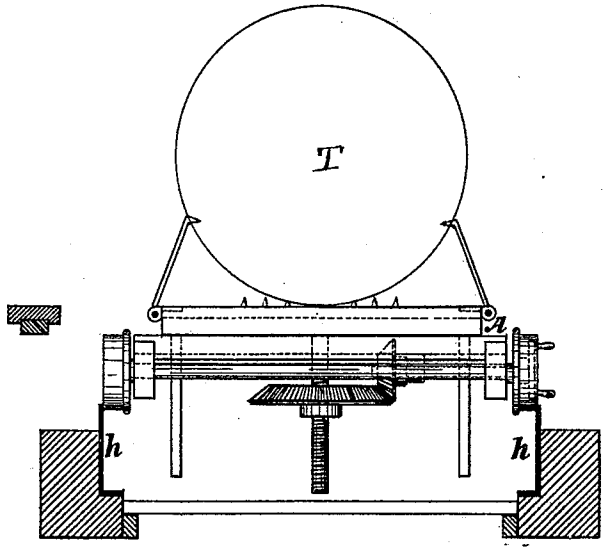
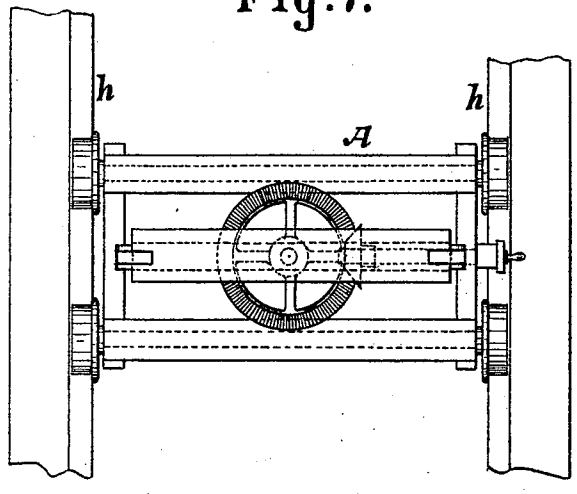


Fig. 7.



Witnesses:
Wm. Wagner
A. Jonghmans.

Inventor:
W. Besser
by his attorneys
Roeder & Briesen

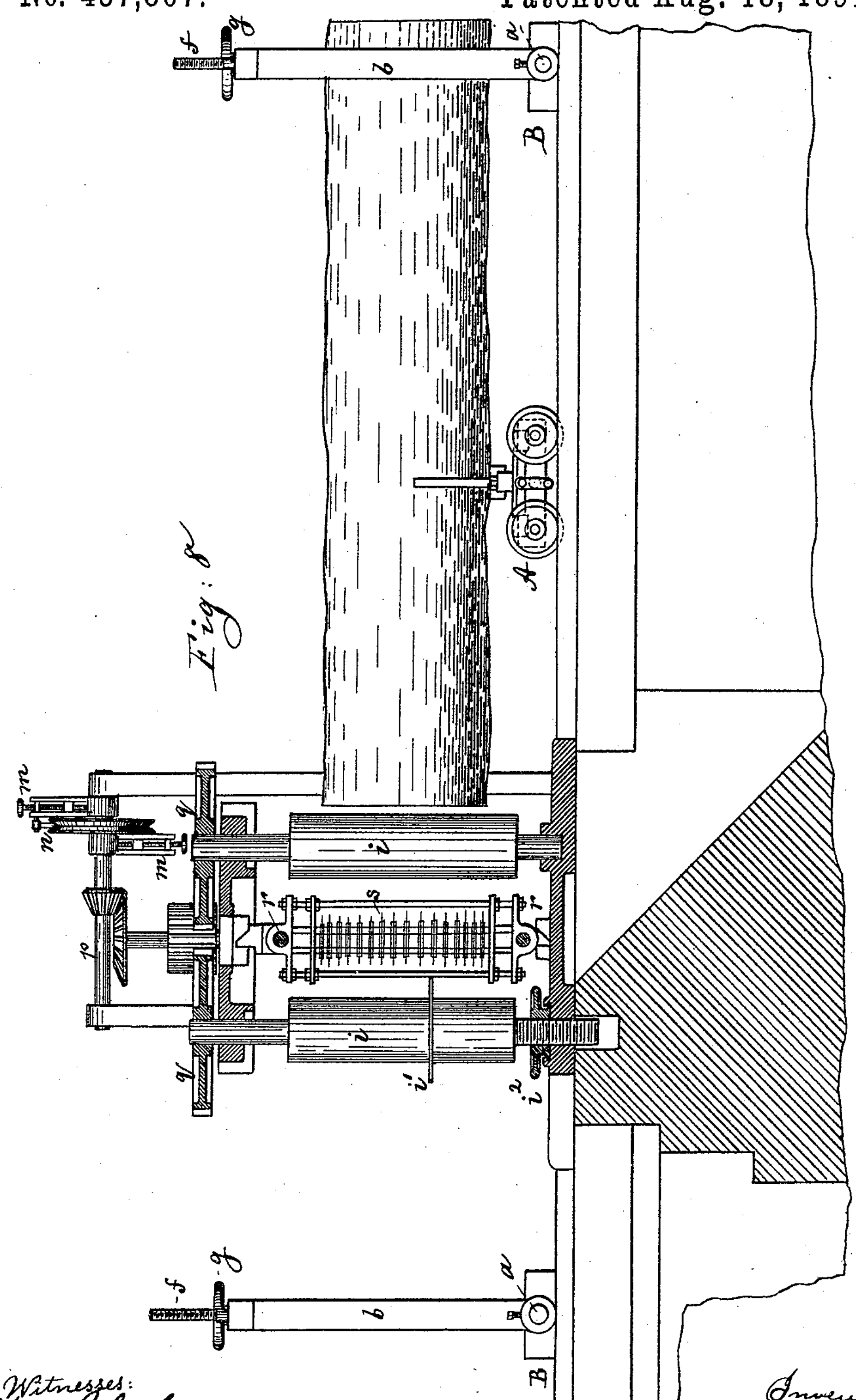
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 6 Sheets—Sheet 6.

W. BESSER.

SAWING MACHINE.

No. 457,807. Patented Aug. 18, 1891.



Witnesses:
Wm. Schulz
A. Jonghmans

Inventor:
W. Besser
by his attorneys
Roeder & Briesen

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILHELM BESSER, OF RAUSCHA, GERMANY.

SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 457,807, dated August 18, 1891.

Application filed November 29, 1890. Serial No. 373,098. (No model.)

To all whom it may concern:

Be it known that I, WILHELM BESSER, a subject of the German Emperor, residing at Rauscha, in Silesia, German Empire, have invented certain new and useful Improvements in Sawing-Machines, of which the following is a specification.

My invention relates to improvements in horizontally-set saws; and the object of my invention is to provide suitable guideways for the block or trunk and mechanism connected therewith for the purpose of overcoming such difficulties as have hitherto been connected with saw-frames with a horizontal set of saws, such difficulties overweighing the many other advantages of the horizontal frame as compared with the vertically-working blades generally in use.

The horizontal saw-blades of my saw cut in both directions of motion, while the work is continually fed forward.

Referring to the accompanying drawings, Figure 1 is a side elevation, Fig. 2 an end elevation, and Fig. 3 a plan or top view, of the set of saws and mechanism for working the same. In Figs. 4 and 5 I have represented in side and top view the device for holding the block or trunk firmly secured on its carriage. Figs. 6 and 7 represent inside and top view the apparatus for adjusting, lifting, and lowering the carriage which supports the block or trunk. Fig. 8 is an elevation, partly in section, of the entire machine.

Within a saw-frame *r* a suitable number of saw-blades *s* are mounted parallel to each other and adapted to work in a horizontal plane. To the frame *r* a reciprocating motion is imparted by the usual well-known means from a driving-shaft *w*, the saw-blades being made to cut each in a horizontal plane through the block or trunk fed forward toward the set of saws.

The feeding of the block or trunk is effected by means of two carriages, (shown in Figs. 4 to 7,) the block being rolled upon said carriages from the side. The forward carriage A, being the one nearest the set of saws, is fitted with the mechanism commonly in use for lifting and lowering the block. In addition to this mechanism I have provided novel and suitable means for laterally shifting or adjusting the block-supporting plate upon the carriage-frame. The other or rear carriage B, supporting the rear portion of the block or trunk, has applied to it a novel and peculiar frame for facilitating the passage of the block or trunk through the set of saw-blades.

Above the lower frame of carriage B a cross-shaft *a* is supported in suitable bearings, and upon this shaft *a* a frame *b* is mounted to rock in either direction. Within the two vertical arms or standards of said frame *b* guideways are provided, within which a cross-rail *c* is free to slide up and down. To the cross-rail *c* two standards *d d* are rigidly secured parallel to the frame *b* and guided in suitable bearings within the cross-bar *b'* of frame *b*. A top rail *e*, parallel to the lower cross-rail *c* and having sleeves *e'*, is free to slide upon the standards *d d*. This top rail *e* is operated by a screw-spindle *f* and hand-wheel *g*, that adjust the top rail upward or downward on the standards *d*. To roll the block or trunk upon the carriage B, the outer frame *b*, together with the inner frame *c d e*, is rocked or laid down to the rear, and the block or trunk is then pushed upon the lower carriage-frame and the cross-rail *c*. The frames *b d* are then lifted or rocked upward, the lower cross-bar *c* lifting the block so far till the frames are brought into the vertical position, where they are fixed by screwing the sleeves b^2 of frame *b* fast on the shaft *a* by screws b^3. The top rail *e* is then lowered to bear upon the block or trunk T, whereupon the sleeves *e'* of rail *e* are firmly secured to the standards *d* by screws e^2. The block or trunk thus firmly grasped between the rails *c* and *e* may now be easily lifted or lowered to adjust the same as desired with reference to the set of saw-blades.

The two carriages A B, mounted on wheels that roll upon rails *h*, carry the block or trunk up to the set of saws and present the front face of the block in a vertical plane to the cutting-blades, which, while the block is being fed forward, traverse the block and divide the same into boards.

The block or trunk while advancing against the saw-blades is guided by two pairs of rollers *i i* and *k k*. The shafts of rollers *i i* are turning in fixed bearings, and rotary motion is imparted to them from the main shaft *w*

by suitable mechanism, such as commonly employed with vertical sets of saw-blades, comprising eccentric-rods *l l*, cam-levers *m n*, grooved pulleys *o*, and bevel-wheels *p q*. By means of the rollers *i*, which are fluted, the block or trunk is fed forward, while the rollers *k* are carried along to follow the rotary motion. The latter rollers serve as pressure-rollers and are adjustable at right angles to the longitudinal direction of the block, the adjustment being performed by the hand-wheels *t t*, which, through intermediate gearing *u v*, cause the toothed wheels *x x* to shift the rack-bars *y y* in either direction. In the ends of racks *y* bearings are provided for the journals of the shafts *k*. By the forward motion of the saw-frame *r* and the cutting operation of the saws against the rollers *k* a considerable strain is put upon the rollers *k*, said strain tending to force the rollers *k* away from the rollers *i*. To counterbalance this strain, weighted levers *t' t'* are provided, and, furthermore, the following arrangement is employed to prevent any undue shifting of the rollers: Every time the saws exert a strain upon the rollers *k k* the cams *n'* are brought into engagement with the grooves of grooved pulleys *o'* by means of rod *l'* and lever *m'*, said pulleys *o'* being mounted on common shafts with the hand-wheels *t*. The grooved pulleys are thus locked and their shafts are prevented from being shifted under the strain of the saw-blades. The adjustment of the pressure-rollers *k* may also be performed by revolving the grooved pulleys *o'*, and consequently the hand-wheels *t t* may be omitted. As soon as the block or trunk has been fed forward between the two pair of rollers *i* and *k* the screws b^3, which hold the frame *b* in the vertical position upon the shaft *a*, are released to allow the block to adjust itself laterally (in case it should be curved) between the guide-rollers. During such adjustment of the block or trunk the forward carriage A is made inoperative by screwing its supporting plate down. Now the main operative parts for guiding the block will consist of steel disks *i'* and *k'*, mounted upon the shafts of the two forward rollers *i k* in such a manner as to divide each roller into two parts or cylinders, between which said disks are held. The two portions of the rollers, together with the said intermediate disks, are adjustable on their shafts by means of hand-wheels i^2 k^2, and by lifting said disks up they will enter into the cut immediately behind the saw and carry the work to guide the same. At the opposite sides of saws *s* two further carriages, similar to carriage B, are arranged to receive the block and grasp the same as soon as its forward end has left the guide-rollers. Just before the block or trunk will entirely leave the set of saws its rear end will be bound or clasped by the second supporting-carriage.

The saw-blades are secured within their frame *r* by tangs, as commonly in use, and held apart and suitably distanced by registers at the right and left side.

What I claim is—

1. In a horizontal set of saws, the combination, with a suitable number of horizontally-working saw-blades, of two pairs of guide-rollers *i i* and *k k* to guide the block or trunk, one pair of said rollers having rotary motion to feed the block or trunk forward, the other pair of rollers being laterally adjustable to and from the block, and one roller of each pair being provided with an adjustable disk *i' k'*, which disks enter into one of the cuts made by the saw-blades and thereby provide a bearing-surface for the block to guide the saw between the shafts of the two forward guide-rollers, substantially as specified.

2. In a horizontal set of saws, the combination, with a suitable number of horizontally-working saw-blades, of a feed-carriage B, comprising an outer frame *b*, arranged to swing backward and forward, a sliding inside frame, screw-spindle *f*, and hand-wheel *g* for binding and adjusting the work with reference to the saw-blades, substantially as specified.

In testimony whereof I hereunto sign my name in the presence of two subscribing witnesses this 30th day of October, 1890.

WILHELM BESSER.

Witnesses:
JOHANN SCHNEIDER,
BRUNO KLEOFF.