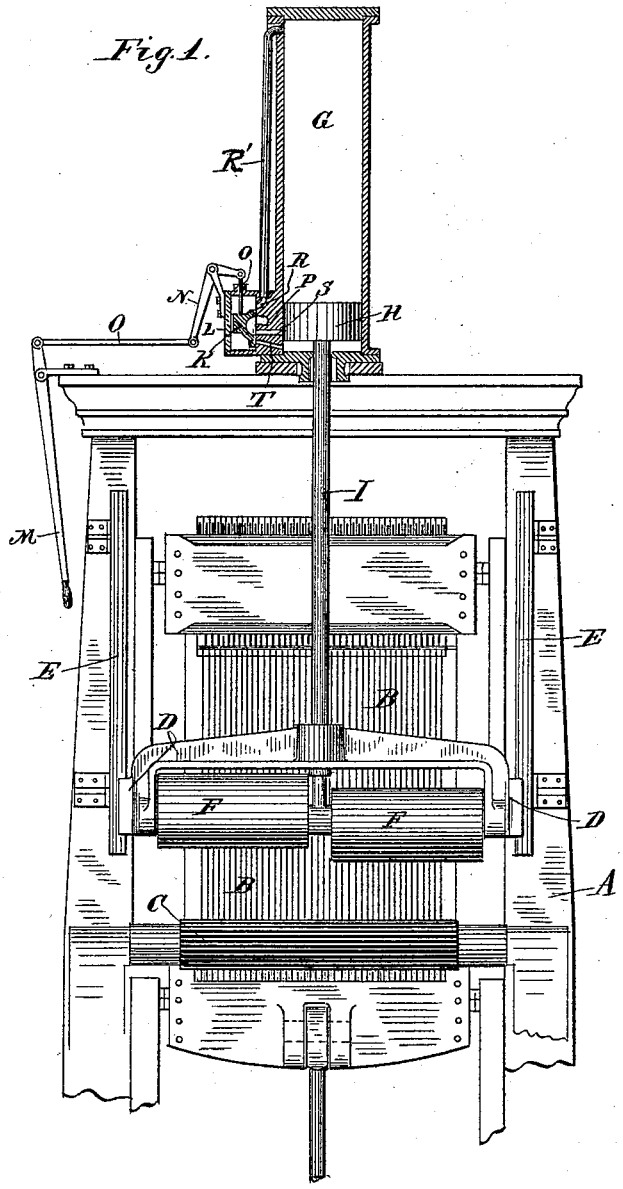
(No Model.) 3 Sheets—Sheet 1.

F. O. KILGORE.

GANG SAWMILL.

No. 471,125. Patented Mar. 22, 1892.

Fig. 1.



Witnesses.
A. M. Opsahl.
Frank D. Merchant.

Inventor.
Frederick O. Kilgore
By his Attorney.
Jas. F. Williamson

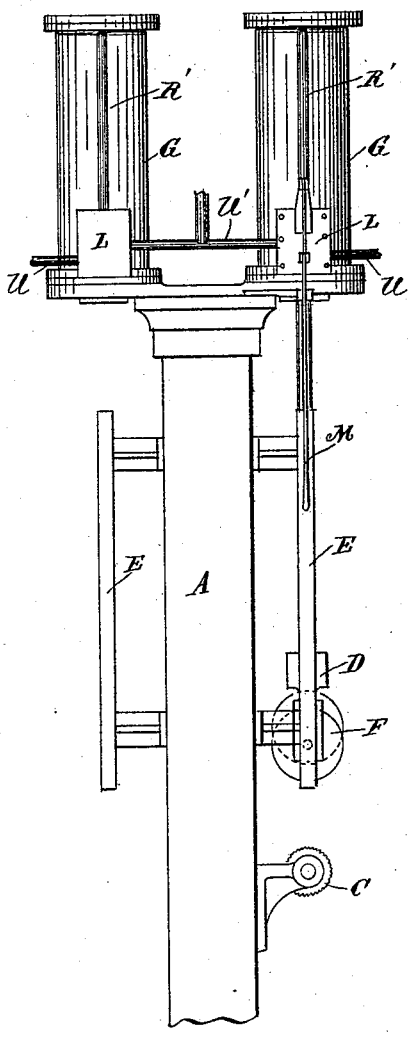
(No Model.) 3 Sheets—Sheet 2.

F. O. KILGORE.

GANG SAWMILL.

No. 471,125. Patented Mar. 22, 1892.

Fig. 2.



Witnesses
A. M. Opsahl.
Frank D. Merchant

Inventor.
Frederick O. Kilgore
By his Attorney.
Jas. F. Williamson

(No Model.) 3 Sheets—Sheet 3.

F. O. KILGORE.

GANG SAWMILL.

No. 471,125. Patented Mar. 22, 1892.

Fig. 4.

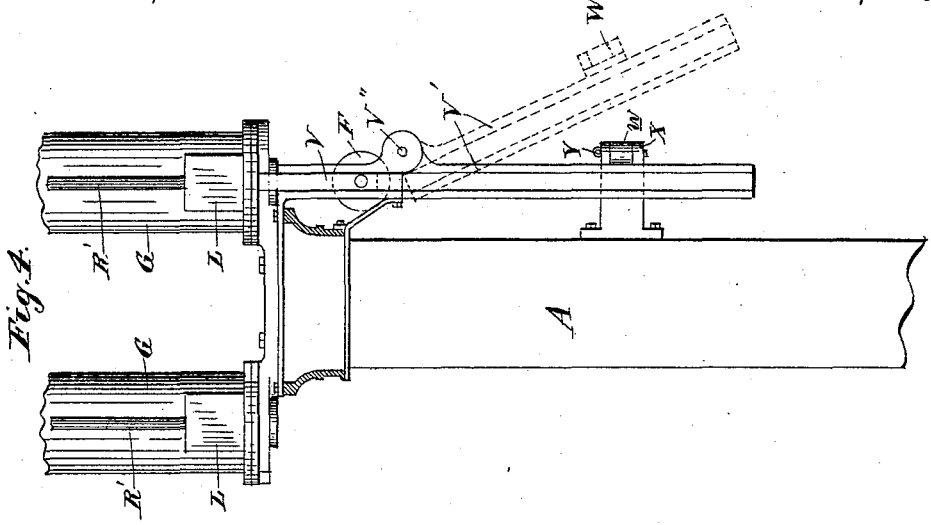
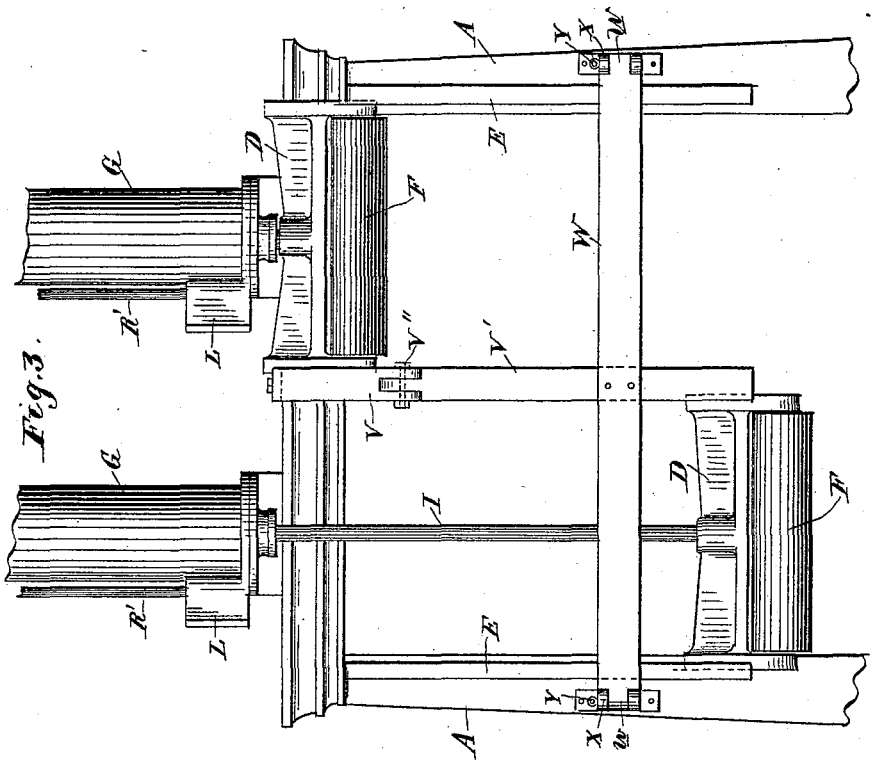


Fig. 3.



Witnesses.
A. M. Apsahl.
Frank D. Merchant.

Inventor.
Frederick O. Kilgore
By his Attorney.
Jas. F. Williamson

UNITED STATES PATENT OFFICE.

FREDRICK O. KILGORE, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO FRANK S. LANE, OF SAME PLACE.

GANG-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 471,125, dated March 22, 1892.

Application filed February 9, 1891. Serial No. 380,732. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK O. KILGORE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Gang-Saw Mills; and I do hereby 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.

My invention relates to gang-saw mills. In the ordinary construction of gang-saw mills the logs are pressed or clamped onto the feed-roll by press-rolls, which serve to hold the logs in position while passing through the saws and also give the feed-roll sufficient feeding traction. In the former construction the devices for controlling these press-rolls have been clumsy and slow in action, causing a loss of much time in moving them to and from their working positions.

The object of my invention is to provide devices for controlling these press-rolls which will be quick in action and easily controlled. To this end I provide a reciprocating engine, which is preferably supported from the frame-work of the gang in a vertical position over the press-rolls. The press-rolls are mounted in bearings in a yoke which is movable in the direction of the stroke of the piston on guides supported from the frame. This yoke has direct connection with the piston of the engine, the action of which is controlled by a hand-operated valve. When two or more press-roll yokes and their controlling devices are placed in series, such of the yoke-guides as are supported in the front or the rear of the saws are provided with sections hinged or pivoted, so as to enable them to be swung out of the way while adjusting or removing the saws.

In the accompanying drawings, wherein like letters refer to like parts throughout the several views, Figure 1 is a front elevation, partly in section, of my invention applied to a gang-saw mill. Fig. 2 is a left side elevation of the same. Figs. 3 and 4 are respectively front and side elevations showing a construction in which the press-rolls and controlling devices are placed in series, some parts being omitted.

A, B, and C are respectively the frame-work, the saws, and the feed-roll of a gang-saw mill. Immediately to the front of the saws are the yokes D, which are movable in a vertical direction on guides E, which are supported from the frame-work A. In a working machine a similar set of yokes (not shown in the drawings) is located in the rear of the saws.

F are the press-rolls, which are mounted in bearings in the yokes D, those shown in Figs. 1 and 2 being of the kind which are automatically adjustable to two tiers of logs, the construction of which is fully set forth in my patent of September 18, 1888, No. 389,816.

G are the engine-cylinders, which are supported from the upper part of the frame-work and located in a vertical position in line with the press-roll yokes. The piston H has its rod I directly connected to the yoke. The slide-valve K and steam-chest L are placed near the lower end of the cylinder. The valve is moved by a hand-lever M through bell-crank N and intermediate connections O. In the valve-seat P are three ports R, S, and T, connected to the cylinder. The upper port R is connected with the upper part of the cylinder by a conveying-pipe R′ and operates in the ordinary way under the movements of the valve both for admission and exhaust. The other ports S and T serve, respectively, the one for the exhaust and the other for the admission to the lower end of the cylinder, the two being so related with reference to each other and the valve and piston movements that the piston will close the exhaust-port S before it reaches its lowermost limit. This affords a cushion, preventing the piston from pounding the lower end of the cylinder. The valve has its exhaust-port located near its upper end, or, in other words, it has sufficient lap on its lower end to cover both the ports S and T, as required.

U U′ are respectively the supply and exhaust-pipes.

In the construction shown in Figs. 3 and 4 the outer end guides are fixed to the frame, as in Figs. 1 and 2; but the intermediate

guide is made in two sections V and V′, the upper of which is rigid with the frame and the lower of which is pivoted to the fixed section by bolt V″. The lower end of the pivoted section is bolted to a cross-bar W. The cross-bar W is provided at its ends with perforated hinge-lugs *w*, which fit between hinge-like brackets X, projecting from the frame, and are engaged by removable hinge-pins Y. This construction renders the intermediate guide perfectly rigid, so as to serve its required function while the mill is in operation, and permits the same to be swung either upward or to one side when it is desired to get at the saws. By removing the pivot-pin uniting the two sections of the guide and one of the hinge-pins after the yoke has been raised to the upper section the lower section of the guide and the cross-bar may be turned to one side, or, if it be preferred, both hinge-bolts may be removed and the lower section, with the cross-bar, swung upward out of the way.

The press-rolls shown in Figs. 3 and 4 are the ordinary straight rolls. These two straight rolls with their intermediate guides and the pair of engines serve the same functions as the single yoke and divided roll and single engine shown in Figs. 1 and 2, but are capable of independent action. The rolls and their controlling devices being independent of each other, the number in the series may be increased by interposing the required additional guides.

It is obvious that, although steam would generally be employed in the operation of the engines, other fluids—such as air, water, &c.—might be used.

The operation and advantages of the inventions are evident from the description already given.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a gang-saw mill, the combination, with the main frame of a press-roll, of a yoke-guide composed of two sections V V′, one of which is fixed to the gang-frame and the other of which is pivoted to the fixed section.

2. In a gang-saw mill, the combination, with a pair of press-roll yokes, of the guides for the outer ends of the yokes fixed to the frame, the intermediate guide for the inner ends of the yokes formed in two sections, one of which is fixed to the top of the frame and the other of which is pivoted to the fixed section, substantially as described.

3. In a gang-saw mill, the combination, with the pair of press-roll yokes, of the fixed guides for the outer ends of the yokes, the intermediate guide for the inner ends of the yoke, the upper of which sections is fixed to the gang-frame and the lower of which is pivoted to the fixed section by a removable pivot-bolt, and the cross-brace bar connected to the lower section and united to the sides of the frame by removable hinge-bolts, substantially as described.

4. In a gang-saw mill, the combination, with the pair of press-roll yokes, of the fixed outer end guides, the intermediate guide constructed in two sections, the upper of which is fixed to the frame and the lower of which is pivoted to the upper section, and the pair of reciprocating engines having their cylinders located on the frame in a vertical position in line with the yokes and having their piston-rods directly connected thereto, substantially as described.

5. In a gang-saw mill, the combination, with the press-roll yokes, of the fixed outer end guides, the sectional intermediate guide having its sections pivotally connected together, the cross-bar rigidly connected to the lower section of the intermediate guide and having its extremities hinged by removable bolts to the sides of the frame, and the engines located on the top of the gang-frame in a vertical position, having their respective piston-rods directly connected one to each of said yokes, substantially as described.

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

FREDRICK O. KILGORE.

Witnesses:

JAS. F. WILLIAMSON,

EMMA F. ELMORE.