(No Model.)

2 Sheets—Sheet 1.

G. W. NICHOLS.

Gang Saw Mill.

No. 241,699. Patented May 17, 1881.

FIG. 1

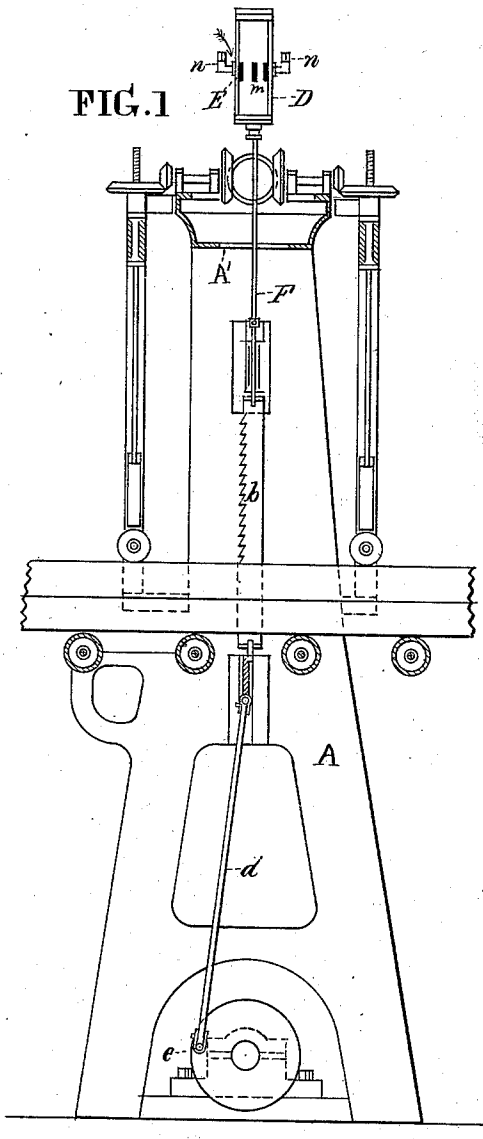


FIG. 2

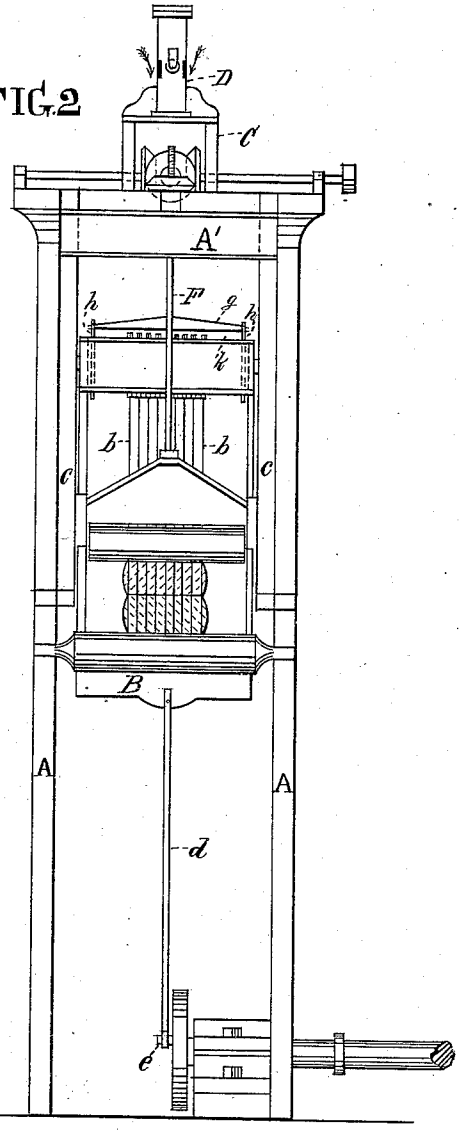
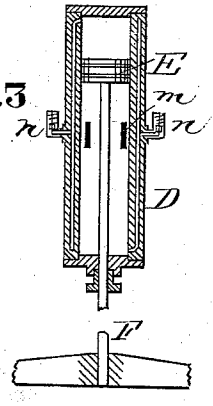


FIG. 3



Witnesses.

Thomas J. Bewley.

Benj. P. Wrigley.

Inventor

George W. Nichols.

per Stephen Ustick, their

associated with F. Thornely.

(No Model.) 2 Sheets—Sheet 2.

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FIG. 4

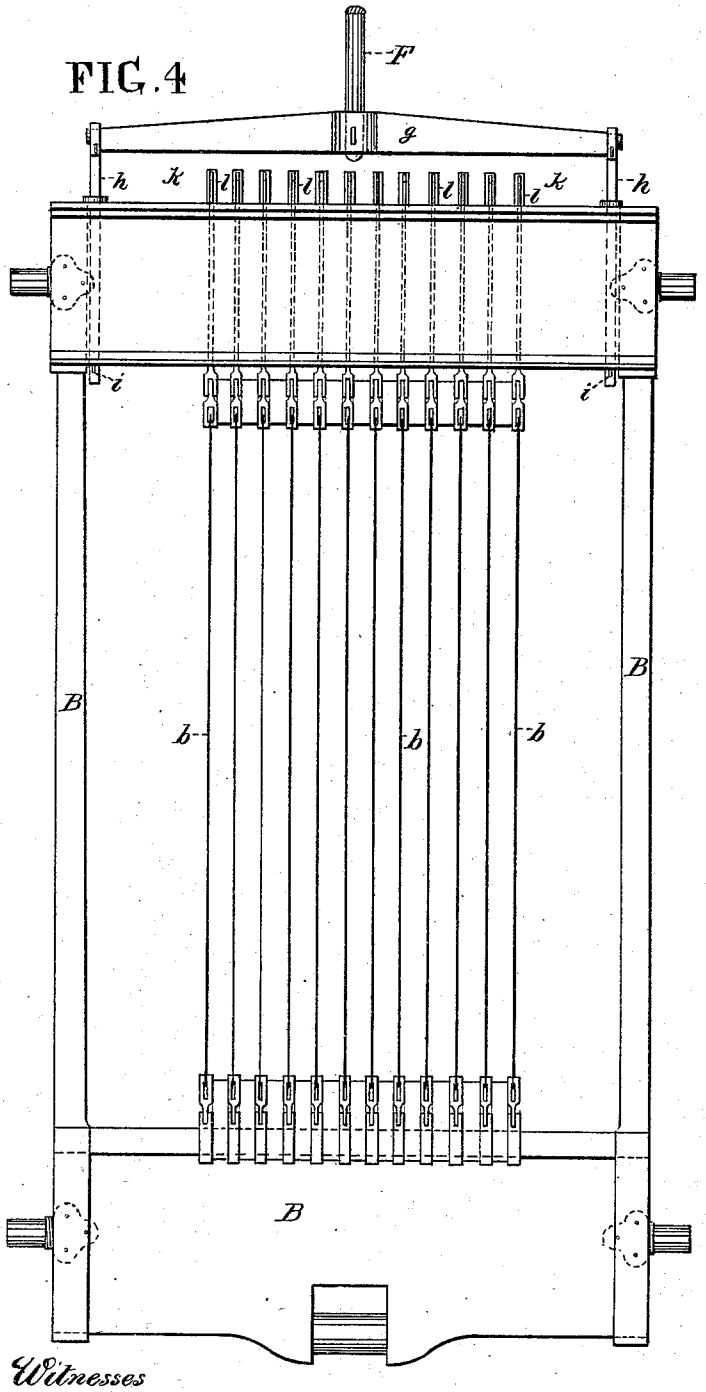
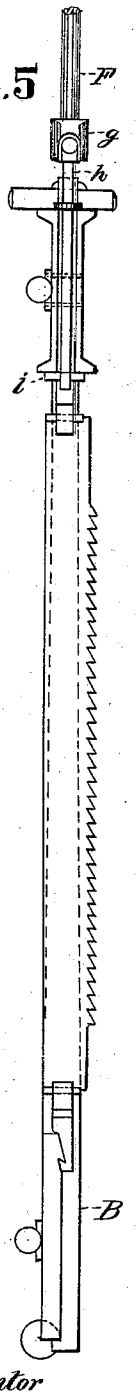


FIG. 5



Witnesses

Thomas J. Bewley

Ben. F. Wrigley

Inventor

George W. Nichols.

per Stephen Ustick, att'y

Associated with F. Thomely.

UNITED STATES PATENT OFFICE.

GEORGE W. NICHOLS, OF CLINTON, ASSIGNOR OF ONE-HALF TO THE NOVELTY IRON WORKS, OF DUBUQUE, IOWA.

GANG-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 241,699, dated May 17, 1881.

Application filed February 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. NICHOLS, a citizen of the United States, residing at Clinton, in the county of Clinton and State of Iowa, have invented a new and useful Improvement in Gang-Saw Mills, of which the following is a specification.

The object of my invention is such a construction of the upper end of the sash of gang-saws as will make it practicable to combine therewith an air-compression cylinder, to assist in checking and reversing the movements of the sash, and also relieve the crank-shaft of a considerable portion of the strain upon it.

Hitherto when air or steam cylinders have been combined with the sash they have been arranged beneath it, and consequently, to avoid the pitman connected with the driving-shaft, twin cylinders have had to be used, one at each side of the pitman. My invention avoids such duplication, whereby important advantages are obtained, as hereinafter set forth.

The nature of my invention consists in the combination of an air-cushion compression-cylinder (suitably connected with the frame of a saw-mill) with a supplemental beam or cross-head of the sash, the lower end of the piston-rod being connected thereto. The beam is arranged far enough above the upper end of the sash to be out of the way in keying the upper stirrups of the saws to the girts, the ends of the beam being connected with the upper end of bolts which project upward from the girts for that purpose. The ends of the beam are of circular form and fit smoothly in eyes of the bolts having corresponding form, so as to admit of an axial adjustment of the beam if the sash should be out of line with the cylinder, there being in such case a free automatic adjustment. These bolts may be dispensed with, if desired, in making new sash by projecting the upper ends of the stiles far enough above the girts to make the connection of the beam with them. I am thus enabled to use a single air-compression cylinder instead of two, as is required when the connection is made with the lower end of the sash, thereby lessening the cost and avoiding side pressure of the sash—which is liable to occur when two cylinders are used, in consequence of variations in the pressure of air between the two pistons—whereby loss of power and derangement of the machinery must be the result.

In the accompanying drawings, which make a part of this specification, Figure 1 is a side elevation, partly in section, of a gang-saw mill having my improvements connected therewith. Fig. 2 is a front elevation of the mill. Fig. 3 is a vertical section, on an enlarged scale, of the compression-cylinder D and parts connected therewith, and the central part of the supplemental beam or cross-head *g*, and a portion of the piston-rod F. Fig. 4, Sheet No. 2, is a face view of the gang-sash B on an enlarged scale, having the saws *b* in connection, and provided with the supplemental beam or cross-head *g*. Fig. 5 is an edge view of the same with one of the stiles removed to show more clearly the mode of connecting the supplemental beam or cross-head *g* with the girts of the upper end of the sash.

Like letters of reference in all the figures indicate the same parts.

A A in Figs. 1 and 2 represent the housings or side frames of the mill.

B is the gang-sash having saws *b*. It has its reciprocating movements in the slides *c c*, and is operated by means of the pitman *d* and crank *e*. The housings are connected at their upper ends to the cap A′.

C is a pedestal on the said cap, and D an air-compression cylinder secured to the pedestal, and having a piston, E, provided with the rod F.

With the upper end of the sash B is connected a supplemental beam or cross-head, *g*, by means of the vertical rods *h h*, which are passed down through the opening between the girts which constitute the top beam of the sash, and secured by means of keys *i*, as shown clearly in Figs. 4 and 5. I make the ends of the supplemental beam or cross-head *g* of circular form, and connect them with corresponding eyes on the upper ends of the bolts *h h*, so as to provide for an automatical axial adjustment of the beam when the sash B happens to be out of line with the cylinder D. The supplemental beam or cross-head *g* is arranged far enough above the upper beam or girts of the sash to leave a space, *k*, between them for the keying of the stirrups *l* of the saws *b*.

The air-cylinder D has inlet-openings *m*, for the admission of air each side of the piston E alternately as the latter, in its reciprocating movements, recedes therefrom in the up and down movements of the sash B, the like movements being given to the piston by means of the connection of its rod F with the cross-head or supplemental beam *g* of the sash, as shown in the drawings. The cylinder D is provided with exhaust-pipes *n n*.

I do not confine myself to the mode above described of connecting the cross-head *g* with the sash B, as other modes will answer the purpose.

In the construction of a new sash it may be connected with the stiles, if desired, by extending their upper ends far enough for that purpose.

The drawings represent pressure-rollers and means for operating them; but as the present invention does not embrace them a description thereof is omitted.

I claim as my invention—

1. The combination of the supplemental beam or cross-head *g*, having circular ends, with the bolts *h h*, having eyes of corresponding form, to provide for an automatic axial adjustment of the beam in accommodation to any variation of the sash B from being in line with the cylinder D, substantially as described.

2. The combination of the air-compression cylinder D, having a piston, E, provided with a rod, F, with the gang-sash B, having a supplemental beam or cross-head, *g*, substantially in the manner and for the purpose set forth.

GEORGE W. NICHOLS.

Witnesses:
E. S. BAILEY,
A. H. PADDOCK.