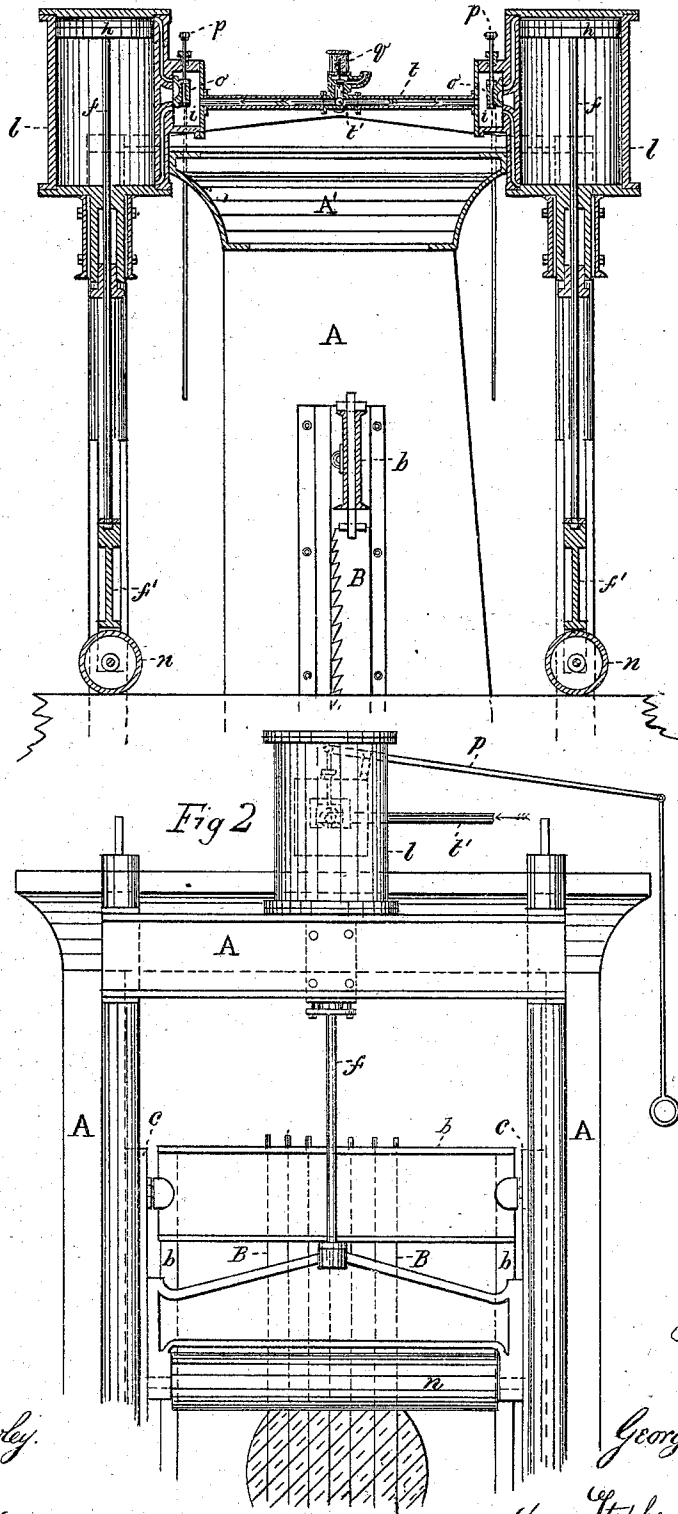


(No Model.)

G. W. NICHOLS.  
Air Cushion Compression Cylinders for Pressure Rollers.  
No. 241,702. Patented May 17, 1881.



Witnesses

Thomas J. Bowley.

Residing in Oregon

Inventor

George W. Nichols

per Stephen Utick, atty

# UNITED STATES PATENT OFFICE.

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

AIR-CUSHION COMPRESSION-CYLINDER FOR PRESSURE-ROLLERS.

SPECIFICATION forming part of Letters Patent No. 241,702, dated May 17, 1881.

Application filed October 4, 1880. (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 the Combination of Air-Cushion Compression-Cylinders with Pressure-Rollers, of which the following is a specification.

My invention consists in the combination of twin air-cushion compression-cylinders with the pressure-rollers of gang-saws for giving a yielding pressure to the rollers, as hereinafter fully described.

In the accompanying drawings, which make a part of this specification, Figure 1 represents a vertical section of the upper part of a gang-saw mill taken through the centers of twin air-cushion compression-cylinders *l l*, combined with the rollers *n n*. Fig. 2 is a front elevation of the upper part of the mill, having my improvement in connection with the rollers *n n*.

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

*A A* represent the housings, between which the gang-saw frame *b*, provided with saws *B*, has its up and down movements in the slides *c c*. Twin cushion compression-cylinders *l l* are permanently connected with the cap *A'*, which connects the upper ends of the housings *A A*. These cylinders have pistons *h h*, which are provided with rods *f f*, the lower ends of which have a permanent connection with the stocks *f' f'* of the pressure-rollers *n n*. The cylinders *l l* have air-chests *i i*, which are connected together by means of the pipe *t*. These

chests have valves *o o*, which are operated by means of the levers *p p*, for directing the air into either end of the cylinders, as may be required, for pressing the rollers downward or raising them upward. The pressure of the air is controlled by means of the safety-valve *q*, placed at the point of connection of the air-induction pipe *t'* with the pipe *t*.

I do not confine myself to the mode above described of supplying the compression-cylinders with air, as other modes may answer the purpose and produce the same results.

It will plainly appear that, as there is an equal pressure of air upon the pistons *h h* during all the changes in the height, the pressure-rollers *n n* will have a uniform force at all times upon the timber being sawed, however crooked its upper surface may be in its longitudinal direction, whereas steel or rubber springs exert an uneven force upon such a surface, and are therefore unsuitable for the purpose.

I claim as my invention—

The combination of twin air-cushion compression-cylinders *l l*, having pistons *h h*, with the pressure-rollers *n n* of a gang-saw mill, the cylinders *l l* having air-chests *i i*, provided with valves *o o*, and connected together by means of the air-pipe *t*, having an induction-pipe, *t'*, substantially as and for the purpose above described.

GEORGE W. NICHOLS.

Witnesses:

CHARLES W. CHASE,  
LE ROI B. WADLEIGH.