No. 745,512. PATENTED DEC. 1, 1903.

A. NIEDERMEYER.

STOP FOR SAWMILL CARRIAGES.

APPLICATION FILED JULY 12, 1901.

NO MODEL.

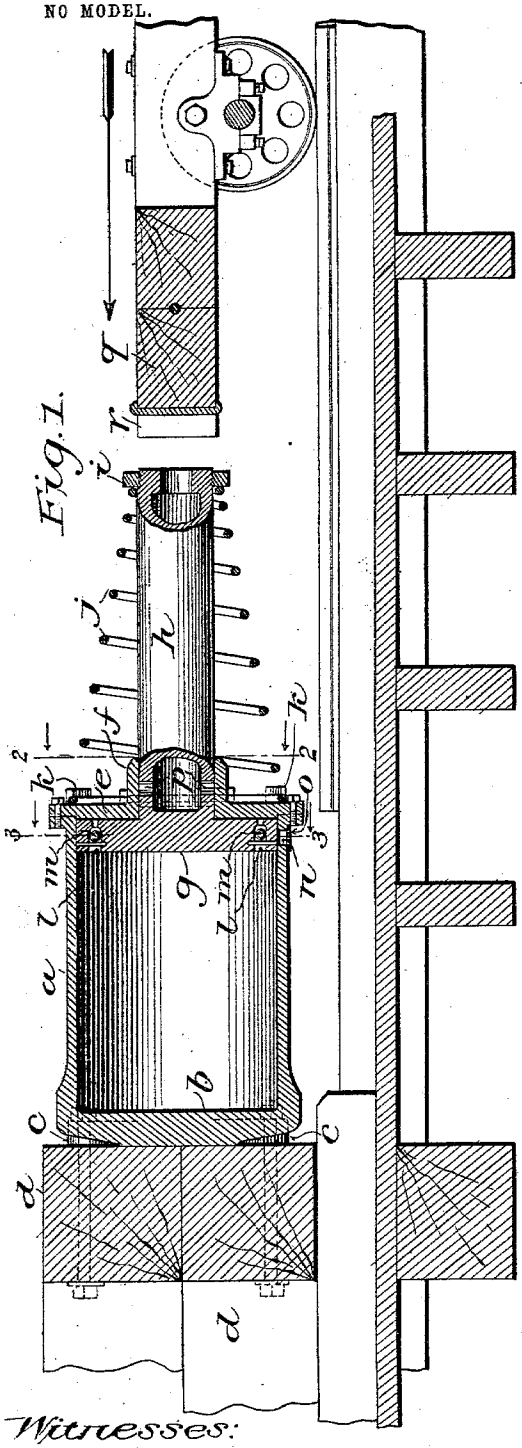


Fig. 1.

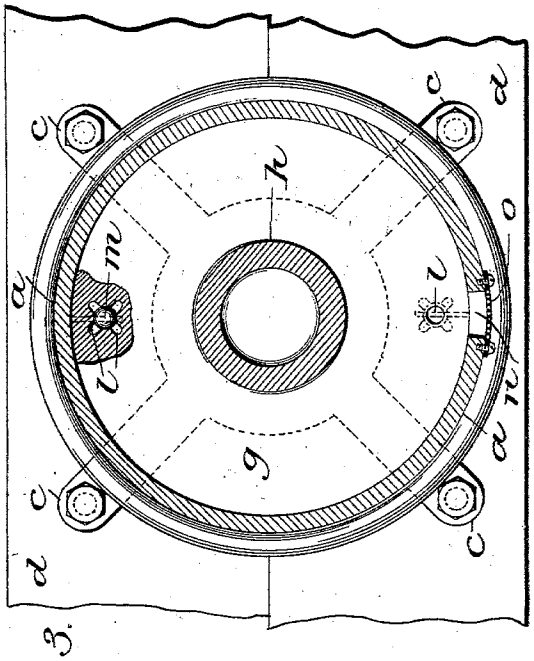


Fig. 3.

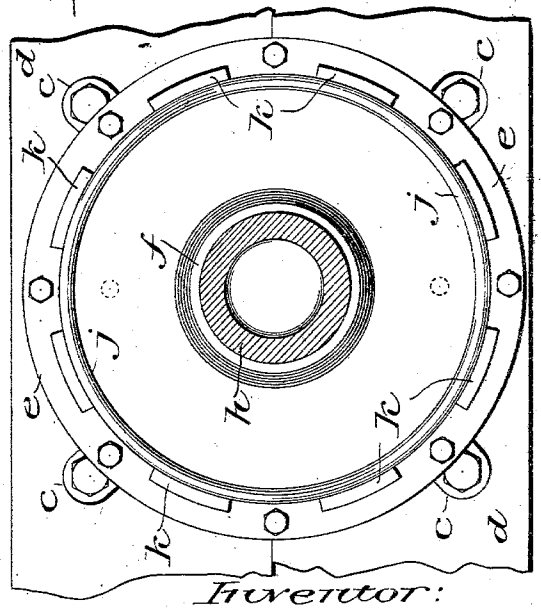


Fig. 2.

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

No. 745,512. Patented December 1, 1903.

UNITED STATES PATENT OFFICE.

ARTHUR NIEDERMEYER, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE FILER AND STOWELL CO., OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

STOP FOR SAWMILL-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 745,512, dated December 1, 1903.

Application filed July 12, 1901. Serial No. 68,021. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR NIEDERMEYER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Stops for Sawmill-Carriages, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The main objects of my invention are to stop the log-carriage of a sawmill at either limit of its travel, and particularly at the limit of its return movement in "gigging," without shock, jar, or injury to the carriage or the mill; to facilitate and expedite the operation of the mill; to avoid accidents and injury to the operators, and generally to improve the construction and operation of devices of the class to which my invention relates.

It consists in certain novel features in the construction and arrangement of parts and in the combinations of parts, as hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a vertical longitudinal section of my improved stop in connection with a part of a sawmill-carriage with which it is designed to operate and a part of the carriage-track and associated framework of a mill. Fig. 2 is an enlarged end elevation and a cross-section on the line 2 2, Fig. 1, of the stop; and Fig. 3 is a similar section on the line 3 3, Fig. 1.

a is a cushion-cylinder, which may be conveniently cast with a head *b* at one end and with lugs *c c* for bolting it to stop-timbers *d* or framework of a mill in the line of the travel of the log-carriage, as shown in Fig. 1. At its opposite end the cylinder *a* is provided with a head *e*, which is preferably made detachable and bolted thereto, as shown in Fig. 1. It is formed with a central opening which is surrounded by an outwardly-projecting hub or flange *f*.

g is a piston or plunger fitted to work in the cylinder *a* and formed or provided with an outwardly-projecting stem *h*, which is fitted and guided in the flanged opening of the cylinder-head *e*. The stem *h* for the sake of lightness and to admit air to the cylinder during the inward stroke of the piston is preferably made hollow, as shown. It is provided at its outer end with a nut or collar *i*, which forms a shoulder or abutment for the smaller end of a cone-shaped spiral spring *j* to bear against. The base or larger end of said spring is seated against the outer face of the cylinder-head *e*, which is provided near its margin with a series of lugs *k* to hold said spring in place. The piston has on opposite sides of and parallel with its axis through openings or passages *l l*, which are contracted toward the outer face of the piston to form valve-seats. In these openings or passages are loosely inserted ball check-valves *m m*, which are held therein by pins, as shown in Fig. 1. Lateral grooves or channels are formed, as shown in Fig. 3, in the passages *l* from their seats toward the inner face of the piston to permit air to freely pass the ball-valves *m* when they are opened. An opening *n* may be formed in the under side of the cylinder a short distance from its head *e* to allow free ingress and egress of air into and out of said cylinder between its head *e* and the piston *g*. This opening is covered by a screen *o*, which excludes dust from the cylinder. The same result may be accomplished by forming lateral openings *p* through the hollow stem *h*, as shown in Fig. 1, so that air may freely enter or escape from the outer end of the cylinder, between its head *e* and the piston *g*, through said stem. With either arrangement the escape of air from the cylinder is cut off shortly before the piston reaches the limit of its outward movement, so that it will be cushioned by a sufficient volume of air to prevent its violently striking the cylinder-head *e*.

q designates the adjacent end of the log-carriage frame, which has attached thereto in line with the piston-stem *h* a metal striking plate or block *r*.

The operation of the stop will be readily understood from the drawings and the foregoing description of its construction. In

case the operator loses control of the carriage and it runs away, passing in the direction indicated by the arrow on Fig. 1 the desired limit of its movement in that direction, the striking plate or block *r* will engage the outer end of the stem *h* and thrust the piston *g* into the cylinder *a* toward its head *b*, thereby compressing the air contained in said cylinder between the piston and head *b* and stopping the carriage without shock or injury to it or to the attendant operators. The inward movement of the piston *g* toward the cylinder-head *b* closes the check-valves *m*, preventing escape of air through the piston. When the carriage is moved away from the stop, the spring *j*, acting through the stem *h*, will move the piston *g* back to its original position next to the cylinder-head *e*. The outward movement of the piston opens the valves *m*, permitting air to flow freely through the passages *l* from one end of the cylinder to the other, and thereby permitting the free outward movement of said piston. When the piston in its outward movement covers the opening *n* or the lateral openings *p* in the stem *h* pass into and are covered by the flange *f* in the cylinder-head, the escape of air from the space between said cylinder-head and the piston will be cut off and the piston will be checked in its further movement and prevented from striking the cylinder-head with jar and noise.

By placing the spring *j* outside of the cylinder it is more easily accessible for inspection and repair.

The cylinder may be made shorter for a given stroke of the piston, and the spring may be made longer, so that it will not be compressed to its full extent in the operation of the stop, and thus being subjected to less severe usage will be less liable to break and will last longer.

By placing the valves *m* in the piston instead of in the cylinder they are less exposed to dust and less liable to become clogged, particularly when air is admitted to the cylinder through the hollow stem *h* only.

Various changes in the minor details of construction and arrangement of parts may be made without departing from the intended scope of my invention.

I claim—

1. In a stop for sawmill-carriages the combination of a cushion-cylinder, a piston fitted in said cylinder and provided with an inwardly-opening check-valve and with an outwardly-projecting stem, and a spring tending to move said piston outward, substantially as described.

2. In a stop for sawmill-carriages, the combination of a cushion-cylinder, a piston fitted in said cylinder and provided with an outwardly-projecting stem which is guided in one of the cylinder-heads, and a spiral spring surrounding said stem and seated at its inner end against the cylinder-head, and at its outer end against a shoulder or abutment on said stem, substantially as described.

3. In a stop for sawmill-carriages the combination of a cushion-cylinder, a piston fitted therein and formed with a passage through it, an inwardly-opening check-valve loosely held in said passage and adapted to close it when the piston is moved inward, a hollow stem extending from the piston to which it is fixed outwardly through one cylinder-head and having a lateral opening a short distance from the piston and an opening at or near its outer end, and a spring tending to move the piston outward, substantially as described.

4. In a stop for sawmill-carriages, the combination of a cushion-cylinder provided at one end with means of attachment to a supporting structure and at the other end with a detachable head having a central flanged opening, a piston fitted in said cylinder and provided with a stem which is fitted and guided in the opening in said cylinder-head, and with an inwardly-opening check-valve, an opening or port being provided for ingress and egress of air into and out of said cylinder between its outer head and the piston, and a spiral spring placed around the piston-stem outside of the cylinder and bearing at one end against the outer face of the outer cylinder-head and at the other end against a shoulder on said stem at or near its outer end, substantially as described.

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

ARTHUR NIEDERMEYER.

Witnesses:

CHAS. L. GOSS,

ALICE E. GOSS.