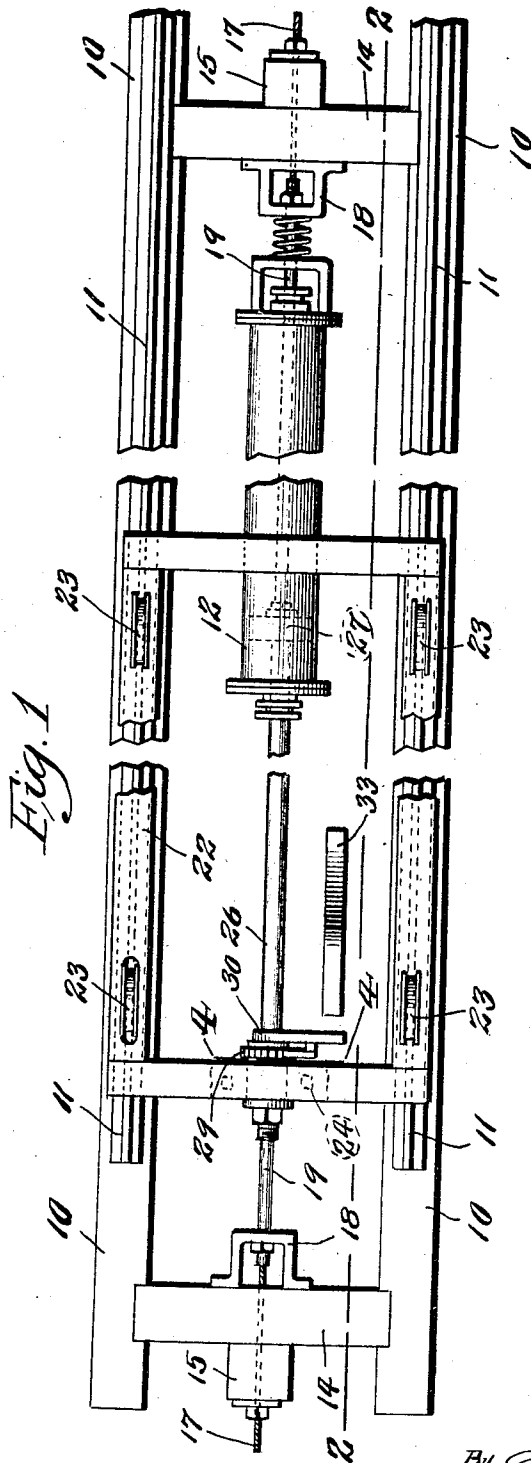
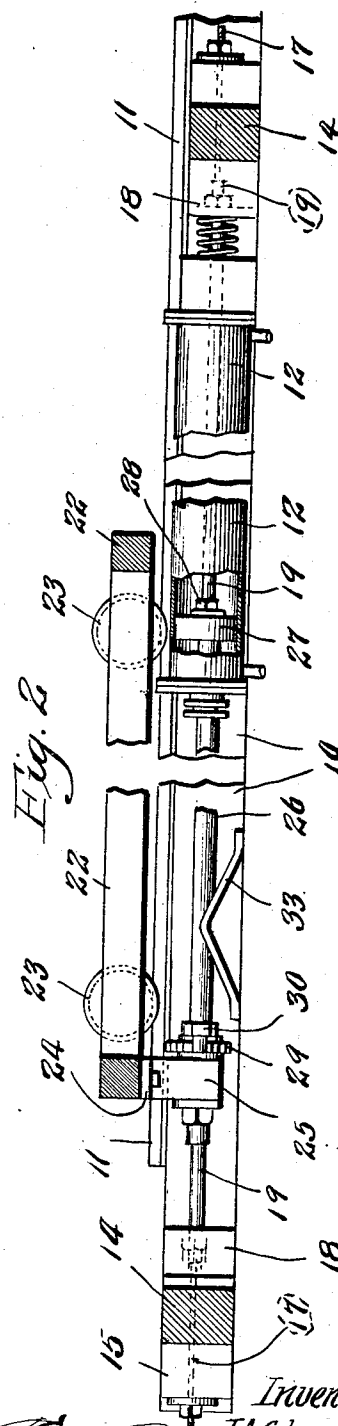


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PISTON ROD AND SUPPORT THEREFOR.
APPLICATION FILED JAN. 2, 1918.

1,283,675.

Patented Nov. 5, 1918.

2 SHEETS—SHEET 1.



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Fig. 3

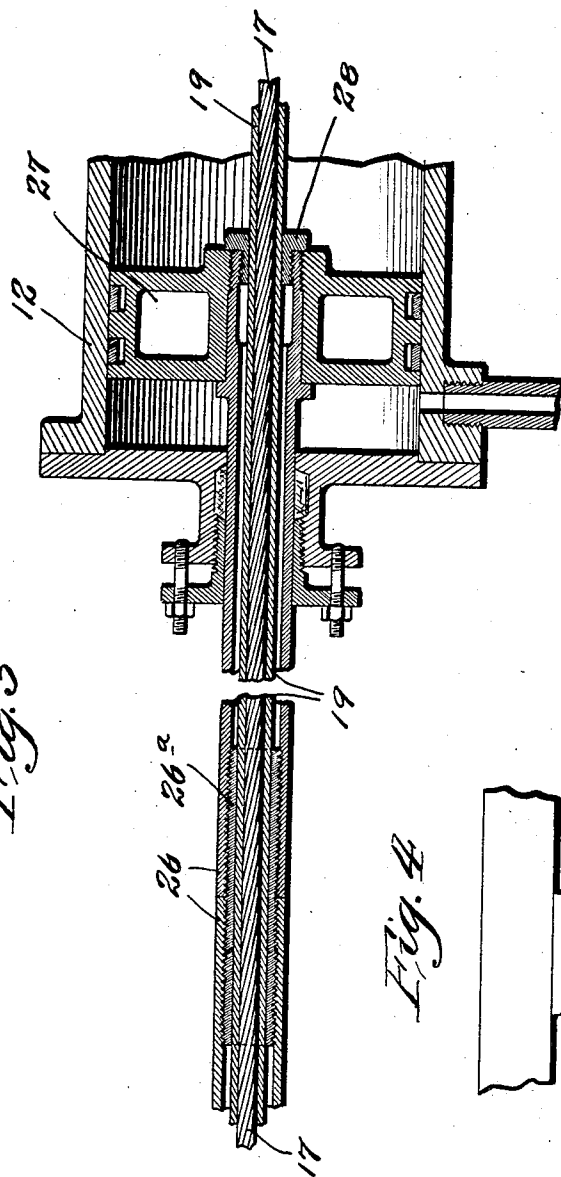
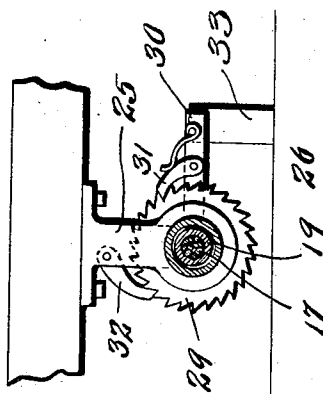


Fig. 4



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UNITED STATES PATENT OFFICE.

THOMAS A. COLEMAN, OF VREDENBURGH, ALABAMA.

PISTON-ROD AND SUPPORT THEREFOR.

1,283,675.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS A. COLEMAN, a citizen of the United States, residing at Vredenburgh, Alabama, have invented a certain new and useful Improvement in Piston-Rods and Supports Therefor, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates generally to saw mills and more particularly to the parts utilized for imparting reciprocating movement to the saw mill carriage during the lumber sawing operations, and which parts include the elongated fluid pressure cylinder, the piston rod operating in said cylinder, and the supporting means for said piston rod.

It will be understood that in long feed saw mills or mills wherein the carriage has a comparatively long travel, it is essential to the successful and efficient operation of the carriage that the necessarily long piston rod be maintained in proper alinement and supported so that it will operate to best advantage in its travel through the long feed cylinder, and to this end I have devised a piston rod which is comparatively simple in construction, which can be easily assembled or taken apart, which is highly efficient in use, and which will not sag within the long cylinders of saw mills or like structures, the carriages of which necessarily have a comparatively long reciprocal movement.

One of the principal objects of my invention is to provide a tubular piston rod which is directly connected to the saw mill carriage, and further, to provide a firm and substantial supporting member for said tubular piston rod, said member being constructed and mounted so as to reduce to a minimum any tendency to sag between its ends, which latter action, it will be understood, will materially affect the proper operation and efficiency of the carriage reciprocating mechanism.

A further object of my invention is to provide simple means for effecting a step by step rotary movement of the piston rod, thereby minimizing the wear of said rod while in service.

With the foregoing and other objects in view, my invention consists in certain novel

features of construction and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of a portion of a saw mill and showing my improved piston rod and piston rod support associated therewith, parts thereof being in section;

Fig. 2 is a longitudinal section taken approximately on the line 2—2 of Fig. 1 with parts broken away;

Fig. 3 is an enlarged detail section of one end of a fluid pressure cylinder and showing the piston rod and piston rod support associated therewith;

Fig. 4 is an enlarged detail section taken approximately on the line 4—4 of Fig. 1.

Referring by numerals to the accompanying drawings, 10 designates the track timbers of a saw mill foundation, and fixed in any suitable manner on top of said timbers are track rails 11. Located between these track timbers and anchored in any suitable manner is an elongated fluid pressure cylinder 12, the same being provided near its ends with connections whereby fluid pressure may be delivered into the chamber within the cylinder.

Arranged between the track timbers 10 at suitable distances away from the cylinder 12 are transverse timbers 14 against the outer faces of which are positioned blocks 15. Anchored in any suitable manner to these blocks are the ends of a comparatively large wire cable 17, the same being under tension so that it is normally maintained in a taut and rigid condition.

Secured to the timbers 14 are blocks 18, preferably metal, through which the cable 17 passes, and secured to said block are the ends of a tube 19, the same serving as a sleeve or housing for said cable. This tube is normally maintained under tension, preferably by means of nuts mounted on the threaded ends of the tube and positioned in the blocks 18.

Disposed above the track rails 10 is a reciprocating carriage 22, the same being provided with flanged wheels 23 which travel directly upon track rails 11. Fixed in any suitable manner to the underside of this carriage is a plate 24 from which depends a bracket 25, and mounted for rotary movement in the lower end of this bracket is one end of a tube 26 which incloses a portion of the tube 19. This inclosing tube 26 extends

through a suitable stuffing box on one end of the cylinder 12, and that end of said tube within the cylinder carries a piston 27. Seated in the end of the tube on which the piston is fixed is a bushing 28, the same bearing directly upon the surface of the inner tube 19.

Where the tube 26 is of considerable length, I prefer to form it in sections and to connect the latter by tubular bushings 26^a, the same being screw-seated in the adjacent ends of two sections and bearing directly upon the surface of the inner tube. (See Fig. 3).

In order to equalize the wear between tube 26, piston 27 and the cylinder 12, and also the wear between bushings 26^a and 28 and inner tube 19, I provide means for imparting intermittent rotary movement to the tube 26, which means operates automatically during the reciprocatory movement of said tube 26. This means includes a ratchet wheel 29 which is rigidly fixed on the end of tube 26 adjacent to bracket 25 and loosely mounted on the outer tube adjacent to this ratchet wheel is one end of a horizontally disposed lever 30, the same carrying a spring-pressed pawl 31 which engages the teeth of ratchet wheel 29. A detent 32 is pivotally mounted on the bracket 25 and engages the teeth of ratchet wheel 29 to prevent reverse rotary movement thereof.

Positioned on a suitable support between the track timbers 10 and directly in the path of travel of the free end of lever 30 is a block 33 provided with oppositely inclined top surfaces.

In operation, it will be understood that steam or fluid pressure is alternately admitted to the ends of cylinder 12 to reciprocate piston 27 and parts connected thereto. As this operation takes place, the bushings in tubular member 26 slide backward and forward upon tube 19, the latter serving as a substantial support and guide for the elongated piston rod or member 26.

Inasmuch as the carriage 22 is connected to tubular member 26 by bracket 25, said carriage will be reciprocated upon the track rails 11, which latter is supported by timbers 10. During this reciprocating movement, the free end of lever 30 will pass over the oppositely disposed inclined surfaces on top of block 33, thereby slightly elevating the outer end of said lever, and consequently imparting partial rotary movement to tubular member 26 through pawl 30 and ratchet wheel 29. Thus the tubular piston rod is slowly rotated simultaneous with its reciprocatory movement, and as a result, the wear between the moving parts is equalized and reduced to a minimum.

A piston rod and piston rod support of my improved construction is comparatively simple, and while particularly designed for

use in connection with saw mills utilizing reciprocating carriages, can be advantageously and efficiently used wherever a comparatively long feeding movement is necessary.

It will be readily understood that minor changes in the size, form and construction of the various parts of my improved piston rod and support can be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim:

1. In a device of the class described, a member under tension, a sleeve on said member, a tubular member arranged for sliding movement upon said sleeve, and a piston carried by said tubular member.

2. The combination with a fluid pressure cylinder, of a tubular member extending axially through said cylinder, a supporting member extending through said tubular member, a tubular piston rod mounted for sliding movement upon said tubular member and extending into the cylinder, and a piston carried by said tubular piston rod.

3. The combination with a fluid pressure cylinder, of a tubular member extending axially through said cylinder, a supporting member extending through said tubular member, a tubular piston rod mounted for sliding movement upon said tubular member and extending into the cylinder, a piston carried by said tubular piston rod, and means for imparting intermittent rotary movement to the tubular piston rod during its reciprocatory movement.

4. The combination with a fluid pressure cylinder, of a flexible member extending axially through said cylinder, a sleeve mounted on said supporting member and extending through the cylinder, said sleeve and supporting member being normally under tension, a tubular piston rod mounted for sliding movement upon the sleeve and extending into the cylinder, and a piston mounted on said piston rod within said cylinder.

5. The combination with a fluid pressure cylinder, of a flexible member extending axially through said cylinder, a sleeve mounted on said supporting member and extending through the cylinder, said sleeve and supporting member being normally under tension, a tubular piston rod mounted for sliding movement upon the sleeve and extending into the cylinder, a piston mounted on said piston rod within said cylinder, and means for imparting intermittent rotary movement to said piston rod during its reciprocatory movement.

6. The combination with a fluid pressure cylinder and its piston, of a tubular piston rod secured to said piston, a sleeve extending through said tubular piston rod and

through the fluid pressure cylinder, and a cable extending through said sleeve.

7. The combination with a fluid pressure cylinder and its piston, of a tubular piston rod secured to said piston, a sleeve extending through said tubular piston rod and through the fluid pressure cylinder, and a cable extending through said sleeve, said cable and sleeve being normally under tension.

8. In a device of the class described, a tubular piston rod support, comprising a tubular member, and a cable passing therethrough, said tubular member and cable being normally under tension.

9. The hereindescribed piston rod support and guide comprising a tubular member and a cable passing therethrough, the ends of which tubular member and cable are anchored so that they are maintained in a normally taut condition.

10. In a device of the class described, a fluid pressure cylinder, a piston therein, a tubular piston rod secured to said piston, a support extending through said tubular piston rod, and means for imparting partial rotary movement to said piston rod simultaneous with its reciprocatory movement.

11. A tubular piston rod support compris-

ing a tubular member extending through the tubular piston rod, and a relatively rigid member passing through said tubular member.

12. A tubular piston rod support comprising a tubular member extending through the tubular piston rod, and a cable passing through said tubular member, which cable is under tension.

13. A tubular piston rod support comprising a tubular member extending through the tubular piston rod, and a cable passing through said tubular member, the ends of which cable are anchored so that it is in normally taut condition.

14. The combination with a tubular piston rod, of a combined guide and support for said piston rod, which combined guide and support comprises a taut cable, and a tubular member positioned thereupon, said cable and tubular member extending through said tubular piston rod.

In testimony whereof I hereunto affix my signature this 24th day of Dec., 1917.

THOMAS A. COLEMAN.

Witnesses:

P. C. JORDAN,
A. M. WILLIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."