C. W. WILLETTE.

DRIVING MECHANISM.

APPLICATION FILED OCT. 19, 1909.

956,658. **Patented May 3, 1910.**

3 SHEETS—SHEET 1.

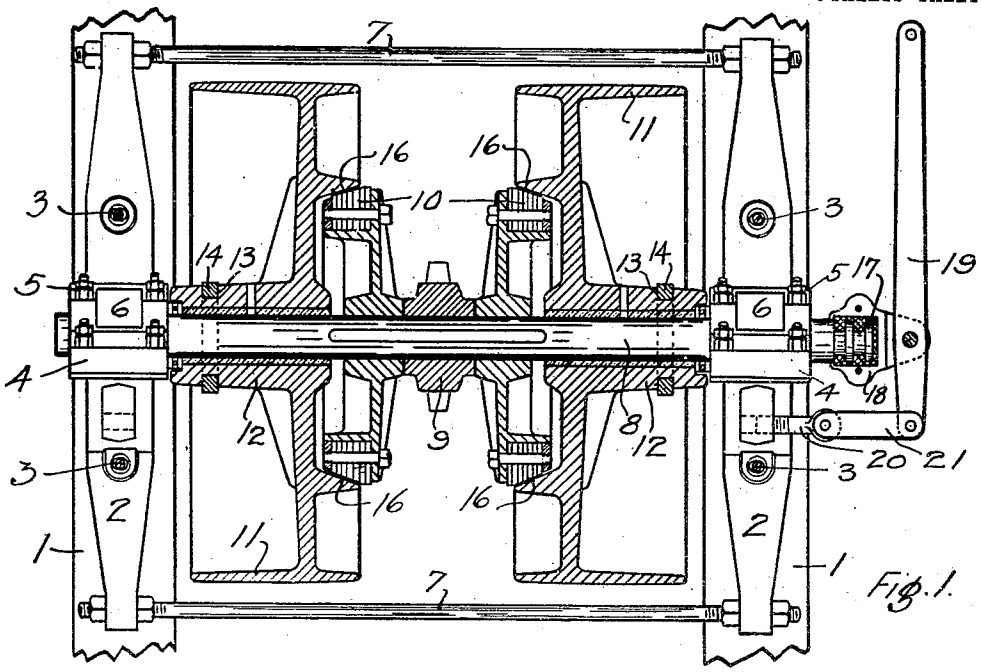

Fig. 1.

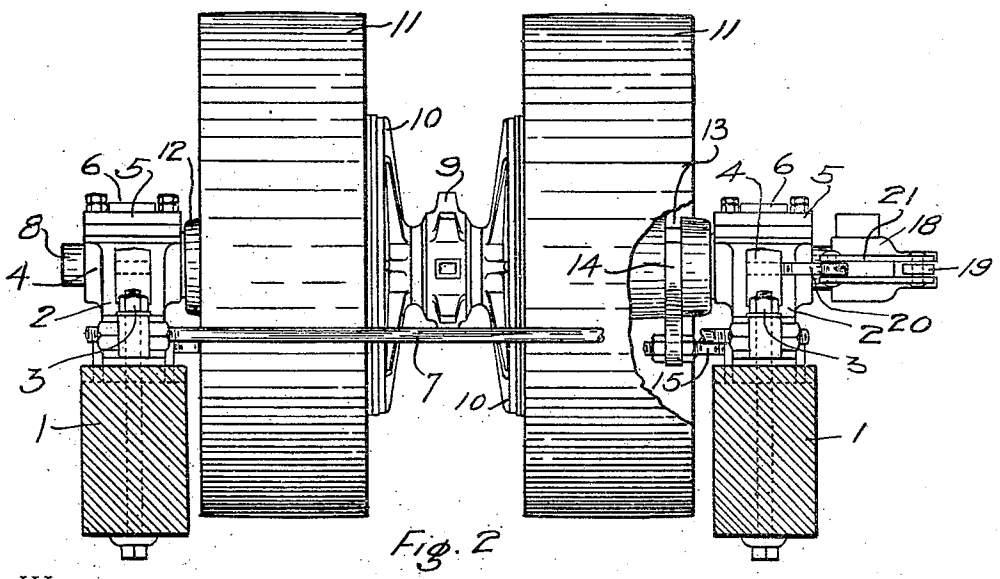

Fig. 2.

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3 SHEETS—SHEET 2.

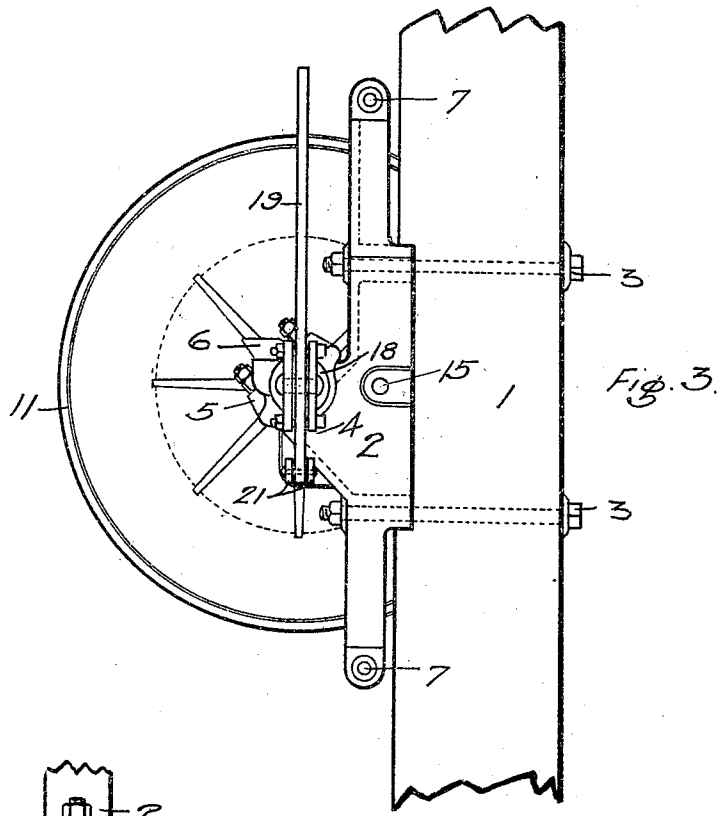

Fig. 3.

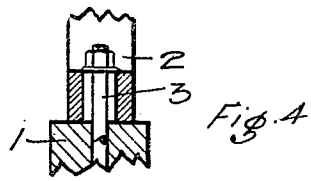

Fig. 4

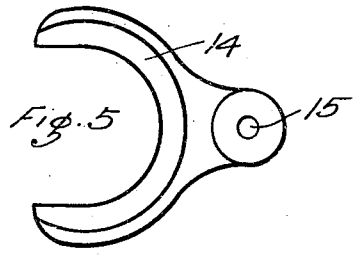

Fig. 5

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3 SHEETS—SHEET 3.

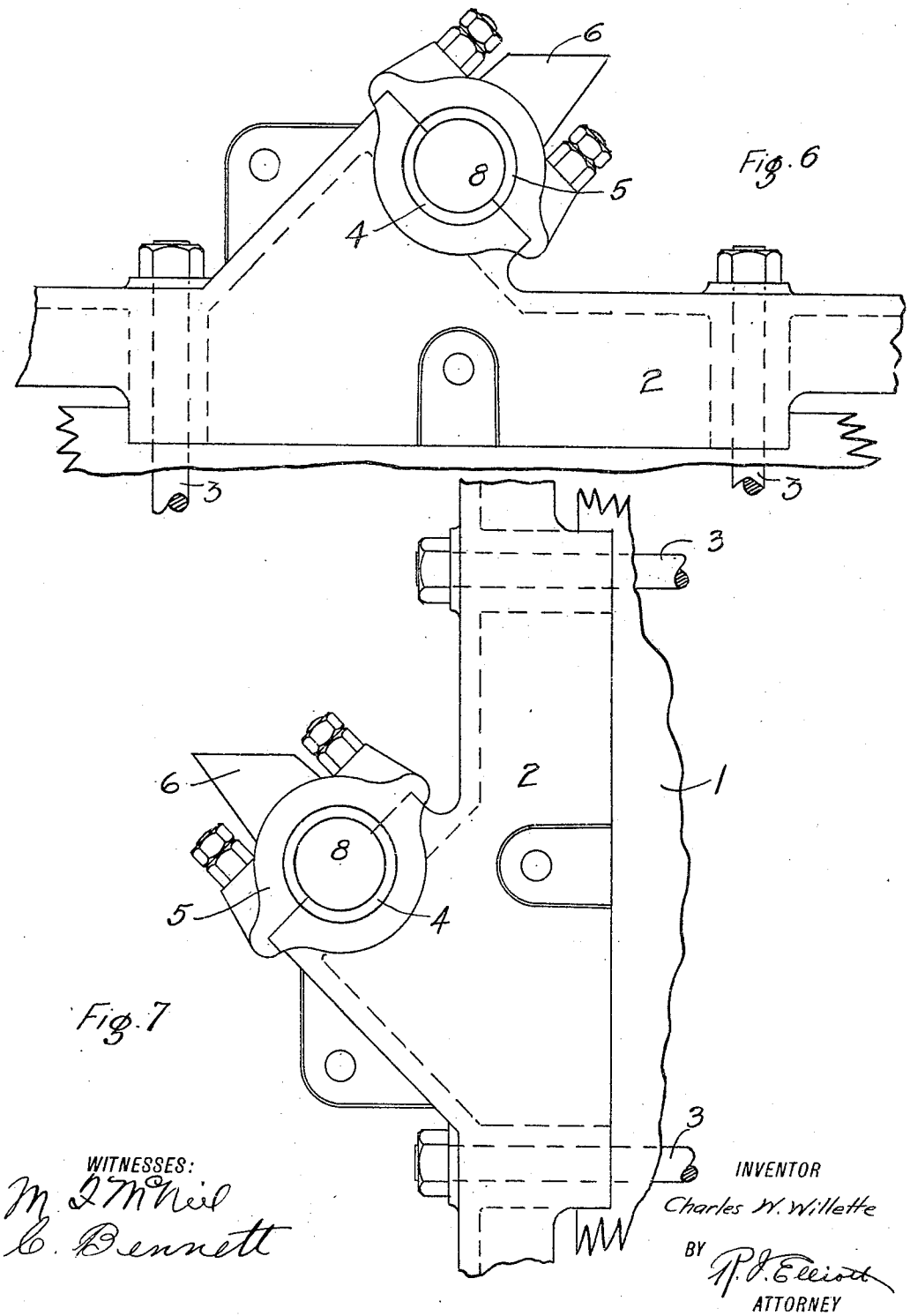

Fig. 6

Fig. 7

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UNITED STATES PATENT OFFICE.

CHARLES W. WILLETTE, OF SEATTLE, WASHINGTON.

DRIVING MECHANISM.

956,658. Specification of Letters Patent. Patented May 3, 1910.

Application filed October 19, 1909. Serial No. 523,520.

To all whom it may concern:

Be it known that I, CHARLES W. WILLETTE, a citizen of the United States of America, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Driving Mechanism, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to mechanism for transmitting motion and has special reference to such mechanism in which either of two opposite rotations may be transmitted.

The objects of my invention are to provide such reversible mechanism in compact form; so that it can be used either on a horizontal bed or on vertical posts; which shall be adjustable to compensate for the wear of the parts; which can be operated from the right- or left-hand without requiring any change in the castings; and which is simple to make, easy to operate and effective in use. I attain these and other objects by the devices and mechanisms illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the complete mechanism; Fig. 2 is a bottom plan thereof; Fig. 3 is a side elevation thereof; Fig. 4 is a section showing the adjustable connection to the supporting frame; Fig. 5 is a side elevation of one of the holding forks; Fig. 6 is a side elevation of a part thereof showing the frame mounted horizontally and the bearing cap arranged to bring the rim of the oil cup horizontal; and Fig. 7 is a similar view showing the frame mounted vertically, as on a post, and the bearing cap arranged to bring the rim of the oil cup horizontal.

Similar numerals of reference refer to similar parts throughout the several views.

My invention is designed primarily for use in lumber mills to drive the series of carrying rollers, and is commonly known as a live-roll-drive. The arrangement of the parts as shown in the drawings is such as is used when the mechanism is mounted on vertical posts and is controlled from the right-hand side. The posts 1 are parallel and are properly spaced to receive the mechanism between them. On the face of each post 1 is secured a casting 2 by means of bolts 3 which pass through the posts 1 and through the crosswise elongated holes in the castings 2. The posts 1 are suitably notched to receive the castings 2 and to allow a transverse adjustment thereof thereon. The two castings 2 are similar in all respects and are interchangeable. On each casting 2 is formed a bearing 4 for the shaft of the mechanism, said bearing having a removable cap 5 thereon. The plane of division between the bearing 4 and cap 5 is made at an angle of 45 degrees with the base of the casting 2, and the top of the oil receptacle 6 on the cap 5 is formed on a similar angle to the base (or plane of division between the bearing 4 and the cap 5) of the cap 5. The cap 5 is reversible so that the top of the oil receptacle 6 will either be parallel to (Fig. 6) or at right angles to (Fig. 7) the base of the casting 2 thus allowing the rim to be horizontal whether the castings are mounted horizontally or on posts as illustrated. The casting 2 extends in each direction along the axis of the post 1 a sufficient distance to allow the threaded connecting rods 7, which join the two castings 2, to pass on each side of the mechanism. These rods 7 are provided with suitable nuts thereon engaging each side of the castings 2 so that the distance between the said castings may be accurately adjusted. A shaft 8 is mounted horizontally in the bearings 4, so as to rotate therein and its longitudinal or transverse position and motion therein is controlled by the hereinafter described lever. A toothed sprocket wheel 9, or other suitable power transmitting means is secured to the center of said shaft 8 and is connected by the ordinary sprocket drive chains to the live rolls of the mill. On each side of the sprocket wheel 9 are keyed the conical friction wheels 10 arranged with their greater diameters adjacent to said sprocket wheel.

The power belt pulleys 11, which are loosely mounted on the shaft 8 on the outer sides of the two friction wheels 10, are driven in opposite directions by belts in the usual manner. The hubs 12 of the pulleys 11 are provided with ring slots 13 cut therein, near the outer ends thereof. The forks 14 are adjustably secured to the castings 2 by means of the threaded rods 15 with nuts on each side thereof, and extend from the said rods 15 into engagement with the slots 13 in the hubs, thus holding the pulleys 11 against any lateral motion without interfering with their free rotation. On the inner side of each pulley 11 is formed a conical friction cup 16 corresponding in size and form with the friction wheels 10 and being

adjacent thereto. The spacing between the two friction cups 16 is slightly greater than between corresponding parts of the two friction wheels 10 so that if the sprocket wheel 9 is central between the pulleys 11 the friction wheels 10 will not touch the friction cups 16 and yet if the sprocket wheel is shifted to one side or the other the friction wheel on that side will engage its friction cup and the shaft 8 will be driven by the pulley on that side through the friction cup and wheel. The shaft 8 extends through the bearings 4 and one end is provided with a series of rings 17 surrounded by a thrust box 18 filled with an antifriction metal. The thrust box 18 is provided with a pair of ears between which the operating lever 19 is pivoted. One end of the lever 19 is connected to the casting 2 by means of the bolt 20 and the links 21. The other end of the lever 19 may be engaged by any suitable operating connection. The holes in the casting 2 for the bolt 20 and for the rod 15 are equidistant from the center of the shaft 8 and can therefore be used by either the bolt or the rod according to whether the lever is to be vertical or horizontal.

It is evident that all the parts of the two sides of my device are duplicates and that by reversing the shaft, the lever may be placed on the other side of the mechanism. Further, any wear in the friction surfaces may be taken up either by adjusting the forks 14 or the connecting rods 7, and the amount of movement of the friction wheels can be adjusted in the same way.

Having described my invention, what I claim is:—

1. In a driving mechanism, the combination of a longitudinally adjustable rotatable shaft; a power transmitting sprocket wheel mounted thereon; friction wheels mounted on the shaft on each side of said sprocket wheel; two oppositely rotating drive pulleys loosely mounted on said shaft and having friction cups formed on their inner sides adjacent to and adapted to be engaged by said friction wheels; means for holding said pulleys against lateral movement; and means for moving said shaft in longitudinal direction to bring one or the other of said friction wheels into or out of engagement with the corresponding friction cup.

2. In a driving mechanism, the combination with a fixed support; of a pair of castings adjustably mounted thereon; a pair of adjustable connecting rods joining said castings; a longitudinally adjustable rotatable shaft mounted in said castings; a power transmitting sprocket wheel mounted on said shaft; friction wheels mounted on the shaft on each side of said sprocket wheel; two oppositely rotating drive pulleys loosely mounted on said shaft and having friction cups formed on their inner sides adjacent to and adapted to be engaged by said friction wheels; means for holding said pulleys against lateral movement; and a lever pivoted to one of said castings and engaging the shaft whereby the longitudinal position thereof relatively to said casting is controlled to bring one or the other of said friction wheels into or out of engagement with the corresponding friction cup.

3. In a driving mechanism, the combination with a fixed support; of a pair of parallel castings adjustably mounted thereon; a pair of adjustable connecting rods joining said castings; bearings formed on said castings and provided with reversible caps having receptacles for lubricants therein, said bearings and caps being divided in a plane at 45 degrees with the base of said castings; a longitudinally adjustable rotatable shaft mounted in said bearings; a power transmitting sprocket wheel centrally mounted on said shaft; friction wheels mounted on the shaft on each side of said sprocket wheel; two oppositely rotating drive pulleys loosely mounted on said shaft and having friction cups formed on their inner sides adjacent to and adapted to be engaged by said friction wheels; means for holding said pullleys against lateral movement; and a lever pivoted to one of said castings and engaging the shaft whereby the longitudinal position thereof relatively to said casting is controlled to bring one or the other of said friction wheels into or out of engagement with the corresponding friction cup.

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

CHARLES W. WILLETTE.

Witnesses:
H. B. SCHEITLIN,
J. DIERNING.