No. 697,094. Patented Apr. 8, 1902.

J. LINTON.

MACHINE FOR GRINDING CALENDER ROLLS.

(Application filed Dec. 18, 1901.)

(No Model.) 2 Sheets—Sheet 1.

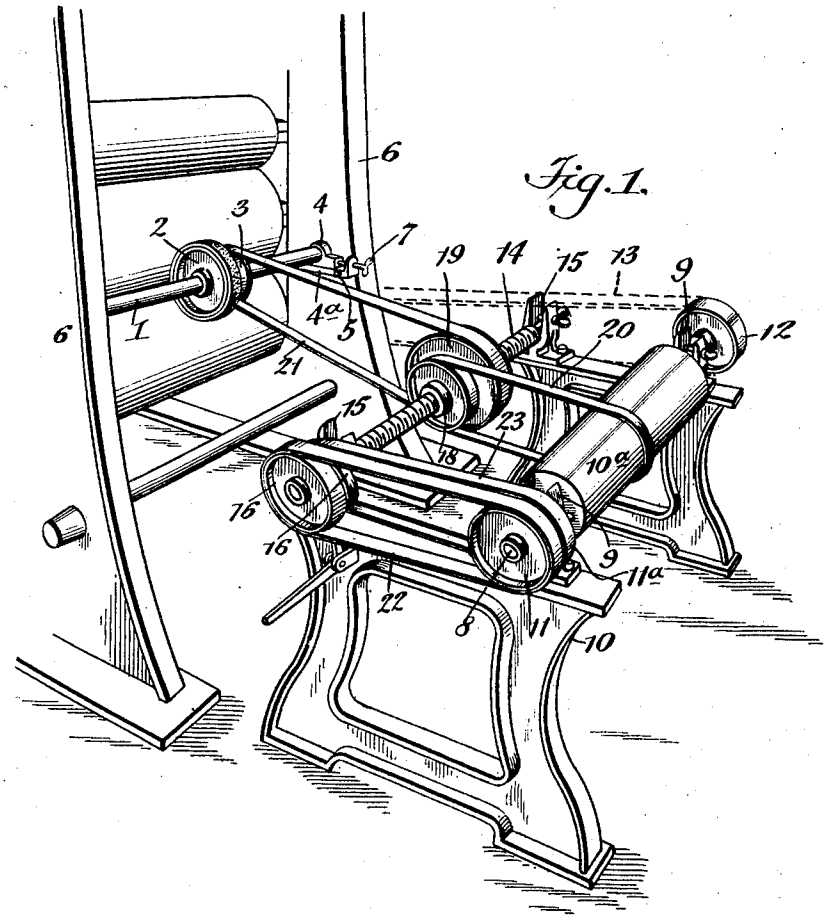


Fig. 1.

WITNESSES:

A. Applemann Jr.

Hartwell P. Heath

INVENTOR

Joseph Linton,

BY J. R. Littell

his ATTORNEY

No. 697,094. Patented Apr. 8, 1902.

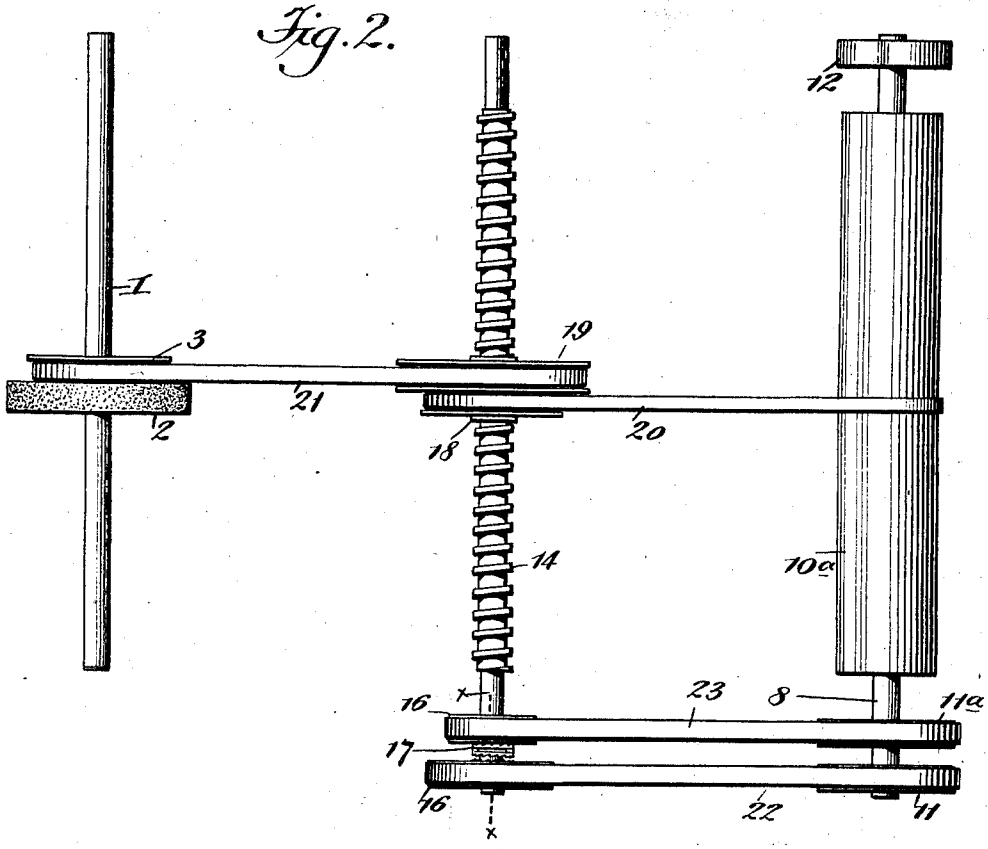
J. LINTON.

MACHINE FOR GRINDING CALENDER ROLLS.

(Application filed Dec. 18, 1901.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.



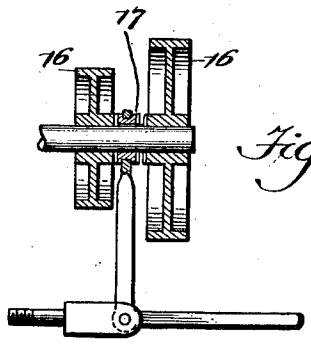


Fig. 3.

WITNESSES:

A. R. Spangenberg

Hartwell P. Heath

INVENTOR

Joseph Linton,

BY

J. R. Littell

his ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH LINTON, OF MANCHESTER, VIRGINIA.

MACHINE FOR GRINDING CALENDER-ROLLS.

SPECIFICATION forming part of Letters Patent No. 697,094, dated April 8, 1902.

Application filed December 18, 1901. Serial No. 86,410. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LINTON, a citizen of the United States, residing at Manchester, in the county of Chesterfield and State of Virginia, have invented certain new and useful Improvements in Machines for Grinding Calender-Rolls, of which the following is a specification.

This invention relates to a machine for grinding calender-rolls, and has for its object to provide an improved device of the class described which will possess advantage in point of convenience, simplicity, inexpensiveness, effectiveness, and general efficiency.

Another object of my invention is to provide an improved device of the class described by which calender-rolls can be quickly and conveniently ground for the purpose of accurately truing them.

Another object of my invention is to provide an improved device of the class described which can be readily set up and disposed in operative position to enable the calender-rolls to be ground and trued without removing the rolls from their bearings.

In the drawings, Figure 1 is a perspective view of a calender-roll-grinding machine embodying my improvement, showing the same in operative position on one of a set of calender-rolls. Fig. 2 is a plan view of the same. Fig. 3 is a sectional view on the line x x, Fig. 2.

Corresponding parts in all the figures are denoted by the same reference characters.

This invention is an improvement on that for which Letters Patent of the United States No. 678,961 were granted to me July 23, 1901, for a machine for grinding calender-rolls, and comprises, in general, a driven drum, a straight shaft adapted to be mounted in bearings upon the calender-roll frame, a grinding-wheel slidably mounted on said straight shaft and carrying a pulley, a screw-threaded shaft mounted between the drum and the straight shaft, a large and small pulley connected together and mounted on a sleeve screw-threaded complementary to said screw-shaft, belts connecting with said drum and said smaller screw-shaft pulley and said larger screw-shaft pulley and the grinding-wheel pulley, pulleys of different sizes loosely mounted on the end of the screw-shaft, means for connecting such pulleys with their shaft, and belts connecting such pulleys with driving-pulleys.

In the form shown in the drawings, and which if desired may be the preferred form, my invention comprises a straight shaft 1, upon which a wheel 2, provided with a grinding-surface on its periphery, is loosely mounted and adapted to be moved back and forth along the shaft. Suitable means for revolving said grinding-wheel 2 are provided, which are herein shown as a pulley 3, also loosely mounted on the shaft 1 and secured to said grinding-wheel 2. The shaft 1 is adapted to be disposed parallel with the calender-roll to be trued and is supported and journaled in bearing-blocks 4, adapted to travel on cleats 4^a, which are secured in any suitable manner, herein shown as bolts 5, to the inner sides of the standards 6 of the frame in which the calender-rolls are mounted. The bearing-blocks 4 are provided with suitable means of adjustment, herein shown as screws 7, to cause the grinding-wheel to engage the face of the roll.

Suitable means for causing the grinding-wheel to revolve and move back and forth on the shaft 1 are provided. A convenient form of such means is herein shown and consists of a counter-shaft 8, journaled in bearings 9 on a frame 10 and carrying a cylindrical drum 10^a. Such shaft 8 is provided at one end with pulleys 11 and 11^a and at the other end with a power-pulley 12, driven by a power-belt 13 of the usual form, which derives its power from the lower roll. A screw-threaded shaft 14 is journaled in bearings 15 on the frame 10 between the drum 10^a and the shaft 1 and provided at one end with loose pulleys 16. Suitable means of making said loose pulleys 16 fast on the shaft 14 are furnished and herein shown as a clutch 17, located between the loose pulleys 16. A sleeve 18, interiorly screw-threaded complementary to the shaft 14, is mounted on the shaft 14, and a double pulley 19, one part of which is of greater diameter than the other, secured on said sleeve 18. An endless belt 20 connects the drum 10^a and the part of the double pulley 19 of the smaller diameter, and an endless belt 21 connects the part of the double pulley 19 of the larger diameter and the pulley 3, connected with the grinding-wheel 2. An endless belt

22 connects the pulley 11 and the loose pulley 16, and a belt 23 connects the pulley 11^a and the other loose pulley 16. By making the loose pulleys 16 of different diameters, the pulleys 11 and 11^a being of the same diameter, the screw-shaft 14 may be revolved at different velocities, accordingly as the larger or smaller of the pulleys 16 is used.

The operation and advantages of my invention will be readily understood and appreciated.

The drum 10^a, driven by the power-belt 13 through the power-pulley 12, drives the double pulley 19, which, through the belt 21, drives the pulley 3, connected with the grinding-wheel 2. At the same time, if it is desired to have the grinding-wheel 2 move along the shaft 1, and consequently along the face of the roll being ground, the clutch 17 is thrown into engagement either with the larger or smaller of the pulleys 16 as a slow or fast movement is required. To reverse the movement of the screw-shaft 14 and cause the grinding-wheel 2 to move back along the shaft 1, it is only necessary to throw the clutch 17 into engagement with the smaller pulley 16, when the screw-shaft 14 will be turned faster than the sleeve 18 and the latter moved back along the screw-shaft 14, carrying the double pulley 19 with it and causing the grinding-wheel 2 to move back along the shaft 1. It is evident that by causing the grinding-wheel 2 to rotate and at the same time to travel lengthwise on the shaft 1, the grinding-face of the grinding-wheel 2 being in engagement with the roll to be ground, the grinding-wheel 2 by its rotation and its longitudinal movement on the shaft 1 will grind the roll evenly and keep the same in true cylindrical form.

My invention can be used to grind the rolls without removing them from the frame in which they are mounted, whereby loss of time, trouble, and expense are saved.

I do not desire to be understood as limiting myself to the details of construction and arrangement as herein described and illustrated, as it is manifest that variations and modifications may be made in the features of construction and arrangement in the adaptation of the device to various conditions of use without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variation and modification as properly fall within the scope of my invention and the terms of the following claims.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In a machine of the class described, the combination of a shaft adapted to be adjustably mounted on the frame carrying the calender-rolls, a grinding-wheel on and adapted to travel from end to end of said shaft, a shaft provided with a screw-thread, a sleeve carried by said screw-threaded shaft, pulleys carried by said sleeve, and means for rotating said screw-threaded shaft in either direction and for rotating said sleeve-pulleys and said grinding-wheel.

2. In a machine of the class described, the combination of a shaft adapted to be adjustably mounted on the frame carrying the calender-rolls, a grinding-wheel on and adapted to travel from end to end of said shaft, a shaft provided with a screw-thread, a sleeve carried by said screw-threaded shaft, pulleys carried by said sleeve, a shaft carrying a drum and pulleys, loose pulleys on the end of the screw-threaded shaft, belts connecting said drum and said sleeve-pulleys and said sleeve-pulleys and said grinding-wheel and said drum-shaft pulleys and said loose pulleys, and means for making one of said loose pulleys fast.

3. In a machine of the class described, the combination of a shaft adapted to be adjustably mounted upon the frame carrying the calender-rolls, a grinding-wheel on and adapted to travel from end to end of said shaft, a shaft provided with a screw-thread and with loose pulleys, a clutch between the loose pulleys adapted to make one of such pulleys fast, a sleeve carried by said screw-threaded shaft, pulleys carried by said sleeve, and means for driving said screw-threaded shaft, the pulleys carried by the sleeve and grinding-wheel.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

JOSEPH LINTON.

Witnesses:
WALLACE F. BROWN,
MARK R. LLOYD.