

No. 636,174.

Patented Oct. 31, 1899.

J. D. PICKLES.
MACHINE FOR DRYING PAPER, &c.

(Application filed June 6, 1899.)

(No Model.)

2 Sheets—Sheet 1.

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

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Fig. 2.

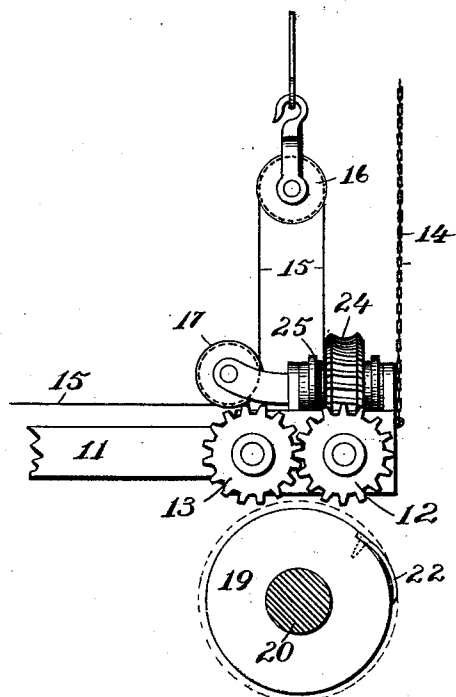
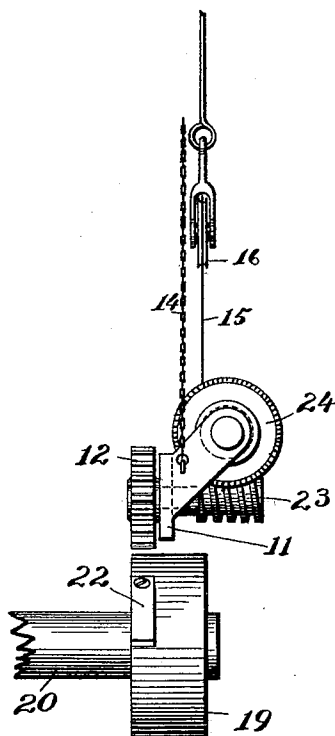


Fig. 3.



Witnesses

Percy C. Bowen
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Inventor

James D. Pickles
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UNITED STATES PATENT OFFICE.

JAMES DEMAINE PICKLES, OF DARWEN, ENGLAND.

MACHINE FOR DRYING PAPER, &c.

SPECIFICATION forming part of Letters Patent No. 636,174, dated October 31, 1899.

Application filed June 6, 1899. Serial No. 719,538. (No model.)

To all whom it may concern:

Be it known that I, JAMES DEMAINE PICKLES, a citizen of the United States of America, residing at Darwen, in the county of Lancaster, England, have invented a certain new and useful Improvement in or Relating to Machines for Drying Paper, Piece Goods, and the Like, of which the following is a specification.

My invention relates to steam-cylinder drying-machines for drying paper and piece goods, the object being to utilize the contraction or expansion of the paper or piece to operate through the movements of a tension roller mechanism, whereby the steam-valve may be operated so as to give a greater or less steam-supply, according to requirements.

Reference is had to the accompanying drawings, in which the same parts are designated by the same letters and figures of reference throughout the several views.

Figure 1 is an elevation of part of three steam drying-cylinders with my improvements applied thereto. Fig. 2 is an elevation of the mechanism for winding up the cord looking at the opposite side to that seen in Fig. 1, and Fig. 3 is an elevation of the same looking at the right-hand end of Fig. 2.

A, B, and C are the drying-cylinders, and D the line of paper or piece to be dried.

At 1 is a shaft extending across the machine and in front of the drying-cylinder A. On ends of the said shaft 1 is a bell-crank lever 3. The horizontal arm 4 of one of such levers has at its outer end a quadrant 5, from which hangs a strap 6, carrying balance-weights 7. The other arm of the bell-crank 3 is downward or pendent and carries one end of a tension or guide roller 8. The lower part of the arm of the lever 9 is attached by a pin or stud 10 to one end of a horizontal swing-bar 11, having two gear-wheels 12 13 meshing together, while the outer end of the said bar is supported by an adjustable swing rod or chain 14. A worm 23 is secured to the shaft of the gear-wheel 12 and meshes with a worm-wheel 24, mounted on the bar 11 and having a drum 25 secured thereto. A cord 15 is secured to and wound upon the drum 25 and passes over the pulleys 16 and 17, having its other end secured to a stud 26. The pulley 16 is connected by any suitable means,

such as shown at 16', with the steam-valve 18, which is held normally open by a weight 18' or other suitable means, and the connections are so arranged that when the cord 15 is wound upon the drum 25 it will pull upon the pulley 16 and through the connection 16' close the valve 18. At 19 is the boss of the axle 20 of the cylinder B. In or attached to the boss 19 is a projecting or tappet piece 22, usually leather, which so long as the position of the gear-wheels 12 13 is normal, as shown in Fig. 2, will pass the said gear-wheels without contact; but should the lever-arm 9 be moved either toward or away from the boss 19 one or the other of the wheels 12 or 13 will be brought into contact with the tappet-piece 22 and be rotated thereby, causing the rotation of the worm 23, worm-wheel 24, and drum 25 and winding or unwinding the cord 15. When the cord 15 is wound upon the drum 25 it will, through the pulley 16 and connection 16', pull upon the valve 18 to close the latter, thus decreasing the steam-supply, and when the cord 15 is unwound from the drum 25 it will allow the said valve 18 to open by reason of the spring or other means for holding the said valve open.

As the material during the process of drying expands or contracts it will act upon the roller 8 to cause the lever 9 to move in the proper direction to decrease or increase the steam-supply, as may be required.

A handle 27 is pivotally connected to the lever 9, as at 28, the said handle having a notch 29 therein, which may engage with the stud 26 when the handle is pulled sufficiently far in that direction. The effect of this is to pull down the cord 15 and entirely close the steam-valve 18.

The projection or tappet-piece 22 may consist of one wiper, as shown, or two or more of such tappets may be employed in order to adjust the inequalities at less intervals of time than one complete revolution of the boss 19.

What I claim is—

1. In a machine of the character described, the combination with a bell-crank lever, a tension-roller journaled in the said bell-crank lever, a bar secured to one arm of the said lever, gear-wheels carried by the said bar and meshing with each other, and a tap-

pet for turning one or the other of the said gear-wheels; of a cord secured to the frame of the machine, and passing over pulleys connected with a valve, the said cord being connected with the said gear-wheels to be wound or unwound thereby; substantially as described.

2. In a machine of the character described, the combination with a bell-crank lever, a tension-roller journaled in the said bell-crank lever, a bar secured to one arm of the said lever, gear-wheels carried by the said bar and meshing with each other, a worm on the shaft of one of the said gear-wheels, a worm-wheel mounted on the said bar and meshing with the said worm, and means for turning the said gear-wheels at intervals; of a cord secured to the frame of the machine and passing over pulleys connected with a valve, the said cord being connected with the said worm-wheel to be wound or unwound thereby; substantially as described.

3. In machines for purpose aforesaid the use in combination of the gear-wheels 12, 13 operated by a wiper or tappet-piece such as 22 said wheels operating the worm 23 worm-wheel 24 and cords 15 connected with the steam-valve lever as described and illustrated.

4. In a machine of the character described, the combination with a boss secured to one of the moving shafts of the machine, and a tappet upon the said boss; of a bar supported above the said boss and adapted to be moved by the drying material, gear-wheels

mounted on the said bar, meshing with each other, and adapted to be brought into contact with the said tappet by the movement of the said bar, and a cord secured to the frame of the machine and arranged to be wound or unwound by the rotation of the said gear-wheels, the said cord being connected with a valve to regulate the supply of steam; substantially as described.

5. In a machine of the character described, the combination with a boss secured to one of the moving shafts of the machine, and a tappet upon the said boss; of a bar supported above the said boss and adapted to be moved by the drying material, gear-wheels mounted on the said arm, meshing with each other, and adapted to be brought into contact with the said tappet by the movement of the said bar, a worm on the shaft of one of the said gear-wheels, a worm-wheel also mounted on the said bar and meshing with the said worm, and a cord secured to the frame of the machine and arranged to be wound or unwound by the rotation of the said worm-wheel, the said cord being connected with a valve to regulate the supply of steam; substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES DEMAINE PICKLES.

Witnesses:

J. B. HOWARD,
GERVASE APPLEYARD.