

A. B. BENSON.
 DRYING MACHINE.
 APPLICATION FILED AUG. 23, 1912.

1,075,809.

Patented Oct. 14, 1913.

3 SHEETS—SHEET 1.

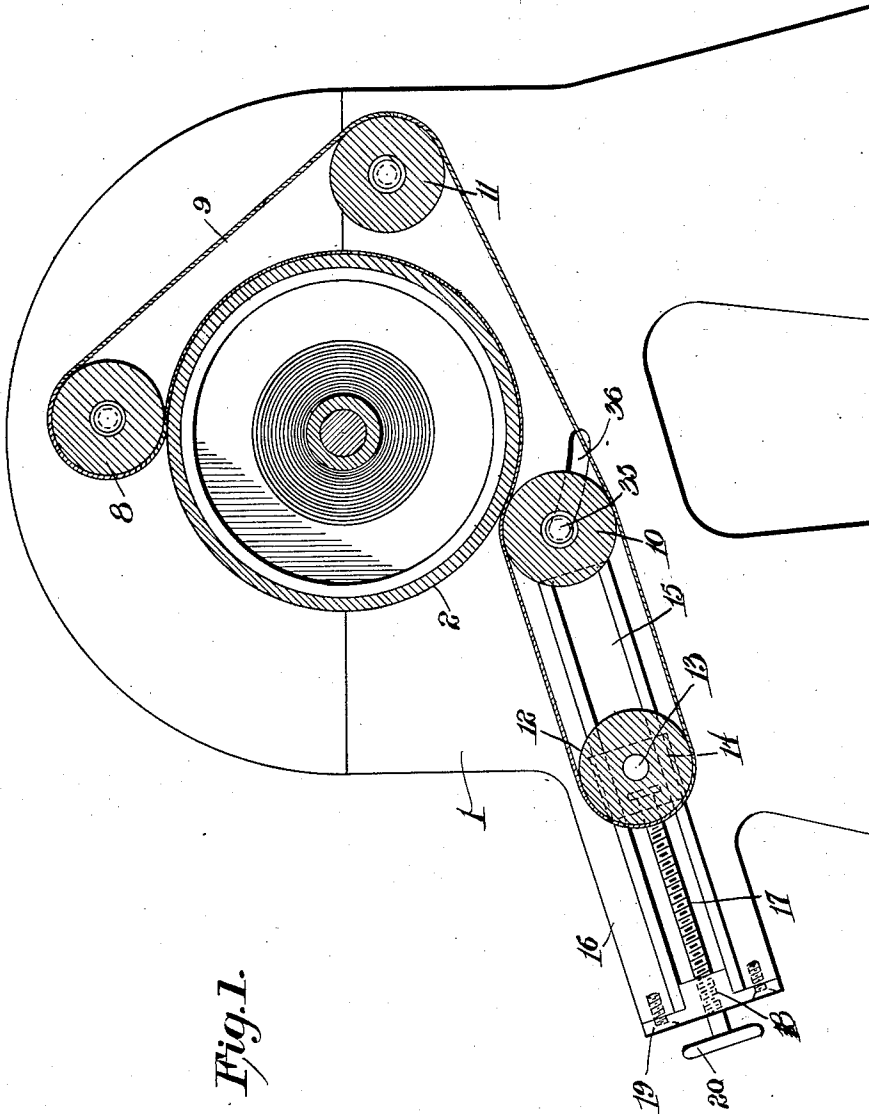


Fig. 1.

Witnesses

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3 SHEETS--SHEET 2.

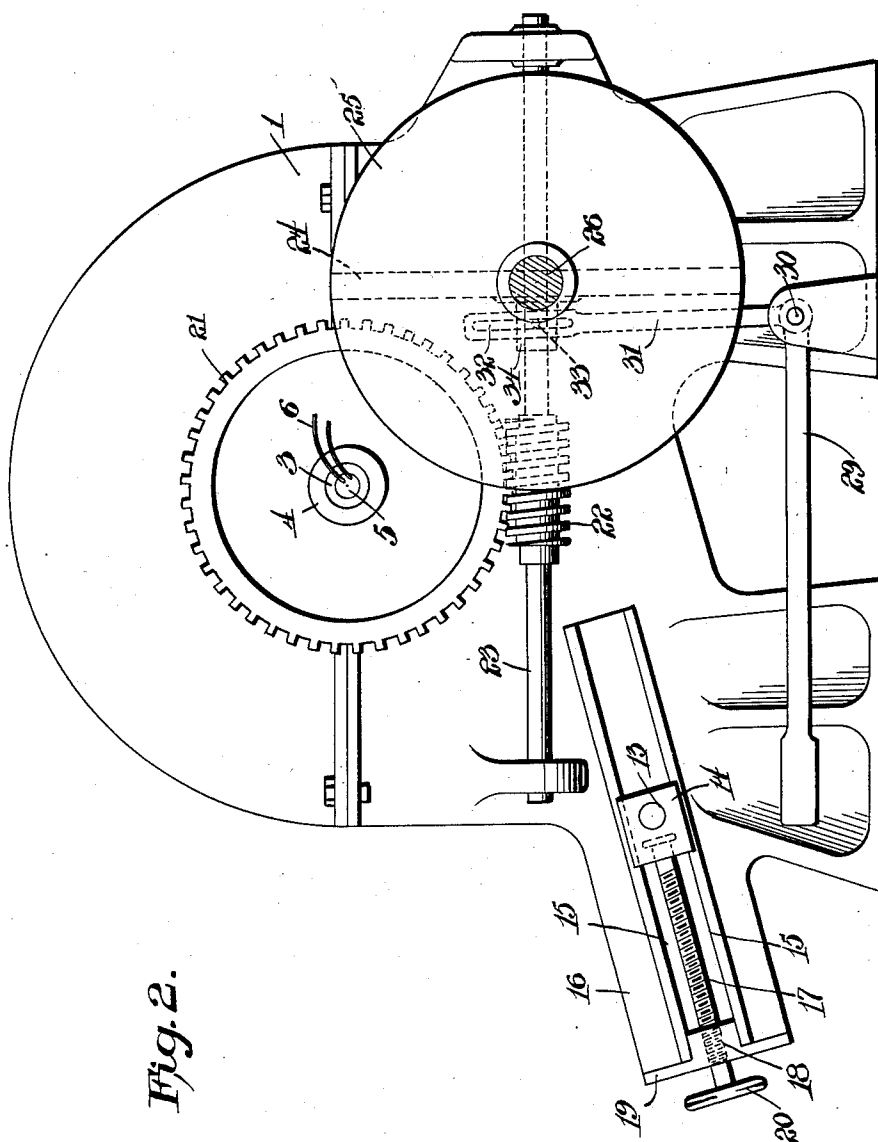


Fig. 2.

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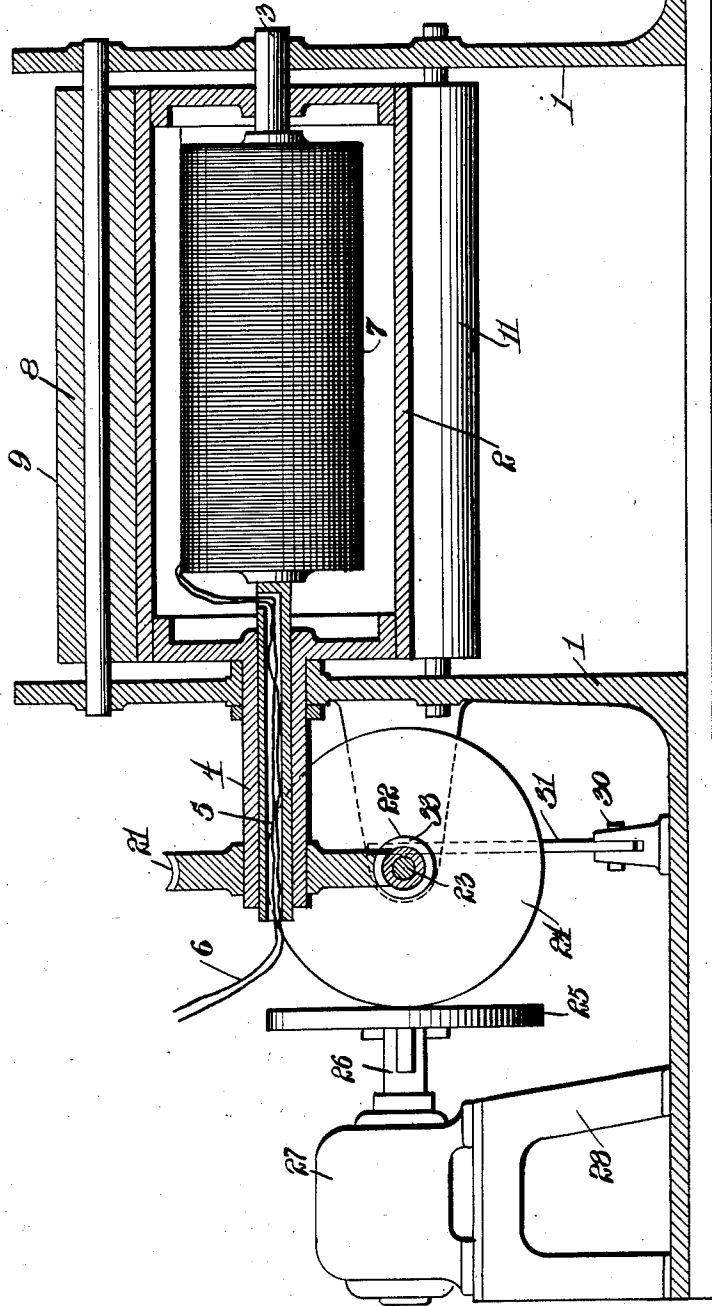
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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DRYING-MACHINE.

1,075,809.

Specification of Letters Patent.

Patented Oct. 14, 1913.

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To all whom it may concern:

Be it known that I, ARTHUR B. BENSON, a citizen of the United States, residing at Woodhaven, in the county of Queens and State of New York, have invented new and useful Improvements in Drying-Machines, of which the following is a specification.

This invention relates to drying machines, and is especially designed and constructed for the purpose of drying sheets of paper of various dimensions, such as blue-print paper, after the same has been washed or immersed in water, thereby avoiding the necessity of hanging up such articles as blue-prints and awaiting the tedious process of drying out.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a vertical longitudinal section through a drying machine, embodying the present invention. Fig. 2 is a side elevation of the same, showing the variable speed driving gear. Fig. 3 is a cross section taken at right angles to Fig. 1, showing the variable speed drive and the means for heating the drum; also the actuating motor.

The drying machine contemplated in this invention comprises a suitable frame, embodying oppositely located frame members 1 arranged at a suitable distance apart, and connected in any convenient manner to form a rigid supporting frame for the operative parts of the mechanism, hereinafter described.

In carrying out the invention, I employ a hollow drum 2 provided with a shaft 3 which is mounted in suitable bearings on the machine frame, one end of said shaft passing through a sleeve bearing 4, and being bored out longitudinally to provide a central longitudinal passage 5 for the reception of electrical conductors 6 which lead from a suitable source of electrical energy (not shown) to a resistance coil 7 mounted on the shaft 3 and contained within the hollow drum 2, as illustrated in Fig. 3.

Located above the drum 2 is a roller 8, around which passes an endless belt or apron 9 of canvas or other suitable textile material. At its opposite end, the belt 9 passes around

another roller 10 located under the drum 2, while located at a point intermediate the rollers 8 and 10 is another offsetting guide roller 11 which is arranged between the runs of the belt, so as to offset or hold off the return run of the apron, while allowing the other run to follow closely around the periphery of the cylinder 2, as clearly shown in Fig. 1. 12 designates another roller which is mounted on a shaft 13 journaled in runners 14 which are movable back and forth in a rectilinear path in parallel guides 15 at the inner sides of extensions 16 of the machine frame. The runners or traveler blocks 14 are adjustable lengthwise of the guides 15 by means of one or more adjusting screws 17 which have a swiveled connection at their inner ends with the runners 14, and a threaded engagement at 18 with a cross bar 19 connecting the outer extremity of the extensions 16 of the machine frame. The screw 18 is provided with a suitable hand wheel or operating device 20 to assist in turning the same by hand. The belt or apron 9 also passes around the roller 12, so it will be seen that by adjusting the runners 14, just hereinabove described, said belt or apron may be placed under the necessary tension to cause the wet sheets to hug closely to the heating cylinder 2.

Any suitable speed may be imparted to the heating cylinder by the mechanism now to be described.

The sleeve 4 which is fast to the drum 2 is provided on its outer end with a worm wheel 21 which meshes with and is driven by a worm 22 on a counter shaft 23 extending at right angles to the axis of the heating drum, as shown in Fig. 2. Feathered to slide on the same shaft 23 there is a friction wheel 24, and coöperating with a wheel 24 is another friction wheel or disk 25 which is fast on an armature shaft 26 of an electric motor 27 mounted upon a suitable supporting stand 28.

29 designates a manually operated lever, preferably arranged to be operated by the foot of the attendant, said lever being fulcrumed at 30 and provided with a worm 31 having a slotted end portion, as shown at 32, to engage a pin 33 on the hub 34 of the friction wheel or disk 24. Thus the operator may shift the wheel 24 longitudinally of the shaft 23 to change the relation between the disks or wheels 24 and 25, thereby varying, to the desired extent, the relative speed

between the shaft of the motor 27 and the heating drum of the drying machine.

The shaft 35 of the roller 10 may, if desired, be mounted to travel back and forth in arcuate slots 36 in the frame of the machine, the slots 36 being so arranged as to maintain a close relationship between the roller 10 and the periphery of the drum 2. This insures the close application of the wet sheets to the heated surface of the drum, as they are carried around between the belt and the drum.

The wet sheets are fed in at or near the bottom of the heating drum, so as to enter between the said heating drum and the underlying apron or belt, and are delivered in a dry condition at the top of the heating drum, the speed of which is capable of being regulated by the variable speed driving mechanism, hereinabove particularly described.

While the machine hereinabove described is especially designed for drying out blueprints, it will be understood that the machine may be used for various other purposes, which will suggest themselves to the manufacturer.

What is claimed is:

1. A drying machine of the class described, comprising a rotary heating drum,

a frame provided with curved slots concentric to the axis of the heating drum, an endless carrying belt passing partially around said drum in contact therewith, end rollers around which said belt passes, means for adjusting one of said rollers to stretch the belt, and an intermediate belt directing roller arranged between the runs of the belt and having the shaft thereof mounted in said curved slots in the frame.

2. A drying machine of the class described, comprising a frame, a rotary heating drum, an endless carrying belt passing partially around said drum in contact therewith, means for stretching said belt, a worm shaft geared to said drum, a friction wheel feathered to said shaft and shiftable lengthwise thereof, a motor actuated friction disk in driving engagement with said friction wheel, and a manually controlled operating lever for shifting the friction wheel across the face of the friction driving disk.

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

ARTHUR B. BENSON.

Witnesses:

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J. C. WALKER.