

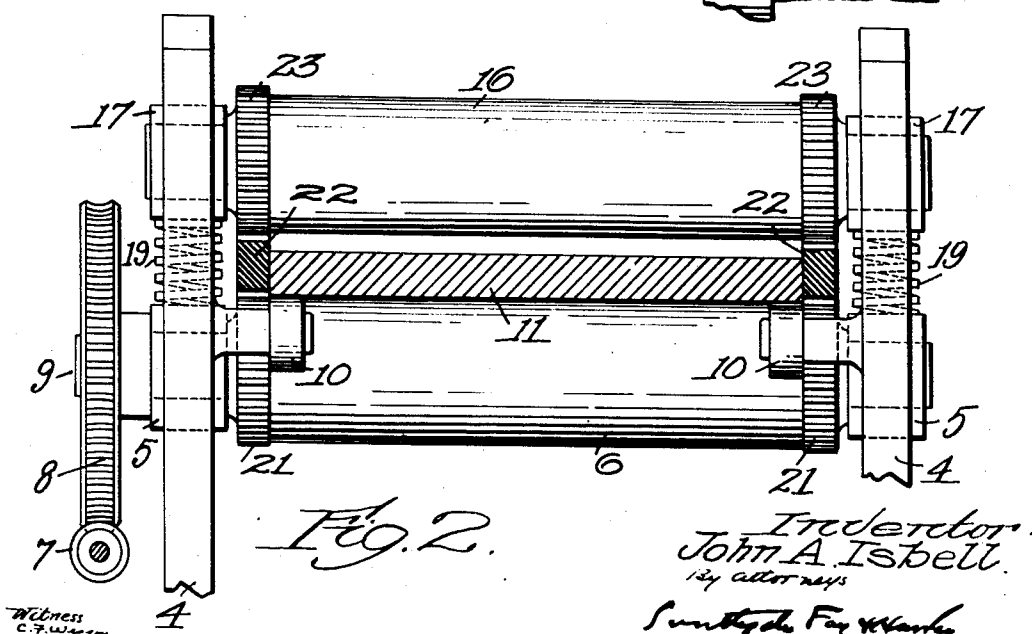
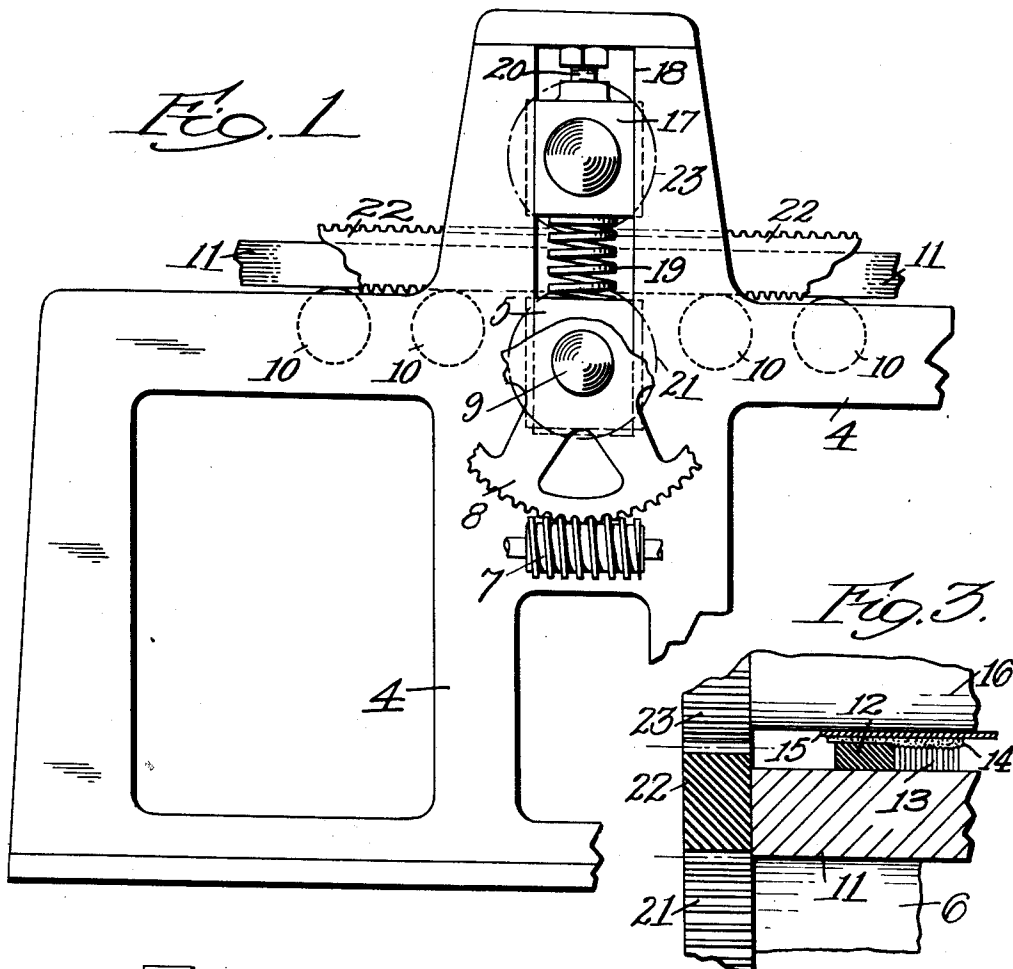
Oct. 3, 1933.

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1,929,068

MATRIX ROLLER

Filed Oct. 31, 1932



UNITED STATES PATENT OFFICE

1,929,068

MATRIX ROLLER

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Application October 31, 1932. Serial No. 640,364

7 Claims. (Cl. 101—12)

This invention relates to the type of rolling machine for molding stereotype matrices in which a form is placed on a bed carrying type over which the matrix is placed and a molding blanket. The bed is moved under a roller which thereby exerts pressure on the molding blanket and matrix to give the latter an impression from the type.

The principal objects of this invention are to provide an arrangement and method by which the details will be much better reproduced in the matrix than has been the case heretofore and to provide a means by which the matrix will shrink more than has been customary, thereby giving a narrower resultant plate. This latter advantage permits the use of a narrower web in printing, thereby resulting in a considerable saving of money over a period of time.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing, in which

Fig. 1 is a side view of a matrix molding machine constructed in accordance with this invention;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1, and

Fig. 3 is a similar sectional view on enlarged scale showing the form and matrix in position to be operated upon.

Matrix rolling machines of this general type usually comprise a platen or bed for supporting a form of type and a pressure roller for forcing the matrix against the type to obtain an impression. A drive is provided for the platen and pressure roll so that they travel at the same surface speed.

Heretofore in order to obtain a large shrinkage in the mat the moisture content thereof has been increased but with the higher percentages of moisture difficulties have been encountered in the buckling and blistering of the matrix and shrinkages cannot be depended upon to be uniform. By this invention both these difficulties are overcome.

The machine is shown as comprising a frame 4 on which are carried stationary bearings 5 for the shaft 9 of a supporting cylinder 6, these bearings being fixed to the frame. The power is received from any desired source through a worm 7, operating the worm wheel 8 on the shaft 9 of the supporting cylinder.

Also mounted on projections extending inwardly from the opposite sides of the frames are supporting rolls 10 on which the bed 11 is reciprocally carried. This bed is designed to support

the form 12 carrying the type 13. The matrix 14 is placed on the top of the type and form and a blanket 15 above that. The operation is to operate the supporting cylinder 6 to carry the bed 11 and the form arranged under a pressure roller 16. Pressure is thus imparted to the blanket and matrix to impress the matrix into the type.

The pressure roller 16 is supported in bearings 17 through its shaft. These bearings are mounted in vertical guides 18 in the frame and can move up and down. Springs 19 hold them up and adjusting screws or jacks 20 force them down. In this way the desired amount of pressure on the matrix can be provided for.

The rest of the operating mechanism comprises a pair of gears 21 on the ends of the supporting cylinder 6 having a pitch diameter equal to the diameter of that cylinder. This gear meshes with racks 22 secured to the bed and extending downwardly. Therefore the rotation of this cylinder 6 will move the bed back and forth in the usual manner.

On the top of the racks 22 are upwardly projecting teeth forming racks and they mesh with a pair of gears 23 on the ends of the shaft of the pressure roller 16. These gears have a pitch diameter larger than the diameter of the roller 16. The result of this arrangement is that the rack 22 and bed 11 move forward or backward at the same surface speed as the supporting cylinder 6 but the pressure roller 16 moves at a surface speed slower than that of the bed 11.

It has been found in practice that this slower speed of the surface of the pressure roller, which bears directly on the blanket, reproduces the details in the matrix in a much finer and more accurate manner than has been the case heretofore. It is also found that with this slower motion the matrix shrinks more, with the same amount of moisture in it, than has been the case before. These two advantages are secured in this simple way.

Although I have illustrated and described only one form of the invention I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited in this respect otherwise than as set forth in the claims but what I do claim is:—

1. In a matrix rolling machine, the combination with a bed and means for moving the bed longitudinally, said bed being adapted to support a moulding form and matrix, of a pressure roller

and means for rotating the pressure roller at a surface speed slower than that of the bed and form.

2. In a matrix rolling machine, the combination with a movable bed and anti-friction means for supporting it to move in a horizontal plane, of means for moving said bed over its supporting means, a pressure roller above the bed for engaging the blanket on the type form carried by the bed, and means for rotating said pressure roller at a surface speed slightly slower than that of the bed.

3. In a matrix rolling machine, the combination with a frame and supporting roll carried in a straight line by said frame, of a bed reciprocally supported thereby, a rack fixed to the bed and having upwardly extending teeth, a pressure roller mounted in adjustable bearings and having a gear thereon, the pitch diameter of which is larger than the diameter of the pressure roller and meshing with said upwardly extending teeth, whereby the reciprocation of the bed on its support will rotate the pressure roller at a surface speed slower than that of the bed.

4. In a matrix rolling machine, the combination with a frame and supporting rollers carried in a straight line by said frame, of a bed supported thereby, a supporting cylinder located in bearings fixed on said frame, means for rotating said cylinder in one direction or the other, a gear on the cylinder having a pitch diameter equal to the diameter of the cylinder, a rack fixed to the bed and having downwardly extending teeth meshing with said gear, a pressure roller above the bed, and means whereby the rota-

tion of the supporting cylinder will move the bed on its supports and rotate the pressure roller at a surface speed slower than that of the bed.

5. In a matrix rolling machine, the combination with a frame and supporting rollers carried in a straight line by said frame, of a bed supported thereby, a supporting cylinder located in bearings fixed on said frame, means for rotating said cylinder in one direction or the other, a gear on the cylinder having a pitch diameter equal to the diameter of the cylinder, a rack fixed to the bed and having downwardly extending teeth meshing with said gear and upwardly extending teeth, a pressure roller mounted in adjustable bearings and having a gear thereon, the pitch diameter of which is larger than the diameter of the pressure roller and meshing with said upwardly extending teeth whereby the rotation of the supporting cylinder will move the bed on its supports and rotate the pressure roller at a surface speed slower than that of the bed.

6. In a matrix molding machine, the combination with a movable bed for supporting the form and matrix, and means for moving the bed, of a movable pressure member above the bed and means for moving said pressure member in the same direction as the bed but at a slower surface speed.

7. The method of molding matrices which consists in moving a form with a matrix thereon and simultaneously moving in the same direction a pressure member in contact with the matrix but at a slower surface speed.

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