

Aug. 10, 1926.

1,595,534

W. W. WONNER

PHOTOGRAPHIC PRINTING PRESS

Filed April 15, 1925

2 Sheets-Sheet 1

Fig. 1.

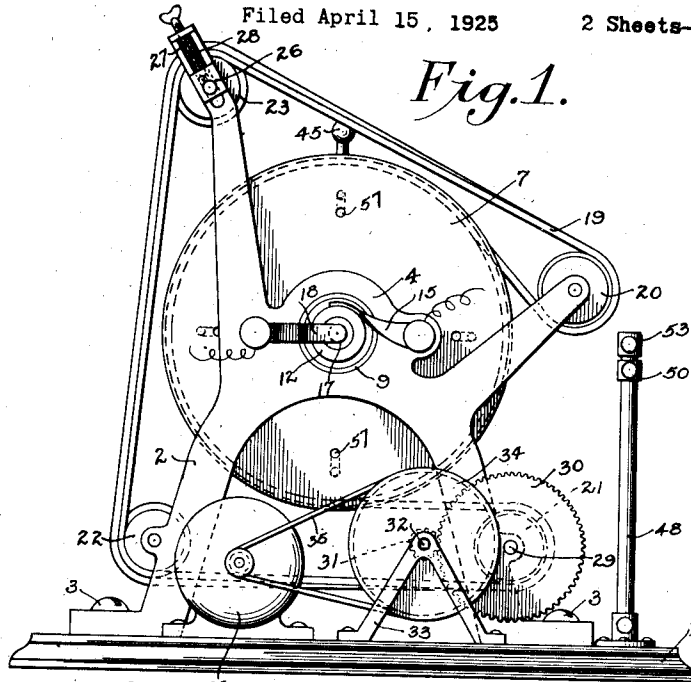
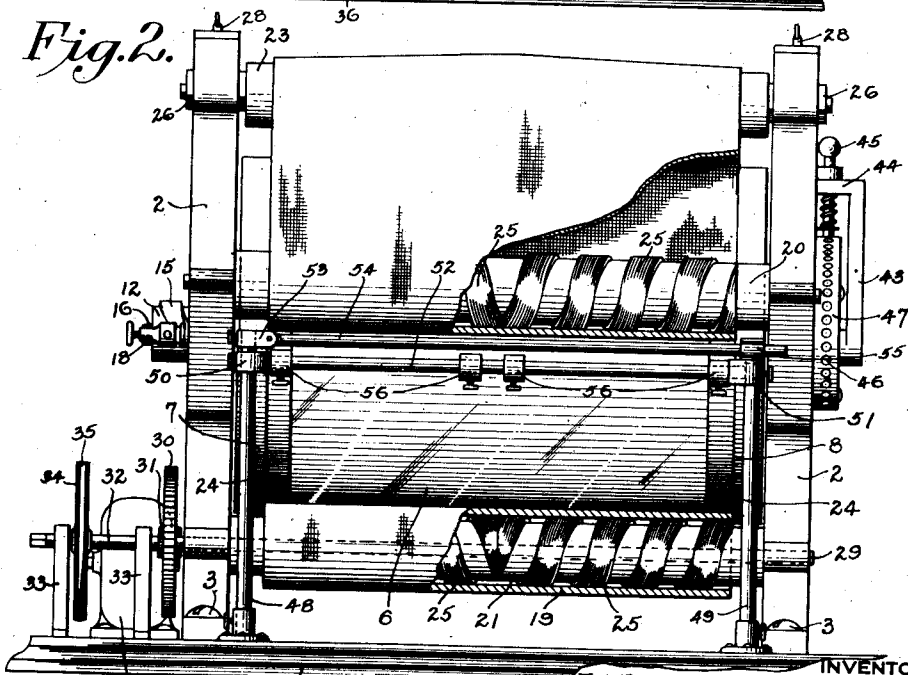


Fig. 2.



WITNESSES

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Fig. 7.

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Fig. 3.

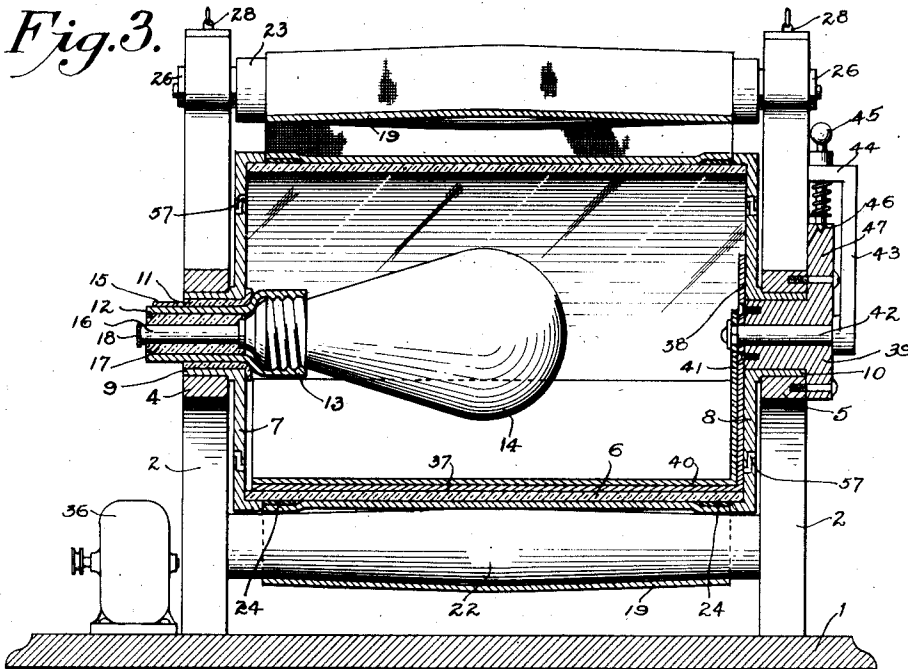


Fig. 4.

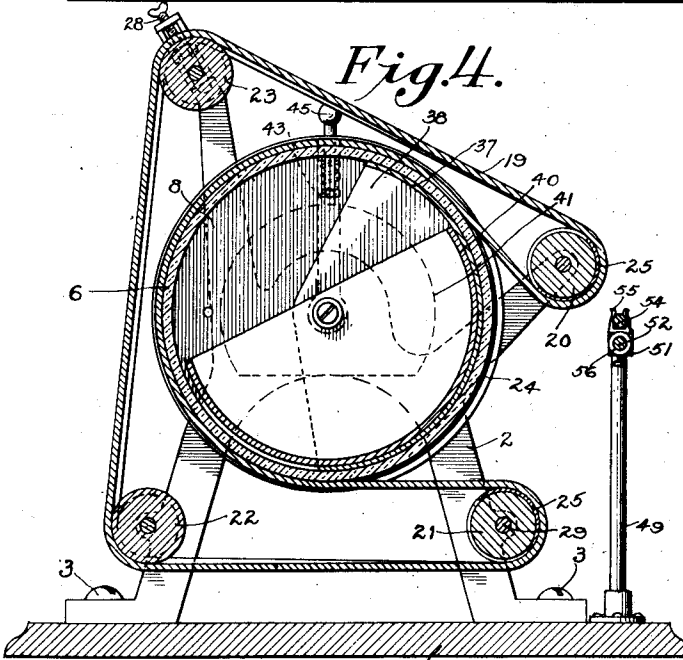


Fig. 5.

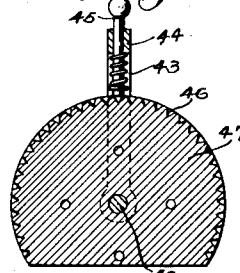
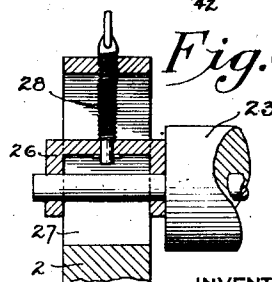


Fig. 6.



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PHOTOGRAPHIC-PRINTING PRESS.

Application filed April 15, 1925. Serial No. 23,308.

This invention relates to a photographic printing press, in which the sensitized paper with the film superposed is passed about a rotatable transparent cylinder which incloses the lamp.

The principal objects of the invention are to provide improved means for rotatably mounting the cylinder and the lamp, and supplying electric current thereto while it rotates with the cylinder, to provide improved means for feeding the film and paper, and to provide improved means for adjusting the shutter to regulate the time of exposure.

These and other objects and advantages will be more fully explained in the following detailed description, which is to be read in connection with the accompanying drawings illustrating one embodiment of the invention.

In the drawings:

Figure 1 is a side elevation of the invention.

Figure 2 is a front elevation thereof, with parts broken away.

Figure 3 is a transverse sectional view.

Figure 4 is a longitudinal sectional view.

Figure 5 is a detail sectional view of the means for adjusting the exposure.

Figure 6 is a detail view of the means for tensioning the belt.

Figure 7 is a detail view of a portion of the film guide.

The device is mounted on a base 1, to which supporting end brackets 2 are secured by means of screws 3 or the like. The brackets 2 are formed with alined bearings 4 and 5, respectively, and a cylinder 6 composed of glass, or other transparent material is provided with heads 7 and 8, having outwardly extending sleeves 9 and 10, which are journaled in the bearings 4 and 5, respectively. Within the sleeve 9 is a bushing 11 of insulating material which receives the spindle 12 of an electric light socket 13 for mounting an electric lamp 14 within the cylinder. A spring-held brush 15 bears against the periphery of the outer portion of the spindle 12, and is connected to one of the wires of an electric supply circuit, while a stem 16, within the spindle 12 and separated therefrom by insulating material 17, projects outwardly and its outer end is engaged by a similar brush 18, which is connected to the other wire of the circuit. Thus,

a constant current is supplied to the lamp while the latter rotates with the cylinder 6.

The cylinder 6 is rotated by a belt 19, which engages the surface of the cylinder throughout approximately three-fourths of its circumference, and passes about rollers 20, 21, 22 and 23 mounted in the brackets 2. Felt strips 24 are glued circumferentially about the cylinder 6 near its ends, so as to promote the frictional engagement of the belt 19 and insure the rotation of the cylinder. The two rear rollers 22 and 23 are tapered toward their ends, while each of the front rollers 20 and 21 has a pair of oppositely disposed spiral strips of felt 25 glued thereto and extending from the midpoints of the rollers toward the ends thereof, whereby the engagement of the belt, as it travels thereover, will cause a lateral tension on the belt and the strips of film and paper sufficient to prevent the formation of any creases or wrinkles therein.

One of the rollers, at 23, is mounted at each end in a bracket 26, which is mounted in a slot 27 formed in the supporting bracket 2, and adjustable therein by means of a screw 28 to regulate the tension of the belt 19. The shaft 29, on which the roller 21 is secured, extends at one end beyond the bracket 2, and has secured thereto a gear wheel 30, which is adapted to be driven by a pinion 31 secured to a stub shaft 32 mounted in brackets 33 secured to the base 1. A pulley 34, secured to the stub shaft 32, is driven at a constant speed by a belt 35 from a motor 36, or other suitable driving means.

The front portion of the cylinder 6 is covered inside by a shutter 37, which is formed at one end with a head 38 secured by screws or the like to a hub 39, which is secured in fixed relation to the adjacent bracket 2 and extends through the sleeve 10. An adjustable shutter 40, within the shutter 37, is formed at one end with a head 41, which is secured to the polygonal inner end of a spindle 42, which extends centrally through the hub 39, and has a crank 43 secured to its outer end. The outer end of the crank 43 is turned in, as shown at 44, and a spring-held pin 45, mounted therein, is selectively engageable with one of a series of notches 46 formed on the periphery of the flange 47 of the hub 39, whereby the crank 43 may be angularly adjusted so as to extend or retract the movable shutter 40, thereby adjust-

ing the proportion of the cylinder 6 which is exposed to the light, and thereby determining the period of exposure of the film and printing paper as it is fed between the surface of the cylinder and the belt 19.

The film guide includes a pair of posts 48 and 49 secured to the base 1 in front of the cylinder, and having sleeves 50 and 51 adjustably mounted thereon which support a rod 52. On the upper end of the post 48 there is secured a sleeve 53 to which is pivotally connected one end of a rod 54, the other end of said rod being yieldingly held by a spring clip 55 secured to the upper end of the post 49. A series of collars 56 are mounted on the rod 52, and the film, together with the paper to be printed, is guided between the rods 52 and 54 and between the collars 56 to the cylinder 6, the collars 56 being adjustable to accommodate strips of different widths. Ventilator ducts 57 are formed in the heads 7 and 8 of the cylinder 6 for the purpose of allowing the escape of heat generated by the lamp 14, and these ducts are of zig zag shape in order to prevent light from being emitted therethrough.

In the operation of the invention, the collars 56 are adjusted in accordance to the width of the film and sensitized paper to be printed, and when the latter is comparatively narrow two strips may be printed simultaneously. The shutter 40 may be adjusted so as to expose the strip to the light during its passage about any portion of the circumference of the cylinder 6. Since the cylinder is rotated at a constant rate of speed, the time of exposure is thereby accurately determined. After the shutter 40 has been adjusted, this shutter, as well as the shutter 37, remains stationary while the cylinder rotates with the lamp 14. When it is necessary to substitute a new lamp, one end of the apparatus may be removed by taking out the screws 3, and a new lamp can then be placed in the socket 13. The cylinder heads 7 and 8 have no openings through which the light can shine, and consequently no light can be emitted from the cylinder, except through the open sector between the shutters 37 and 40.

While I have shown and described specifically one form in which the invention may be embodied, it is apparent that various modifications may be made in the structural arrangement thereof without any material departure from the salient features of the invention, and it is my purpose, therefore, to include all such modifications within the scope of the appended claims.

What is claimed is:

1. In a photographic printing press, the combination of a transparent rotatable cylinder having opaque ends, each formed with an outwardly projecting sleeve, bearings in

which the sleeves are journaled, a shutter within the cylinder having a hub secured to one end thereof and extending through the adjacent sleeve and secured to the bearing for said adjacent sleeve, whereby to hold the shutter positively fixed while the cylinder is rotated, a second shutter, and means operable from outside the cylinder for adjusting the second shutter circumferentially with respect to the first shutter.

2. In a photographic printing press, the combination of a transparent rotatable cylinder having opaque ends, each formed with an outwardly projecting sleeve, bearings in which the sleeves are journaled, a shutter within the cylinder having a head at one end, a hub secured to said head and extending through the adjacent sleeve and secured to the bearing for said adjacent sleeve, whereby to hold the shutter fixed while the cylinder is rotated, an electric lamp within the cylinder and supported from the other sleeve, means for maintaining current through the lamp while it rotates with the cylinder, a second shutter within the cylinder, and means for adjusting the second shutter circumferentially with respect to the first shutter.

3. In a photographic printing press, the combination with a transparent rotatable cylinder, an electric lamp within the cylinder and supported from one end thereof, means for maintaining a current through the lamp while the cylinder is rotated, said cylinder having opaque heads forming closures for the ends of the cylinder and provided with zig zag ducts therethrough for permitting escape of heat but not permitting the emission of direct rays of light, each of said cylinder heads being formed with an outwardly projecting sleeve, bearings in which the sleeves are journaled, a shutter within the cylinder having a hub at one end extending through the adjacent sleeve and secured to the bearing for said adjacent sleeve, whereby to hold the shutter fixed while the cylinder is rotated, a second shutter within the cylinder, and means for adjusting the second shutter circumferentially with respect to the first shutter.

4. In a photographic printing press, the combination of a transparent rotatable cylinder having opaque ends, each formed with an outwardly projecting sleeve, bearings in which the sleeves are journaled, a shutter within the cylinder and formed with a hub extending through one of the sleeves and secured to the bearing for said sleeve, whereby to hold the shutter positively fixed while the cylinder is rotated, a second shutter within the cylinder, a spindle secured to and supporting the second shutter and extending through the hub and rotatable therein to adjust the shutter, a crank secured to the outer end of the spindle, and

means associated with the crank for holding the second shutter in the position to which it is adjusted.

5 In a photographic printing press, the combination of a transparent rotatable cylinder having opaque ends, each formed with an outwardly projecting sleeve, bearings in which the sleeves are journaled, an electric lamp mounted within the cylinder, means
10 for maintaining current through the lamp while the cylinder rotates, a shutter within the cylinder having a head at one end, a hub secured to said head and extending through the adjacent sleeve and secured to
15 the bearing for said adjacent sleeve, whereby to hold the shutter fixed while the cylinder is rotated, a second shutter within the cylinder, a spindle secured to and supporting the second shutter and extending
20 through the hub and rotatable therein to adjust the shutter, a crank secured to the outer end of the spindle, and a spring-held pin carried by the crank, said hub having notches in its outer end with which said
25 pin is engageable to hold a second shutter in the position to which it is adjusted.

6. In a photographic printing press, the combination of a transparent rotatable cylinder, a lamp mounted within the same, a
30 belt passing about the cylinder by means of which the cylinder is rotated, a shutter held

in fixed position within the front side of the cylinder, and a film guide in front of the cylinder from which the film and sensitized paper are fed between the belt and the
35 adjacent surface of the cylinder, said guide including a pair of spaced posts secured in front of the cylinder, a pair of rods supported by the posts, and sleeves on one of the rods between which the film and paper
40 pass, said sleeves being adjustable to the width of the paper and film.

7. In a photographic printing press, the combination of a transparent rotatable cylinder, a lamp mounted within the same, a
45 belt passing about the cylinder by means of which the cylinder is rotated, a shutter positively held in fixed position within the front side of the cylinder, means for guiding the film and sensitized paper and feeding
50 the same between the belt and adjacent surface of the cylinder, and opaque heads forming closures for the ends of the cylinder and having zig zag ducts therethrough for permitting the escape of heat, but not
55 permitting the emission of direct rays of light.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

WILLIAM W. WONNER.