

Sept. 11, 1928.

1,683,883

J. S. GREENE

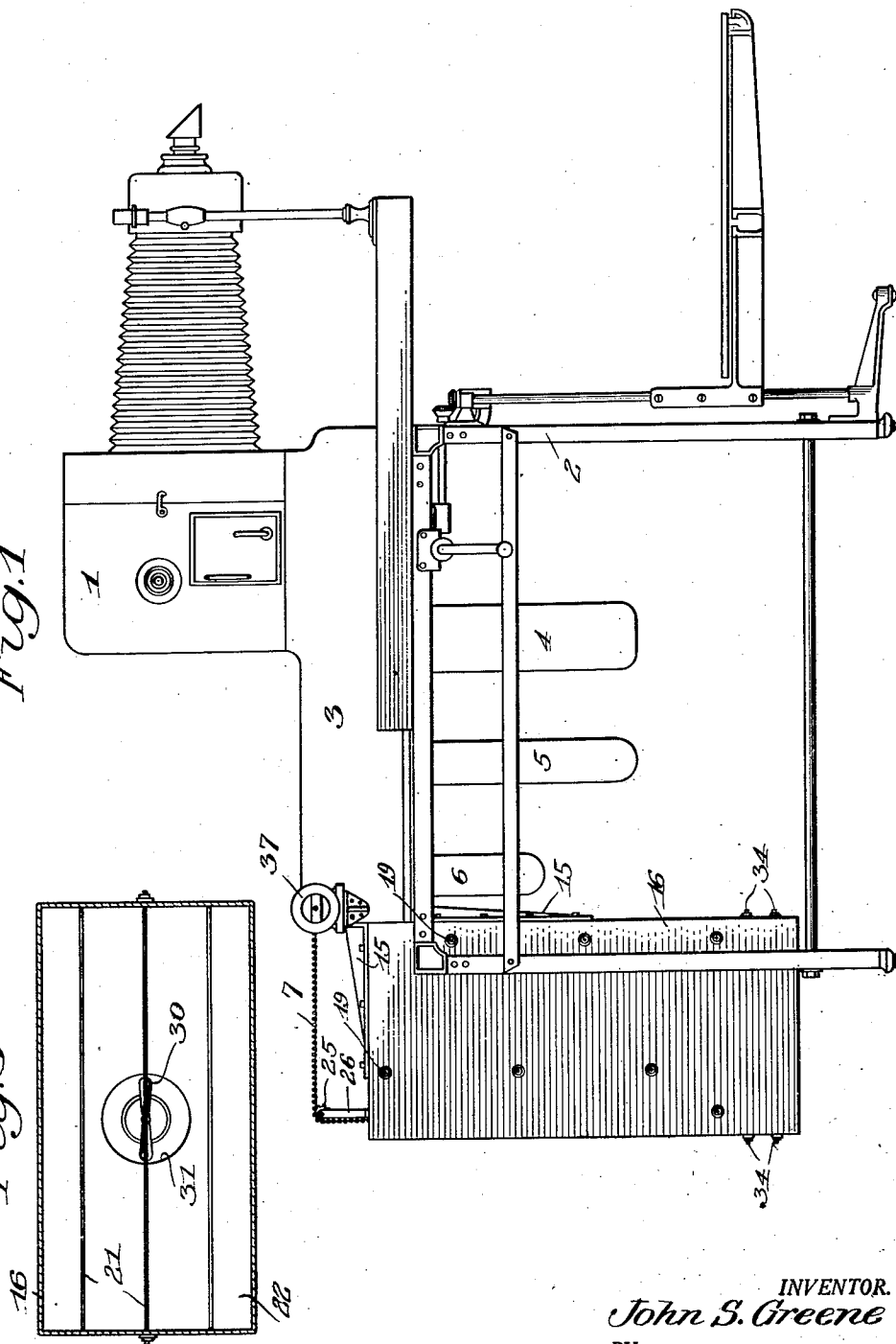
PHOTOGRAPHIC PRINT DRYING APPARATUS

Filed May 12, 1923

2 Sheets-Sheet 1

Fig. 1

Fig. 5



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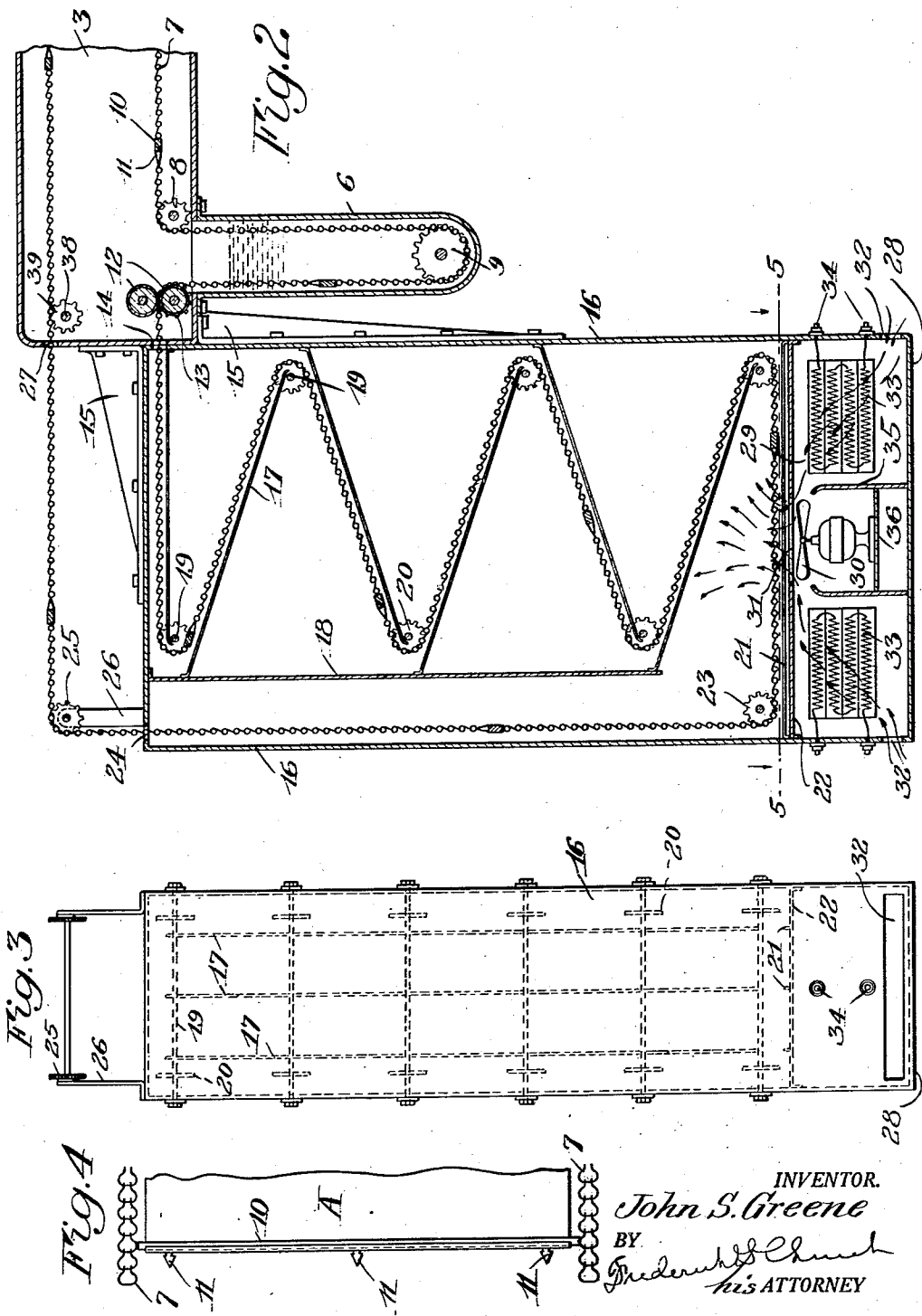
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PHOTOGRAPHIC PRINT DRYING APPARATUS

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2 Sheets-Sheet 2



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PHOTOGRAPHIC-PRINT-DRYING APPARATUS.

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My present invention relates to photography and more particularly machines for developing photographic prints and it has for its object to provide an improved drying apparatus that will take the freshly developed and washed print and dry it expeditiously and thoroughly in a simple and convenient way. While, as stated, the drier is primarily an adjunct of the developing apparatus itself, my invention is particularly applicable to cameras of the type known as commercial cameras which photograph directly upon a sensitized paper that is then automatically developed in the same machine. To these and other ends the invention resides in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a side elevation of a camera provided with automatic developing means and fitted with a drying apparatus constructed in accordance with and illustrating one embodiment of my invention.

Figure 2 is an enlarged central section through the dryer and a fragment of the adjacent developing apparatus.

Figure 3 is a rear view of the drier.

Figure 4 is an enlarged view of a portion of a conveyor showing one of the sheet carrying devices in detail and

Figure 5 is a horizontal section on the line 5-5 of Figure 2.

Similar reference numerals throughout the several views indicate the same parts.

As before stated my drier is particularly adapted for use with commercial cameras in which sensitive paper in the continuous roll is exposed, severed, developed and fixed through the use of a semi-automatic developing apparatus from which it is delivered either washed or unwashed ready for drying. Such a machine is shown in my prior Patent No. 1,421,079 June 27, 1922. There is therein shown a plurality of tanks and a tray or other final depository for the prints all arranged in a small dark room. After the print has been severed it is picked up by an endless conveyor provided with suitable impaling devices for the purpose and carried through the several tanks after which it is deposited in the tray in a wet condition. The present invention contemplates providing for the developing apparatus an improved construc-

tion of drier into which the washed print is carried by the conveyor and thoroughly dried before being returned to the tray or depository.

Referring to the drawings 1 indicates generally a familiar type of commercial camera supported on a stand or table 2. The developing apparatus embodied therein comprises a housing 3 beneath the camera body forming a dark room in the bottom of which are three vertical tanks 4, 5 and 6 constituting respectively the developing bath, the fixing bath and the rinsing bath, the latter only with the rearward portion of the dark room being shown in Figure 2. Running through the dark room near the bottom thereof is a conveyor consisting of side chains 7 running over sprockets 8 and thence around sprockets 9 at the bottoms of the respective tanks. Connecting the side chains 7 of the conveyor at intervals are a plurality of cross bars each provided with a plurality of impaling devices 11 having the present form of barbed spurs or pins as best shown in Figure 4. The exposed print after being severed in the camera at the front end of the dark room is picked up by one or another of these impaling devices in a manner explained in my said prior patent but not of interest here and is retained on the carrying bar at its forward edge in the manner indicated in Figure 4 wherein a fragment of the sheet is shown at A. After emerging from the washing tank 6 into which it is thus drawn by the conveyor, the sheet or print passes between rolls 12 at the rear end of the dark chamber 3 (one of which is fitted with sprockets 13 for the conveyor chains) and out through a narrow slotted opening 14 in the rear wall of the dark chamber to the drier hereinafter described.

In the practice of my invention I attach to the rear end of the dark chamber housing 3 by brackets 15 or otherwise a drying apparatus embodying a downwardly extending casing 16 which is independent of the stand or table 2 for the reason that it must move with the housing 3 as the camera is focused. Within this casing is a series of inclined slides 17 in zigzag arrangement so that the lower end of one is in position to deliver to the upper end of the next lower one. These slides are supported at their upper ends on the walls of the casing including a partition wall 18 and at their lower ends upon transverse shafts 19 and

are of such a nature as to permit the free passage of air upwardly through the chamber. In the present instance the slides consist of rods or wires as shown in dotted lines in Figure 3. Turning on the shafts 19 near their ends are sprockets 20 for the conveyor chains 7 so that the latter carry the wet print downwardly dragging it from one to another of the slides upon which it rests and finally across slides 21 on a false bottom 22 with which the casing is provided. From thence the conveyor passes around a sprocket 23 and upwardly behind the partition wall 18 to carry the print through a slotted opening 24 at the top of the casing 16 where it travels around sprockets 25 supported on brackets 26 and finally passes forwardly back into the dark chamber 3 at the top thereof through a slotted opening 27 being deposited therein if desired in the manner set forth in my said prior patent.

The print dries during its travel down through the casing 16 being exposed to a circulation of air on both sides and to hasten this drying action I provide for a forced circulation of warm air within the casing. Between the false bottom 22 and the bottom 28 is a chamber 29 containing a fan or blower 30 rotating on a vertical axis to force a current of air upwardly as shown by the arrows through an opening 31 in the false bottom 22. This air is drawn into the chamber 29 through suitable lateral openings 32 in the casing and, before reaching the blower, passes over heating elements 33 in the present form of electrical heating coils having the terminals 34. Baffles 35 at the sides of the blower cause the air to pass through the coils to the opening 31 and the blower is mounted with its motor on a platform 36 extending between the baffles.

The conveyor chains 7 are driven through a motor 37 (Figure 1) through a shaft 38 (Figure 2) provided within the dark chamber 3 with sprockets 39.

I claim as my invention:

1. In a photographic print drier, the com-

bination with a drying chamber having a plurality of inclined slides therein one above the other in zigzag arrangement, of continuous means constantly engaged with the print at a definite point for conveying said print progressively downward across first one slide then the other in reverse directions.

2. In a photographic print drier, the combination with a drying chamber having a plurality of inclined slides therein one above the other in zigzag arrangement, of an endless conveyor adapted to conduct a print into the drying chamber, progressively downward across first one slide then the other in reverse directions and thence out of the chamber.

3. In a photographic print drier, the combination with a drying chamber having a plurality of inclined slides therein one above the other in zigzag arrangement, each of said slides being open for the circulation of air therethrough, of means for dragging a print progressively downward across first one slide and then the other in reverse directions and means for driving a current of air upwardly through the chamber.

4. In a photographic print drier, the combination with a drying chamber having a plurality of inclined slides therein one above the other in zigzag arrangement, of a support for the lower end of each slide, sprockets associated with said supports, and an endless conveyor chain arranged to run over the sprockets and provided with print carriers adapted to drag a print progressively downward across first one slide and then the other in reverse directions.

5. In a photographic print drier, the combination with a drying chamber having a plurality of slides therein arranged adjacent each other in staggered relation, of endless conveying means cooperating successively with each of said slides and engaging the print at a definite point for conveying the print progressively along first one slide then the other in reverse directions.

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