

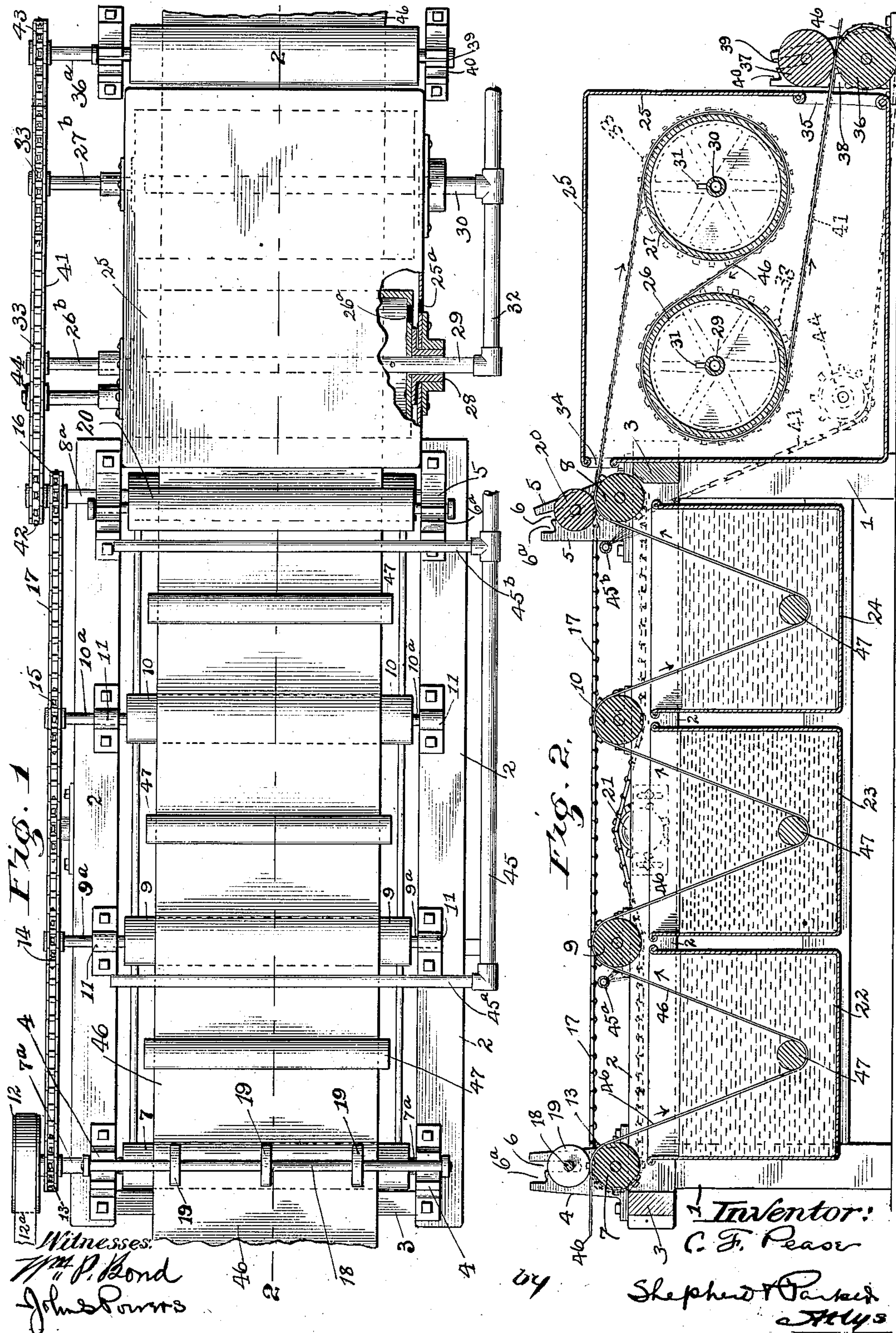
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PATENTED JUNE 23, 1908.

C. F. PEASE.

BLUE PRINT WASHING AND DRYING MACHINE.

APPLICATION FILED DEC. 5, 1906.



UNITED STATES PATENT OFFICE.

CHARLES F. PEASE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO WILLIAMS, BROWN & EARLE, OF PHILADELPHIA, PENNSYLVANIA, A FIRM.

BLUE-PRINT WASHING AND DRYING MACHINE.

No. 891,289.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed December 5, 1906. Serial No. 346,479.

To all whom it may concern:

Be it known that I, CHARLES F. PEASE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Blue-Print Washing and Drying Machines, of which the following is a specification.

My invention relates to blue print washing and drying machines and is particularly adapted for use in connection with what is known as a continuous printing machine, although the use of the latter is not essential.

The objects of my invention are to provide a simple and reliably constructed machine of the class above mentioned, wherein not only the process of washing and drying blue prints may be effectively accomplished, but wherein the blue print is subjected to a bath in a solution of potash, or other blue print intensifying solution; to so construct my improved apparatus as to insure the positive feeding of the blue print paper through the various baths and drying chambers at a uniform speed; to provide improved means for rapidly and uniformly drying printed paper and to produce other improvements, the details of construction and arrangement of parts of which will be more fully pointed out hereinafter. These objects I attain in the manner illustrated in the accompanying drawing in which,

Figure 1 is a plan view of my improved apparatus showing a strip of blue print paper in position for passing therethrough, and Fig. 2 is a longitudinal section on line 2—2 of Fig. 1.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention I employ a suitable upright frame work comprising vertical standards 1, upper longitudinal side frame pieces 2 and transverse frame pieces 3. Mounted on opposite sides of the forward and rear ends of the frame thus constructed, are upwardly projecting bearing brackets 4 and 5, each of the latter having formed in its upper portion a downwardly extending bearing recess 6 which is enlarged in its upper portions on one side to form a shoulder 6^a. Between the lower portions of the opposing brackets 4 are journaled the shaft or spindle ends 7^a of a transverse roller 7, while a similar roller 8 is likewise journaled between the

lower portions of the brackets 5 in what we will term the rear outer portion of the machine. At equi-distant points between the rollers 8 and 7, and in horizontal alinement therewith are journaled rollers 9 and 10, the latter having end bearing spindles 9^a and 10^a which are mounted in suitable boxings or bearing plates 11 which are secured to the upper sides of the frame pieces 2. On one end of the shaft 7^a is mounted a power or belt wheel 12 which is adapted to carry an operating belt, such as is indicated at 12^a. This shaft or spindle 7^a also carries a sprocket wheel 13, while the corresponding ends of the roller spindles 9^a and 10^a carry similar sprocket wheels 14 and 15. A fourth and corresponding sprocket wheel 16 is carried on one end of the spindle 8^a of the roller and these sprocket wheels 13, 14, 15 and 16 are connected by an endless sprocket or driving chain 17. Loosely mounted in the recess of the brackets 4 are the ends of a transverse shaft 18 which carries thereon at desirable intervals feeding disks 19, the latter normally bearing upon the periphery of the roller 7. A wringing or drying roller 20, preferably formed of soft rubber, has its end spindles within the recesses 6 of the brackets 5, said roller 20 normally contacting with the roller 8. It will be observed that the chain belt 17, in its central portion passes over an idle sprocket wheel 21, which is rotatably mounted on the outside of one of the frame pieces 2.

22, 23 and 24 represent, respectively, tanks or reservoirs which are suitably supported from the frame pieces 2 and which, as shown, are respectively arranged beneath the spaces which exist between the rollers 7 and 9, 9 and 10 and 10 and 8.

Adjacent to, and on the outside of the roller 8 is a drying case 25 and rotatably mounted in this casing is a pair of cylinders 26 and 27. One end of each of these cylinders is provided with a hollow bearing projection or trunnion 28 and through these hollow bearings extend gas pipes 29 and 30, the latter leading through the ends of said cylinders and terminating at points near the opposite ends thereof. The pipes 29 and 30 are provided with suitable burner projections 31 and the outer ends of said pipes are connected with a gas supply pipe 32. The operation of lighting the gas burners 31 may be

accomplished by the insertion of a lighted taper through openings 25^a and 26^a formed respectively in the casing or housing 25 and the adjoining ends of the cylinders. The bearing end shafts or spindles 26^b and 27^b of the cylinders 26 and 27 carry sprocket wheels 33. Opposite the rollers 20 and 8 the casing 25 is formed in its upper portion with a transverse opening 34 and a similar, although larger opening 35, is formed in the opposite end of said casing in the lower portion thereof.

36 and 37 represent contacting rollers, which are journaled on the outside of the opening 25, the lower roller 36 having its bearing shaft or end spindle rotatably mounted in upright brackets 38 which correspond in construction with the brackets 4 and 5, the said brackets 38 being provided in their upper portions with vertical recesses 39 having off-sets 40. The upper roll 37 has its bearing spindles bearing loosely in said bracket recesses 39.

41 represents an endless sprocket chain which passes over a small sprocket wheel 42, which is carried on the roller spindle 8^a, outside of the sprocket wheel 16. The chain 41 runs, as indicated more clearly in dotted lines in Fig. 2 of the drawing, from the upper side of the sprocket wheel 42 outward about the outer sprocket wheel 33, thence up and over the inner sprocket wheel 33, thence outward over a small sprocket wheel 43 on the end of the bearing shaft 36^a of the roller 36, from which said chain leads inward and upward to the sprocket wheel 42, preferably passing over an idle sprocket wheel indicated in dotted lines at 44 in Fig. 2.

45 represents a water supply pipe which is arranged adjacent to the frame 1—2—3 and which has arms 45^a and 45^b leading transversely across said frame above the latter and on the inner sides of and adjacent to the rolls 9 and 8, said pipe arms being suitably perforated and the perforations thereof being inclined forward and downward.

In utilizing my invention the tanks 22 and 24 are filled or partially filled with water while the intermediate tank 23 is provided with a desirable quantity of blue print intensifying solution.

In operation the blue printed paper strip, which in the drawing is indicated at 46 passes from the printer, or other suitable source of supply, over the roll 7, thence downward into the lower portion of the tank 22, thence upward over the roller 9 from which said paper strip passes downward into the tank 23, upward over the roller 10, downward into the tank 24, upward between the rollers 8 and 20, thence forward through the opening 34 of the casing 25, about the heating cylinders 27 and 26 and out between the delivery rolls 36 and 37. In order to insure the paper strip being held taut within the tanks,

suitable cylindrical bodies or rolls, such as are indicated at 47 are caused to be supported by the paper strip in each of the tanks 22, 23 and 24. In the passing of the blue print through the tank 22, the print is subjected to the washing action of the water contained in said tank, but to insure the thorough washing of the print I have provided the water pipe arm 45^a, the water sprays from which are thrown directly against the face of the blue print before it passes about the roller 9 and enters the tank 23. Having been subjected to the intensifying action of the solution of the tank 23, the paper strip after passing over the roll 10 is subjected to the washing action of the water contained in the tank 24 which is followed by the final washing action of the water spray from the pipe 45^b. The gas burners 31 having been previously ignited, it is obvious that not only will the atmosphere contained in the casing 25 become heated, but that the heat imparted to the cylinders 26 and 27 will have the effect of thoroughly drying the blue print paper before the latter is delivered between the rolls 36 and 37.

In the operation which I have described, it will be understood that the various paper carrying rolls have motion imparted thereto through the medium of the power wheel 12 and the various sprocket wheels and chains heretofore described. It will also be understood that in the passage of the wet blue print paper over the various rolls, the surface of said rolls will become sufficiently moistened to adhere thereto, during its passage over the rolls, thus preventing any tendency of the paper to slip over the rolls and at the same time insuring a uniform speed of the paper over the rolls.

From the construction and operation described, it will be readily understood that my improved apparatus is simple in construction and that the same can be readily operated by persons unskilled in the art of blue printing.

Having fully described my invention I claim:

In a blue print finishing machine, a series of liquid containing tanks, means for feeding a printed strip therethrough, brackets arranged at the sides and adjacent each end of said series, fixed rollers having their shafts or trunnions journaled between said brackets at each end of said series, each of said brackets having an approximately vertical recess therein and being provided with a shoulder adjacent the upper end of said recess, said recesses and said shoulders being adapted to support rollers therein superposed upon said fixed rollers, a removable shaft having a plurality of transversely disposed disks mounted thereon journaled within said recesses, a pair of said brackets at one end of said series, and a wringing roll having its shaft or trunnions journaled within said recesses, a pair of said

brackets at the opposite end of said series,
said shaft and said wringing roll being adapt-
ed at the option of the user, to rest on the
bottom of said recesses in contact with said
5 fixed roller or on said shoulders at the upper
end of said recesses and out of contact with
said rollers, substantially as described.

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

CHARLES F. PEASE.

Witnesses:

E. W. BOONE,
ARTHUR A. BASSE.