G. COLLIS.

MACHINE FOR BLEACHING AND DYEING FABRICS.

APPLICATION FILED NOV. 1, 1907.

914,797. Patented Mar. 9, 1909.

2 SHEETS—SHEET 1.

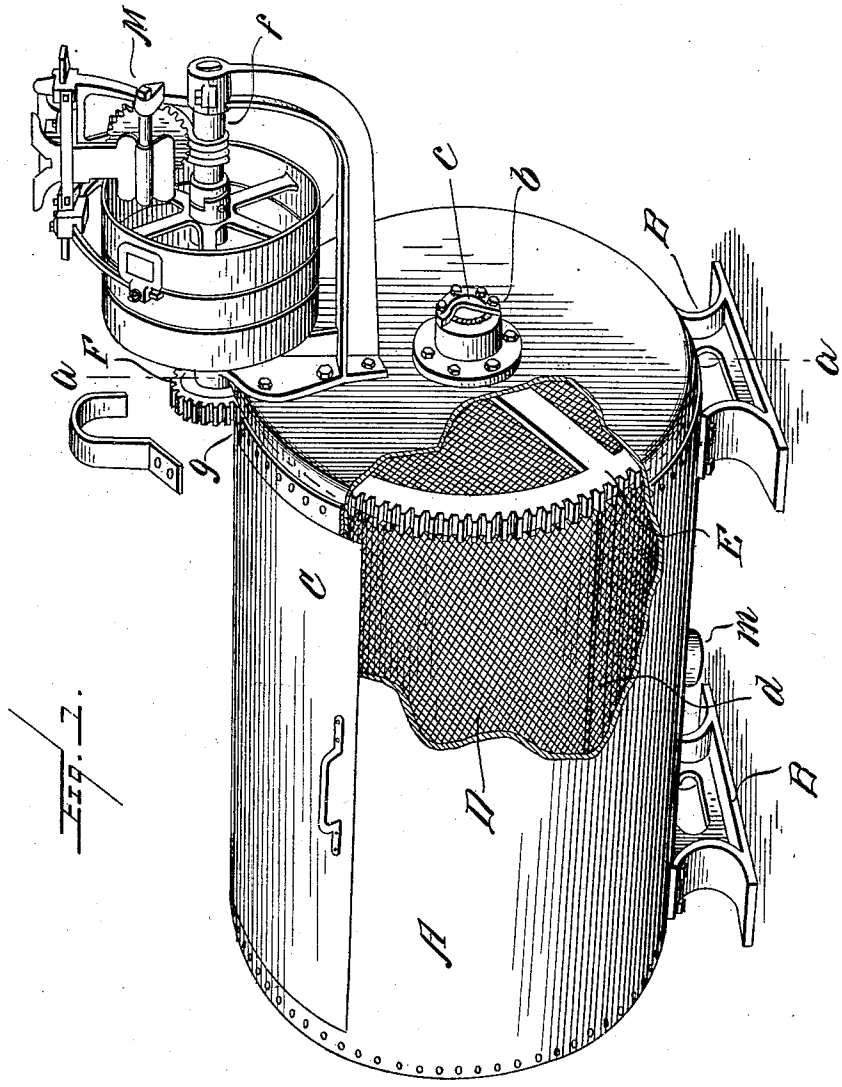

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

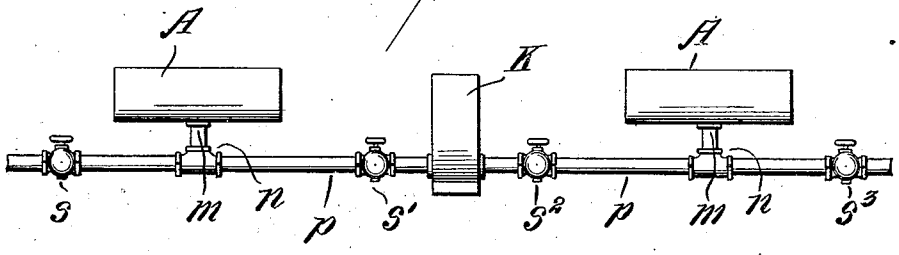


Fig. 3.

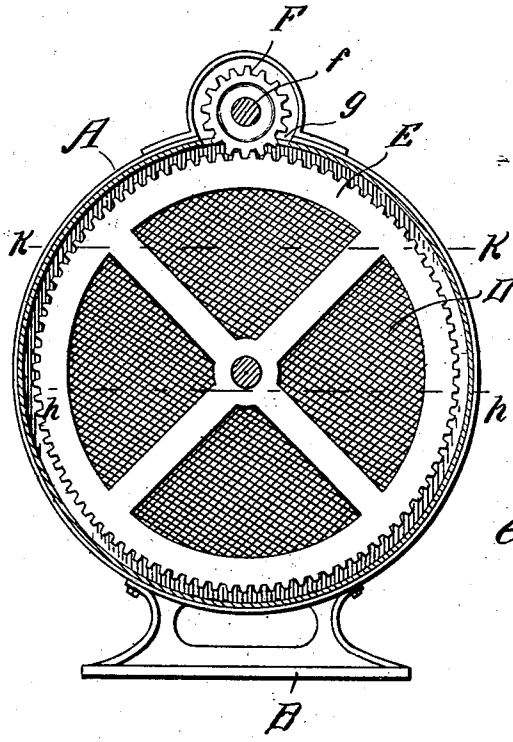
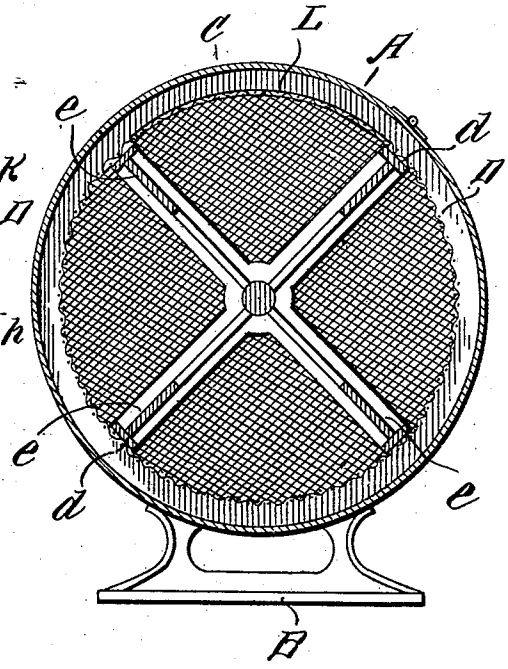


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE COLLIS, OF DUBUQUE, IOWA.

MACHINE FOR BLEACHING AND DYEING FABRICS.

No. 914,797. Specification of Letters Patent. Patented March 9, 1909.

Application filed November 1, 1907. Serial No. 400,242.

To all whom it may concern:

Be it known that I, GEORGE COLLIS, a citizen of the United States, residing at Dubuque, in the county of Dubuque and State of Iowa, have invented certain new and useful Improvements in Machines for Bleaching and Dyeing Fabrics; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in the art of treating fabrics with liquids and more specifically to a machine for bleaching and dyeing goods of various character.

In machines heretofore constructed for similar purposes, one of the main objections has been that there has been occasioned a very large and constant leakage of the dye-stuff, which has not only been a source of disadvantage to the process, but has involved a considerable financial loss. A further objection has been that when one batch of goods has been acted on, the dye-stuff is not put to any further use until the goods are removed and others substituted, thereby entailing great loss of time. In order to overcome this as well as other bad features of machines used at present, I have designed this machine, which is so constructed that there is no leakage whatsoever of the dyeing materials, and furthermore the arrangement is such that in a machine of the same size as those now manufactured, a much larger amount of dyeing substances can be applied to the same mass of goods, hence securing a more complete action in quicker time.

A further object to be attained by my invention resides in the fact that I arrange my machines in pairs, with means between them for forcing the liquid from one to the other. It will be clearly evident, therefore, that when the dyeing of the goods in one machine is completed, the liquid may be forced therefrom to the other machine, which has in the meantime been filled with goods to be treated, and the goods then taken from the first machine and a fresh supply substituted, after which the dye-stuff or other material is forced back again and so on indefinitely In this way, the full benefit of the dyeing substance is obtained by continual use.

These and other advantages will appear from the following detailed description when read in connection with the accompanying drawings, in which—

Figure 1 is perspective view of a single machine, showing parts broken away, Fig. 2 is a side elevation of a pair of my machines assembled for operation, Fig. 3 is a vertical section on the line *a*—*a* of Fig. 1, and Fig. 4 is a transverse section through the interior screen showing the end in elevation.

Referring more specifically to the drawings in which like reference characters refer to corresponiding parts in the several views, A designates a cylinder preferably of metal, and supported on the legs B, said cylinder constituting a dyeing chamber into which the goods to be treated are introduced through the door C, occupying substantially one-fourth the circumference of the cylinder. Within the cylinder, and suitably supported therein is a wire or perforated metal cloth cylinder D, provided with a hinged door L, and carrying at its one end the large gear E, adapted to mesh with the smaller gear F hereinafter to be referred to. The supports for cylinder D herein shown, comprises journals *b*, provided with roller bearings and closed by a cap plate *c*. The roller bearings are employed as a substitute for the usual lubrication which is disastrous to a dyeing or similar process. It is to be understood, however, that the particular form or position of bearing is immaterial as it may just as well be placed inside the end plate of the cylinder, leaving a smooth exterior surface, or changed in any other similar manner without departing from the essential idea herein disclosed. The cylinder D includes a frame comprising bars *d* running longitudinally of the cylinder and extending transversely of the ends thereof. Secured to the bars *d*, both on the sides and ends of the cylinder are paddles or vanes *e*, which project a slight distance from the walls of the cylinder and assist materially in agitating the goods contained within the cylinder, during rotation of the same.

Supported on the end of the cylinder A by a suitable bracket is an operating and reversing mechanism M, which may comprise any well known construction, the details thereof constituting no part of my invention. This gearing includes a shaft *f* carrying at its end the before mentioned gear F. An opening *g* is formed in the top of the cylinder A and the

positioning of the parts is such that the gear F projects through said opening and is arranged to mesh with gear E, serving to revolve the same when the mechanism M is set in operation.

In machines, heretofore constructed for a similar purpose, it has generally been proposed to support the interior cylinder on a shaft extending through the stationary cylinder and carrying a gear wheel at its outer end, exterior to the said stationary cylinder. The operating mechanism was placed lower down to enable the smaller gear, which is F of the present construction, to properly mesh with the gear of the aforesaid shaft, but the construction is open to serious objections because it enables the dyeing liquid to be used in the cylinder only to a depth indicated by *h* on the drawings. If the liquid was filled in up to a point such as *k*, a severe leakage takes place through the cylinder at the opening through which the shaft of the wire cylinder passes. By my construction, however, this is entirely obviated, as the cylinder is entirely closed at all points except on the top, and the dye-stuff may be filled as high as is ever demanded without a particle of loss. Also, by the employment of roller bearings, I am enabled to do away with the use of any lubricant which gets into the dyeing substance and injures it materially.

Referring now more particularly to Fig. 2, I show here two machines arranged side by side with a pump K situated between. Connections *m* are formed on the bottom of cylinders A, and suitable couplings *n* join them to the pipe *p* which constitutes a passage from the cylinders A to the pump K. Valves *s*, s^1, s^2, s^3 are suitably located in the pipe *p* and when desired, they may be properly manipulated to permit the waste liquid to be drawn or forced out from both cylinders through either of the branches *q*.

Various changes and modifications will suggest themselves to any one understanding my invention, but it is to be understood that alterations may be made without departing from the spirit thereof.

What I claim, and desire to secure by Letters Patent is:—

1. A machine for bleaching and dyeing fabrics including a closed cylindrical receptacle, a hinged cover for said receptacle, an opening adjacent the cover, a perforated cylindrical receptacle supported within the first-mentioned receptacle, and having a frame including a gear-wheel, vanes or paddles arranged radially of said gear-wheel and longitudinally of the sides of the perforated receptacle, a pinion positioned in the aforesaid opening and engaging said gear-wheel, and means for rotating the pinion.

2. A machine for bleaching and dyeing fabrics including a closed cylindrical receptacle, a hinged cover for said receptacle, an opening adjacent the cover, a perforated cylindrical receptacle, journal bearings for supporting the same, detachable plates for closing the outer ends of said journal bearings, a frame for the perforated receptacle including a gear-wheel, vanes or paddles arranged radially of said gear-wheel and longitudinally of the sides of the perforated receptacle, a pinion positioned in the aforesaid opening and engaging said gear-wheel, and means for rotating the pinion.

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

GEORGE COLLIS.

Witnesses:

HAROLD E. STONEBRAKER,

GARNETT G. LOEFFLER.