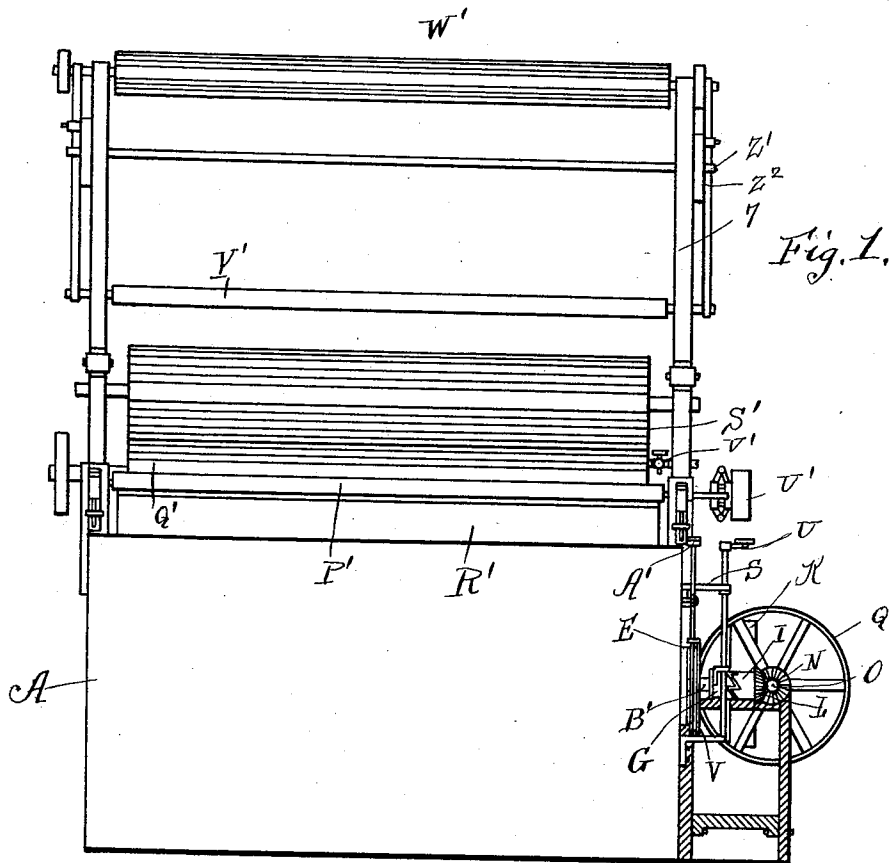


L. P. HART.
DYEING APPARATUS.
APPLICATION FILED APR. 13, 1909.

1,033,584.

Patented July 23, 1912.
4 SHEETS—SHEET 1.



WITNESSES

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H. C. Burton

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BY

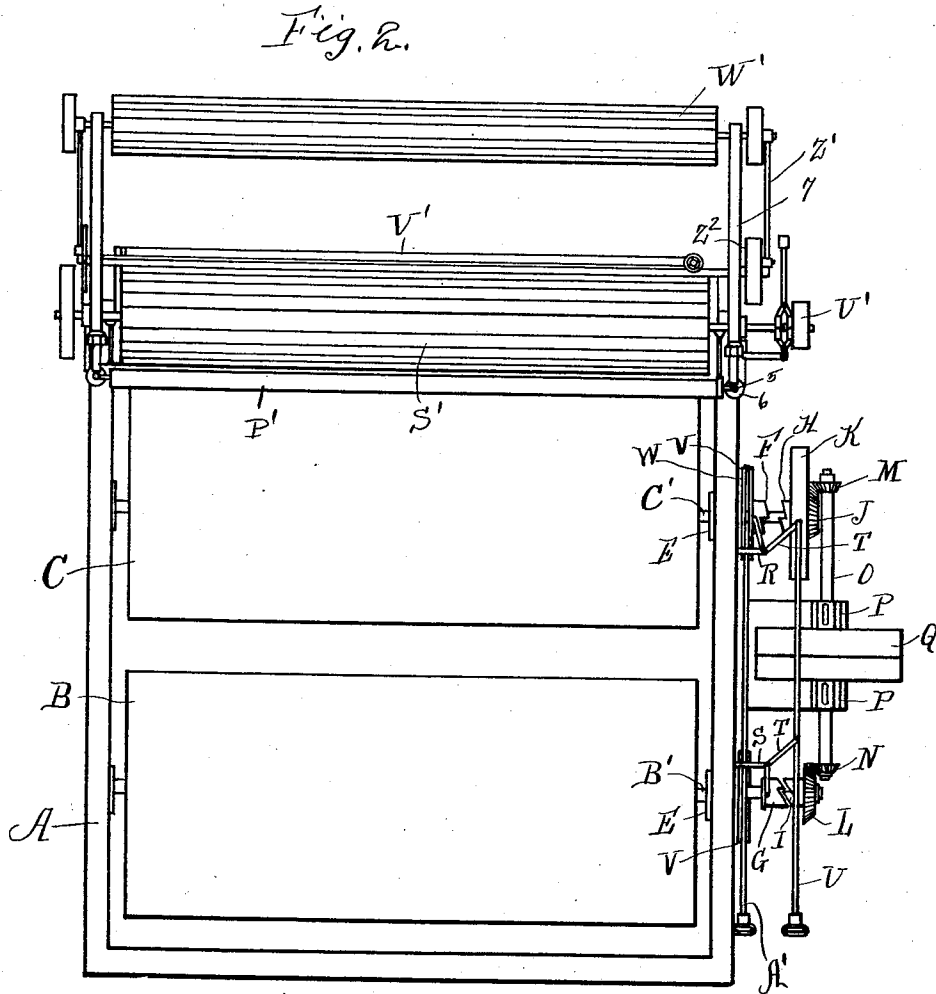
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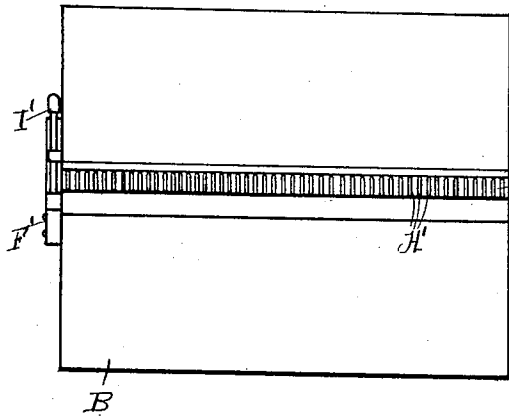


Fig. 4.

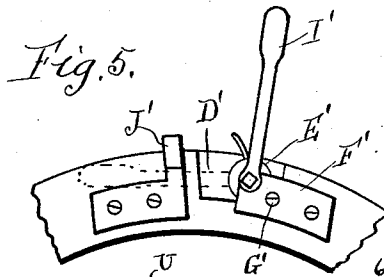


Fig. 5.

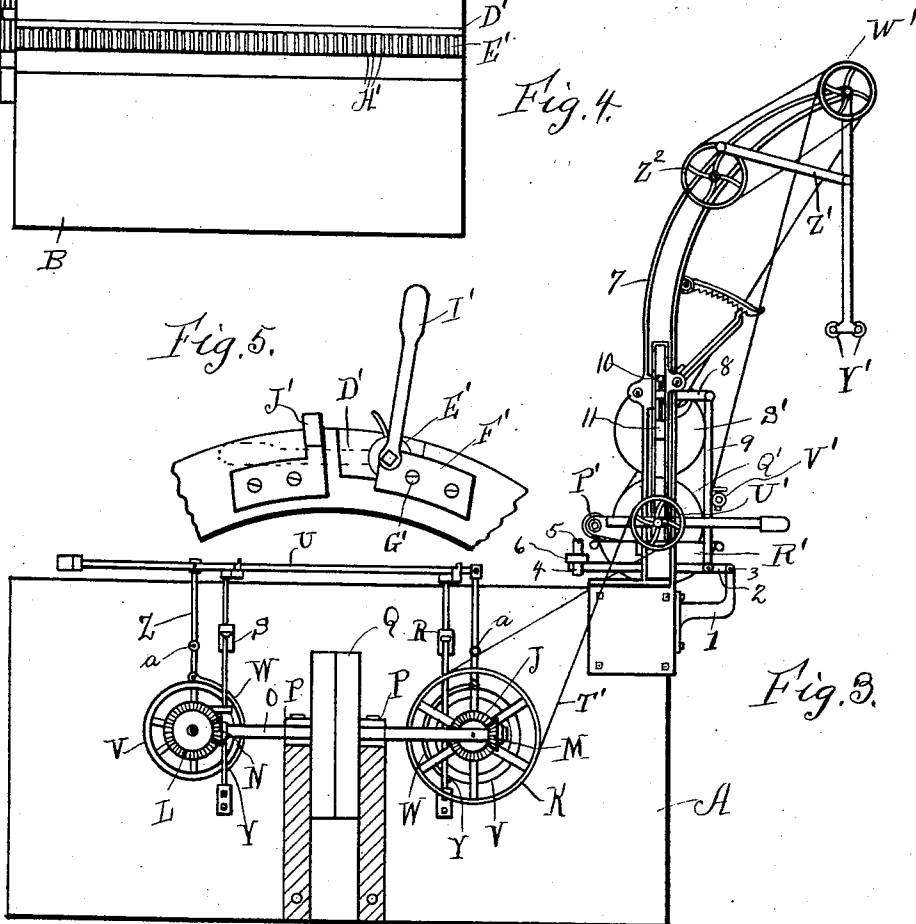


Fig. 3.

WITNESSES

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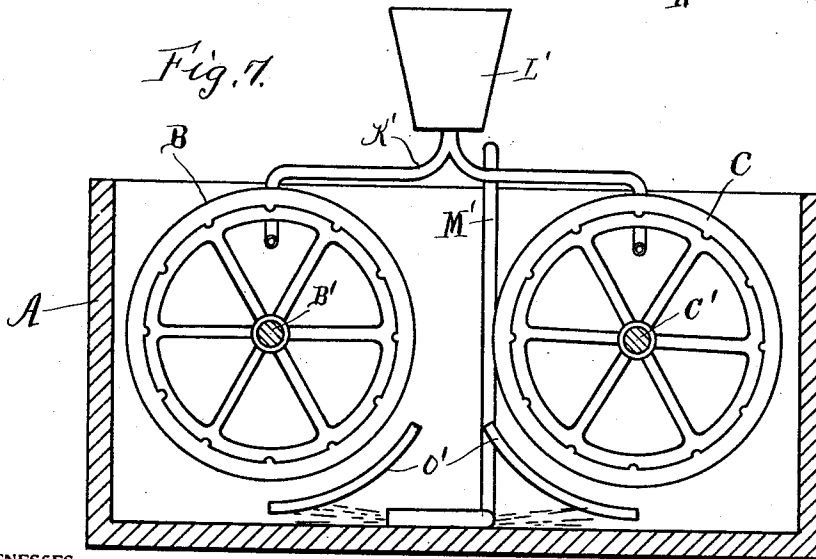
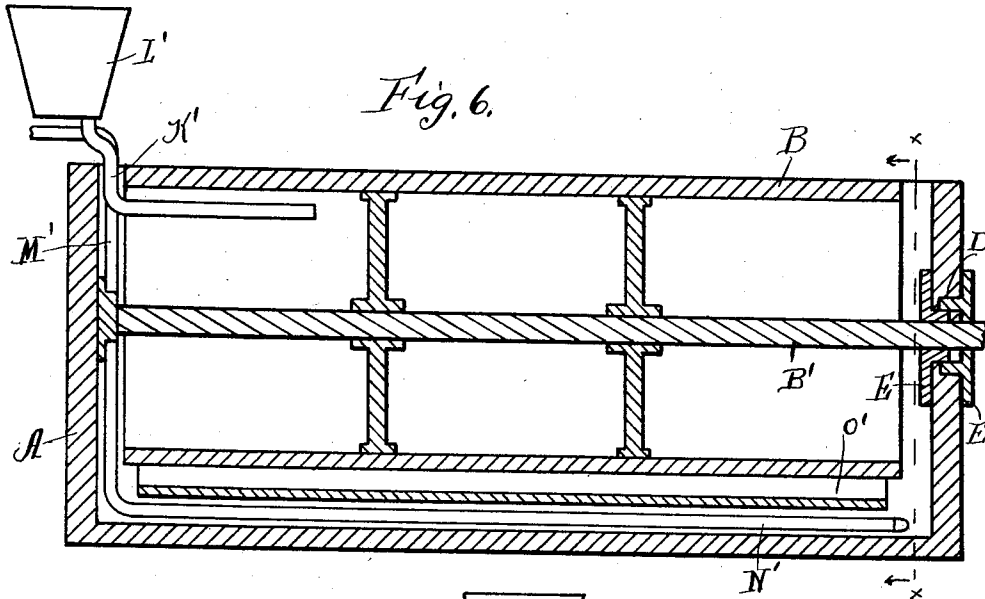
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

LUCIEN P. HART, OF PHILADELPHIA, PENNSYLVANIA.

DYEING APPARATUS.

1,033,584.

Specification of Letters Patent.

Patented July 23, 1912.

Application filed April 13, 1909. Serial No. 489,638.

To all whom it may concern:

Be it known that I, LUCIEN P. HART, a citizen of the Republic of France, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Dyeing Apparatus, of which the following is a specification.

My invention relates to a new and useful improvement in dyeing apparatus, and has for its object to provide an exceedingly simple and effective device of this character in which the material to be dyed will be drawn over rolls and submerged in a vat of dye, or by placing soap liquor instead of dye in the dyer said dyer can be used for ungumming of silk goods.

Another object of my invention is to so draw the material over first one roll and then another that the dye will be evenly taken up by the goods preventing them from becoming streaked or spotted, and preventing such material as silk goods from becoming creased, rubbed or chafed in the dyeing process.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation of my improvement. Fig. 2, a plan view. Fig. 3, an end view. Fig. 4, a view in elevation of one of the rolls. Fig. 5, an enlarge view of a portion of one end of the rolls showing the device for attaching the goods thereto. Fig. 6, a sectional view of the vat and one of the rolls therein showing the means for placing the dye in the vat and adding hot water, and Fig. 7, a section at the line $x-x$ of Fig. 6, looking in the direction of the arrows.

In carrying out my invention as here embodied, A represents a vat, in which are journaled a number of rolls B and C, one end of each of their shafts B' and C' extending through the openings D in the vat, which are then closed by the packings E.

On the outer ends of the shafts B' and C' are slidably secured the clutch members F and G, which engage with the clutch members H and I, which are operated in some suitable manner, one of the ways for doing the same being hereinafter described.

To the clutch member H is attached the bevel gear J and the driving pulley K, and to the clutch member I is attached the bevel gear L. Meshing with these bevel gears are the bevel pinions M and N, mounted upon the shaft O, which is journaled in the bearings P. On the shaft O is also mounted the driven pulley Q, over which runs a belt from some suitable source of power.

From the foregoing description it will be seen that when the pulley Q is driven it will revolve the shaft O, which will do likewise with the clutch members H and I, through the medium of the bevel gears J and L and the pinions M and N, so that when either of the clutch members F and G are brought into engagement with its adjacent clutch member, one of the rolls B or C will be revolved.

In order that one clutch member will be brought into engagement with its adjacent member when one of the other clutch members is disengaged from its adjacent clutch member, I provide the brackets R and S, to which are pivoted the bell crank levers T, one end of each of which is attached to one of the clutch members F or G, the other ends being pivoted to the rod U, so that when said rod is moved in one direction or the other one of the clutch members F or G will be withdrawn from its adjacent member, while the other one will be brought into engagement with its adjacent clutch member.

Mounted on the shafts B' and C' are the brake wheels V, around a portion of the periphery of which extends the brakes W, the lower ends being pivoted to the vat or suitable brackets, as at Y, the upper ends being attached to the extensions Z secured to the brake-operating rod A', and pivoted at a.

When the clutch operating rod U is moved the brake rod A' will be moved in the opposite direction, so that as the clutch on one of the roll shafts is disengaged the brake will be drawn against the brake wheel on the same shaft, and at the same time the

brake will be removed from the brake wheel on the roll shaft, to which is secured the clutch that is put into engagement.

In each of the rolls is formed a groove D', in which is mounted the roller E', the ends of the shaft thereof being journaled in the bracket plate F' attached to the sides of the roll by screws G' or other suitable securing means. On the roller E' are placed a number of pins H' so that they are in alinement with one another from one end of the roller to the other, and to these are attached the end of the goods to be dyed, and when the end of said goods has been placed over these pins the roller is turned over by the handle I' secured to the roller or its shaft, at which time the pins will rest within the groove D', and in order that these pins may be held within the groove while the machine is in motion, I secure to the side of the roll a spring catch J', which will spring over the handle I' when said handle is moved downward.

In placing additional coloring pigment in the vat while the goods are in the same it is necessary to keep said coloring pigment away from the goods until it has been thoroughly mixed in the dye already in the vat, and in order that this may be done, I provide a pipe K' which extends downward into the vat, then at right angles thereto into the interior of the rolls, said pipe leading from a funnel L' in which is placed the coloring pigment. As the said coloring pigment leaves the pipe K' it will be inside of the rolls, and as the roll is being revolved it will agitate the dye, thoroughly mixing the coloring pigment with the contents of the vat.

In order that the dye may be kept at a boiling temperature, I provide the steam pipe M' which passes downward into the vat at one side thereof, then lengthwise of the vat between the rolls, as indicated by N', and that portion of the pipe which lies along the bottom of the vat between the rolls will have a number of outlets. To prevent this steam coming in contact with the goods upon the rolls which would streak the goods, I provide the baffle plates O', which form the arc of a circle, which are situated between the steam pipe and the rolls.

After the goods have remained in the dye a sufficient length of time the end which is attached to the roll B is removed and carried over the roller P', then under the lower wringer roll Q', under which is placed the tray R'. The goods then pass between the wringer roll Q' and the upper wringer roll S', which will press the water and dye from the goods, said wringer rolls being revolved from the driving pulley K through the medium of the belt E', which passes over said driving pulley and the pulley U'

attached to the shaft of one of the wringer rolls. In order that the wringer rolls Q' and S' may be kept constantly pressed together I provide a bracket 1, secured to the vat, to which is pivoted one end of the lever 2, at 3, and on this lever is slidably secured the yoke 4 having an upwardly extending stack 5, in which may be placed one or more weights 6. Pivoted to the crane 7 is another lever 8, the outer end of which is connected with the lever 2 by the link 9, said lever 8 having an adjusting screw 10 passing through it, the lower end of which rests against the bearing 11 of the wringer roll S'. From this description it will be seen that the weight 6 on the end of the lever 2 will draw the end of said lever downward, which will do likewise with the lever 8 through the medium of the link 9, which will cause the wringer roll S' to be constantly pressed against the wringer roll Q'.

While the goods are passing through the wringer rolls a stream of cold water is played thereon from the pipe V', so that the goods will be cooled enabling them to be handled. After the goods have passed through the wringer rolls they run over the roll W', then downward through the folding rolls Y', which are operated to and fro by the crank Z', which is attached to the crank wheel Z².

In practice one end of the goods it attached to one of the rolls B or C by means of the attaching device, then that roll is caused to revolve, drawing the goods through the dye, and when this operation has continued for a while this roll is brought to a standstill, so that the rear or last end of the goods is at the top of the roll. This end is then attached to the opposite roll and by moving the brake A' and the clutch rod U' in the opposite direction the roll to which the rear end of the clutch is attached will be caused to revolve, and at the same time the brake will be applied to the other roll, so that it cannot revolve faster than the roll which is taking the goods, so that said goods will not become mussed or wrinkled.

When the goods has been drawn through the dye first on one roll and then the other in the manner described, for a sufficient length of time to secure the right shade, it is then drawn through the wringer and over the folder, at which time it will be ready to be removed to a convenient drying place.

Of course I do not wish to be limited to the exact details of construction here shown as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful, is—

1. Dyeing apparatus comprising a tank for containing dye, imperforate open ended

5 cylinders for conducting the material to be
dyed into contact with the dye, the interiors
of said cylinders communicating with said
tank at points removed from the material,
and means for conducting the dye to a point
10 within the cylinder whereby a thorough
mixing is attained.

2. Dyeing apparatus comprising a tank
adapted to contain dye, imperforate cylin-
10 ders adapted to be submerged in the dye in

said tank and having open ends, and means
for introducing a fresh supply of dye into
said cylinders.

In testimony whereof, I have hereunto
affixed my signature in the presence of two 15
subscribing witnesses.

LUCIEN P. HART.

Witnesses:

ACHILLE MEYGAR,
FRANCIS D. BARONOSKI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."