

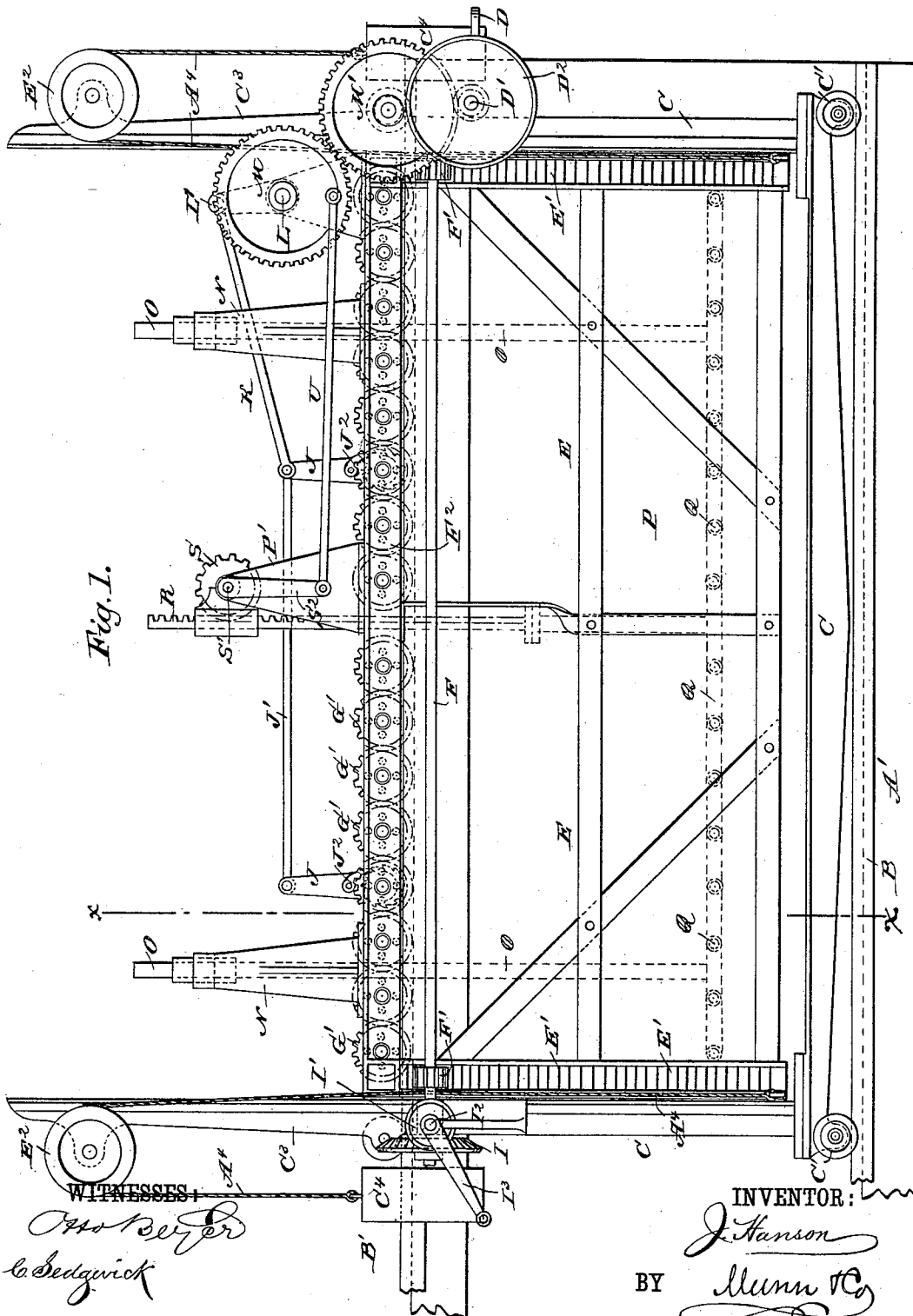
(No Model.)

3 Sheets—Sheet 1.

J. HANSON.
APPARATUS FOR DYEING.

No. 338,839.

Patented Mar. 30, 1886.



INVENTOR:

BY

ATTORNEYS.

(No Model.)

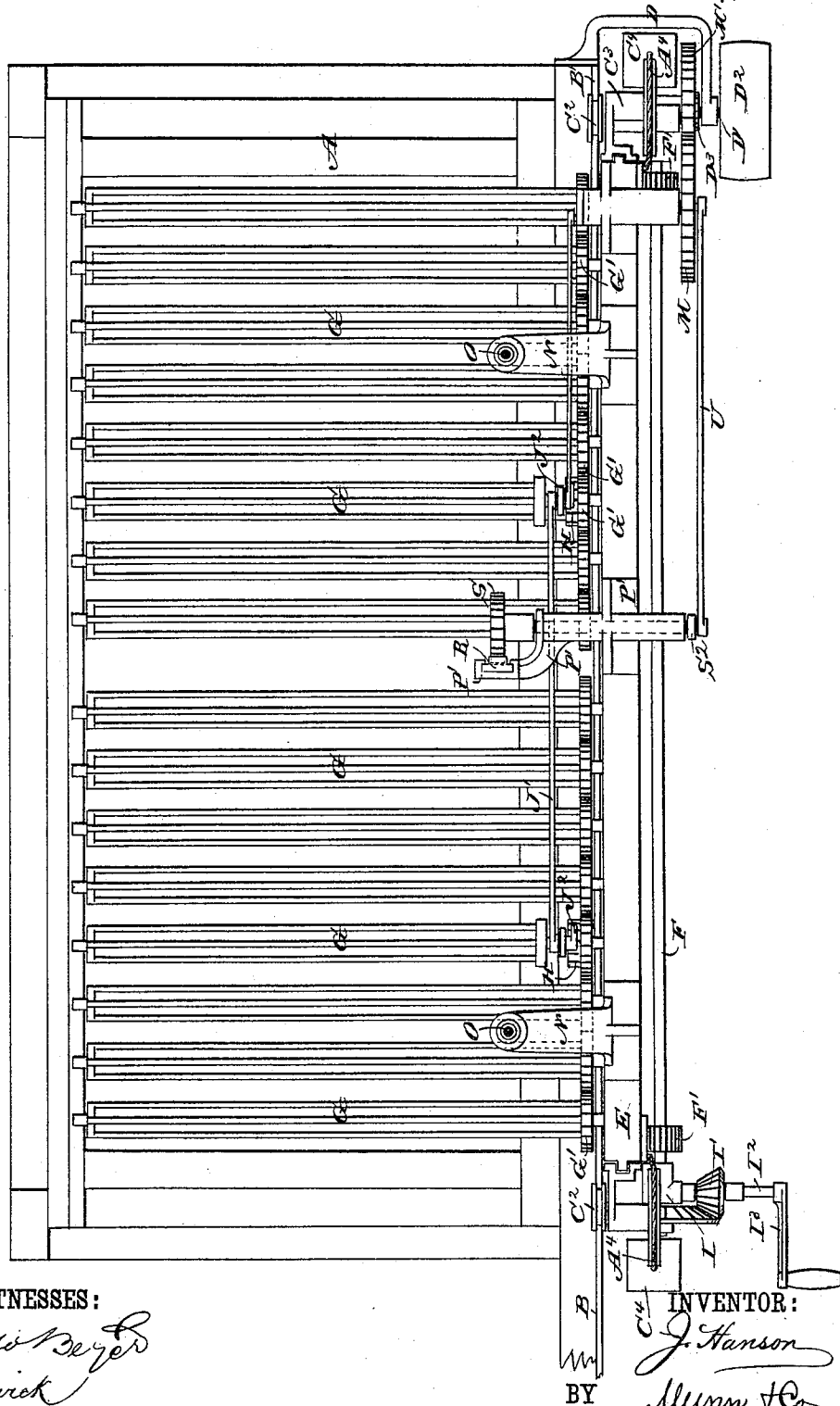
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Fig. 2.



WITNESSES:

Wm. Meyer
C. Sedgwick

INVENTOR:

J. Hanson

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ATTORNEYS.

(No Model.)

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Fig. A.

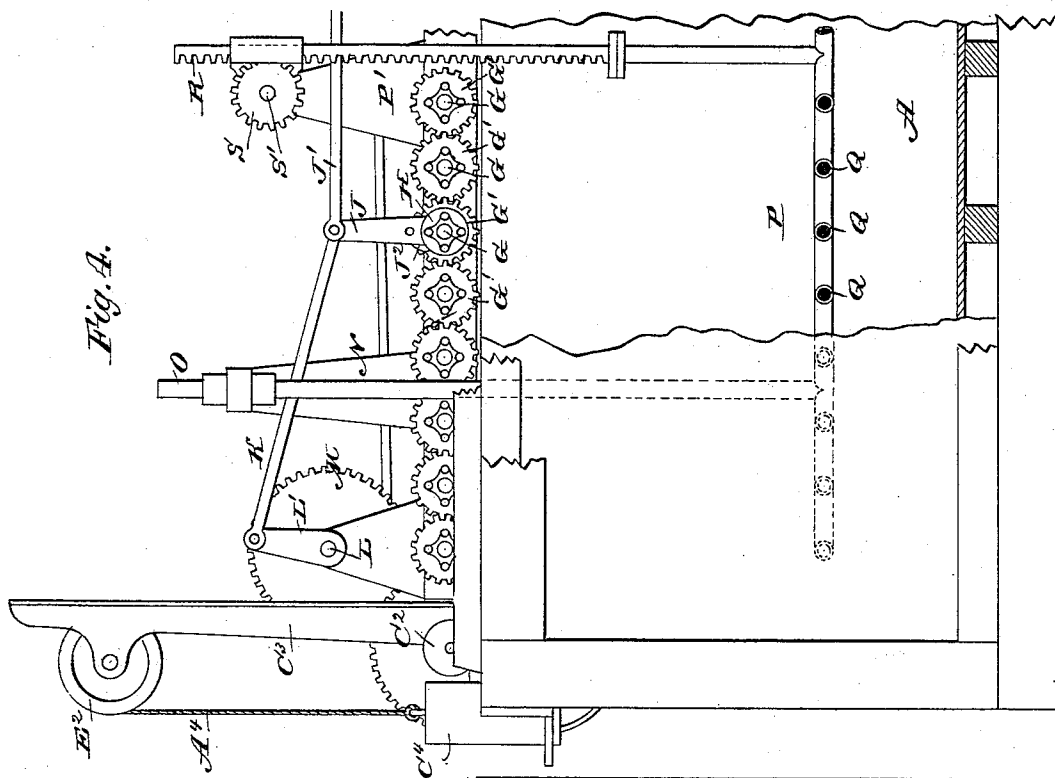
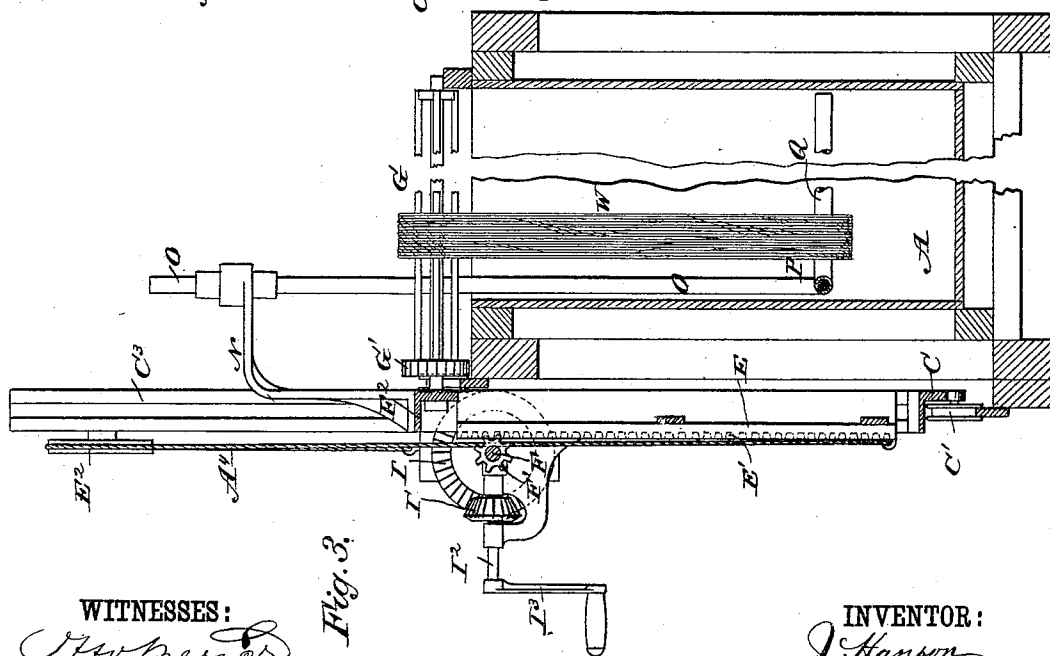


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH HANSON, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR DYEING.

SPECIFICATION forming part of Letters Patent No. 338,839, dated March 30, 1886.

Application filed September 2, 1885. Serial No. 175,996. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HANSON, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Dyeing-Machines, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for facilitating the dyeing of worsted and other yarns.

The invention consists in the construction and combination of parts and details, as will be fully set forth and described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of my improved dyeing-machine, the yarn-holding frame being lowered. Fig. 2 is a plan view of the same. Fig. 3 is a cross-sectional view on the line *x x*, Fig. 1, parts being broken out. Fig. 4 is a side view, parts being broken and others shown in section.

The vat or tank A, for receiving and holding the dyeing-liquid, rests upon and is secured to base-rails A', to one of which a track, B, is secured, a like track, B', being secured to the top of the vat and projecting beyond one end of the same. An upright frame, C, at one side of the vat has grooved rollers C' C', running on the tracks B B', thus permitting of moving the frame parallel with the side of the vat. A bent arm, D, projects from the side of the vat at one end, and on the free end of said arm a short shaft, D', is journaled, on which are mounted the belt-pulley D² and the pinion D³. A frame, E, is mounted to slide vertically in the frame C, and is provided at each end with a vertical rack, E', engaging with pinions F' on a shaft, F, journaled on the frame C parallel with the side of the vat, and provided at one end with a bevel cog-wheel, I, engaging with a bevel-pinion, I', on a short shaft, I', journaled on the frame C and having a crank-handle, I². Ropes, chains, or cables A⁴ are secured to the frame E and pass over pulleys E² on the upper ends of the end standards, C³, of the frame C, and to the other ends of said ropes or cables balancing-weights C⁴ are secured.

On the top bar, F², of the frame E a series of reels, G, are journaled, which project over the vat, and are formed of rods secured on hubs in the usual manner. Each reel has a cog-wheel, G', mounted rigidly on the shaft of the reel adjacent to the bar F², the cog-wheels being arranged in two groups, and the cog-wheels of each group engaging each other. On one reel of each group a ratchet-wheel, H, is mounted, and with said ratchet-wheels dogs or pawls J² engage, pivoted in rocking levers J, mounted on the shafts of said reels and connected by a rod, J'. One of the levers J is connected by a rod, K, with a crank-arm, L', of a shaft, L, journaled in a standard of the frame, and having a rigidly-mounted cog-wheel, M, revolved by a cog-wheel, M', on the frame C, from the pinion D³ on the short shaft D' on the arm D. Two or more guide-arms, N, project from the top bar, F², of the frame E upward and toward the vat, and in the ends of said arms vertical rods O are guided, which project upward from a horizontal frame, P, formed of rods or tubes Q, vertically below the reels G and transversely to the tanks, the said tubes being suitably united at the ends nearest the frame, but having the other ends free, as are also the corresponding ends of the reels G. A rack, R, projecting upward from the frame P is guided in an arm, P', of the frame E, and engages with a cog-wheel, S, mounted on a shaft, S', journaled in the arm P', and provided at its outer end with a crank, S², connected by a rod, U, with the cog-wheel M.

The operation is as follows: The frame E is raised by turning the shaft F, and then the frame C and the raised frame E on it are pushed beyond the end of the vat. The hanks, W, of yarn are placed on the reels G and the corresponding rods Q below the reels, and when all the reels are filled the frames C E are moved back until the reels G and tubes Q are over the vat, and then the frame E is lowered by revolving the shaft F in the inverse direction, and thereby the hanks of yarn are immersed in the liquid in the vat. The cog-wheel M' engages with the pinion D³, and thereby the cog-wheel M' is revolved. The dogs J² revolve the ratchet-wheels H, and thereby all the reels G are revolved and the yarn is moved on the reels and tubes Q, so that

all parts are successively immersed. At the same time the cog-wheel S is rocked, and the frame P is worked up and down and agitates the liquid in the vat. When the yarn has been in the vat a sufficient time, the frame E is raised, the liquid is permitted to drip off from the yarn, and the frames C E are moved beyond the end of the vat. The dyed yarn is removed, fresh yarn is placed on the reels, and so on.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a vat, of a frame adapted to move horizontally and carrying a vertically-movable frame which can be lowered into the vat, substantially as and for the purpose set forth.
2. The combination, with a vat and horizontal tracks at the side thereof, of a frame adapted to move on said tracks and carrying a vertically-movable frame which can be lowered into the vat, substantially as set forth.
3. The combination, with a vat and horizontal tracks at the side thereof, of a frame adapted to move on said tracks and carrying a vertically-movable frame which can be lowered into the vat and is provided with a vertically-reciprocating frame, substantially as set forth.
4. The combination, with a vat, of a frame adapted to move horizontally and carrying a vertically-movable frame which can be lowered into the vat, and racks and pinions for operating the said vertically-movable frame, substantially as set forth.

5. The combination, with a vat, of the frame C at one side of the same, the vertically-sliding frame E on the frame C, the reels G on the frame E, and cog-wheels and ratchet-wheels for revolving the reels, substantially as herein shown and described.

6. The combination, with a vat, of the frame C at one side of the same, the vertically-sliding frame E on the frame C, the reels G on the frame E, cog-wheels and ratchet-wheels for revolving the reels, the vertically-reciprocating frame P, and gearing for reciprocating the same, substantially as herein shown and described.

7. The combination, with a vat, of the frame C, the vertically-sliding frame E, having arms N, the reciprocating frame P, having guide-rods O passed through the arms N, gearing for reciprocating the frame P, reels G on the frame E, and gear-wheels and cog-wheels for revolving the reels, substantially as herein shown and described.

8. The combination, with the vat A, of the frame C, the vertically-movable frame E, the vertically-reciprocating frame P, the rack R on the same, the cog-wheel S, the shaft S', the arm S², the rod U, the cog-wheel M, the shaft L, the crank I', the rocking arms J, the pawls J², the ratchet-wheel H, the cog-wheels G', and the reels G, all on the frame E, substantially as herein shown and described.

JOSEPH HANSON.

Witnesses:

FRANK P. BEAL,
JOSEPH WOELFEL.