E. CHARLON.

Machine for Washing and Beating Thread.

No. 211,379. Patented Jan. 14, 1879.

Fig 1.

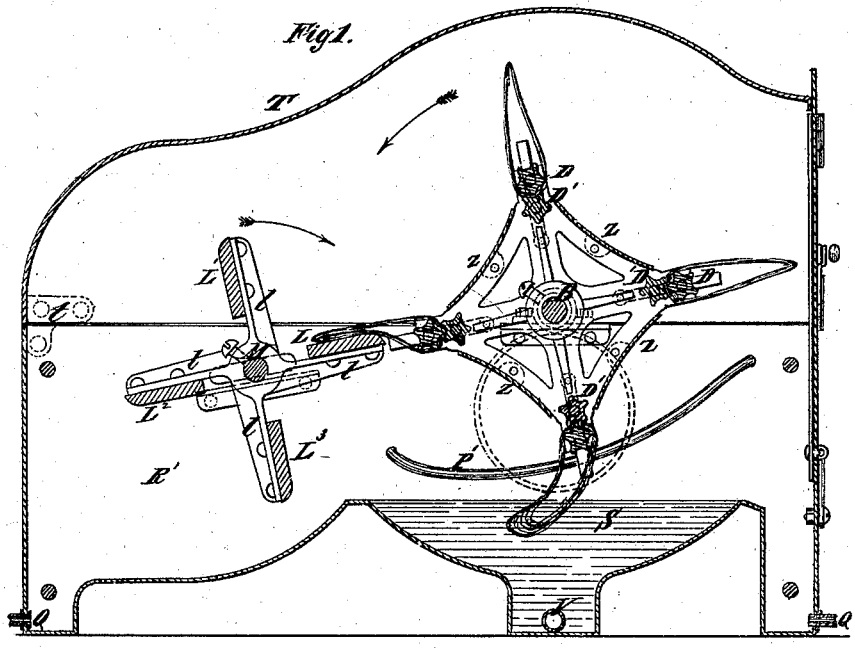


Fig 3.

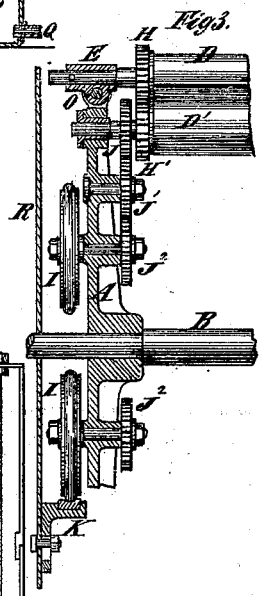
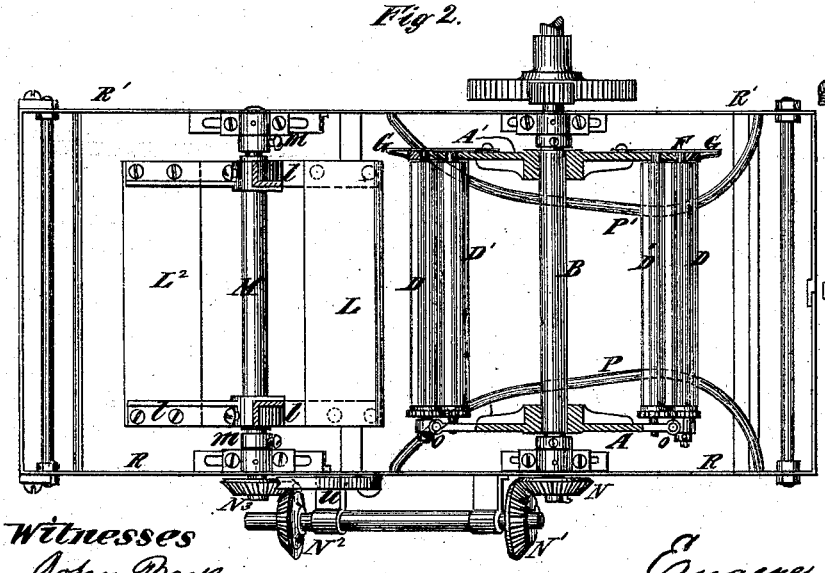


Fig 2.



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EUGÈNE CHARLON, OF LYONS, FRANCE.

IMPROVEMENT IN MACHINES FOR WASHING AND BEATING THREAD.

Specification forming part of Letters Patent No. **211,379**, dated January 14, 1879; application filed October 30, 1878.

To all whom it may concern:

Be it known that I, EUGÈNE CHARLON, of Lyons, in the Department of Rhone, Republic of France, have invented certain new and useful Improvements in Machines for Beating and Washing Thread in Hanks, of which the following is a specification:

The object of my invention is to produce a machine wherein the washing or the washing and beating of thread in hanks may be effected with less manual labor than heretofore, in which the washing and beating may be performed much more evenly and with greater regularity than by manual labor, which shall occupy very little room, and which shall accomplish the washing of thread better than those machines in which no beaters are used. The action of my machine is very similar to that of the workman in washing and beating thread by hand; but the power or speed of the machine may be regulated to suit the character of the goods to be washed or beaten.

In the accompanying drawing, Figure 1 represents a central longitudinal section of a machine embodying my improvements; Fig. 2, a plan thereof, the cover of the machine being removed; and Fig. 3, a detail view of the mechanism whereby the hanks of thread are shifted during their washing.

Similar letters of reference designate corresponding parts in all the figures.

A A′ designate heads or flanges, which are shown as keyed upon the shaft B, which may be provided with pulleys, (not here shown,) and is the driving-shaft of the machine, the whole forming a rotary carrier for the hanks of thread. These heads have arranged between them and secured to their outer edges sheets of copper or other material, Z, which prevent the hanks from becoming entangled in the carrier.

Pairs of rollers or bars, D D′, here shown as four in number, those of each pair being connected by gears H H′, are carried by the heads A A′, and may turn upon their own axis. These rollers or bars are preferably formed with several slightly-concave sides, and are so geared together that the angles of the one impinge against the sides of the other. The hanks of thread are arranged upon the rollers or bars D D′, and are firmly held between the two rollers or bars. To facilitate the removal of the hanks, the rollers or bars D are shown as provided at one end with sockets or bearings E, which are pivoted at O to permit one end of the roller to be swung outward. The other end of said rollers fits in a bronze die or bearing, F, which fits in a dovetail in the head A′, and is attached to a spring, G, by which it is held in proper position.

For shifting the hanks mechanically to present other portions thereof to the action of the beaters, I employ wheels I, preferably provided with a band of india-rubber, and which, through gear-wheels J J^1 J^2, rotate the rollers D D′.

The wheels I are carried by the head A, and during their rotation come in contact with a fixed cam-piece, K, attached to the frame of the machine, whereby they are rotated.

L L^1 L^2 L^3 designate beaters secured to arms *l*, which are keyed to a shaft, M, arranged parallel with the shaft B, and deriving motion therefrom by means of bevel-gears N N^1 N^2 N^3. The shaft M may be adjusted toward or from the shaft B by means of the sliding boxes *m*. P P′ designate guides, of copper or other material, which prevent the hanks from spreading. R R′ designate the frame-work of the machine, which is furnished with a copper receptacle, S, which contains the water for washing; and T designates a cover for the machine, preferably hinged at *t*, which prevents any water from being thrown off while the machine is in operation. The journal-boxes of the shafts M and B are supported by the frames R R′. If desirable, the shaft M may be disengaged from the shaft B by shifting the bevel-gears, and the shaft M held stationary, for example, by means of a catch or pawl, *u*, engaging with the bevel-gear N^3, thus forming stationary beaters, against which the hanks may strike. In this case the mechanical shifting of the hanks is generally dispensed with.

Any number of pairs of rollers or bars for receiving the hanks may be used; and if desirable I may substitute for the guides P P′ wings affixed to a single plate, which fulfill the same function as the beater-wheel above described, and the inclination of which may be varied at will.

The water introduced through a pipe, V, under control of any suitable valve or gate, into the receptacle S, overflows into the bottom of the case, and thence out the pipes Q.

The operation of my machine is as follows: The rollers or bars D D′ having been filled with hanks, the cover is closed, and the valve or gate controlling the admission of water opened. The speed of the heads A A′ varies according to the quality of the matter to be washed, causes the hanks to take the direction of the radius thereof, as may be seen from Fig. I, and come in contact with the beater-plates L L^1 L^2 L^3 in succession. The force of the beating varies according as the circumferential velocity of the beaters and hanks varies, being greatest when the beaters are held stationary, and nothing when the beaters and hanks rotate at the same speed. Between these two extremes the force of the beating may be varied at will. This result may also be obtained by varying the distance between the shafts M and B, thereby causing the beaters to act upon a greater or less length of the hanks. At each rotation of the shaft B the wheels I come in contact with the cam-piece K, are rotated thereby, and, through gear-wheels J J^1 J^2, turn the rollers or bars D D′, and shift the hanks. In rotating, the thread passes rapidly through the water, which is continually renewed, and is freed from all foreign matter which the beaters have aided in eliminating. This operation is continuous until the hanks are completely cleansed, when the water is shut off. By pushing aside the springs G the rollers D may be swung outward upon their pivoted bearing E, the hanks removed therefrom, and other hanks which require washing substituted, after which the roller D is swung inward and automatically locked by the springs G.

In place of the beater-wheel here shown, a drum may be used, the velocity of which may be varied at will.

Any number of beaters may be employed; and, if it is desirable to dispense with the beating, the shaft M may be moved away from the shaft B sufficiently to permit the hanks to clear the beaters in their rotation.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for washing thread in hanks, provided with a suitable trough, S, for holding the cleansing-liquid, a rotary carrier consisting of a shaft, B, two heads, A A′, and longitudinally-corrugated rollers D D′, journaled in pairs between the heads, for holding the hanks between each pair, in combination with mechanism for rotating the pairs of rollers in unison, substantially as described, whereby the corrugated rollers, acting on the hanks, will force the same to vary their position, substantially as set forth.

2. The combination, with a rotary carrier provided with a series of rollers, arranged in pairs and adapted to hold the hanks of thread between each pair, of a rotary beater the axis of which is parallel with the axis of the rotary hank-carrier, substantially as and for the purpose described.

3. In a machine for washing thread in the hank, a rotary carrier provided with rollers or bars, arranged in pairs, between which the hanks are placed, a pivoted bearing for the end of one of the rollers or bars, and a bearing carried by a spring for the other end of said roller or bar, substantially as described, for the purpose set forth.

4. In a machine for washing thread in the hank, the combination of a rotary carrier provided with rollers or bars D D′, arranged in pairs and geared together at one end, and between which pairs of rollers or bars the hanks are to be hung, with mechanism for rotating the rollers or bars at intervals, and thereby causing them to force the hanks to vary their position, substantially as set forth.

5. The combination, with a rotary carrier consisting of a shaft, B, heads A A′, and rollers or bars, journaled in pairs and geared together at one end, of the wheels I and gearing, whereby wheels I are connected with the gear-wheel on one of the rollers or bars, and a fixed cam, K, against which the wheels I will strike at intervals, substantially as described, whereby the same are caused to rotate and communicate a rotary motion to the rollers or bars D D′, substantially as and for the purpose described.

6. In a machine for washing and beating thread in the hanks, the combination of a rotary carrier provided with bars or rollers for carrying hanks, a rotary beater-frame, and pinions N N^1 N^2 N^3, whereby the carrier and beater are connected, and a device for disengaging the pinion N^3 from the pinion N^2, and adapted to hold the beater-frame stationary, substantially as and for the purpose described.

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Witnesses:
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