

W. McALLISTER.
Apparatus for Dyeing Yarns, &c.
No. 153,973
Patented Aug. 11, 1874.

Fig. 1.

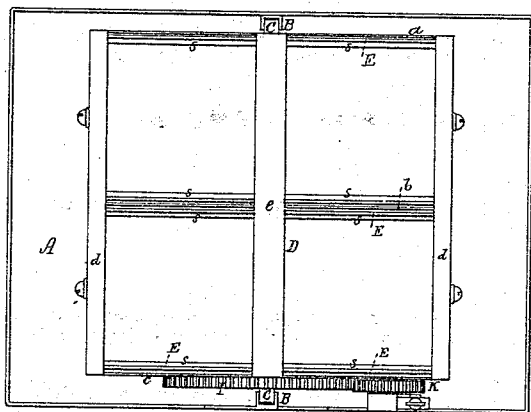


Fig. 6.

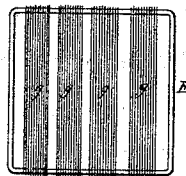


Fig. 2.

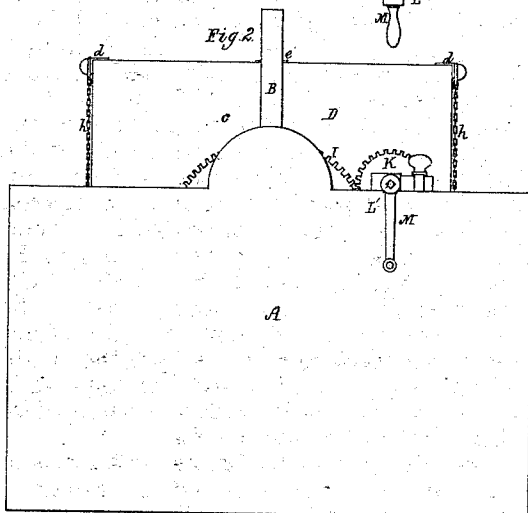


Fig. 3.

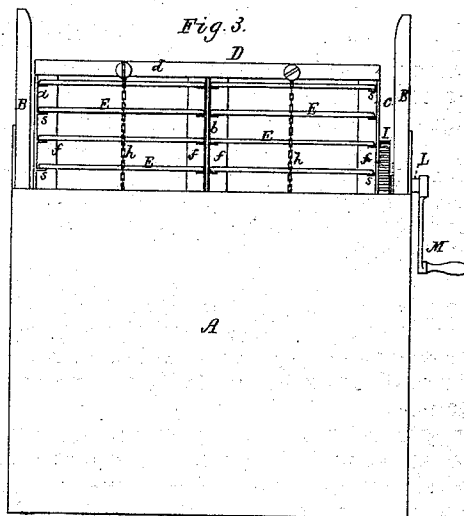


Fig. 4.

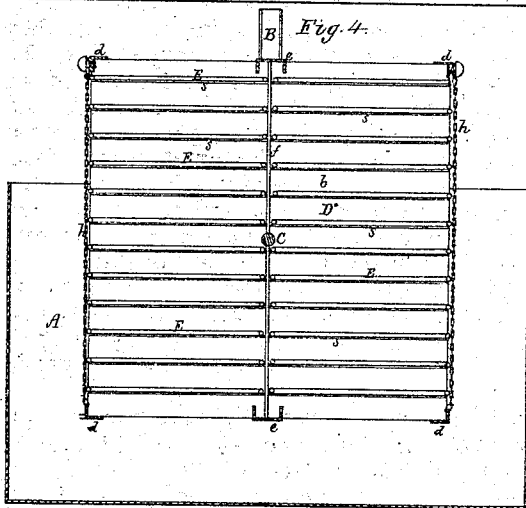
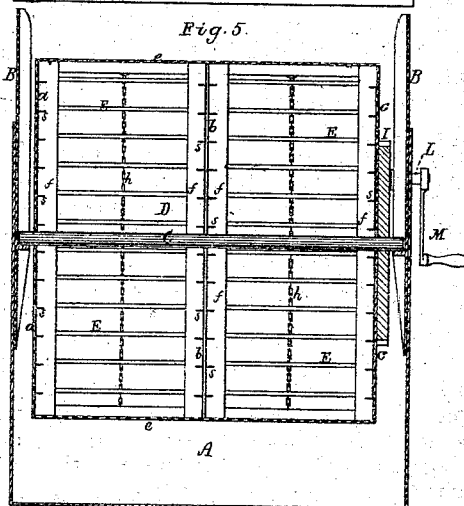


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM McALLISTER, OF LAWRENCE, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR DYEING YARNS, &c.

Specification forming part of Letters Patent No. **153,973**, dated August 11, 1874; application filed June 10, 1874.

To all whom it may concern:

Be it known that I, WILLIAM McALLISTER, of Lawrence, of the county of Essex and State of Massachusetts, have made a new and useful Improvement in Machinery or Apparatus for Dyeing Yarn; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 an end view, Fig. 4 a longitudinal section, and Fig. 5 a transverse section, of the dyeing apparatus or mechanism containing my invention. Fig. 6 is a top view of one of its skein-holders.

The invention relates to the combination of a dye-vat and its grooved standards with a rotary carrier provided with shelves, back-stops, and confining-chains, and having skein-holders, all being substantially as hereinafter explained.

In said drawings, A represents a dye-vat, provided at its middle with two standards, B B, which are grooved on their inner sides to receive and support the journals of the shaft C of the rotary carrier D, for supporting the series of skein-holders. This carrier, as represented in the drawings, is composed of three vertical parallel plates, *a b c*, arranged at their centers upon the shaft C, and at equal distances apart, and fixed to said shaft. The said plates are connected at their outer corners, as shown, by bars *d d d*, and at their middles by two bars, *e e*, all arranged as represented. To the inner surface of that part of each plate which is on either side of the shaft, is fixed, as shown, a series of parallel narrow shelves, *s s*, there being the same number of shelves in one series as in its opposite or fellow series. Those of each series are arranged at equal distances apart. At their inner ends the several plates of each series abut against a plate, *f*, extended radially from the shaft C. These latter plates *f* serve as stops to arrest and support the series of yarn-holders when upon the shelves, particularly while the carrier is in revolution. The yarn or skein holders are shown at E E, &c., each being a simple rectangular frame of wire, rounded at each of its corners, as shown. The said frame is designed to receive a series

of skeins, *g g*, of yarn; it being run through each skein so as to hold it stretched or strained out.

Each frame or skein-holder, when prepared with skeins of yarn and placed within the carrier, will be supported on two of its shelves, in manner as represented in the drawings, the frames of each series being held in place by the back rests or plates *f f*, and also by a chain, *h*, fastened to the carrier-bars of the carrier, and extended down the middle of the outer ends of the series of yarn or skein holders. To the shaft of the carrier, and against the outer face of one of its end plates, a spur-gear, I, is fixed, to engage with a pinion, K, fastened upon a short shaft, L. This shaft, supported in a suitable bearing fixed to the vat, is provided with a crank, M. On taking hold of the crank and revolving it the pinion will be caused to revolve and turn the gear I, and thereby the carrier with its skein-holders will be revolved within the vat.

When the vat may be charged with a dyeing liquid, and the carrier is put in revolution therein, the several skeins will be alternately moved into and out of the liquid. After they may have been sufficiently subjected to the action of the liquid, the carrier should be raised upward in the guide-standards and supported above the vat upon bars placed on its top, in order for the liquid to drain from the skeins. This having taken place, the holding-chains should be unfastened, the several skein-holders be removed from the carrier, and a fresh supply be substituted.

The apparatus thus made is very useful or convenient for dyeing yarn in the skein, and it may be used also for washing or scouring it.

I claim as my invention as follows—that is to say:

1. The rotary carrier D, constructed substantially as described, viz., with shelves *s*, two or more support-plates, *a b c*, shaft C, and back-stops *f*, arranged and combined essentially in manner as specified and represented.
2. The rotary carrier D, provided with the shelves *s* and back-stops *f*, as described, and with a confining-chain, *h*, to each system of shelves, for supporting a series of skein-holders.
3. The skein-holder E, made and for use as

described, viz., of a rectangular frame rounded at the corners, and for use in the machine as explained.

4. The combination of the dye-vat A and its grooved standards B B with the rotary carrier D, provided with the shelves s, back-stops f, shaft C, and confining chain or chains h,

or with such and one or more series of yarn-holders, E, all being arranged and to operate substantially as set forth.

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Witnesses:

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