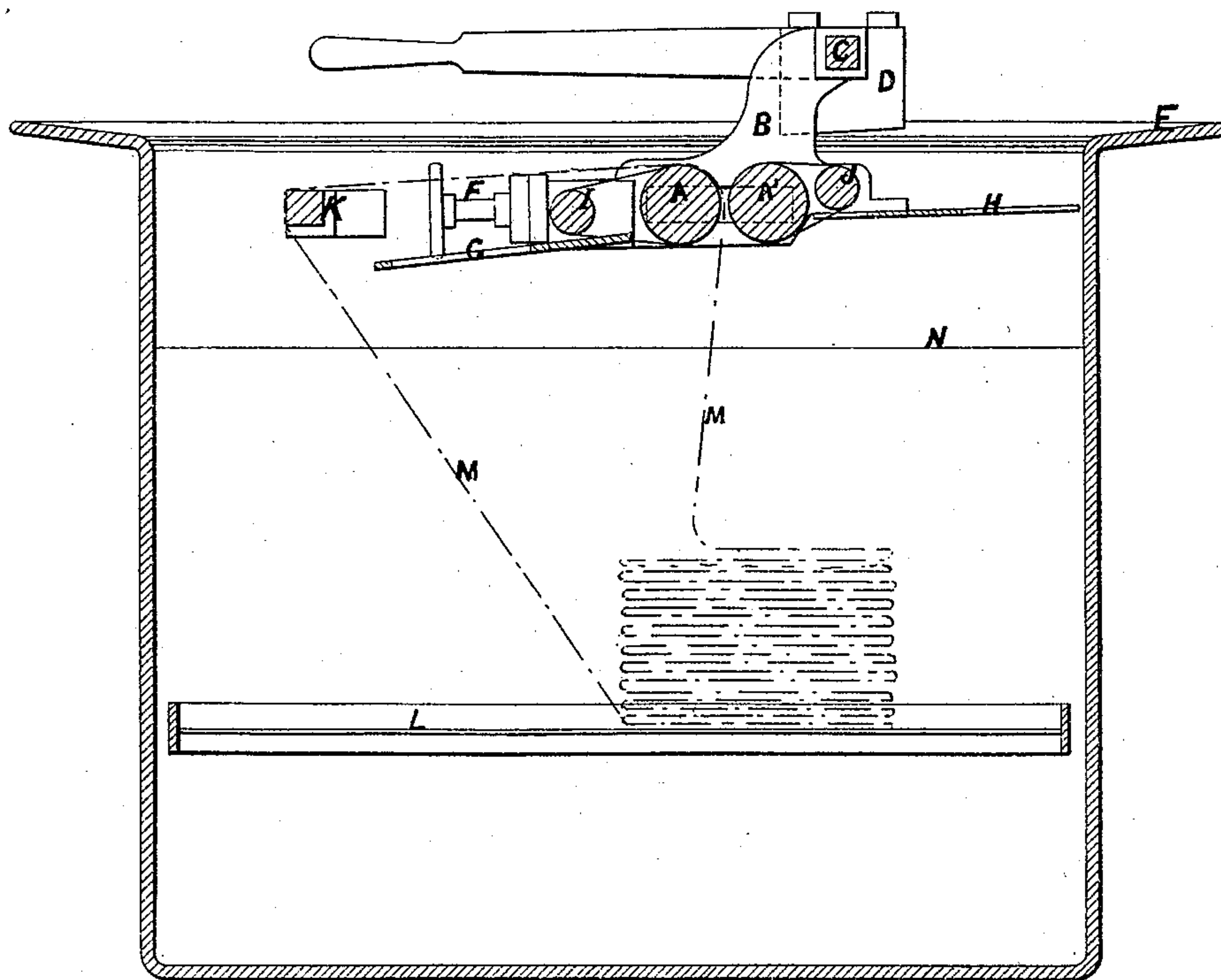


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J. COULTER.

No. 152,404.

Patented June 23, 1874.

FIG. 1.



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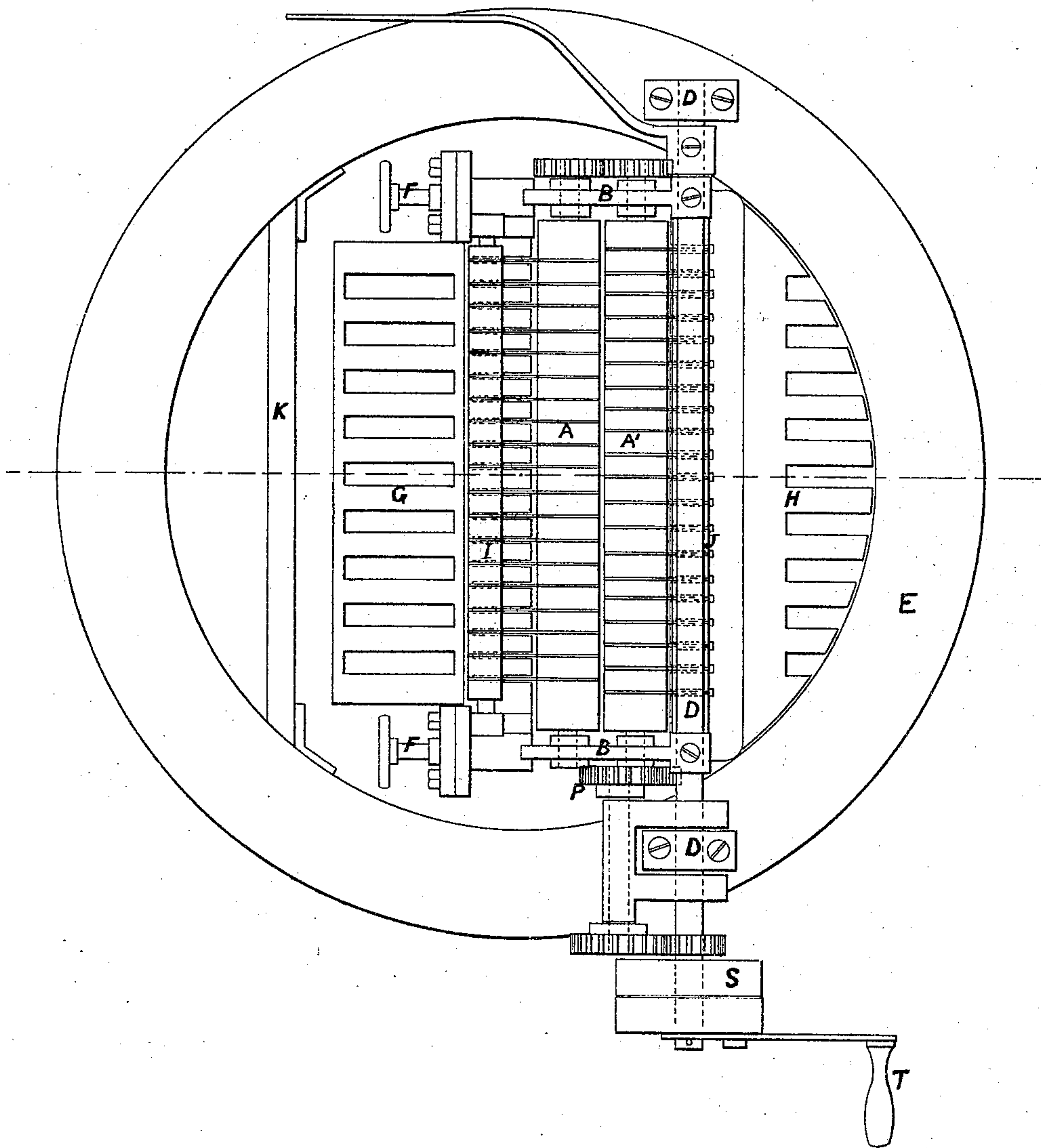
J. OLDROYD, M. OLDROYD, Jr., J. WOODCOCK &
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Apparatus for Dyeing with Indigo, &c.

No. 152,404.

Patented June 23, 1874.

FIG. 2.



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UNITED STATES PATENT OFFICE.

JOHN OLDROYD, MARK OLDROYD, JR., JOSHUA WOODCOCK, AND JAMES COULTER, OF DEWSBURY, ENGLAND.

IMPROVEMENT IN APPARATUS FOR DYEING WITH INDIGO, &c.

Specification forming part of Letters Patent No. **152,404**, dated June 23, 1874; application filed December 11, 1873.

To all whom it may concern :

Be it known that we, JOHN OLDROYD and MARK OLDROYD, Junior, of the firm of MARK OLDROYD & SONS, woolen manufacturers, and JOSHUA WOODCOCK, dyer, and JAMES COULTER, engineer, all of Dewsbury, in the county of York and Kingdom of England, have invented certain new and useful Improved Means or Machinery for Indigo-Blue Dyeing; and we do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the means or process of dyeing textile fabrics with indigo; and the improved means or machinery consist of a pair of nipping or squeezing rollers mounted in suitable frames, and these frames hinged in pedestals fixed to the "carve" or flange on each side of the dye vat, cistern, or vessel, and in such manner as that the rollers may be immersed in the dye liquor when in use. Motion may be given to these rollers by either hand or power. A rail or roller is also placed across the vat or cistern so as to be immersed in the liquor, and at a suitable distance from and parallel to the rollers. The fabric to be dyed is passed betwixt the rollers into the vat or vessel, (where it becomes cuttled, or falls into folds,) and the leading end, being brought back under and over the rail or roller, is joined by stitching to the other end, forming an endless fabric, whereby the motion through the liquor becomes continuous. A scray or grating is attached to the frame on each side of the rollers, to prevent the fabric rising to the surface of the liquor. Also, to prevent the fabric adhering to and being carried around either of the rollers, we apply an additional roller at opposite sides of the nipping-rollers, with bands, cords, or tapes passing over one of each nipping-roller and one of the additional rollers. The frames in which the rollers are mounted, being hinged, enable them to be readily lifted out of the liquor.

In order that this invention may be clearly

understood, we herein refer to the accompanying sheet of drawings of a dye vat or vessel of the ordinary kind with our improved means, machinery, or apparatus applied thereto.

Figure 1 is a vertical section, and Fig. 2 a plan.

A and A' are the pair of nipping or squeezing rollers, mounted in suitable frames B, attached to a shaft, C, hinged in pedestals D, fixed on the carve or flange E of the vessel. These rollers are nipped or pressed together by spiral or other springs, the pressure being adjusted by the screws F. Scrays, gratings, or trellis-frames G and H are attached to the frames B, and rollers I and J are also mounted in bearings in the said frames B. Endless bands are passed around the roller A and roller I, and also others around the roller A' and roller J, which are kept in position by the slits in the scray—one band being provided to each slit. A rail, K, is fixed in the vessel, and an ordinary false bottom or trammel, L, is placed therein, as usual. The drawing shows the position of the apparatus when in use; the dotted line M shows the fabric, and the line N the surface of the liquor. Motion is given to the rollers A and A' by means of the train of wheel-gearing P from the driving-pulleys S, which may be driven by strap from any source of power; or a handle, T, may be used by the attendant to give motion to them.

When the apparatus is not in use, it is lifted or turned over out of the vessel by means of a lever applied to the shaft C. The method or manner of using this apparatus will be readily understood by all practical indigo-blue dyers, that the fabric being passed between the rollers A and A' and under the scray G, thence over the rail K, when the ends are joined together. Then, by putting the machinery or apparatus in motion, either by hand or power, the fabric will be caused to travel in the liquor, in manner somewhat as shown in the drawings, for or during any length of time desirable or requisite to effect the proper dyeing of the same. The scrays prevent the fabric rising above or out of the dye-liquor, and the bands prevent it from being carried around either of the rollers A or A'.

We claim—

1. In an apparatus for indigo-blue dyeing, the squeezing or nipping rollers A and A', pressed together by spiral or other springs, and the rollers I and J, such rollers A and I and A' and J being connected together by endless bands, as described, in combination with the scrays or gratings G and H as false bottom or trammel, and a rail, K, arranged and operating substantially as described.

2. In an apparatus for indigo-blue dyeing, the hinged frame B, in combination with the shaft C, provided with a lever, to enable the operator to lift the mechanism out of the vat

and dye-liquor, substantially as and for the purposes specified.

In testimony that we claim the foregoing, we have hereunto set our hands this twenty-fourth day of June, one thousand eight hundred and seventy-three.

JOHN OLDROYD.
MARK OLDROYD, Jr.
JOSHUA WOODCOCK.
JAMES COULTER.

Witnesses:

WM. TASKER,
F. S. RICHARDS.