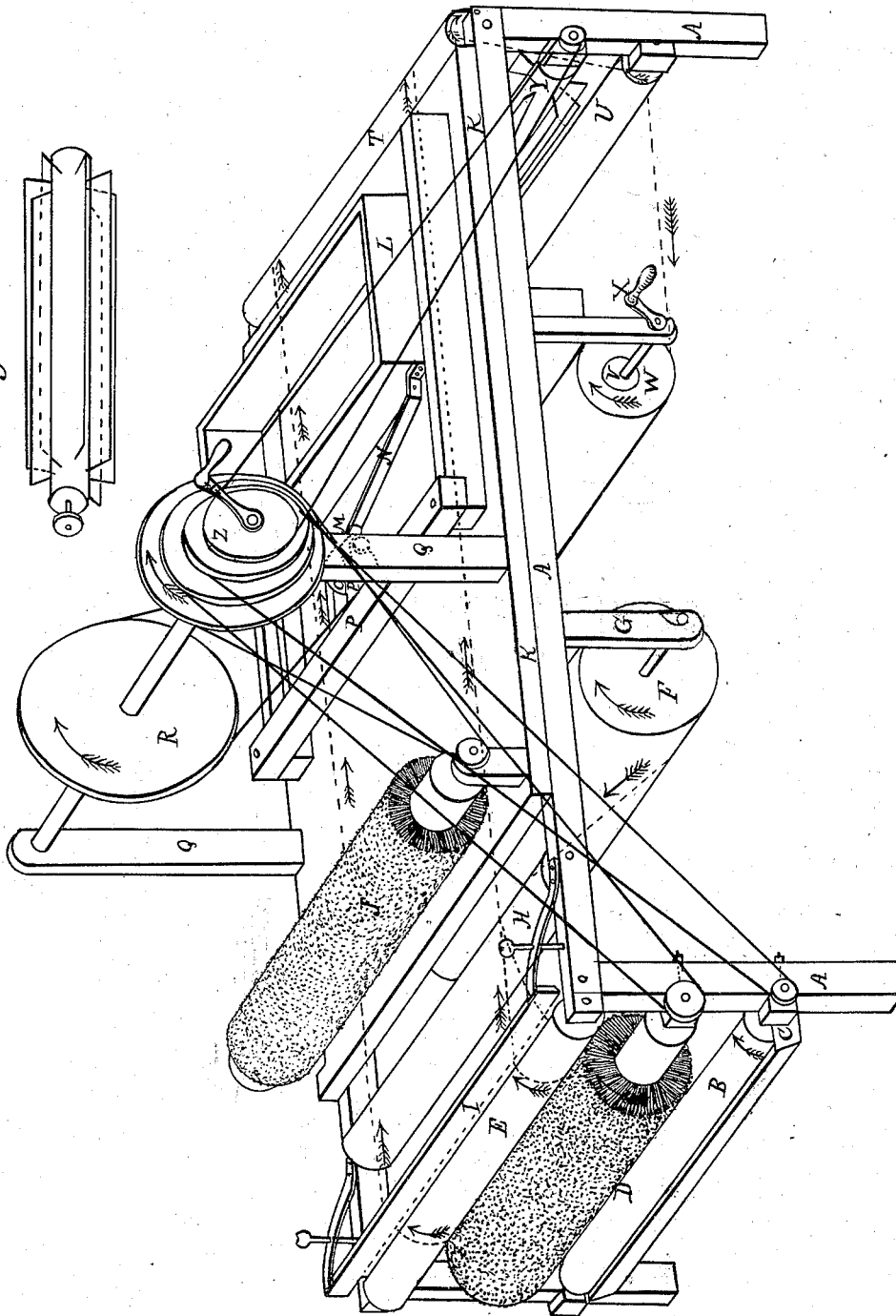


E. Morris.
Paper Mach.

N^o 3,738.

Patented Sept. 14, 1844.

Fig. 2.



UNITED STATES PATENT OFFICE.

EDMUND MORRIS, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR MAKING SAND, GLASS, OR EMERY PAPER.

Specification of Letters Patent No. 3,738, dated September 14, 1844.

To all whom it may concern:

Be it known that I, EDMUND MORRIS, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Machine for Manufacturing Sand or Glass or Emery Paper; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

A frame of wood or iron is made, A A A, about 6 feet long by about 3 feet wide; at one end is a roller B, of wood, revolving horizontally in a trough C, filled with cement; immediately above and in contact with it, revolves a soft cylindrical brush D, which receives a supply of cement from B and delivers it on to the paper which passes around another wooden roller E, immediately above D, the track pursued by the paper being indicated by the dotted red lines. The paper, in a continuous sheet, wound up in a roll, as at F, is suspended tightly on a mandrel under the frame, in suitable hangers G, and the sheet being carried over a guide roll H, placed in the upper part of the frame, it passes around the roller E, where it receives the supply of cement, and by means of a doctor or scraper I, (secured by suitable springs to the frame, which doctor is made to press on the paper by set-screws, is made to press on the paper as it rises,) the quantity of cement left on the paper is regulated with great precision, as the supply is increased or lessened according to the degree of pressure given to the doctor. After traveling a short distance in a horizontal line, the sheet encounters another cylindrical brush J, which revolves rapidly, and which distributes the cement with great evenness over the surface of the paper, and lays the grain straight, the sheet running over the table K, K. It then passes on under the box L, which has a sieve in the bottom, so adjusted as to be readily taken out and changed, this box being moved rapidly to and fro between ledges which are raised above the table K K, the motion being communicated to it by a crank M, attached to the connecting rod N, and the crank working in the pulley O. This pulley is firmly set in a brace P, running across the machine, before the two uprights Q, which sustain the main shaft. The pulley is

driven by a belt from the large pulley R, on the main shaft, to the end of which is attached the crank S, by which motion is given to said shaft. The sand, emery, or other material, being placed in the box containing the sieve, the agitation of the box causes the sand, &c., to fall on the paper as it passes under the sieve, where it adheres, the surface having been previously covered with cement. The sand, &c., may be distributed by other means, as by a revolving sieve, or screen, but the foregoing arrangement is that which I prefer. The sheet then passes on a short distance, and descends in a nearly perpendicular line over the roller T, and also over another roller U, about two feet below T, but in a contrary direction, when it is carried, with the cemented surface toward the floor, to a drum V, suspended in suitable supports, under the machine, where it is wound up in a roll, as seen at W, the said drum being turned by the crank X, or by any other convenient gearing. But between the two rollers T and U, there is placed a revolving wooden roller Y, having six or more arms inserted therein, at equal distances apart, their extremities being connected by cross pieces somewhat like the dasher of a churn, or they may be composed wholly of metal wire bent as represented in Fig. 2, and the ends inserted in the wooden roller. This I call a knocker, and is fully delineated in Fig. 2. Its six or more knockers or dashers, come in rapid contact with the paper on its descent from T to U, and knock off from the paper all the superfluous sand deposited by the sieve; for if the sheet were wound up on the drum with an excess of sand upon it, it would be greatly injured thereby, besides consuming two or three times the quantity of sand actually necessary to produce good sand paper, and would require the paper, after being dried, to be brushed over its whole surface so sanded, to remove the loose and imperfectly cemented portions. All these evils and expenses are effectually avoided by the operation of the knocker. On the shaft of this knocker, as well as on the shafts of B, D and J, pulleys are secured, the said pulleys being driven by belts or cords passing over larger pulleys on the main shaft, as seen at Z. The main shaft is supported on two uprights near the center of the machine, and it may be turned by

hand, or by any suitable power. It must be also observed, that all the rollers, brushes, and the knocker, are provided with suitable bearings or boxes, while those of B, and D, are made to slide up and down, by shanks on the boxes, which pass through slots in the legs of the frame, and are secured by nuts screwed on to the projecting ends of those shanks.

By the machine above described, sand paper, or glass or emery paper, can be manufactured with great rapidity and precision, and in a style of excellence infinitely superior to the old process of making by hand.

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

The combination of the knocker Y, with the sieve or other suitable apparatus for distributing the sand, glass, emery, or other material, and with appropriate rollers and brushes, whether arranged precisely in the manner herein described, or in any other that is substantially the same, producing a like result by analogous means.

EDMUND MORRIS.

Witnesses:

WILLIAM E. LAFFERTY,
SAMUEL W. HARDING.