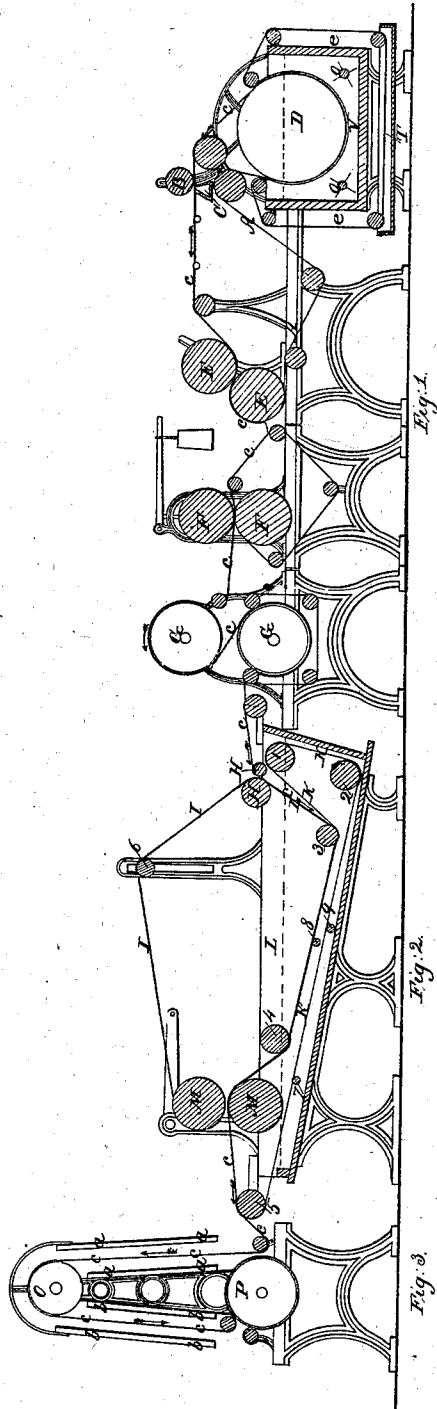


G. W. TURNER.
MACHINE FOR MAKING AND SIZING PAPER.

No. 8,698.

Patented Jan. 27, 1852.



UNITED STATES PATENT OFFICE.

GEORGE WILLIAM TURNER, OF LONDON, ENGLAND.

MACHINE FOR MAKING AND SIZING PAPER.

Specification of Letters Patent No. 8,698, dated January 27, 1852.

To all whom it may concern:

Be it known that I, GEORGE WILLIAM TURNER, of London, in the county of Middlesex and Kingdom of Great Britain, paper manufacturer, have invented new and useful Improvements in Machinery for the Manufacture of Paper; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, marked, respectively, "1," "2," and "3," and to the letters of reference marked thereon.

I use for holding the pulp a vat V, Figure 1, similar to those in common use provided with the usual agitators called hogs, seen in the drawing and marked *o, o*, for keeping the pulp in continual motion. A large drum D is fixed in this vat similar to that used in the well known cylinder machines, saving that the web of wire about the drum, instead of being fixed upon the surface of said drum, is in my machine an endless web of the same material moving over the drum, which web is represented in the annexed drawing, Fig. 1, by the yellow line A. This web is carried around in the pulp vat, taking up the pulp in its revolution, and carrying it upon its surface under the dandy roller B, which said dandy roller gives to the paper any required watermark. Beneath the dandy roller and the endless web is fixed a pneumatic trough C, which removes, by exhaustion, the greater part of the water held in the pulp. I likewise provide deckles, represented in Fig. 1 by the lines *e, e*, which form the boundary line of and give any required width to the sheet of pulp as it comes up out of the vat V, upon the wire web, which said deckles as they revolve pass down through a water trough T beneath the vat V, which keeps them clear of all impurities. The paper represented by the blue line *c* after leaving the dandy roller B and the pneumatic trough C travels upon the said endless wire web A to a pair of rollers and receives from them a sufficient pressure. These pressure rollers are to be covered with felt or other suitable material. They are represented in the drawing Fig. 1 at E E. They give certain firmness to the texture and are similar to the pressure rollers found in the well known machine of Fourdrinier. From rollers E E the paper passes on a web of felting to a second pair of rollers Fig. 1,

F F, where it is subjected to further suitable pressure. Thence it is conducted to the metal cylinders represented in Fig. 1 at G G. These cylinders are to be heated in any convenient method so that the paper may be entirely or partially dried before passing into the sizing machine, Fig. 2.

It is not absolutely essential to the manufacture of paper that the paper should pass over the drying rollers G G, for I have found that by removing them, and allowing the paper to pass directly, without drying, from the pressure rollers F F into the sizing machine Fig. 2 very good paper is produced. After leaving the heated cylinders or drying in rollers G G or the pressure rollers F F, if the heated cylinders are not used, the paper indicated by the blue line *c* passes into the sizing machine F². Here it is caught between the two rollers H H and is carried by and between two endless felts, or other endless textile fabrics indicated by the red lines I and K through the trough L, which is filled with suitable size. The two endless webs or felts are carried upon and by rollers represented in the drawing, and marked 1, 2, 3, 4, 5, 6, 7 &c., and are so arranged that the paper *c* shall be carried through the trough L between the belts I and K. After passing through the size, the paper is carried by the belts between two pressure rollers M M which said rollers express any excess of size that may be held by the paper. From said rollers the paper *c* is carried up to the elevated metal cylinder, represented in Fig. 3 and marked O, which is to be heated in any convenient manner, the paper in its ascent to the drying cylinder O passing between two heated metal plates or boxes *aa* and *aa* which plates remove any surface moisture from the paper which might cause it to stick or pass unevenly over the cylinder O. After passing over the cylinder O the paper descends between two heated metal plates or boxes *bb* and *bb* similar in all respects to those above mentioned and marked *aa* and *aa* to the heated metal cylinder or drying roller P over which it passes and from which it may be carried over other cylinders and between other metal plates or boxes, similar to those just described, or to simple heated cylinders similar to those represented in Fig. 1 and marked G G if further drying is desired.

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

1. The application of the endless wire web in combination with and passing around the
5 cylinder and taking the pulp up from the vat and carrying it forward and submitting it to the action of the dandy roller and pneumatic trough, taking the place of the fixed wire web and endless felt in the cylinder
10 machines now in use, and the wire web upon which the pulp flows in the above mentioned Fourdrinier's machines. I am aware that a somewhat similar combination is found in Millburn's machine, reported in *Repertory*

of Patent Inventions, 5th series, vol. 9, page 15 325, dispensing with the cylinder D, but that I do not claim.

2. I claim the method of passing the paper through a trough of size between two endless felts or other fabrics as above described 20 thereby obtaining a perfect and uniform saturation of the paper, and protecting the paper from all injury during the process of sizing and pressing.

GEORGE WILLIAM TURNER.

Witnesses:

WOLCOTT R. HARRISON,
CHAS. R. ABBOTT.