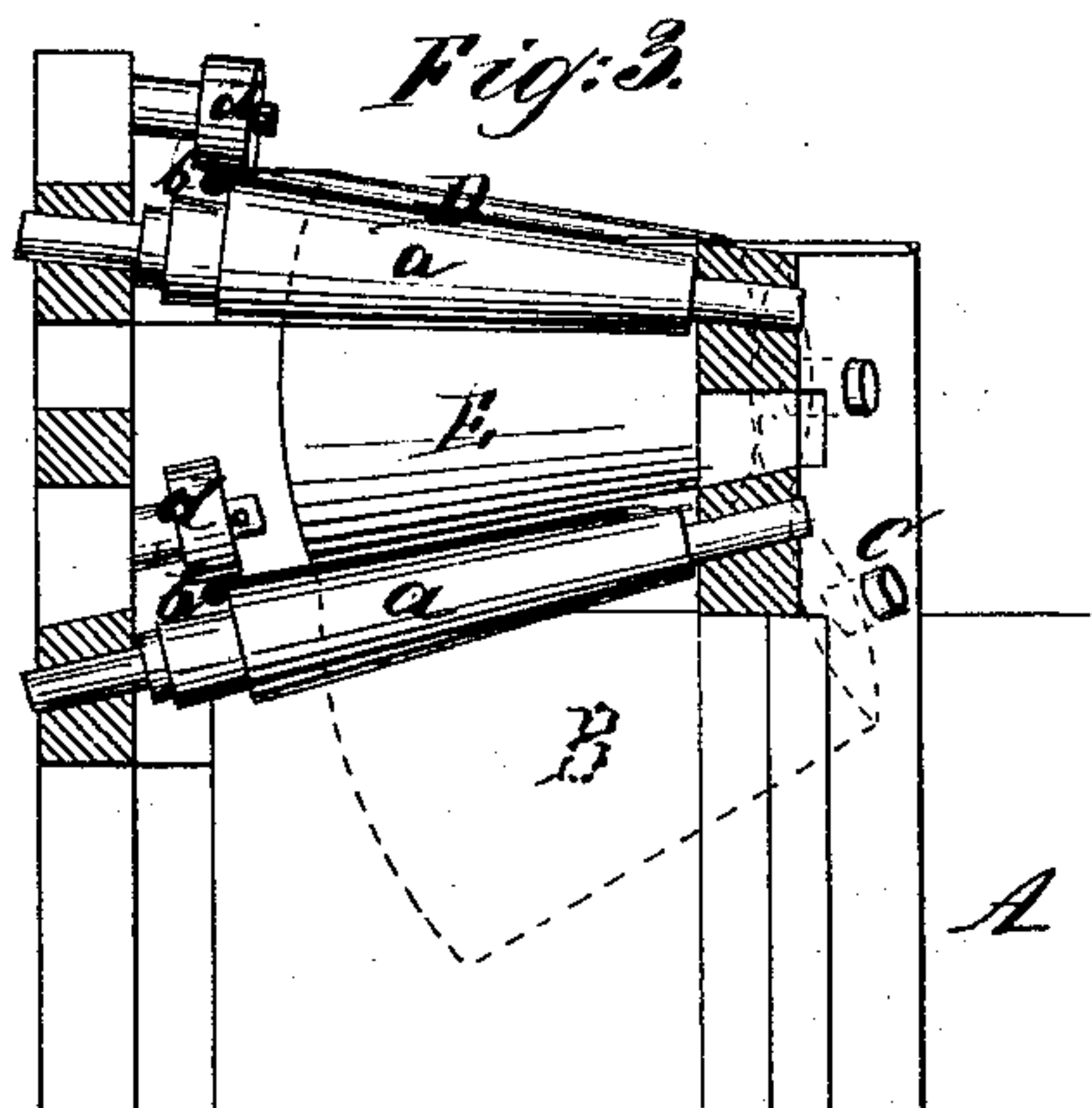
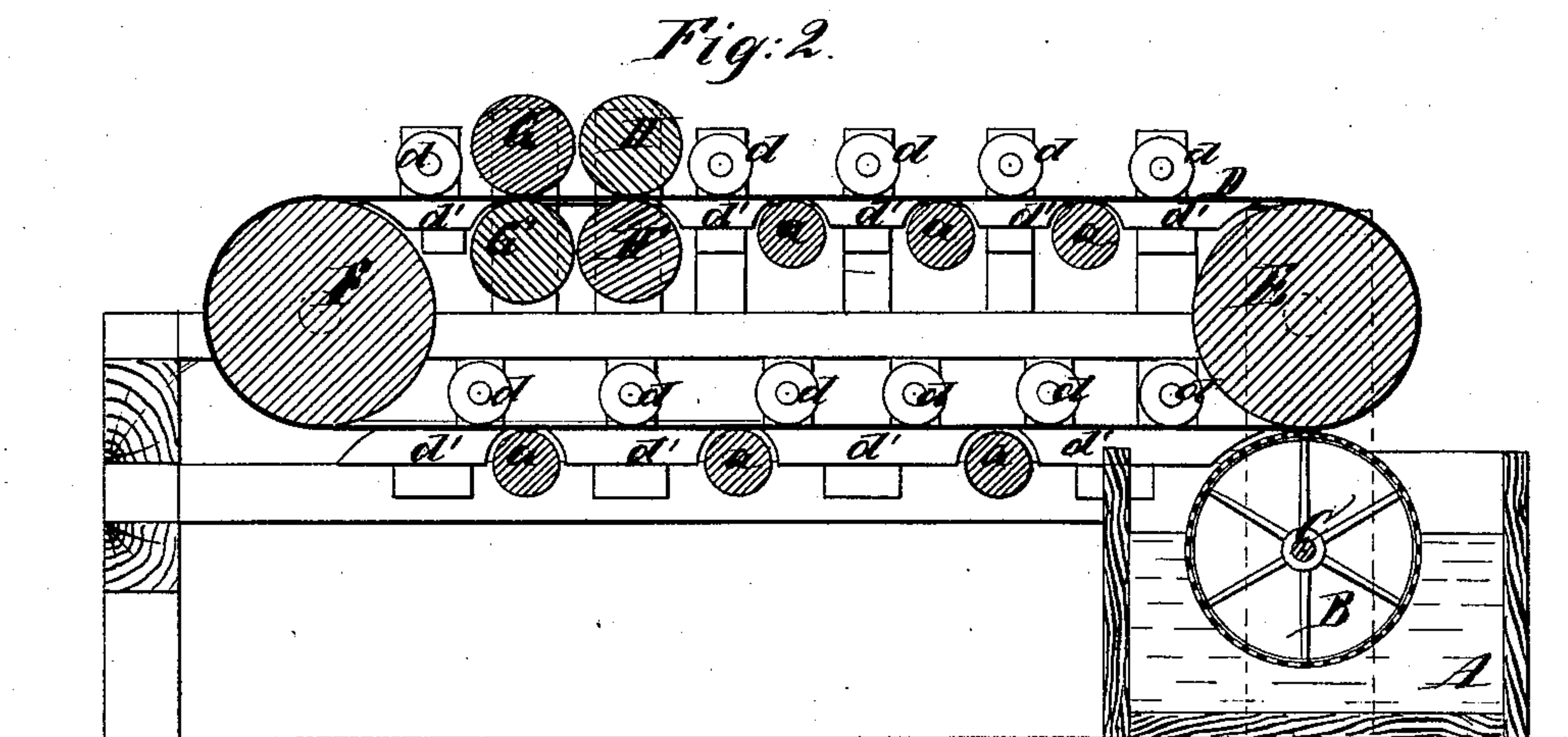
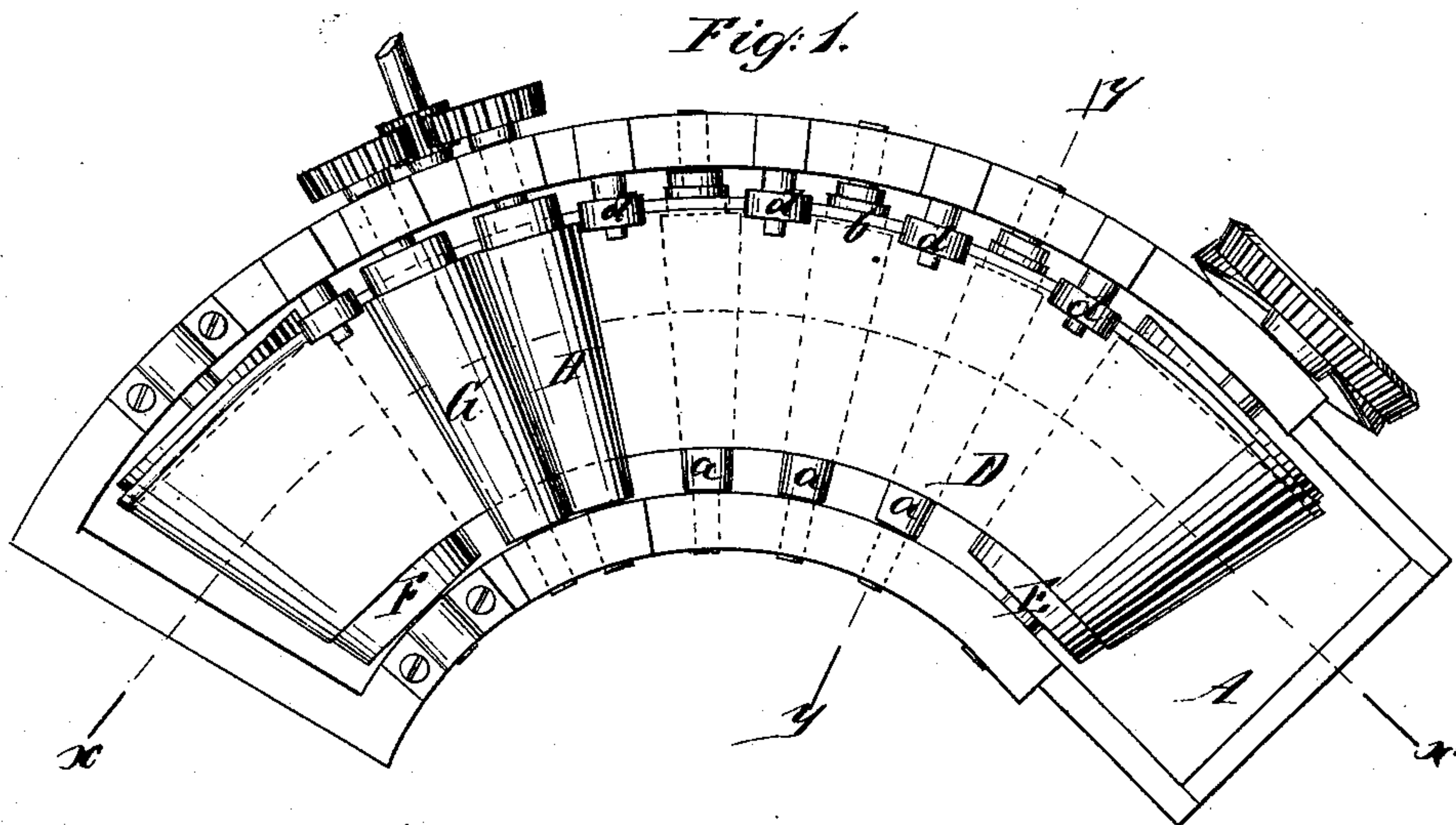


C. P. & W. F. EDWARDS.

Paper-Tube Machine.

No. 162,634.

Patented April 27, 1875.



Witnesses:
Chas. Wählers,
Ernst Bilhuler.

Inventors.
Charles P. Edwards
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Van Santvoord & Hauff
Attys

UNITED STATES PATENT OFFICE.

CHARLES P. EDWARDS AND WILLIAM F. EDWARDS, OF SUMMIT, N. J.

IMPROVEMENT IN PAPER-TUBE MACHINES.

Specification forming part of Letters Patent No. **162,634**, dated April 27, 1875; application filed January 29, 1875.

To all whom it may concern:

Be it known that we, CHARLES P. EDWARDS and WILLIAM F. EDWARDS, both of Summit, in the county of Union and State of New Jersey, have invented a certain new and Improved Paper-Tube Machine, of which the following is a specification:

This invention is illustrated in the accompanying drawing, in which—

Figure 1 represents a plan or top view. Fig. 2 is a longitudinal vertical section in the plane *x x*, Fig. 1. Fig. 3 is a transverse vertical section in the plane *y y*, Fig. 1.

Similar letters indicate corresponding parts.

This invention relates to certain improvements in machines for making tubular articles of paper; and the invention consists, principally, in an endless apron passing over a series of rollers or drums arranged in the arc of a circle, in combination with a tapering mold, which takes up the pulp from a vat, delivers it to the apron, which conveys it to one or more rollers, which take up the pulp and form the desired article. The edge of the curved apron is strengthened by a raised rib, which bears against guide-rollers above and against a curved rail below, for retaining the apron in the proper path.

In the drawing, the letter A designates a vat, in which is placed a tapering mold, B, which revolves on a shaft, C. This mold bears against an apron, D, which is stretched over two conical rollers or drums, E F. The shafts of these drums, and also the shaft of the tapering mold, point toward a common center, and the apron D is curved, and it is supported by a series of conical guide-rollers, *a*, the shafts of all of which point toward the common center above mentioned. The outer edge of the apron D is provided with a flange, *b*, which serves to strengthen the same, and which runs against a series of small guide-rollers, *d*, that are situated above the two strands of the apron, and force the flange *b* down, so that the same bears against the ends of conical guide-rollers *a*, (see Fig. 3,) and also against the edges of stationary rails *d'*, which are secured on the main frame of the apparatus, between the conical guide-rollers *a*. Near the drum F are two forming-rollers, G

H, which are alternately brought in action, and which work in conjunction with corresponding supporting-rollers, G' H'. The tapering mold transfers a quantity of paper-pulp from the vat A to the apron D, the water mixed with the pulp passing off through the perforations of said mold; and by this apron the pulp is conveyed to the first forming-roller, H, which takes the same up and brings it in the form of a cone, suitable for a pail or other article of a similar nature. When the forming-roller H has been filled it is lifted out, and the pulp previously taken up by the apron is conveyed to the second forming-roller, G, which is filling, while the first roller, H, is being emptied. By combining the tapering mold with a curved apron, and with one or more conical forming-rollers, the production of conical articles of paper, such as pails, is materially facilitated.

We do not claim the combination of a cylindrical mold with an endless apron and cylindrical rollers or drums, for supporting and causing said apron to traverse such rollers or drums, to operate in conjunction with forming-rollers, which are alternately brought in and out of operation, as such is the subject-matter of an application for Letters Patent heretofore filed by us.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the endless segmental apron and its supporting tapering rollers, of the tapering mold and one or more forming-rollers, all constructed to operate substantially as and for the purpose specified.

2. The strengthening-flange on the outside edge of the curved apron, in combination with the guide-rollers and a guide-rail, all constructed and operating substantially in the manner shown and described.

In testimony that we claim the foregoing, we have hereunto set our hands and seals this 18th day of January, 1875.

CHARLES P. EDWARDS. [L. S.]
WM. F. EDWARDS. [L. S.]

Witnesses:

W. HAUFF,
E. F. KASTENHUBER.