

(No Model.)

T. A. & J. BOYNE, Jr.  
PAPER MACHINE.

No. 287,500.

Patented Oct. 30, 1883.

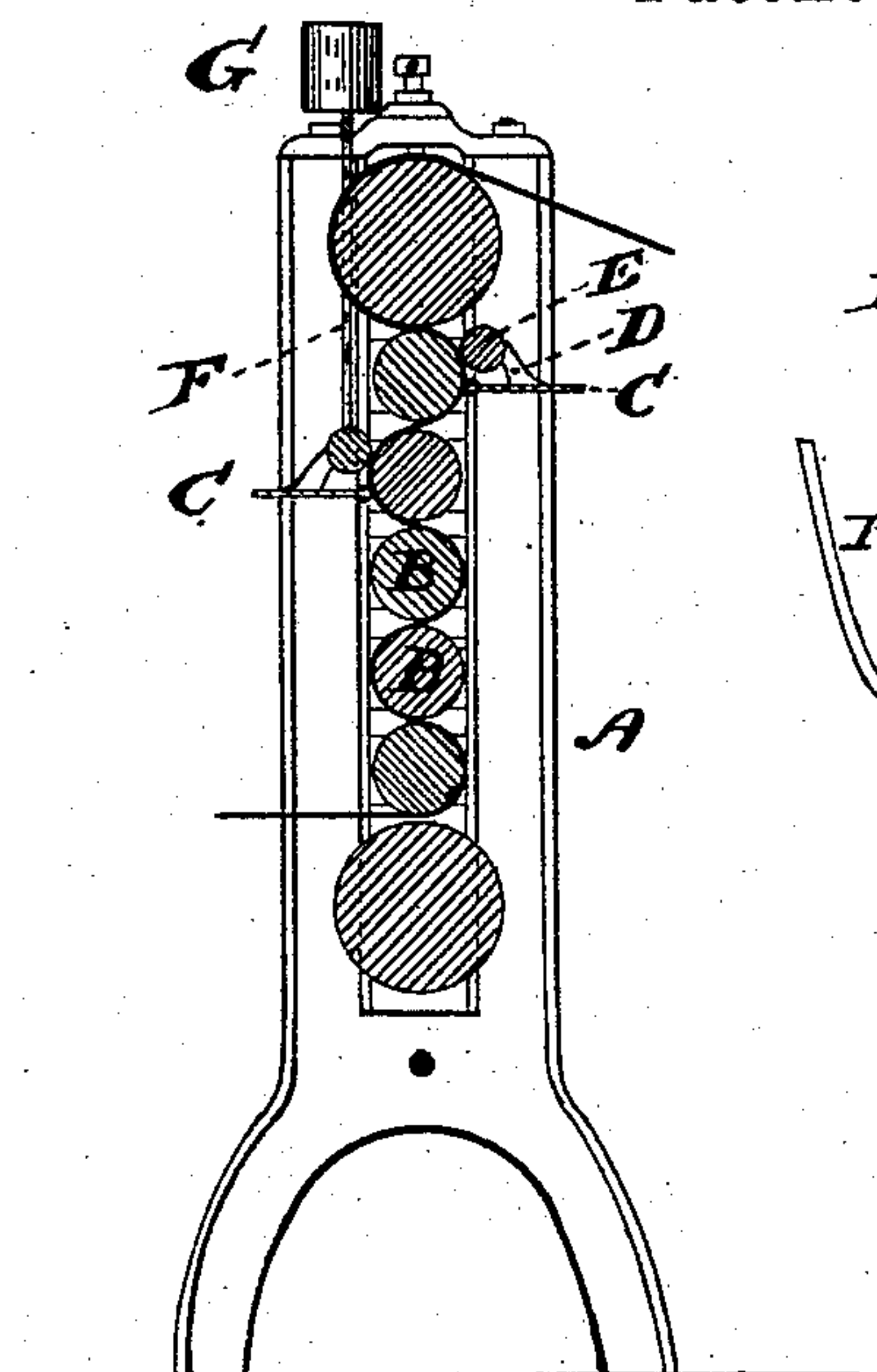


Fig. 1.

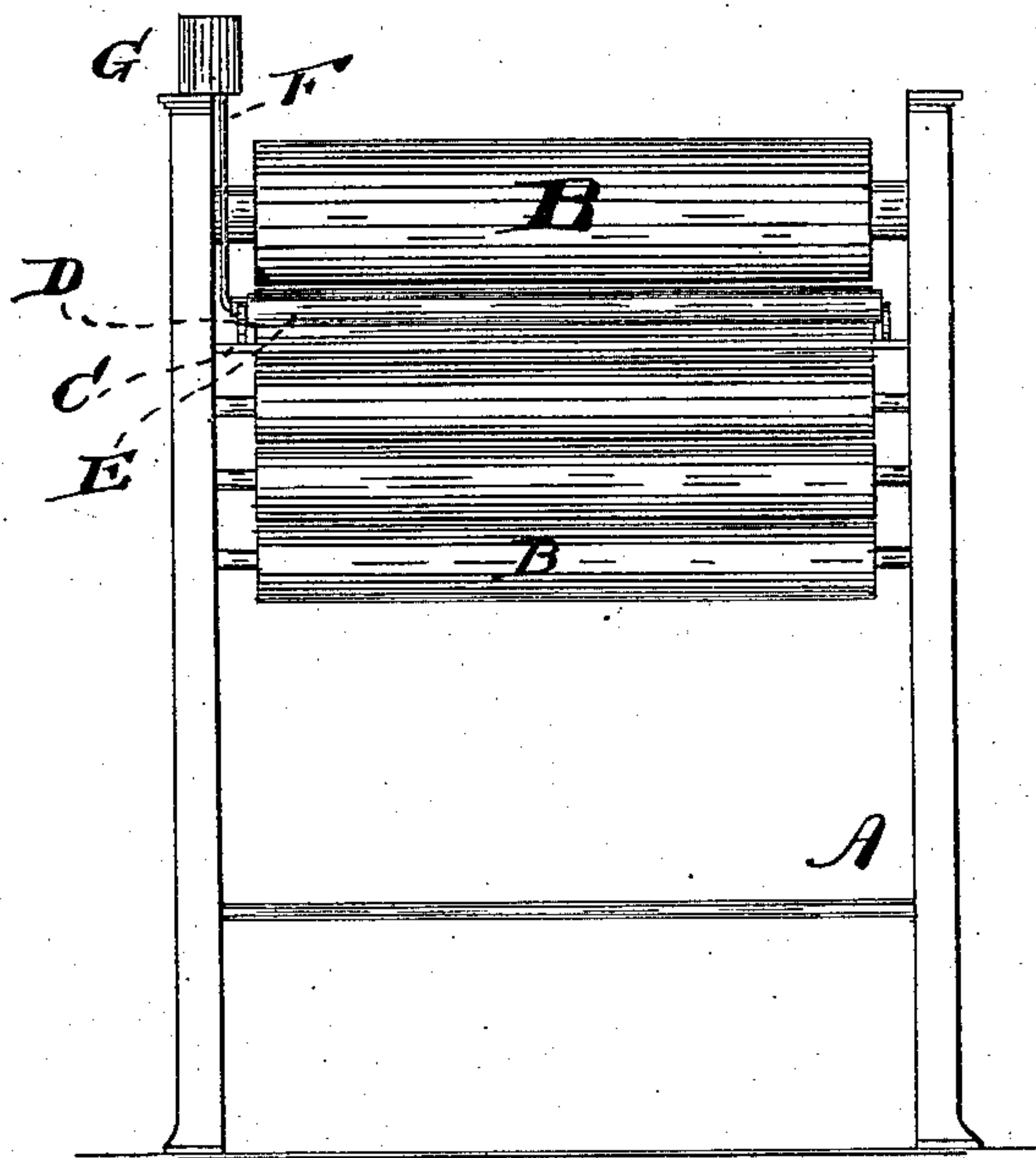
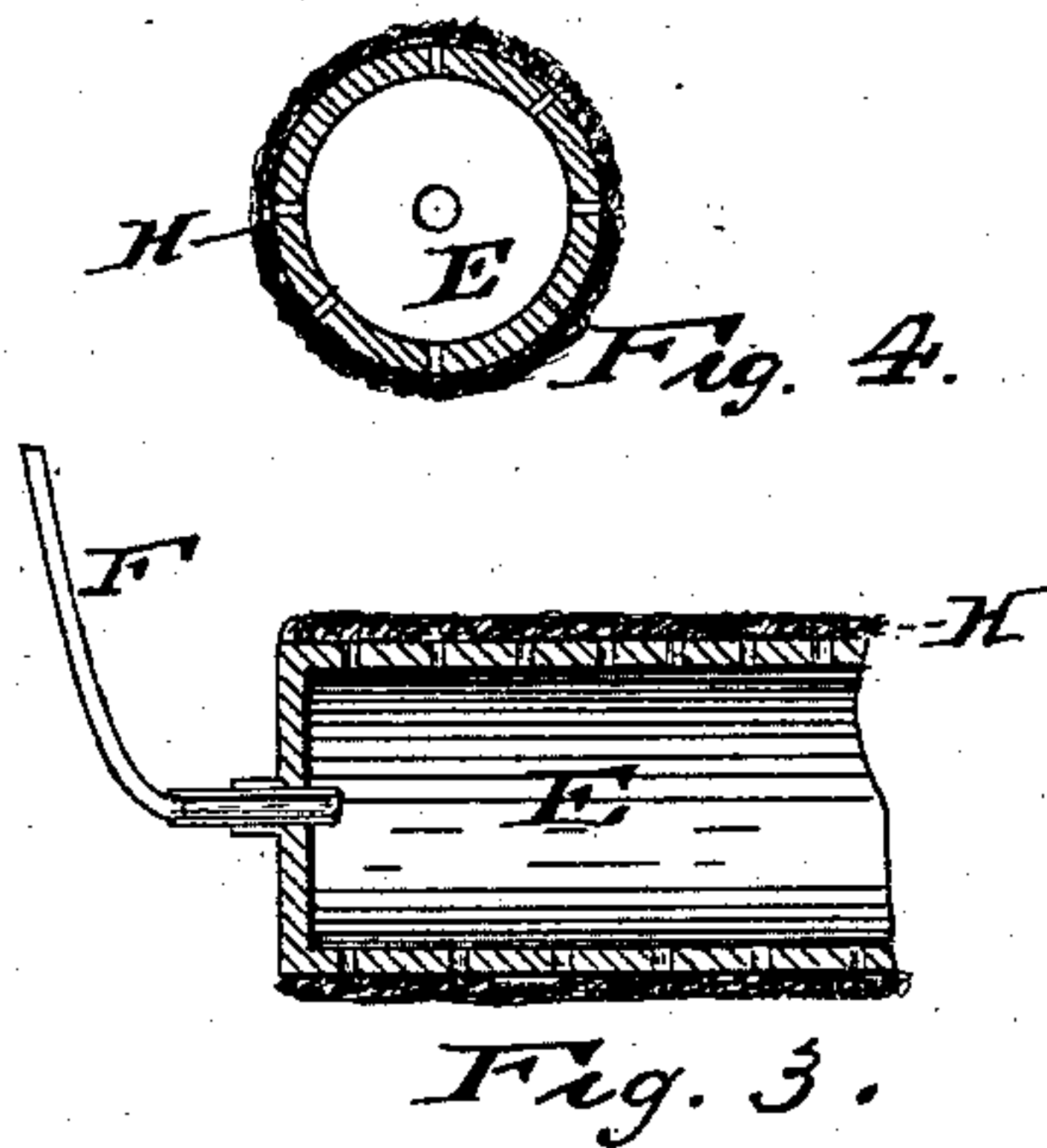


Fig. 2.

Attest:  
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Thomas A. Boyne,  
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# UNITED STATES PATENT OFFICE.

THOMAS A. BOYNE AND JAMES BOYNE, JR., OF BLOOMFIELD, NEW JERSEY.

## PAPER-MACHINE.

SPECIFICATION forming part of Letters Patent No. 287,500, dated October 30, 1883.

Application filed March 23, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS A. BOYNE and JAMES BOYNE, JR., of Bloomfield, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Paper-Machines, of which the following is a specification.

The object of this invention is to give a more perfectly finished calendered surface to paper, without materially increasing the cost of the same; and it consists in the combination, with a stack of calender-rolls, of devices for dampening the paper in its passage there-through, substantially as will be hereinafter set forth, and finally embodied in the claims.

Referring to the drawings, in which similar letters of reference indicate like parts in each of the several figures, Figure 1 is a vertical section taken through line *x x* of Fig. 2, said Fig. 2 being a front elevation of our device. Fig. 3 is a longitudinal section of a dampening-roll, and Fig. 4 is a transverse section of the same, said dampening-rolls being adapted to receive calendering-fluid and transmit the same to the surface of the paper.

In carrying out our invention we construct a frame-work, A, in which a series of calendering-rolls, B, are arranged, one above the other, as shown. With said frame is secured boards or other suitable devices, C, for spreading the fluid, said boards being arranged as shown, so as to engage with both sides of the paper. Said boards C stretch from standard to standard of the frame, and are preferably secured at their ends in slots in said standards, so that said boards may slide within the same. Said boards C have their inner edges lying in engagement with the paper, covered or otherwise provided with a suitable spreading material—such as cloth—and are also furnished with suitable bearings, D, for the hollow rolls or cylinders E. Said cylinders are perforated, as shown in the sectional detail views, and are covered with a porous sponge, H, or other suitable matter, so that the fluid from within the cylinders may pass therethrough and dampen the paper.

The fluid is supplied from a tank, G, to the rolls by means of suitable pipes, F, which enter at one extremity of the rolls, as indicated in Figs. 2 and 3.

When we desire to calender a surface of less width than the length of roll, we may cover the ends of the rolls with a rubber band or a covering of other impervious material, as will be readily understood.

Having thus described our invention, what we claim, and wish to secure by Letters Patent, is—

1. The combination, with the calender-rolls B, of dampening-rolls arranged and adapted to dampen the surfaces of the paper while the latter is undergoing the calendering process.

2. The combination, with the frame A and calendering-rolls B, of the boards C, provided with cloth or other suitable matter for spreading the fluid, and the dampening-rolls E, arranged and operating substantially as set forth.

3. In combination, the frame A, rolls B, boards C, and rolls E, having a porous covering, arranged and operating substantially as set forth.

4. In combination, the frame A, rolls B, boards C, rolls E, pipes adapted to supply fluid to said rolls E, and a tank, G, all said parts being constructed and arranged substantially as set forth.

5. In combination with calendering-rolls of a paper-machine, a hollow perforated cylinder or roll, E, covered with a porous covering, substantially as set forth.

6. In combination in a paper-machine, calendering and dampening rolls arranged and operating in the frame A, substantially as herein set forth and shown.

7. In combination, the frame A, calendering-rolls B, boards provided on one of their edges with a suitable spreading material, hollow perforated cylinders or rolls having a porous covering, pipes F, and tank G, all arranged and operating substantially as herein set forth and shown.

In testimony that we claim the foregoing we have hereunto affixed our hands this 17th day of February, A. D. 1883.

THOS. A. BOYNE,  
JAS. BOYNE, JR.

In presence of—

CHARLES H. PELL,  
F. F. CAMPBELL.