

J. F. JONES.

Apparatus for Drying Paper Cylinders.

No. 158,640.

Patented Jan. 12, 1875.

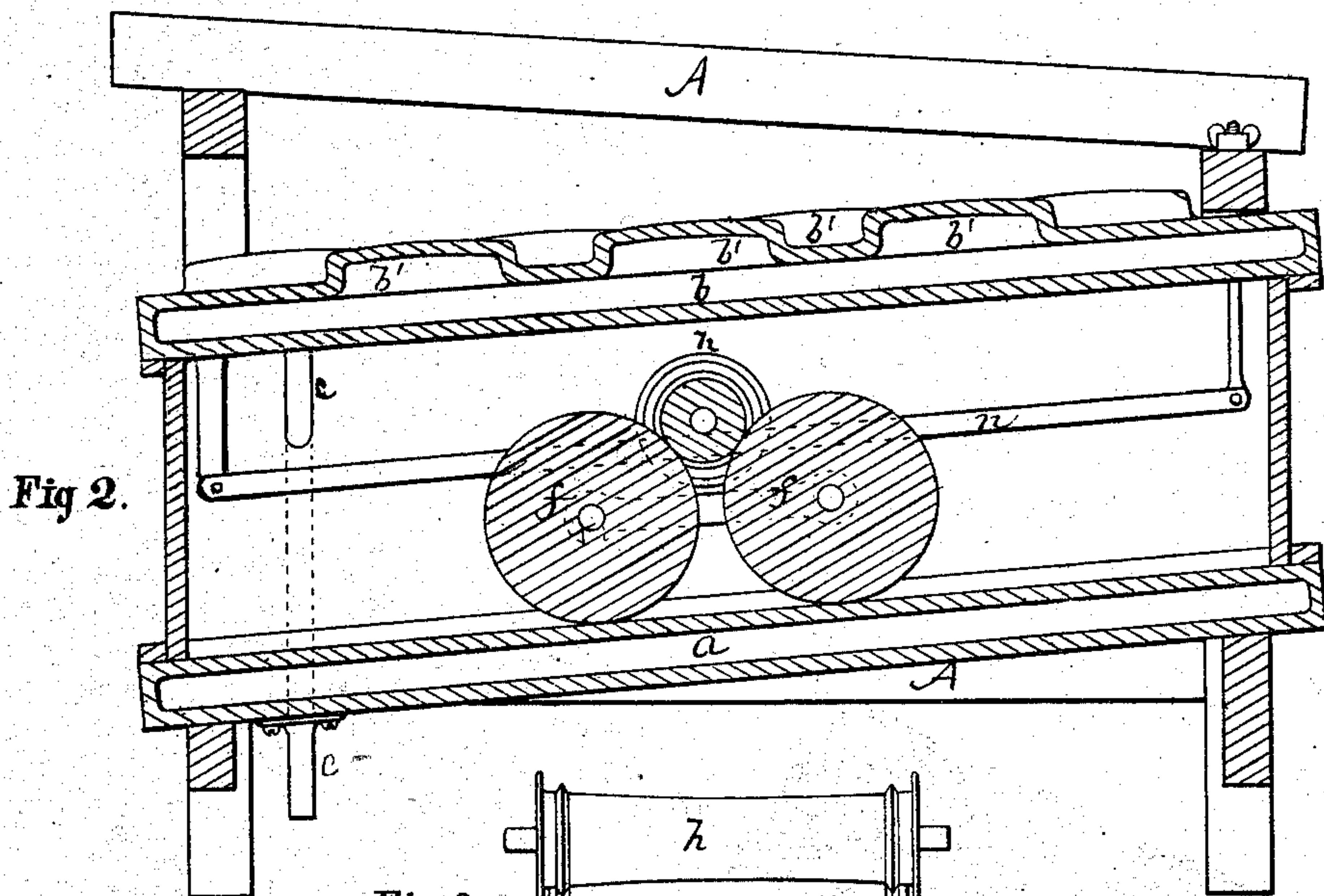
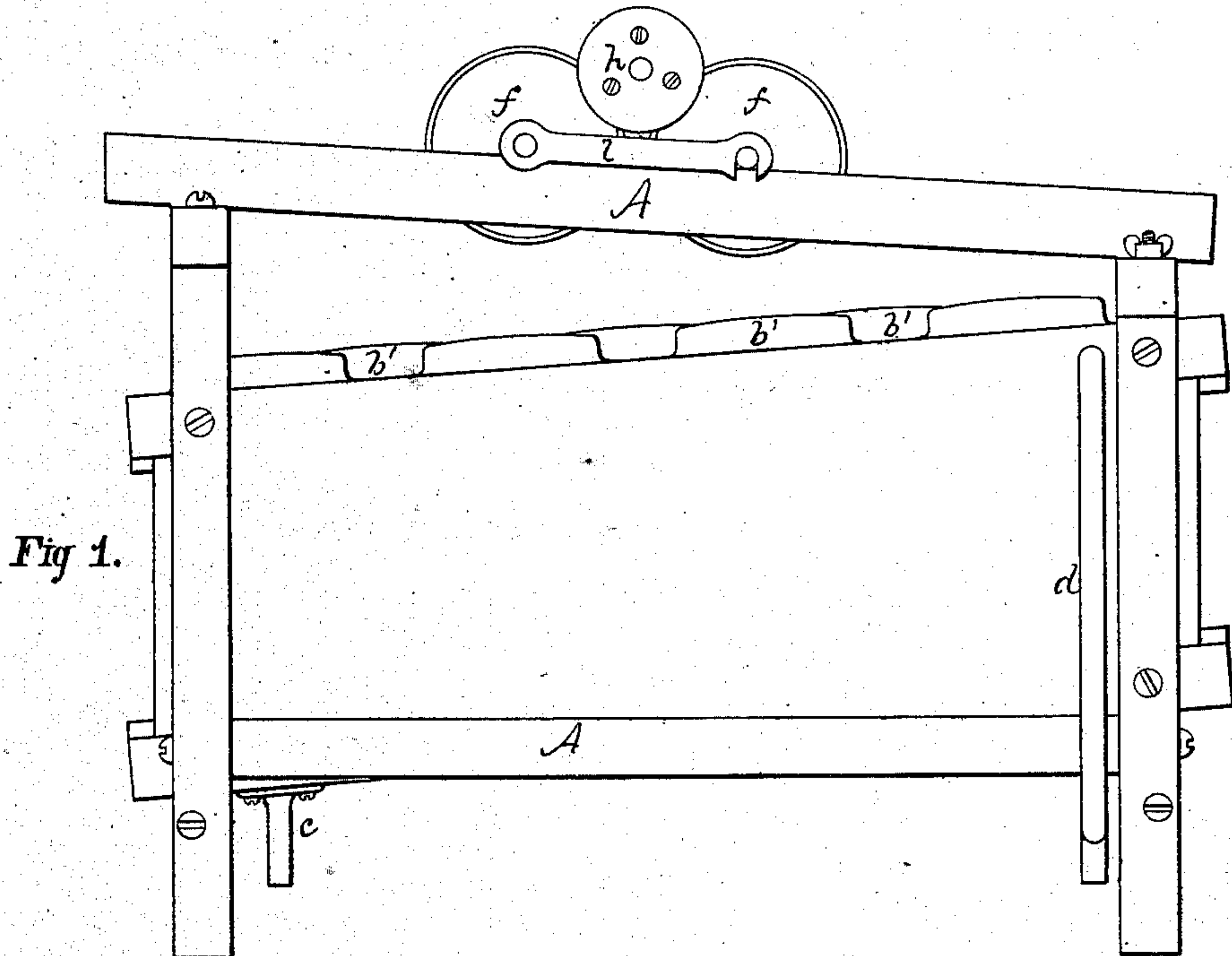
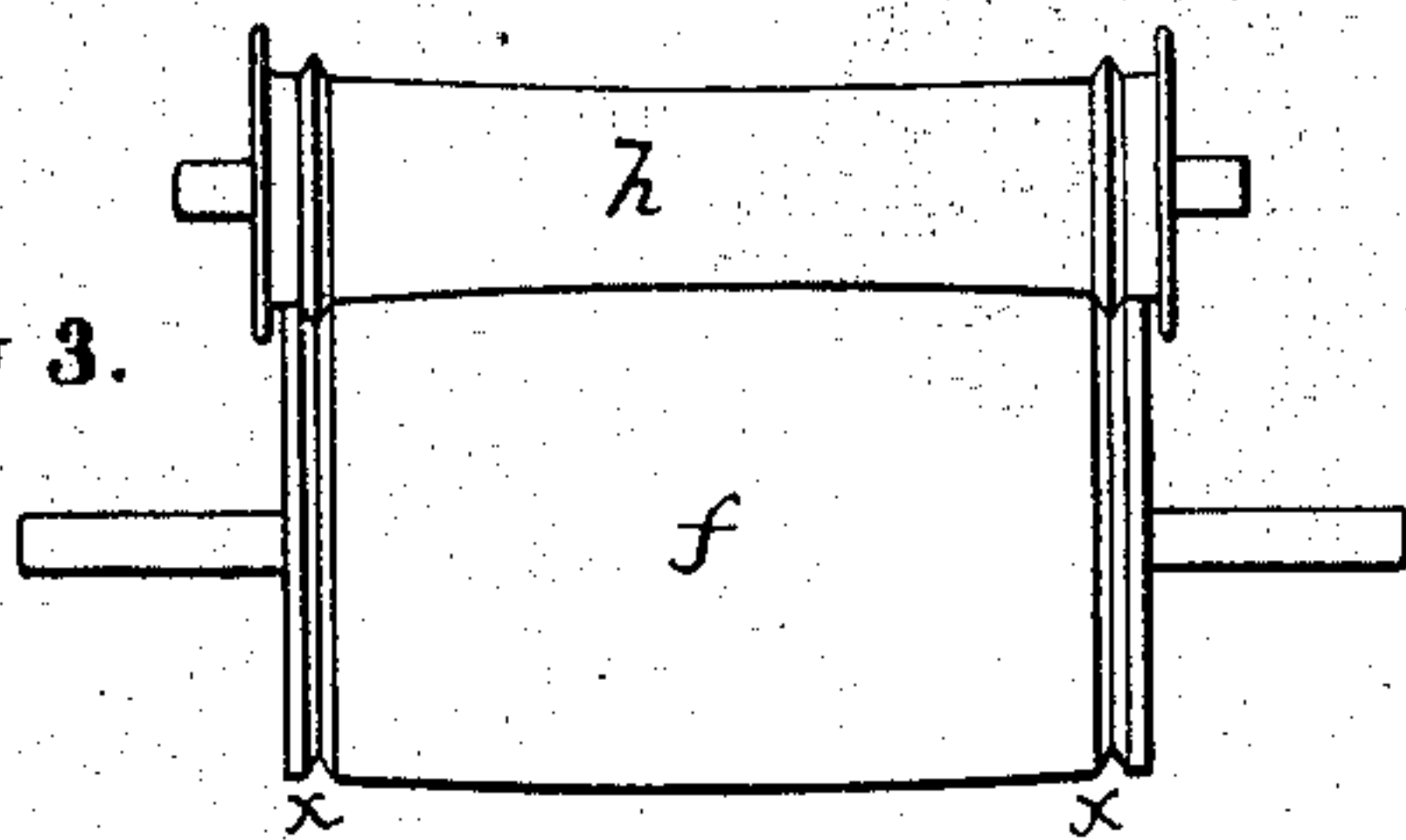


Fig 3.



Witnesses  
P. M. Lunn  
J. Jones.

Inventor.

John F. Jones



# UNITED STATES PATENT OFFICE

JOHN F. JONES, OF MARCELLUS FALLS, NEW YORK.

## IMPROVEMENT IN APPARATUS FOR DRYING PAPER CYLINDERS.

Specification forming part of Letters Patent No. 158,640, dated January 12, 1875; application filed November 25, 1874.

*To all whom it may concern:*

Be it known that I, JOHN F. JONES, of Marcellus Falls, Onondaga county, New York, have invented an Improved Apparatus for Drying Cylinders Formed of Paper, of which the following is a specification:

In manufacturing barrels and other vessels composed of layers of paper cemented or pressed together, it is important that as fast as they are made they be rapidly dried, and to remain in their exact and proper form it is best to dry them on the former, on which they should at the same time be calendered. To effect this object I have devised my present apparatus, by which I am enabled to make a more perfect article than has ever before been attained, and with a very great facility of operation and decrease of cost.

The construction is as follows, referring to the accompanying drawing, in which—

Figure 1 is a side elevation of the exterior. Fig. 2 is a vertical longitudinal section. Fig. 3 is a front view of the cylinder-mold and calender-roller.

An oblong frame, A, which may be made of any length found necessary—say, twenty or thirty feet, more or less—supports two flat hollow steam-heaters, *a b*, made somewhat broader than the cylinder of paper to be dried therein, and extending the whole length of the frame A, parallel with each other, at a sufficient distance apart to allow the cylinder to pass freely through between the ends, and with the rear ends depressed so as to cause steam condensed therein to be drained off readily through a waste-pipe, *c*, the steam being admitted by pipe *d* from the steam-generator. Above the lower heater, *a*, and inclined parallel therewith, I affix two rails, *e*, which serve as guides, that the cylinder-mold on which the paper is formed can run between; and above the upper heater, *b*, there may be a second set of rails inclined in the opposite direction, to return the cylinders and calenders to the front end. On the upper surface of the upper heater, *b*, a series of projections, *b'*, are made of circular form, and rising an inch or two above the surface, like the ends of cylinders. These correspond in form with my

newly-devised barrel-heads, which are put thereon and held in place until they are dried. The cylinders or molds *f*, when taken from the forming apparatus with the paper cylinder thereon, are put into the drying apparatus, as is clearly shown in Fig. 2, the inclination causing them to descend to the lower end thereof. Links *l* couple the cylinders *f* together by extending from one shaft or axis to the other, and keeping the surfaces from coming in contact. Over and between each two cylinders *f* I place a heavy calendering-roller, *h*, which conforms to the surface of the mold *f*, and perfectly calenders, slightly expands, and firmly condenses the cylinder of paper while drying, so that it can be readily removed. As the weight of this calender is too great at first, I introduce two rails or running slats, bearing in the frame at *n*, that are pivoted at the rear end, *n'*, and can be raised or lowered at the other end by a screw or spring. The axes of the calender or roller rest on these rails or bearings on starting, by which a portion of the weight is taken off the paper tubes until they are somewhat hardened; and, as it progresses, the calender is let down upon them with the full weight by the depression of the rails *n*. A groove, *x*, made in the mold, and a corresponding rib formed on the calender at each end, form a projection on the inside of the barrel in drying.

Having thus fully described my improved apparatus for drying paper tubes, &c., I claim—

1. In a steam-drier, the parallel inclined steam-heaters *a b*, guiding-rails, and rail *n* for passing the molds and calender-rollers through the drying apparatus, combined substantially as and for the purposes set forth.

2. The molds or cylinders *f f*, linked together and held at a proper distance apart to be acted upon by the calender-roller in passing through the drying apparatus, substantially as and for the purposes specified.

3. The combination of the weighted calender-roller *h* with the paper-molds, substantially as herein described.

4. The adjustable rails or bearings *n*, for regulating the pressure of the calender-roller

*n* at the commencement of the drying process, in combination with the calender-roller and paper-molds.

5. The molds *f* and calendering-roller *h*, in combination with the drying-chamber, substantially as above described.

6. In a drying apparatus, the combination

of the forms *b'* for drying the barrel-heads on with the upper surface of the heater *b*, as specified.

JOHN F. JONES.

Witnesses:

PETER B. McLENNAN,  
T. JONES.