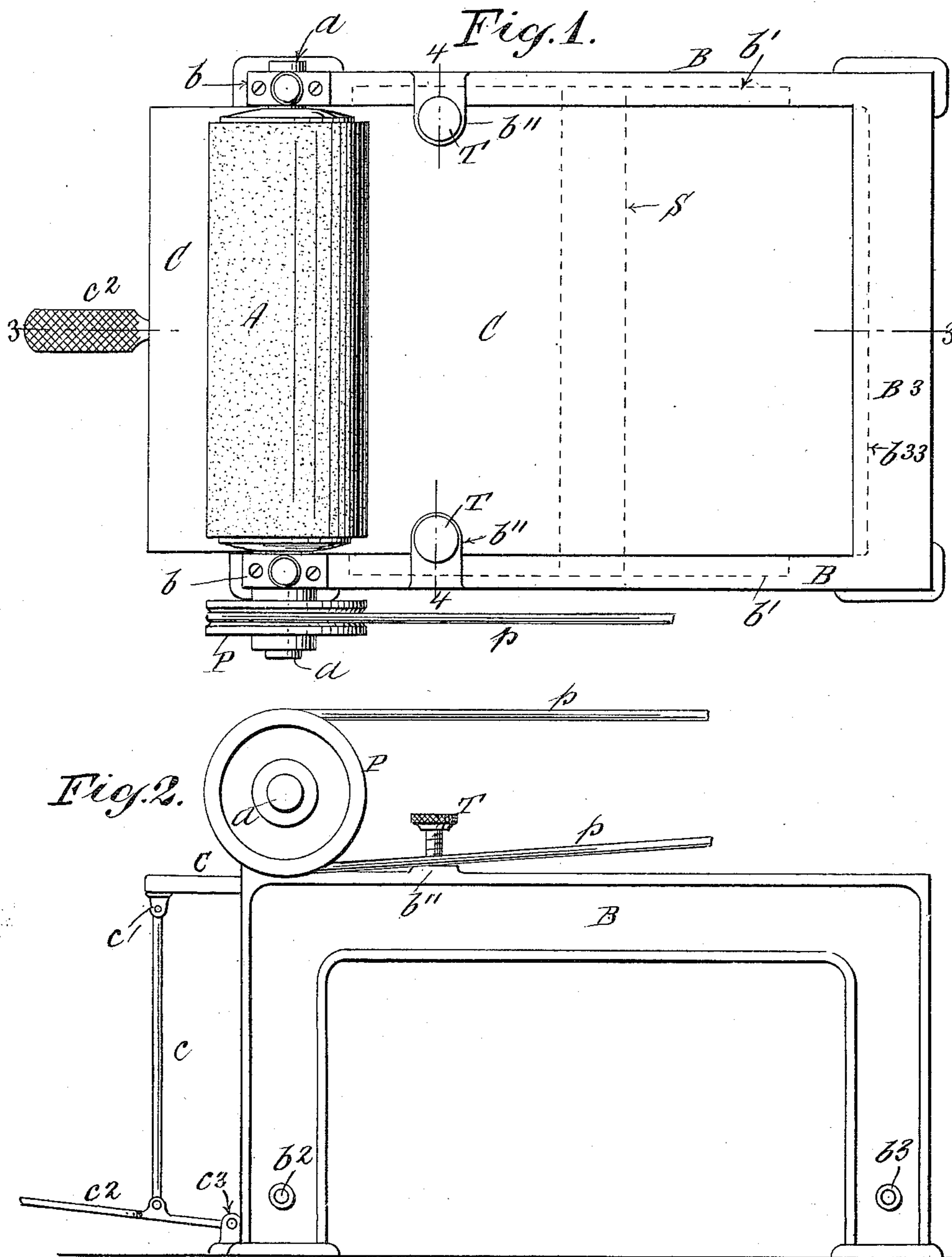


F. BIRCK.
 APPARATUS FOR GRINDING STEMS OF FEATHERS.
 APPLICATION FILED AUG. 10, 1910.

994,633.

Patented June 6, 1911.

3 SHEETS—SHEET 1.



Witnesses:
 Jas. Bott
 P. W. Gardner Jr.

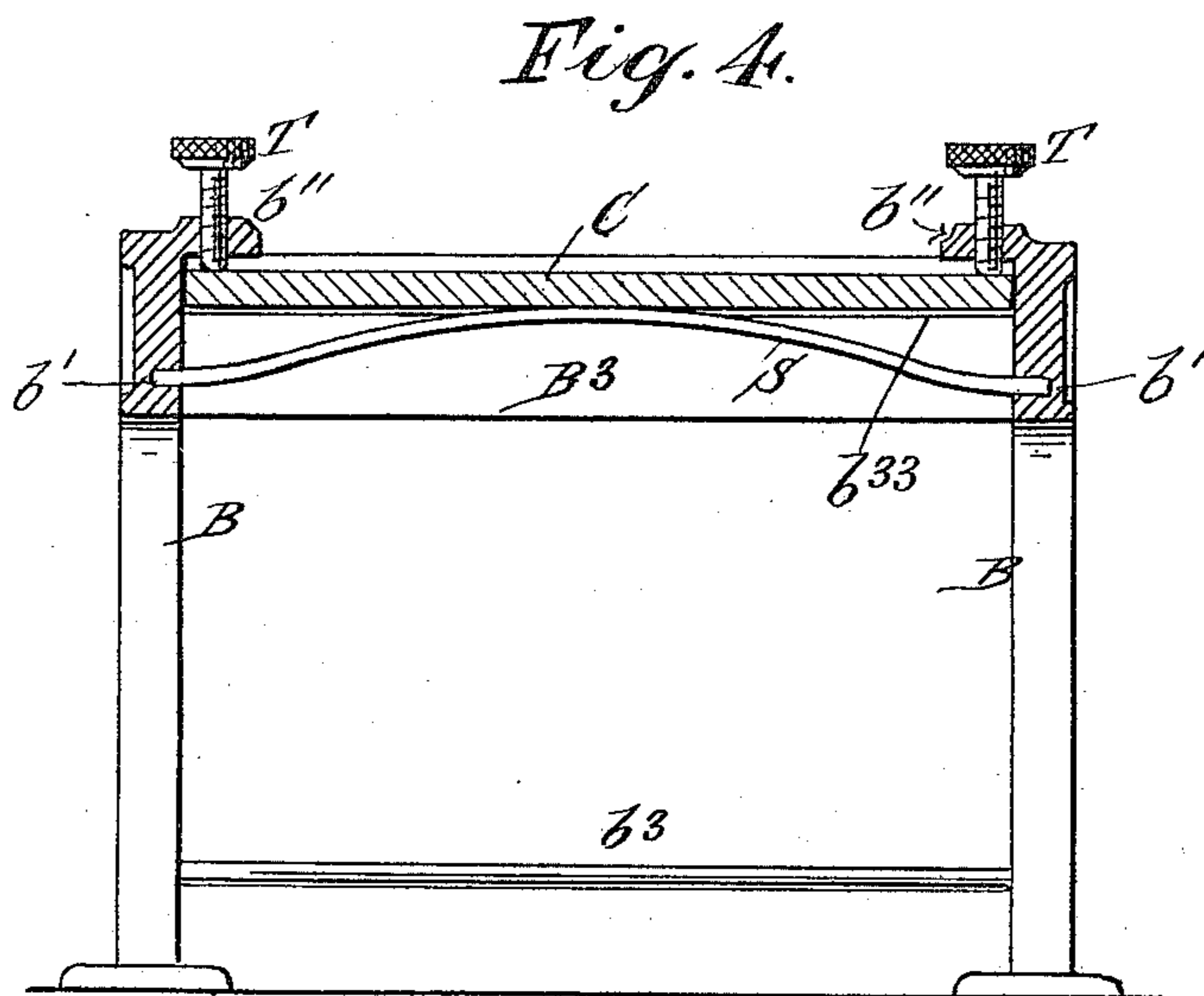
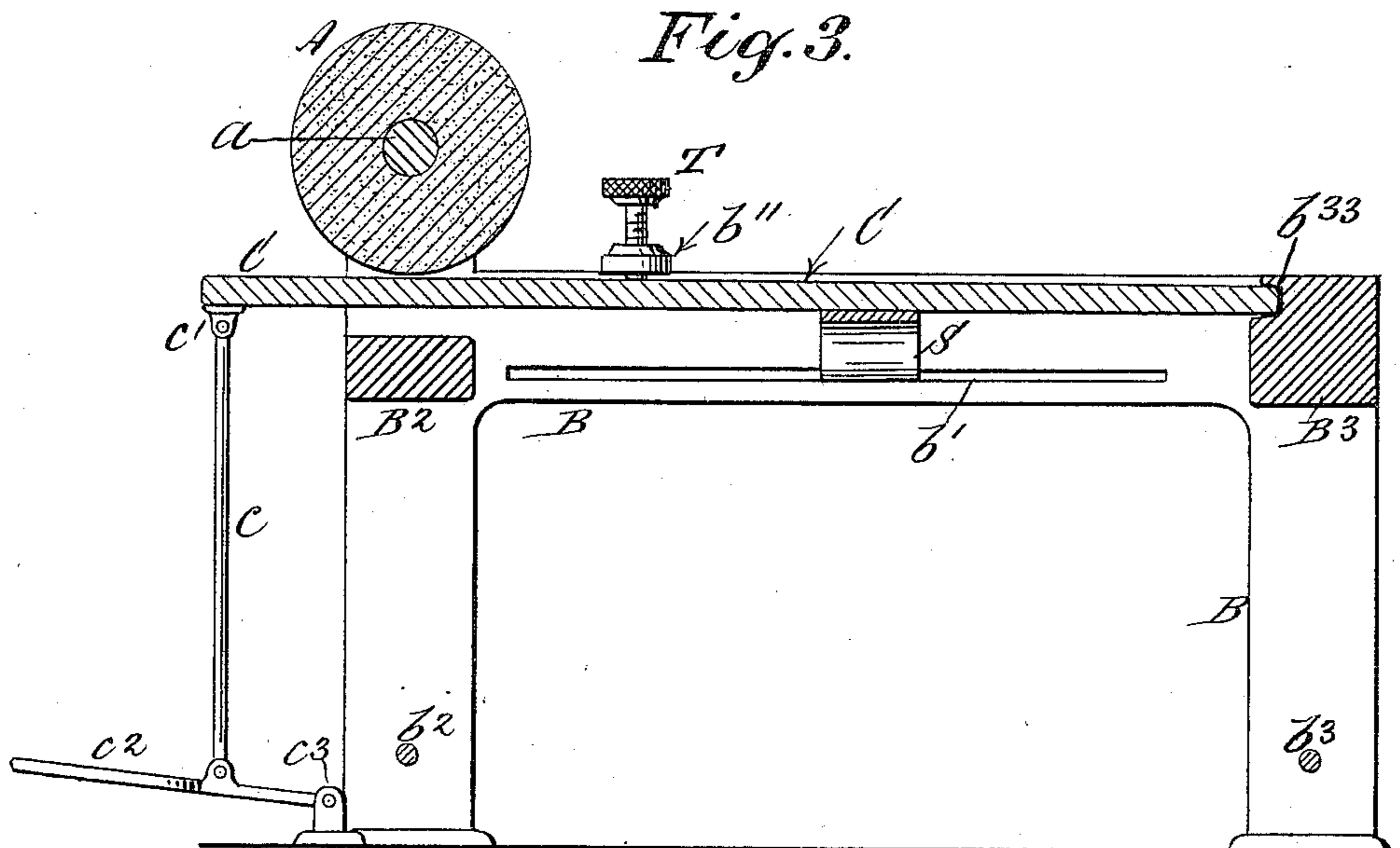
Inventor:
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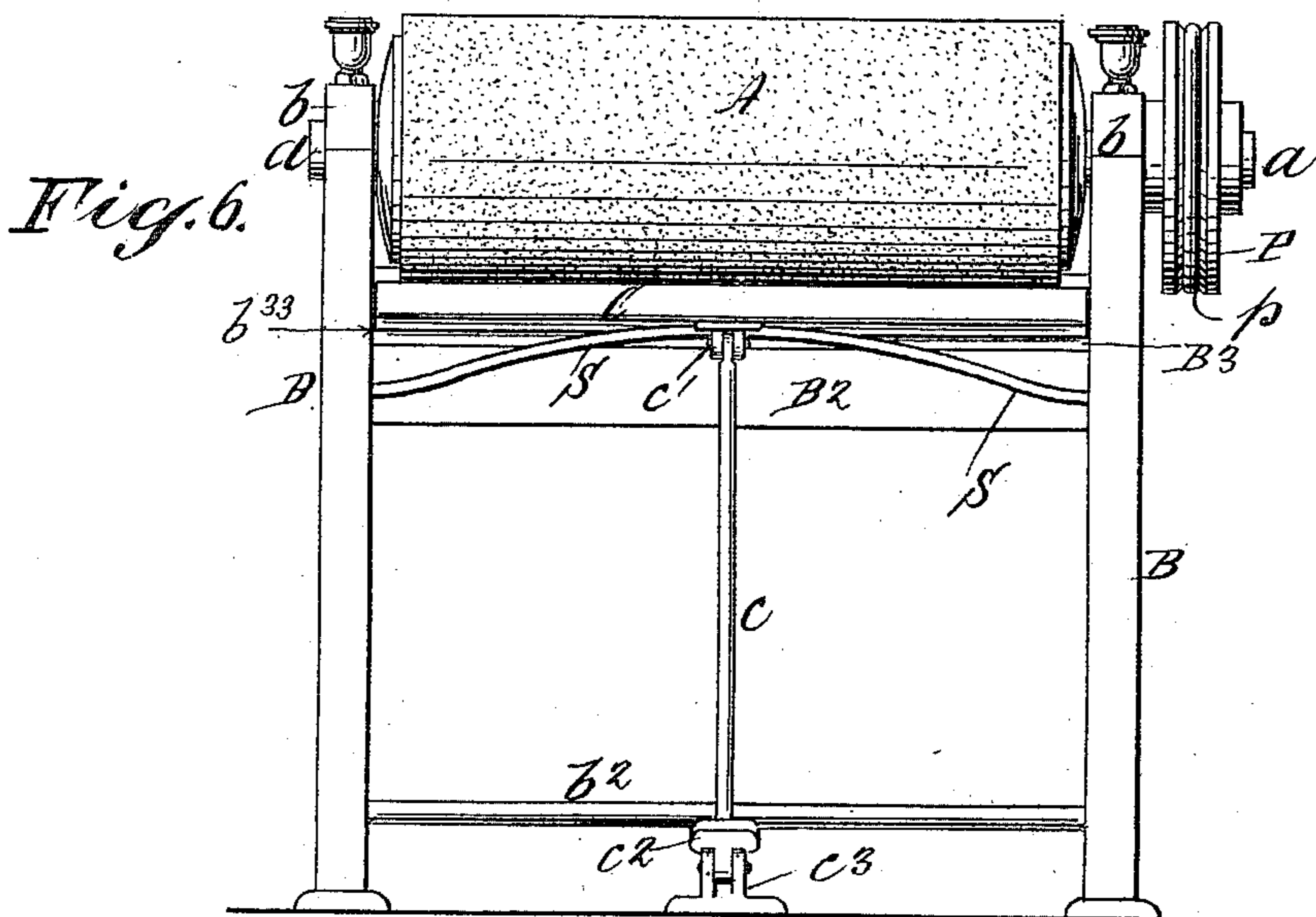
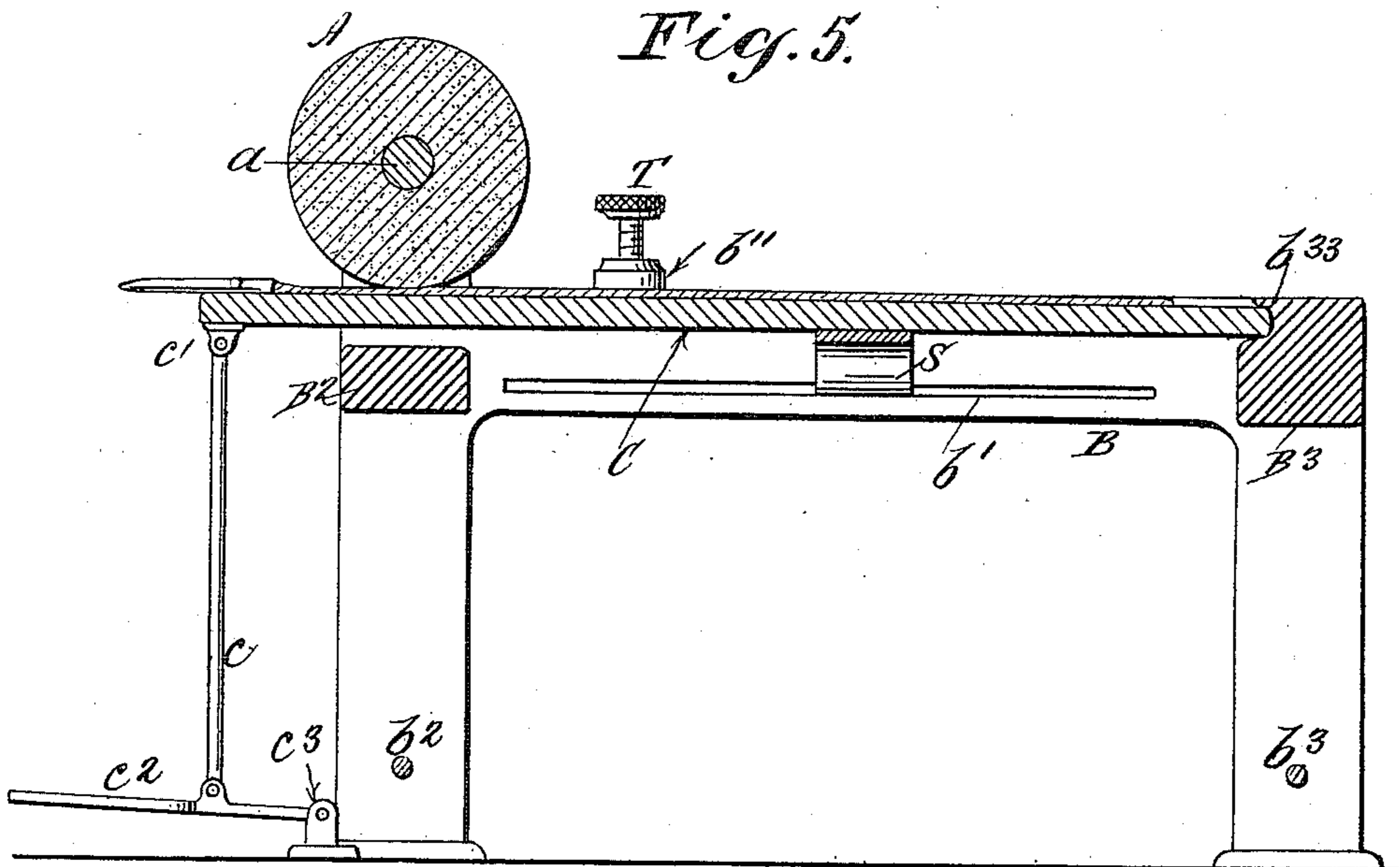
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

FRED BIRCK, OF JERSEY CITY, NEW JERSEY.

APPARATUS FOR GRINDING STEMS OF FEATHERS.

994,633.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed August 10, 1910. Serial No. 576,572.

To all whom it may concern:

Be it known that I, FRED BIRCK, a citizen of the United States, residing in Jersey City, Hudson county, and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Grinding the Stems of Feathers, of which the following is a specification.

My improvements relate to apparatus for the treatment of the stems of feathers used in the manufacture of feather boas, and like articles, in which the stem of the feather is reduced in thickness so as to make it pliable and flexible. Heretofore this has been accomplished by drawing the stem of the feather between V-shaped knives, or by the operator using a knife by hand and paring and scraping the part of the stem desired, and as these operations require skilled labor, they are expensive, slow and unsatisfactory, as only one feather can be treated or prepared at one time.

I obviate the above objections by grinding the portions of the stems of the feathers under treatment to the desired depth, and being able to manipulate two or more feathers simultaneously, insure a uniform treatment, increase the output for a given time and dispense with skilled labor.

The invention consists in mounting a grinding roller in suitable bearings, in conjunction with a bed or platen in proximity thereto; in means for mounting and supporting yieldably the bed or platen with relation to the grinding roller; in means for varying the tension of the bed or platen; in means for adjusting the bed or platen with relation to the rotary roller, and finally in means for depressing the platen when desired, and in other details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1, is a plan of my improved apparatus; Fig. 2, a side elevation; Fig. 3, a longitudinal vertical section upon plane of line 3—3—Fig. 1; Fig. 4, is a transverse section upon plane of line 4—4—Fig. 1; Fig. 5, is a view similar to Fig. 3, showing the stem of a feather under treatment; Fig. 6, is an end elevation of the front of the apparatus.

In the drawings I have shown means for carrying my invention into practice, but I do not wish to confine myself strictly thereto, as many mechanical expedients may be resorted to without departing from the spirit and intent of my invention.

The shaft *a*, of the roller A, is mounted in suitable bearings *b*, *b*, on the side members or standards B, B, which are connected together by cross members B², B³, and cross rods *b*², *b*³, to form the frame of the apparatus. To one end of the shaft *a*, is rigidly secured a pulley P, which may be connected to any suitable source of power by the belt *p*.

The bed or platen C, is preferably (though not necessarily) fulcrumed in the groove *b*³³, in the cross member B³, and as shown in the drawings is supported upon a broad flat spring or tension device S, the ends of which rest in slots *b'*, *b'*, formed in the side members or standards B, B, between which it is free to move vertically within prescribed limits under the tension of the spring S.

Set screws T, T, which act as adjustable stops, are mounted in lugs *b''*, *b''*, on the frame B, B, and are used to regulate and adjust the position of the platen C, with relation to the periphery of the roller A.

By this arrangement and construction of parts it will be seen that the platen will have a yielding tendency and adapt itself to any variations or irregularities in the stems of the feathers under treatment, and in case of roller A, encountering any extraneous matter, yield sufficiently to prevent injury thereto. In this connection it is obvious that any form of tension device S, may be employed for supporting the platen C, and I do not restrict myself to the means herein shown. Again a stationary platen C, might be used and arranged in relation to the periphery of a rotary roller A.

For convenience of depressing or withdrawing the platen C, away from the roller A, when desired, I have herein shown means in the drawings, consisting of a rod *c*, pivotally attached to the forward end of the platen C, at *c'*, the other end of said rod being connected to a treadle *c*², pivotally mounted on a stationary support *c*³, but other mechanical expedients may be employed with like result, the advantage of the above construction being that it leaves the hands of the operator free to manipulate the feathers under treatment, the foot of the operator being used to depress the treadle *c*², when necessary.

I have found by actual experience and experiment that the periphery of a roller composed of stone, carborundum or other composite material combines the desired degree of roughness and hardness of surface, which

is essential for grinding off the outer shell and pith of the stem of the feathers under treatment. It also has the practical advantage when the surface of the roller becomes
 5 worn or uneven, of being able to "true it up" without removing it from its bearings or disturbing the apparatus,—a suitable tool being held against the revolving surface, until the roller has again become even. I
 10 have also found that a platen made of glass, slate, marble or similar material is most advantageous, as the surface has a tendency to resist wear and become uneven.

The operation of my apparatus above described is as follows:—The set screws T, T, having been adjusted to regulate the upward movement of the platen C, with relation to the periphery of the roller A, the spring tension device S, is moved either forward or backward in the slots b' , b' , formed
 20 in the side members B, B, to increase or diminish the tension on the platen C. Power is then applied to the grinding roller A, through the medium of the pulley P, and belt p , connected with some suitable source of power of high speed. The forward end of the platen C, is then depressed or withdrawn from the roller A, by means of the connecting rod c and treadle c^2 . The stems
 25 of the feathers to be reduced in thickness are then inserted between the roller A and platen C, the quills being forwarded sufficiently in advance so as not to affect them, the operator then releases the treadle, and
 35 the frictional contact between the roller and platen will insure the forwarding of the feathers until the whole length of the stems have been reduced by grinding off such portions as may be desired, when the same
 40 operation is repeated, with the exception that the roller rotates continuously, until it becomes necessary to change the relation of the platen with the periphery of the roller.

By my invention it will be seen that the
 45 hands of the operator are free to manipulate the feathers as they are forwarded on the platen, the foot of the operator being used to operate the treadle, when necessary.

A superior article is produced in which
 50 any desired degree of flexibility may be imparted to the stem of the feather; in which

all parts are treated uniformly without injury to the "flume" or veins; in which skilled labor is dispensed with, and in which a greater number of feathers can be treated
 55 in a given time.

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

1. In an apparatus for grinding the stems of feathers, a roller, means for rotating the
 60 same, a bed or platen fulcrumed at one end, means for depressing the opposite end, a yielding support beneath the platen intermediate its ends and adjustable in the direction of the length of the platen, and pressure
 65 means acting upon the platen in opposition to said yielding support and intermediate the same and the said roller.

2. In an apparatus for grinding the stems of feathers, a roller, means for rotating the
 70 same, a platen disposed beneath the roller and fulcrumed at one end, a frame supporting said platen and roller and provided with longitudinal slots, and a tension device having its ends supported in said slots, said
 75 platen resting upon said tension device.

3. In an apparatus for grinding the stems of feathers, a roller, means for rotating the
 80 same, a platen disposed beneath the roller and fulcrumed at one end, a frame supporting said platen and roller and provided with longitudinal slots, and a tension device having its ends supported in said slots, said
 85 platen resting upon said tension device, and set screws bearing on the upper surface of the platen between its ends.

4. In an apparatus for grinding the stems of feathers, a roller, means for rotating the
 90 same, a platen disposed beneath the roller and fulcrumed at one end, a frame supporting said platen and roller and provided with longitudinal slots, a tension device having its ends supported in said slots, said platen
 95 resting upon said tension device, set screws bearing on the upper surface of the platen between its ends, and a treadle having pivotal connection with the free end of the platen.

FRED BIRCK.

Witnesses:

D. W. GARDNER,
 GEORGE KAPPSTATTER.