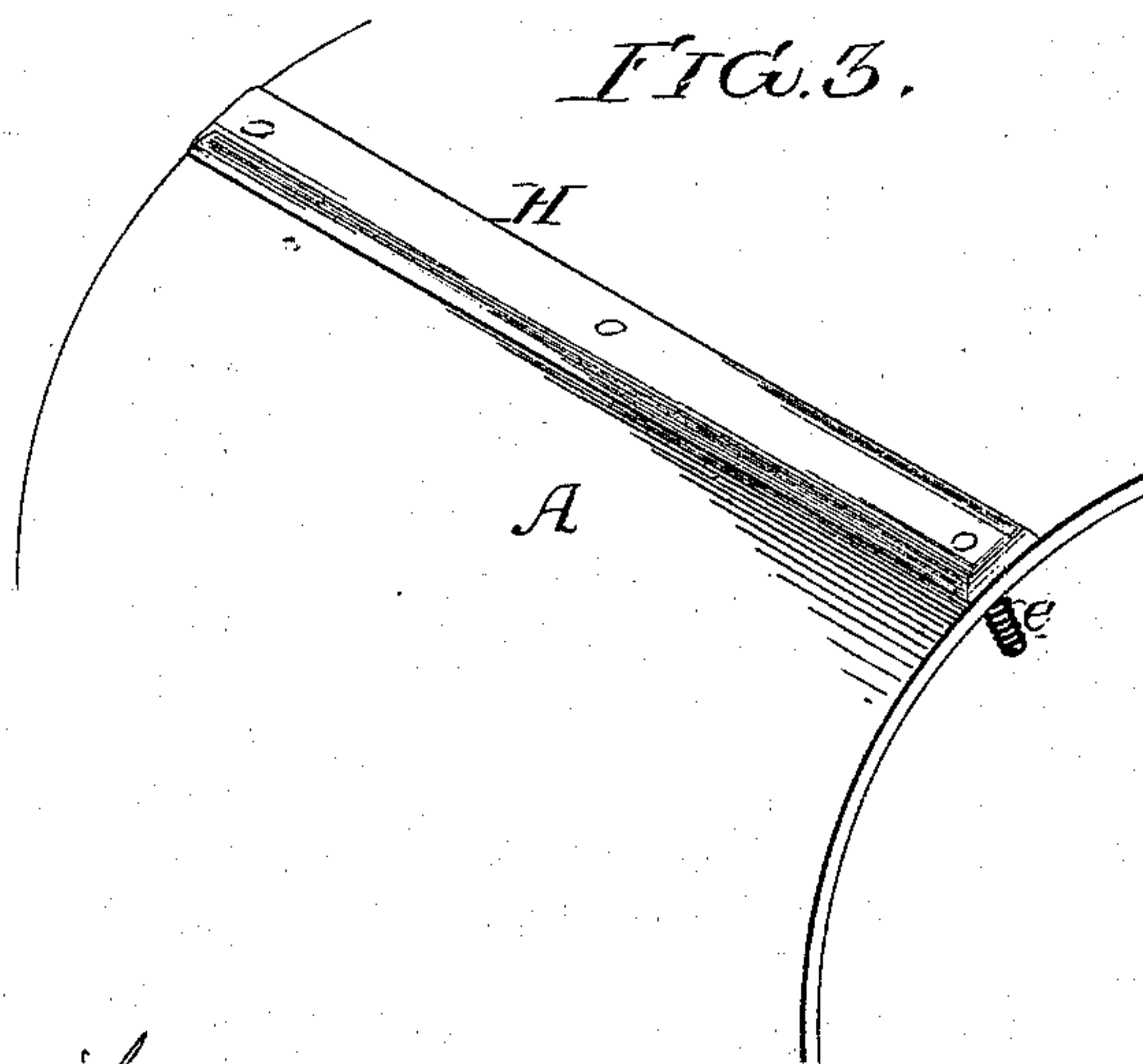
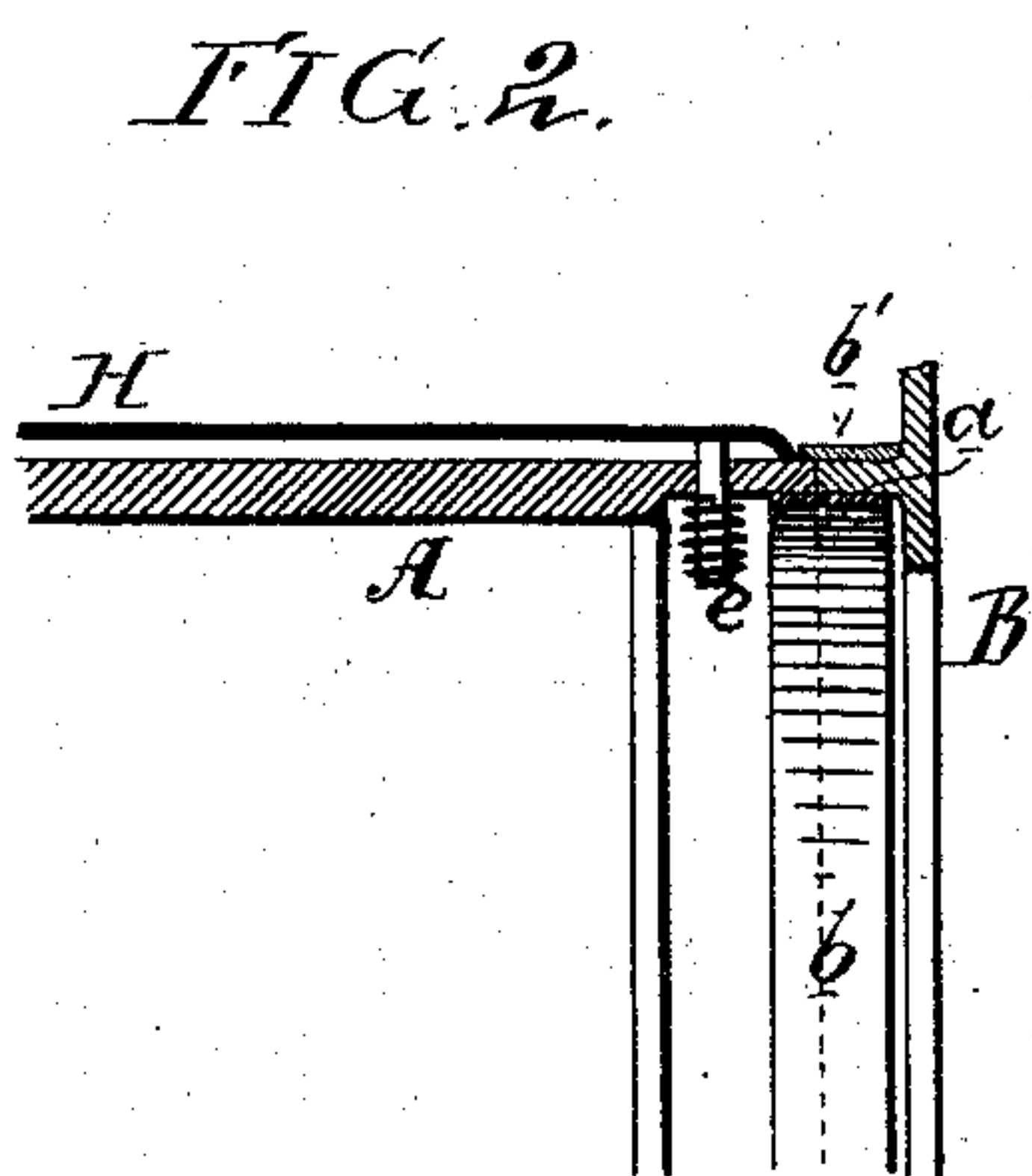
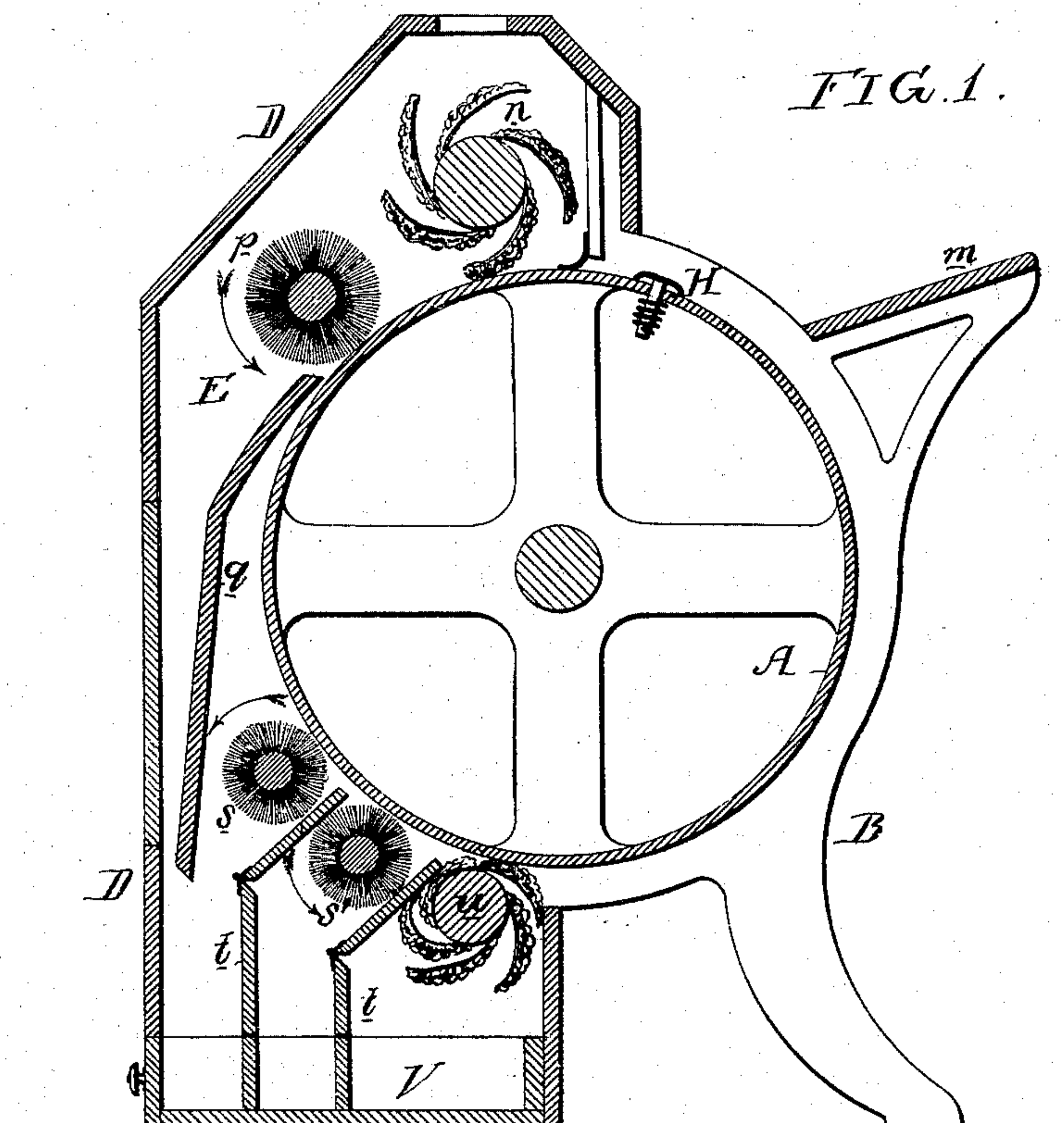


D. HESTON.
Bronzing-Machines.

No. 157,396.

Patented Dec. 1, 1874.



*Witnesses, Harry Smith
 Thomas McQuinn*

*David Heston
 by his Atty.
 Sturges and Son.*

UNITED STATES PATENT OFFICE.

DAVID HESTON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO ROBERT S. MENAMIN, OF SAME PLACE.

IMPROVEMENT IN BRONZING-MACHINES.

Specification forming part of Letters Patent No. 157,396, dated December 1, 1874; application filed September 23, 1874.

To all whom it may concern:

Be it known that I, DAVID HESTON, of Philadelphia, Pennsylvania, have invented certain Improvements in Bronzing-Machines, of which the following is a specification:

The object of my invention is to apply bronze-powder to printed sheets of paper, my present invention being, in a measure, based on those for which I obtained Letters Patent No. 150,037, April 21, 1874, and No. 154,480, August 25, 1874.

Instead of using an endless apron for conveying the sheets of paper to, and subjecting them to, the action of bronzing appliances, as described in the said patents, I employ a cylinder, A, shown in the vertical section, Figure 1, of the accompanying drawing, this cylinder being caused to revolve in the direction of the arrow in opposite frames B, and about one-half of the cylinder being inclosed in a casing, D, within which is the bronzing-chamber E.

The cylinder should be clothed with leather or other equivalent yielding material, and may be ribbed in the same manner as the apron described in my patent, No. 154,480.

In Fig. 2, which is an enlarged sectional view of part of the cylinder and part of the frame, it will be observed that the edge of the said cylinder revolves nearly in contact with the flange *a* of the frame, but as absolute contact cannot be permitted, owing to the great friction which it would create, and as the impalpable bronze-powder would escape through the very slight space between cylinder and the flange, I close the joint with an internal strip, *b*, of leather or other like material, secured to the said flange, and there may be an external strip, *b'*, for the same purpose.

The nipper for seizing the paper consists of a hollow bar, H, shown in section in Fig. 2, and in perspective in Fig. 3, this bar having pins *e*, which pass through the cylinder, within which the pins are furnished with spiral springs, the latter serving to bind the bar firmly to the cylinder when it is not moved therefrom by cam-wheels or other suitable appliances, for the purpose of introducing the paper between it and the cylinder.

It should be understood, however, that the edges only of the hollow bar bear against the yielding surface of the cylinder, these edges extending along both sides and ends of the bar, so that when the latter bears against the cylinder it incloses a space to which the bronze-powder cannot gain access. The bar, in fact, effectually cuts off all avenues of escape which are presented by the openings for receiving the pins *e*.

The front of the cylinder is exposed so that the printed sheets may be presented from the inclined plane *m* to the nipper-bar H, which carries the sheet round with the cylinder. The sheet is first subjected to the action of the revolving flaps *n*, which apply the bronze-powder, derived from a hopper above, to the printed surface of the sheet.

The revolving flaps and the hopper are too fully explained in my former patents to need description here.

A revolving brush, *p*, removes from the face of the paper much of the superfluous bronze, which is thrown into a channel formed between the outer casing D and a partition, *q*.

More of the superfluous bronze is removed from the paper by revolving brushes *s* and *s'*, the brushes revolving in separate compartments formed by the partitions *t t*, so that the powder may not be thrown from one brush to another.

A smooth surface is finally imparted to the bronzed face of the paper by revolving flaps *w*. Parts of the outer casing D are made detachable, in order that access may be had to the bronzing-chamber, and at the bottom of the latter is a drawer, V, for receiving the waste bronze.

It will be seen that the main object of my invention is to prevent the escape of the powder from the bronzing-chamber into the room where the machine is in operation, and that ample provision, described above, is made for preventing this escape.

I claim as my invention—

1. The combination, with the cylinder and its casing, of the flanges *a* on the frame, and strips *b*, covering the joints between the ends of the cylinder and the flanges, all as set forth.

2. The combination, with the cylinder, of a spring nipper-bar, H, made hollow, and bearing with its side and end edges on the yielding surface of the cylinder, as specified.

3. The combination, with the cylinder A, of brushes revolving within the bronzing-chamber, and isolated from each other by partitions in the said chamber, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID HESTON.

Witnesses:

JNO. A. BELL,
HARRY SMITH.