

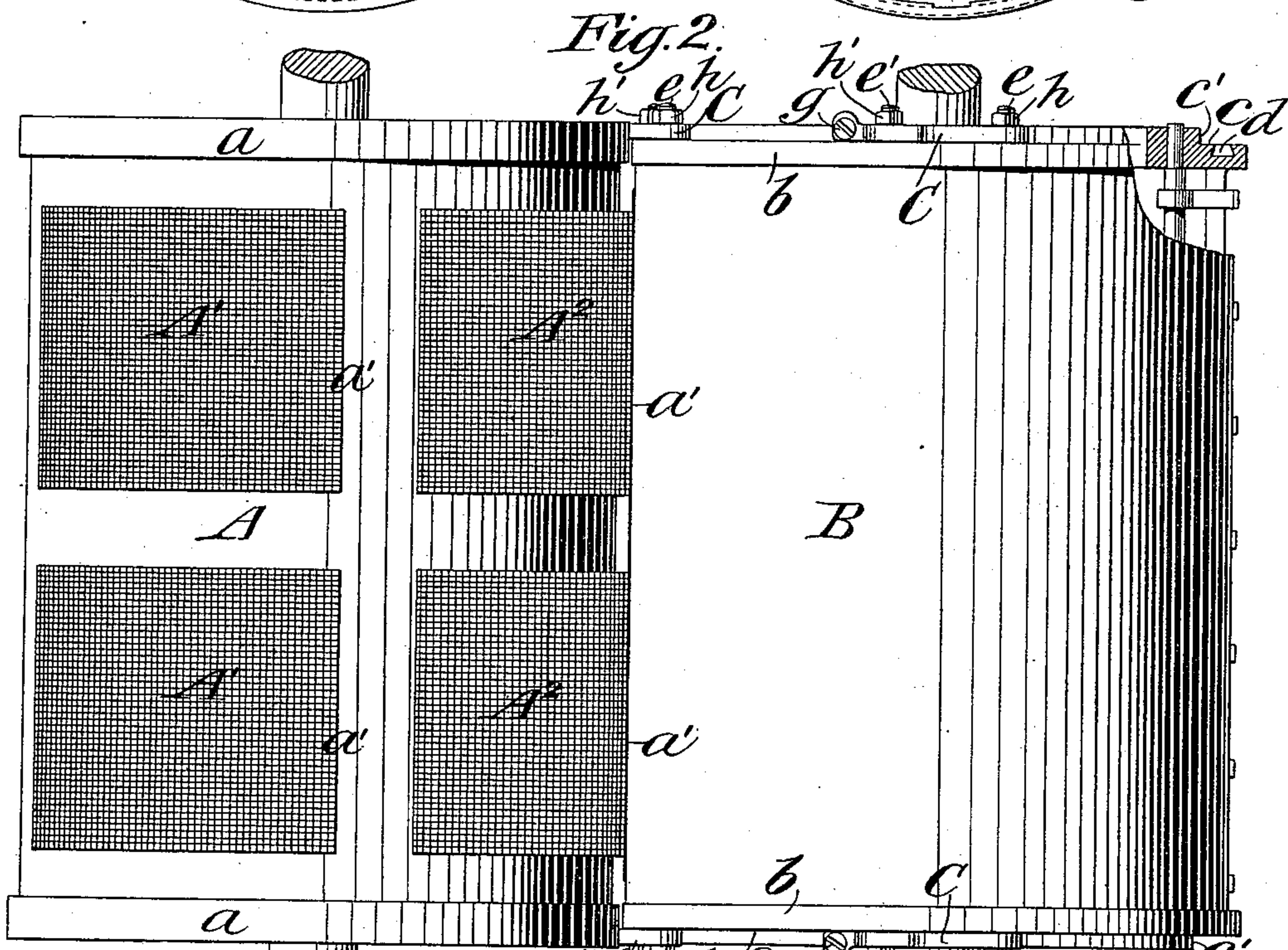
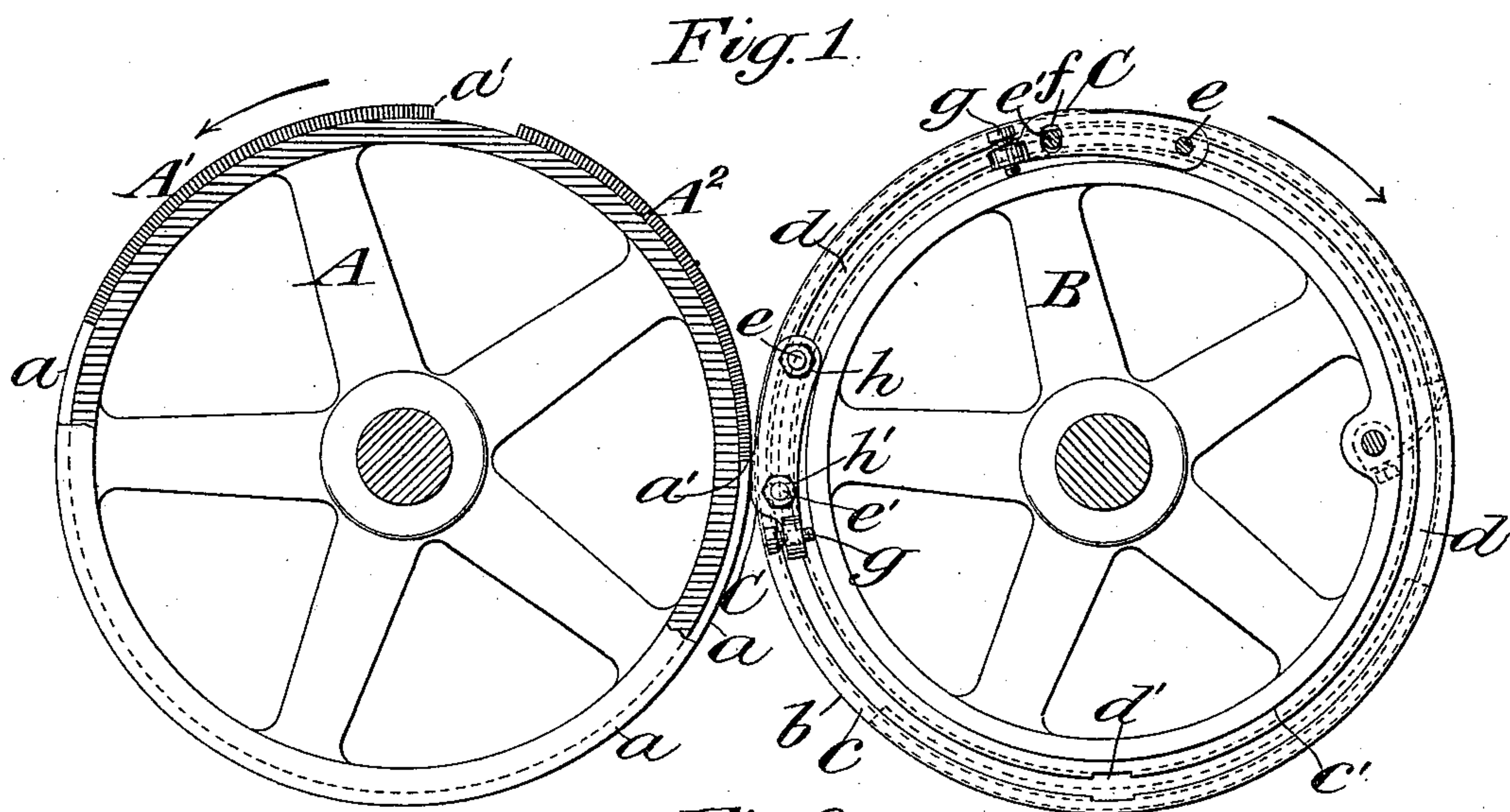
(No Model.)

2 Sheets—Sheet 1.

C. B. COTTRELL.
PRINTING MACHINE.

No. 472,206.

Patented Apr. 5, 1892.



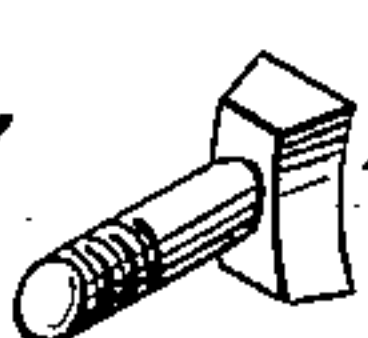
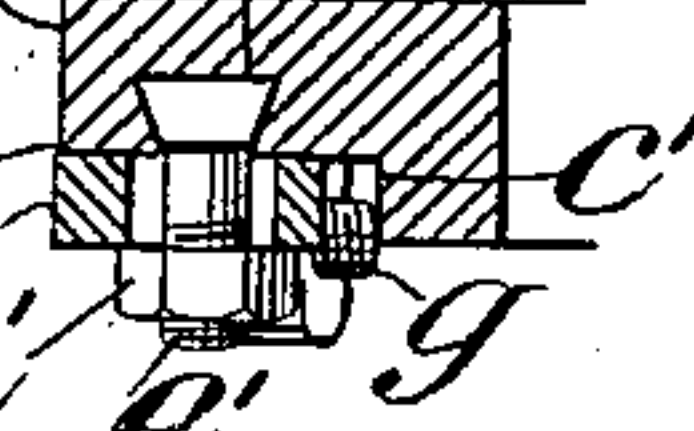
Witnesses:

O. Sundgren

George Barry.

Fig. 3.

Fig. 4.



Inventor: Calvert B. Cottrell

by attorneys

Thomson & Seward

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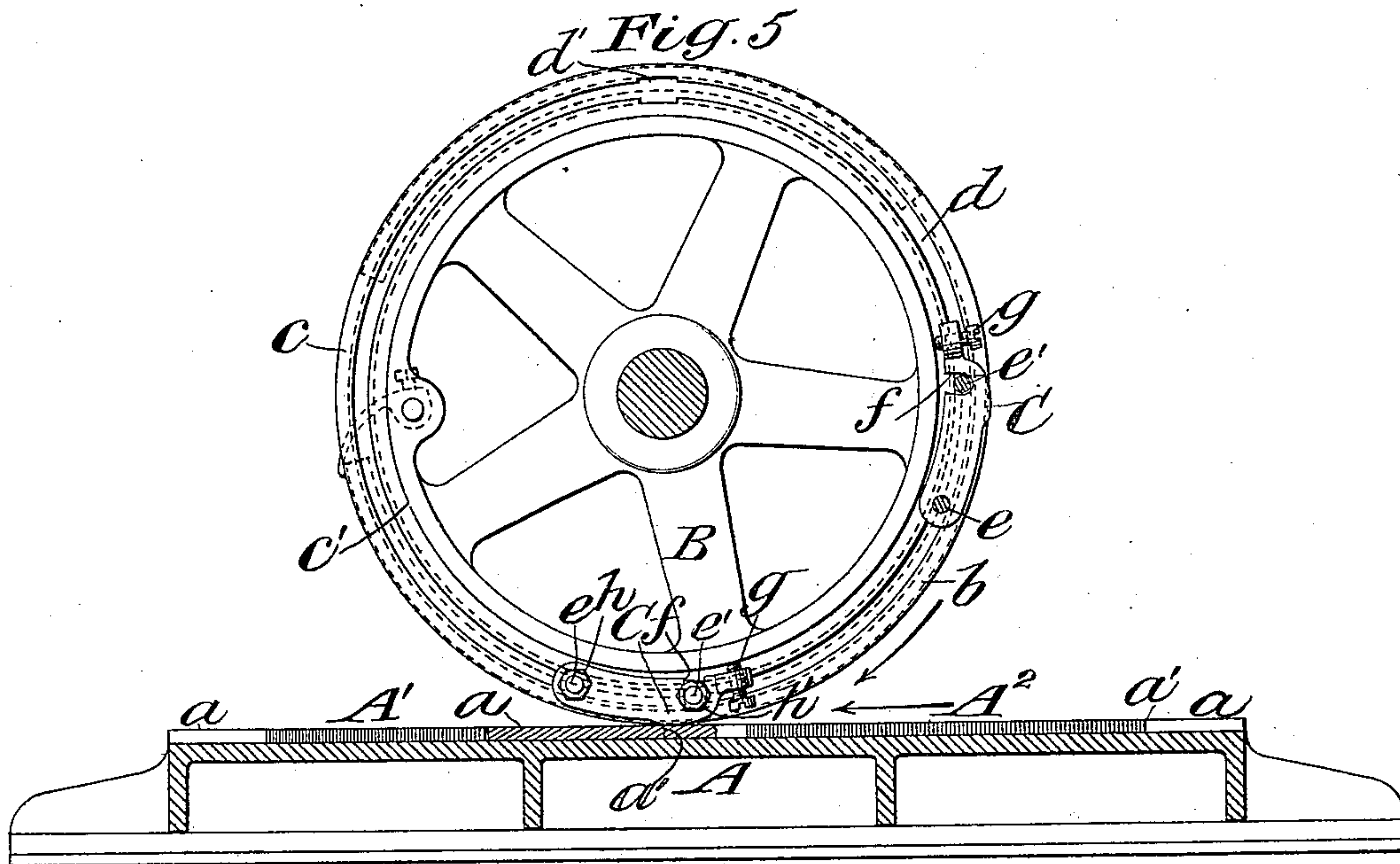
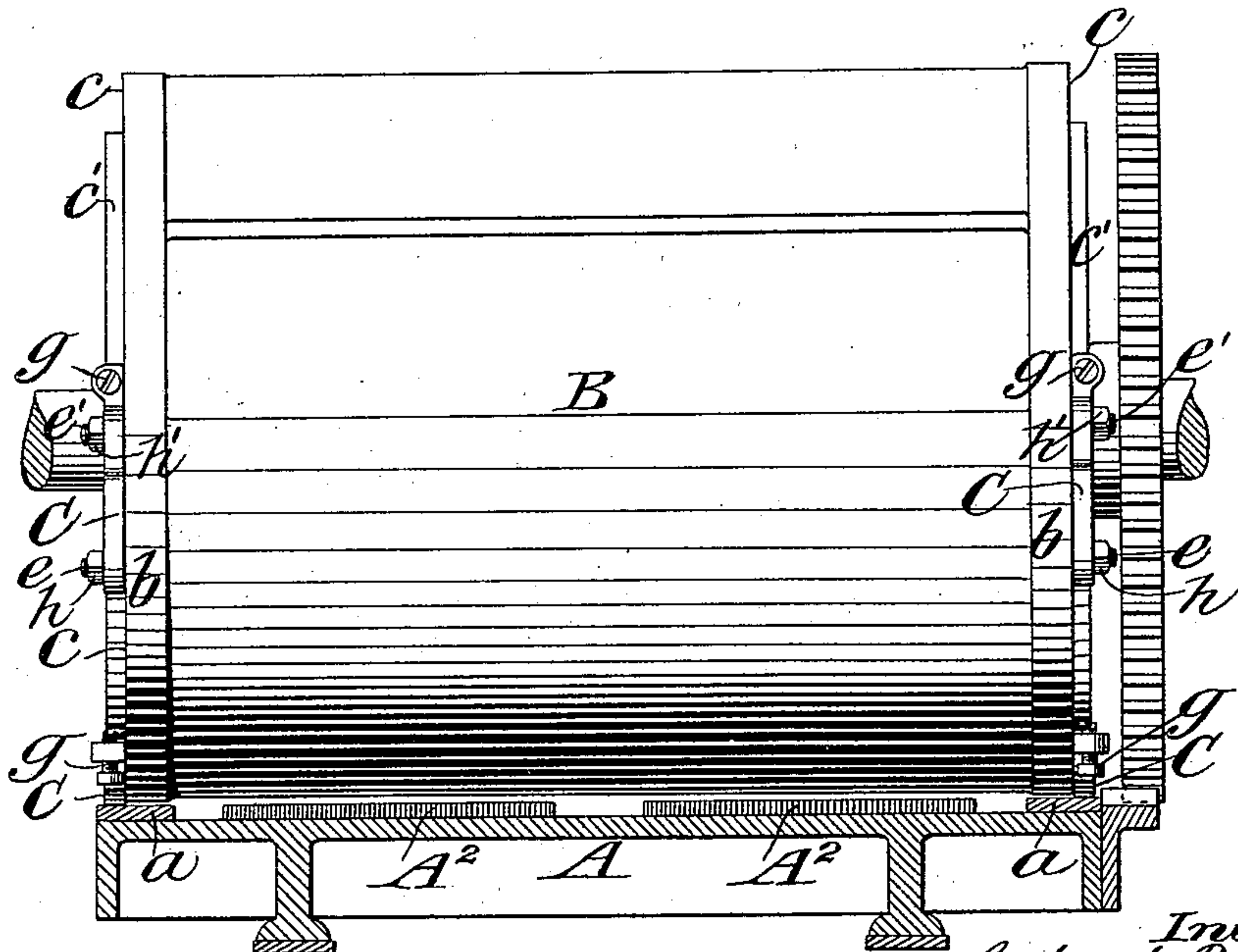


Fig. 6.



Witnesses:
C. Sundgren
George Barry.

Inventor:
Calvert B. Cottrell
by attorneys
P. M. Seward

UNITED STATES PATENT OFFICE.

CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,206, dated April 5, 1892.

Application filed October 24, 1891. Serial No. 409,717. (No model.)

To all whom it may concern:

Be it known that I, CALVERT B. COTTRELL, of Westerly, in the county of Washington and State of Rhode Island, have invented a new and useful Improvement in Printing-Machines, of which the following is a specification.

In both kinds of cylinder printing-machines heretofore employed—viz., those in which the form or plate carrier consists of a rotary cylinder and those in which the said carrier consists of a flat reciprocating form-bed—there is a tendency of those edges of the form or plate which are transverse to the direction of its movement to effect a heavier impression than the other parts of the form or plate, or, in other words, to produce a slur. This effect is owing to the yielding of the impression-cylinder or of the form-carrier, or of both, which unavoidably takes place even in the strongest machines during the printing operation and the reaction or return of said cylinder and carrier to their normal relation as the printing-surfaces of the form leave the sheet on the cylinder.

The object of my invention is to bear off the cylinder and the form-carrier from each other at and near the said edges of the form as the said edges arrive at and leave the impression-cylinder and sheet, and thus to obviate the aforesaid objectionable effect; and to this end my invention consists principally in bearing-pieces attached to the said cylinder or carrier at the requisite points, substantially as hereinafter described.

As the objectionable effect hereinabove explained is generally more pronounced at the rear edges of the plate or form and the remedy therefor is more desirable at those edges and may be sometimes applied only in relation with said edges, I have only illustrated in the drawings and will only particularly describe my invention so applied. This illustration and the description thereof will, however, be sufficient to enable others skilled in the art to apply it in proper relation to the edges at the head of the form or plate or to any edges where it may be desirable to apply it.

Figures 1, 2, 3, and 4 of the drawings illustrate the application of my invention in connection with a cylinder printing-machine in

which the form or carrier consists of a cylinder. Fig. 1 represents a side view of the form and impression cylinders, the form-cylinder being partly in section. Fig. 2 is a plan view of the said cylinders, the impression-cylinder, being partly in section. Fig. 3 represents a portion of one end of the impression-cylinder, taken in a direction parallel with the axis and illustrating a detail of my invention on a larger scale than the previously-mentioned figures. Fig. 4 is a perspective view of one of the bolts employed to attach the bearing-pieces to the cylinder. Figs. 5 and 6 illustrate the application of my invention to a cylinder printing-machine in which the form or plate carrier consists of a flat bed, Fig. 5 representing an end view of the cylinder and a longitudinal section of the form-bed and form and Fig. 6 representing a face view of the cylinder and a transverse section of the form-bed and form.

I will first describe Figs. 1, 2, 3, and 4.

A is the form or plate cylinder, and B the impression-cylinder, the shafts of which may be mounted in bearings in the manner common to printing-machines of this kind. These cylinders have at their ends continuous circumferential bearers *a* and *b*, like those of such cylinders as are in common use.

C are the bearing-pieces, which constitute the principal feature of my invention and which are applied at both ends of the cylinder. In order to provide for the attachment of this bearing, the ordinary bearers *b* of the impression-cylinder are both cut away or reduced all around the circumference of the cylinder, as shown at the upper right-hand corner of Fig. 2 and in Fig. 3, in the form of a rabbet *c*, and in the back of this rabbet a dovetailed groove *d* is formed around the cylinder.

The bearing-pieces C C consist of short curved plates, the profile form of which is shown in Fig. 1, and which are secured to the cylinder B within one of the rabbets *c* by means of two similar screw-bolts *e e'*, one of which is shown in perspective in Fig. 4, the heads of the said bolts being dovetailed and curved to fit their respective groove *d*, which is widened at one point in its circumference to allow the heads of the bolts to enter, as shown at *d'* in Fig. 1. The said bearing-

pieces are pivotally adjustable upon their bolts *e*, and such adjustment is permitted to a limited extent by the elongation in the proper direction of the holes *f* through which their bolts *e'* pass. This adjustment of each bearing-piece is effected by means of an adjusting-screw *g*, screwing through a widened portion of the said piece and bearing upon the cylindrical surfaces *c'* of the rabbet *c*.

The adjustment is such that a slightly-rounded or cam-like portion of the bearing-piece projects only about or little more than the thickness of a sheet of paper beyond the ordinary bearer *b* of the cylinder. When the adjustment has been made, it is secured by screwing up the nuts *h h'* on the screw-bolts *e e'*. The said bearing-pieces are employed in pairs, those of each pair being arranged opposite each other at the two ends of the cylinder and there being as many pairs as there are forms or pages in a circumferential series, each pair being arranged on the cylinder *B* opposite the rear edge *a'* of a form or page. In the example represented there are two forms or pages *A' A''* in the circumferential series, and consequently two pairs of bearing-pieces *C* on the cylinder. When these bearing-pieces are brought by the rotation of the impression-cylinder *B* into contact with the bearers *a* on the form or plate cylinder, the two cylinders are borne off from each other, and so the pressure upon the sheet at and in rear of the rear edges *a'* of the form or plates is eased and the slurring is prevented.

The adjustment of the bearing-pieces *C* to their proper position on the circumference of the cylinder *B* is provided for by slackening the nuts *h h'*, which permits the said pieces to be moved in the direction of the circumference of the cylinder, the adjustment being, as has been hereinbefore mentioned, secured by screwing up the nuts.

I will now proceed to describe the example of my invention shown in Figs. 5 and 6.

A is the reciprocating form-bed, having on its edges continuous bearers *a a*, as is common. The impression-cylinder *B* in this example has the bearing-pieces *C C* applied in precisely the same manner as the cylinder *B* in the first example, and, as the corresponding parts on the said cylinder in both examples are designated by the same letters, no further description of said parts is necessary, except to say that the bearing-pieces *C* are adjusted with reference to the rear edges *a'* of the forms or pages on the bed in the same

way as they are adjusted to the rear edges *a'* of the curved form of the first example.

I have herein described the bearers *b* of the cylinder as cut away to make room for the bearing-pieces *C*. Of course the cutting away would only be done in adapting my invention to an old machine. In a new machine the bearer on the cylinder may be made of a suitable width and the cylinder prolonged at its ends to form bearings like those *c'* for the adjusting-screws *g* of the bearing-pieces *C* and the bearers on the form cylinder or bed be made as much wider than the bearers *b* of the impression-cylinder as may be necessary to give room for the bearing-pieces *C* to run in contact with the said bearers *a*. It is obvious that the adjustable bearing-pieces *C*, instead of being applied to the impression-cylinder, might be applied to the form or plate to operate in connection with continuous bearers on the impression-cylinder.

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

1. The combination, with the impression-cylinder and form-carrier of a printing-machine, each having continuous bearers, of bearing-pieces on the one arranged at intervals on the line of its own continuous bearers and adjustable toward and from the continuous bearers of the other, substantially as herein set forth.

2. In a printing-machine, the combination, with the impression-cylinder and form-carrier, of a bearer on the one and bearing-pieces on the other adjustable in the direction of the length or profile of the face of the latter, substantially as and for the purpose herein set forth.

3. In a printing-machine, the combination, with the impression-cylinder and form-carrier, of bearers on the one and bearing-pieces on the other, which are adjustable both outwardly from and in the direction of the length of the face of the latter, substantially as herein set forth.

4. In a printing-machine, the combination, with the impression-cylinder and form-carrier, the latter having continuous bearers, of bearing-pieces on the other, which are adjustable in the direction of its circumference, substantially as herein set forth.

CALVERT B. COTTRELL.

Witnesses:

A. R. STILLMAN,
B. FRANK LAKE.