

No. 660,711.

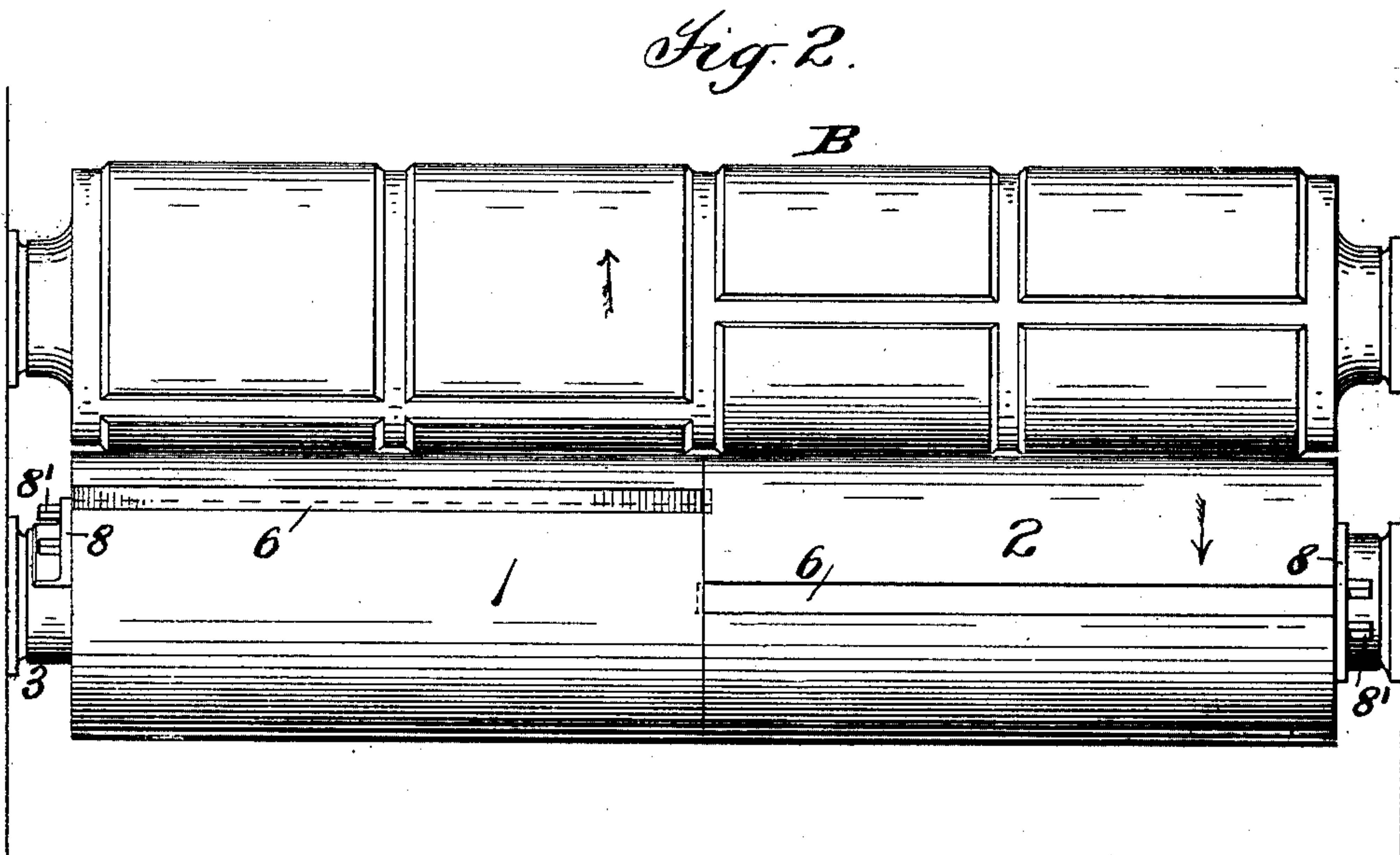
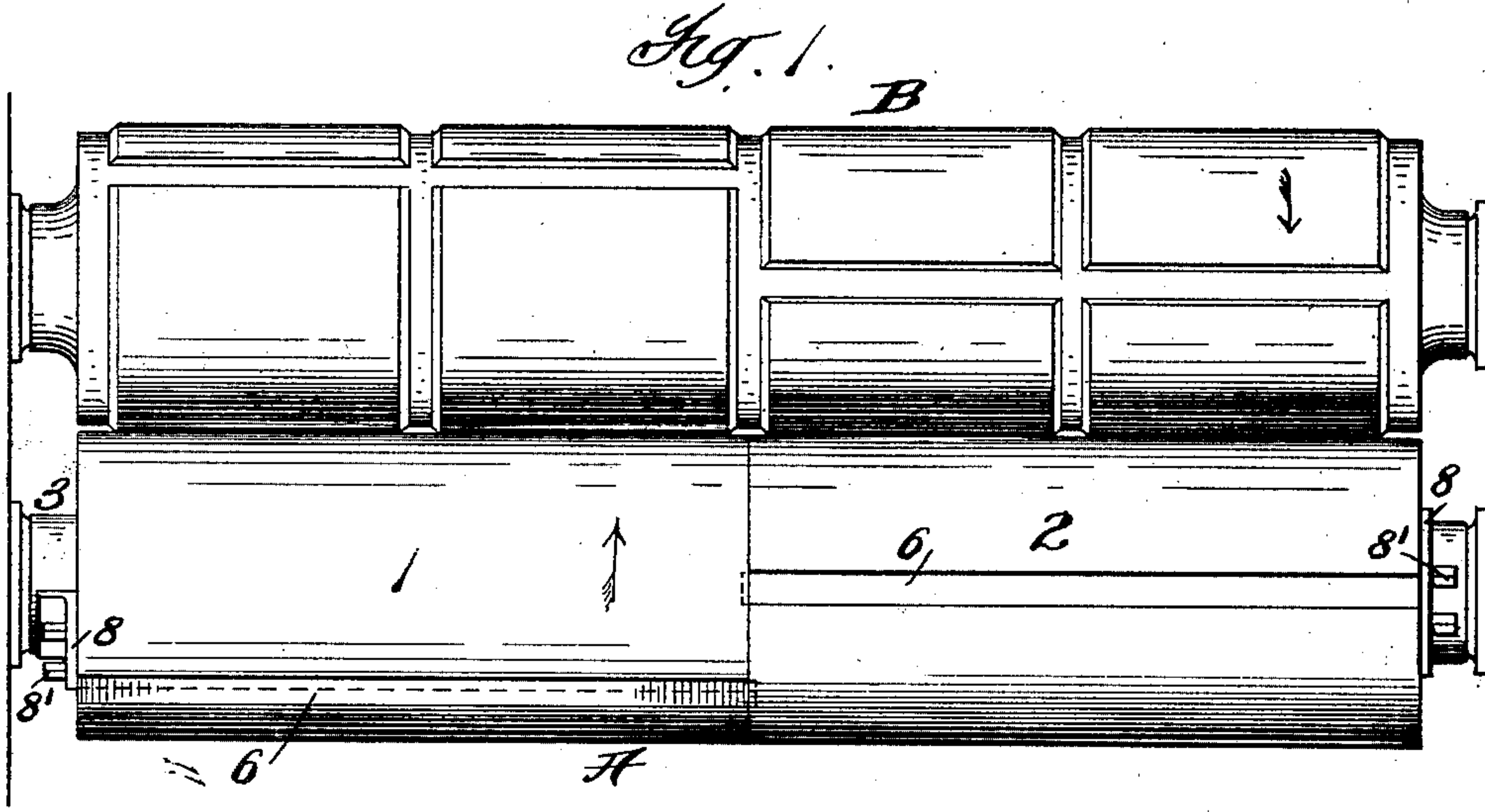
Patented Oct. 30, 1900.

O. ROESEN.  
IMPRESSION CYLINDER.

(Application filed Dec. 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.



*Attest.*

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2 Sheets—Sheet 2.

Fig. 3.

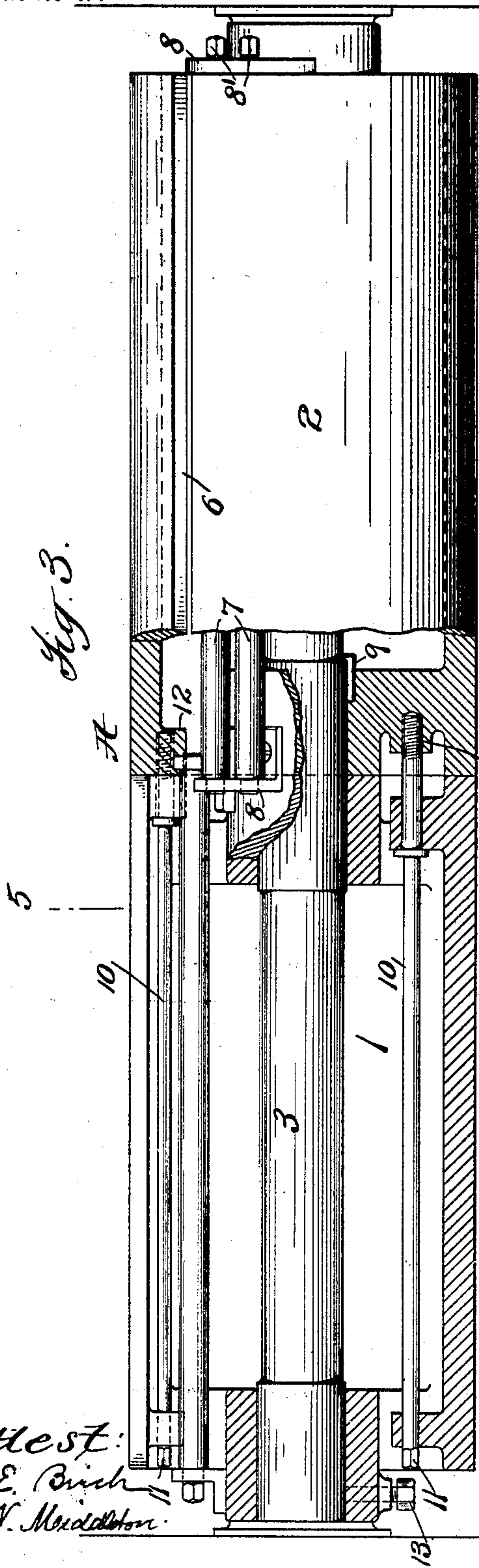


Fig. 6.

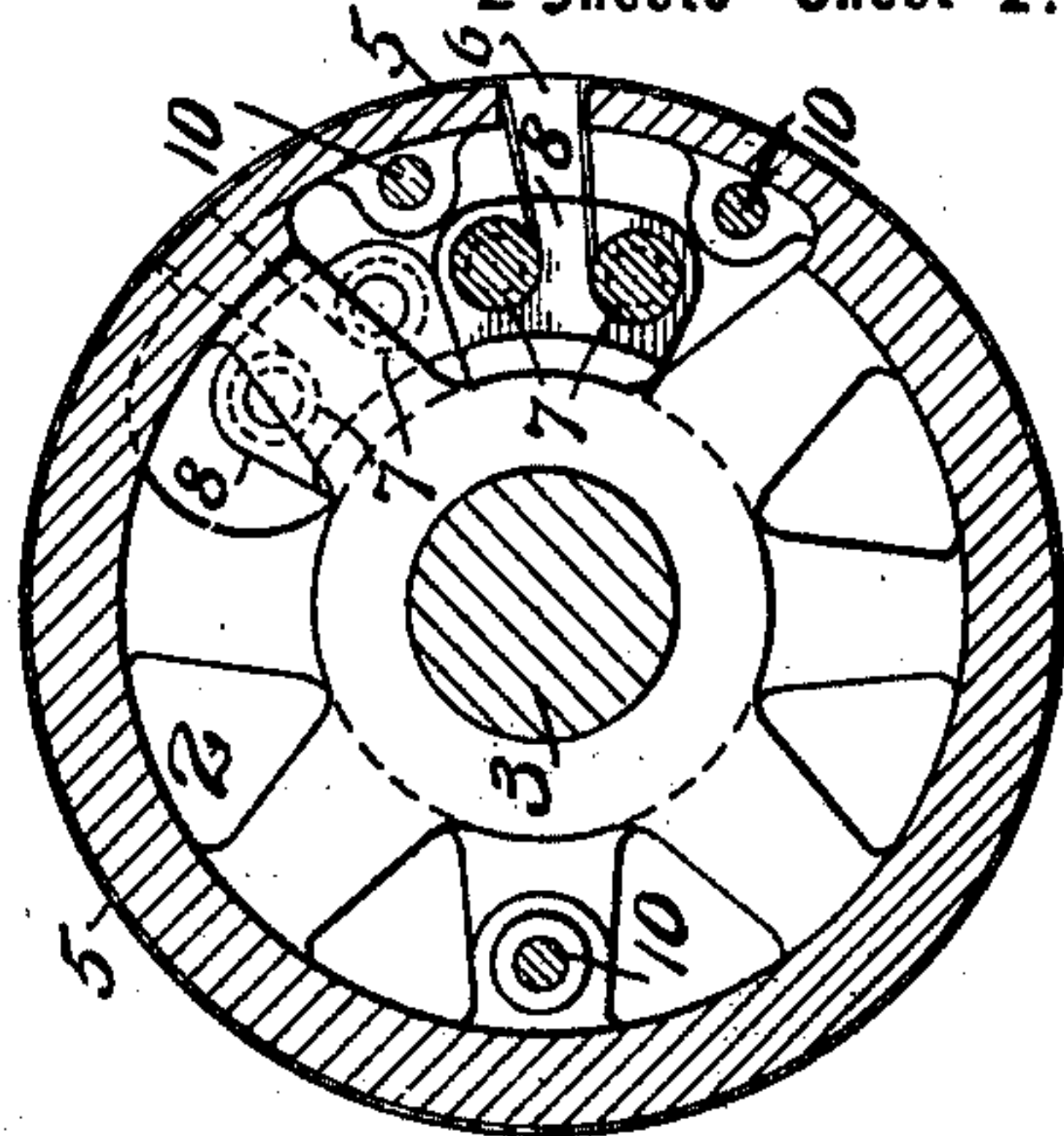


Fig. 5.

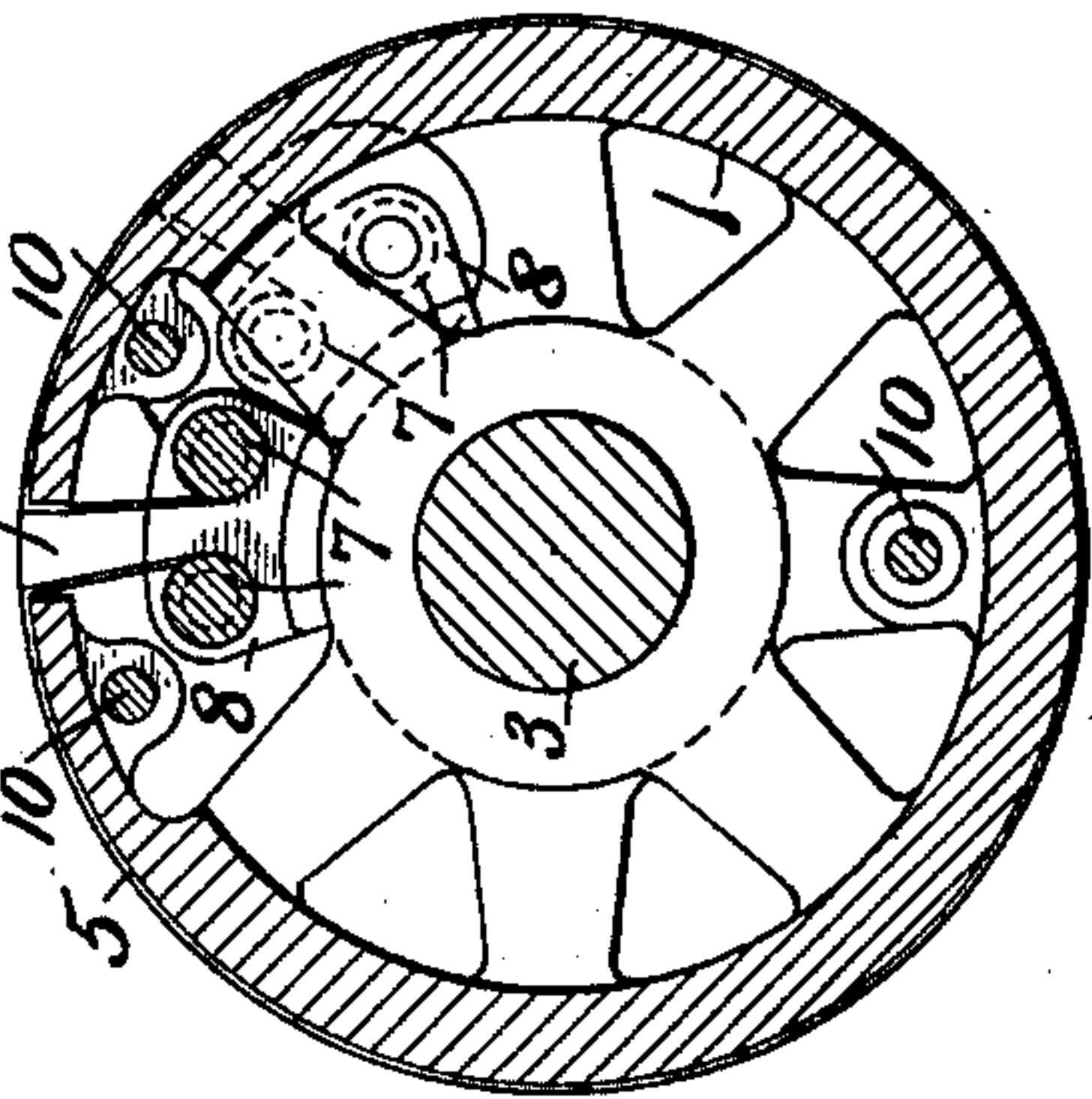
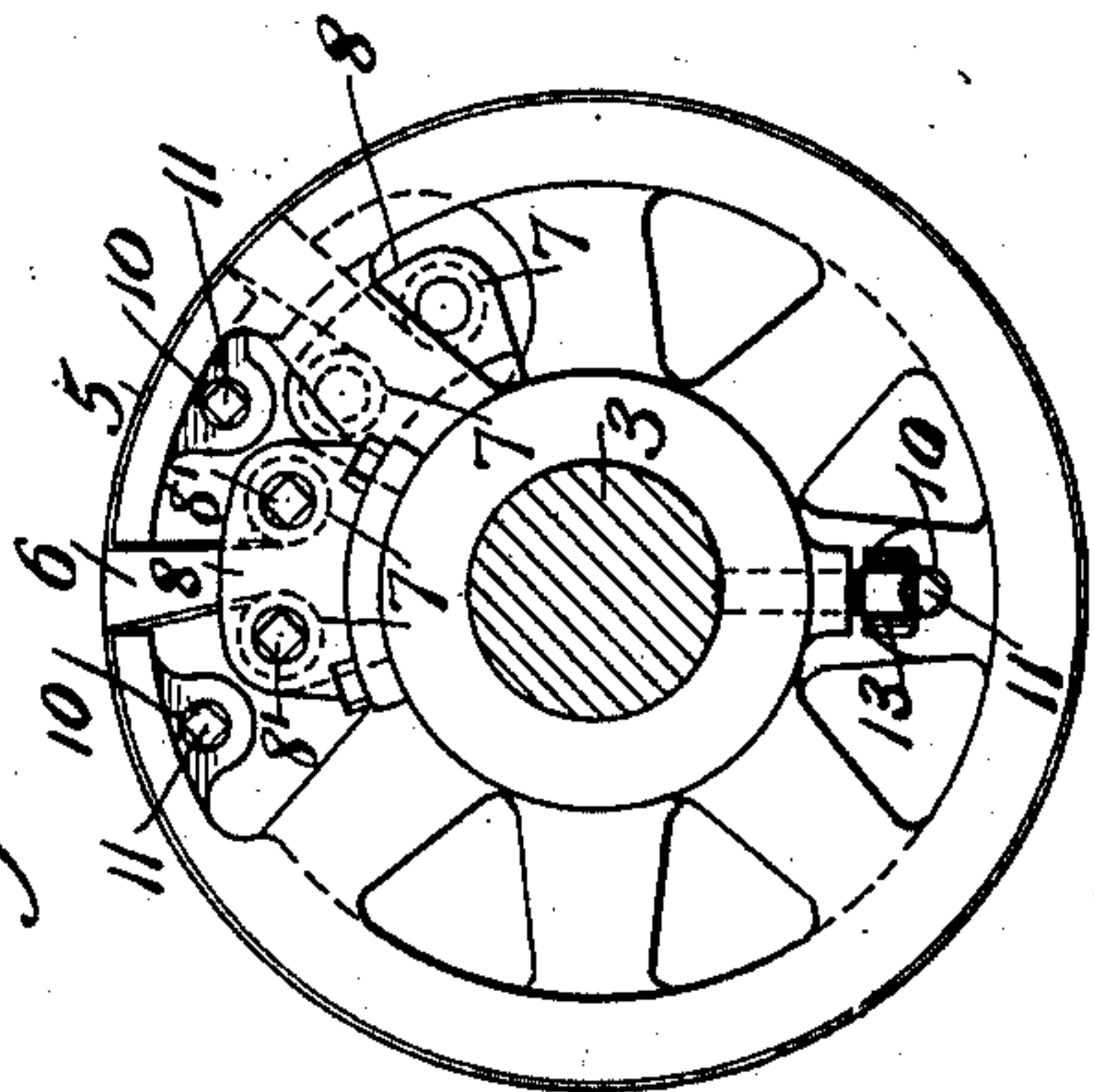


Fig. 4.



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# UNITED STATES PATENT OFFICE

OSCAR ROESEN, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ROBERT HOE AND CHARLES W. CARPENTER, OF SAME PLACE.

## IMPRESSION-CYLINDER.

SPECIFICATION forming part of Letters Patent No. 660,711, dated October 30, 1900.

Application filed December 8, 1899. Serial No. 739,586. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR ROESEN, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Impression-Cylinders, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to certain improvements in printing machinery.

Machines for printing in colors are now usually constructed by adding to the ordinary newspaper-printing machine of the perfecting type a set or sets of additional printing-couples, one for each color to be printed. These additional couples are, however, all designed and arranged to print on the same side of the web, and consequently have their printing or plate cylinders arranged on one side of the lead of the web and their impression-cylinders arranged on the other side of the lead of the web. Attachments so constructed when added to the large presses in common use take up considerable space in the press-room, are expensive to build, and since they are adapted by reason of their arrangement to print only in colors must stand idle when the machine is not running on color-work. Some of these attachments, therefore, are so designed and arranged with relation to each other that the web or webs to be printed may be led to their couples in various ways. In such constructions by varying the web leads and the sequence in which the web passes between the couples a machine is produced which is capable of printing in colors with one or some leads of the web and of printing in black or perfecting with other leads of the web. In all such machines, however, it is necessary in changing from color to black, and vice versa, if all the couples are to be used, to change the direction of rotation of some or all of the couples through or between which the web passes—that is to say, when the machine is arranged to print in black or to perfect the web runs in one direction through the supplemental couples or a part of them, and when the machine is arranged to print in colors the web runs in an

opposite direction through these couples or part of them.

In order to increase the output of the machine, the couples are usually constructed of the double-wide type, and in the best of these constructions the printing or form-carrying cylinder is constructed so as to have the printing plates or forms staggered in order that some portion of the form-cylinder will always be running in contact with the impression-cylinder, the purpose of this arrangement being well known in the art. In double-wide-web machines employing staggered plates and printing on a double-wide web, however, if the direction of rotation of the printing-couple be reversed the impressions do not fall in proper relation on the opposite sides of the web, and it is consequently necessary to introduce a special slitting mechanism into the machine and in addition to use a special compensating mechanism to retard or increase the length of travel of one or both portions of the web, so as to bring the impressions on the opposite sides of the web into proper relation to the other webs with which they are to be associated. The introduction of the slitting and compensating mechanisms, however, produces a machine of considerable complexity and is objectionable for that and other reasons. If, furthermore, a blanket or tympan of the ordinary type—that is, a blanket or tympan which is wound on the cylinder—be used, the direction in which the blanket is wound depends upon the direction of rotation of the cylinder. If, now, the direction of rotation of the couples be changed without changing the winding of the blanket or tympan, it tends to work loose under the heavy pressure the impression-cylinder receives from the form-cylinder, and thus seriously interferes with good printing.

In such machines as have been referred to the change in the rotation of the cylinders involves a change in the winding of the blanket, and consequently the change in the operation of the machine from color to black or vice versa takes considerable time and involves considerable labor.

It is one of the objects of this invention to produce a printing-couple of the double-wide



type in which the direction of rotation of the couple may be easily and quickly changed and at the same time the impressions produced by the couple made to fall properly on both sides of the web, so as to render unnecessary the use of special slitting and compensating mechanisms.

A further object of the invention is to provide a couple of the type before indicated with a tympan or blanket which will not tend to work loose when the direction of rotation of the couple is changed.

With these and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be described hereinafter and then fully pointed out in the claims hereunto appended.

Referring to the drawings which form a part of this specification, and in which like characters of reference indicate the same parts, Figure 1 is a front elevation of a printing-couple constructed in accordance with my invention, the several parts being shown as adjusted for a rotation of the couple in one direction. Fig. 2 is a view similar to Fig. 1, but showing the parts in adjustment for rotation in the direction opposite to that shown in Fig. 1. Fig. 3 is an elevation, partly in section, of the impression-cylinder, on an enlarged scale, showing the construction of the adjusting devices. Fig. 4 is an end view of the cylinder shown in Fig. 3. Fig. 5 is a section of the cylinder shown in Fig. 3 on the line 5 5. Fig. 6 is a sectional view similar to Fig. 5, but showing the parts in a different adjustment.

Referring to the drawings, A indicates the impression-cylinder, and B the form-cylinder, of a double-wide printing-couple. The form-cylinder B is shown as provided with two sets of plates, the plates of one set being shown as staggered with relation to the plates of the other set. The impression-cylinder consists of two sections 1 and 2, these sections being shown as mounted on a shaft 3, which is supported in suitable bearings in the machine. The section 1 coöperates with one set of plates on the form-cylinder B, and the section 2 coöperates with the other set of plates on this cylinder. Each of the sections is shown as provided with a tympan or blanket 5, said blanket being shown as encircling the cylinder. The ends of each of the blankets are shown as carried through a gap or opening 6 in the cylinder, and they are secured to shafts 7, mounted in brackets 8, suitably located in the interior of the cylinder. The shafts 7 are provided with any suitable tightening means. In the machine shown the shafts have squared heads 8', on which a wrench may be placed for the purpose of tightening the blankets.

In machines in which the couples are of the double-wide order the impressions which are delivered by one set of plates are in advance on the web of the impressions delivered by

the other set of plates by the amount of the stagger between the plates. Thus, for instance, if the plates on one side of a double-wide cylinder are angularly in advance of the plates on the other side of the cylinder by, say, six inches the impressions delivered by that set of plates will be six inches in advance on the web of the impressions delivered by the other set of plates, and the various parts of the machine are constructed accordingly. If, now, the direction of rotation of the couples be changed without any alteration of the position of the plates and impression-surfaces, it will at once be obvious that the impressions which were before six inches in advance are now in the rear by the same amount. In other words, the margins of what were before the leading web or webs have now fallen behind twelve inches with relation to the margins on the web or webs with which they are to be associated. The margins on the other side of the web have advanced by the same amount, and the entire web is consequently thrown out of register. To prevent this disturbance of the determined register of the machine, the impression-cylinder is made in a plurality of parts—two if the cylinder be double wide—and one of these parts is made angularly adjustable with relation to the other. The construction by which this angular adjustment is effected may be widely varied. In the machine shown the section 2 of the impression-cylinder is fixedly secured to the shaft 3 in any suitable manner—as, for instance, by means of a key 9—while the section 1 is loosely mounted on the shaft, so as to be adjustable around the same.

Suitable means must be provided for holding the section 1 in its adjusted position. While this means may be varied widely, in the machine shown it consists of long bolts 10, having squared heads 11. These bolts take into threaded sockets 12 in the stationary section 2. Two sets of these sockets are arranged so as to hold the section 1 in either of its adjusted positions.

Referring to Fig. 1 and supposing that the cylinders are rotating in the direction of the arrow in that figure, it will be seen that the impressions delivered by the section 2 of the impression-cylinder and its coöperating plates will be somewhat in advance of the impressions delivered by the section 1 and its coöperating plates. This is indicated by the position of the plates on the section 2 and also by the position of its opening 6, which is shown as in advance of the similar opening 6 in the other part of the cylinder. If now the direction of the rotation of this couple be changed, (see Fig. 2, in which the parts are supposed to be rotating in the opposite direction to that shown in Fig. 1,) the bolts 10 are loosened and the section 1 is swung angularly around the cylinder until it has reached a position where its gap 6 is six inches in the rear of the gap 6 on the section



2, if six inches be the amount of the stagger determined upon. The plates on the form-cylinder must of course be similarly adjusted; but this can be effected by any of the well-known agencies ordinarily used for this purpose, it being considered unnecessary to show them or describe them here, since they form no part of the invention.

The adjustment being made as described and the section 1 being secured in its adjusted position, it will be seen that the two halves of the web printed by the two sets of plates now have their printed pages in the same relative position that they were when the cylinders were rotating in the opposite direction—that is to say, the pages printed by the section 2 and its cooperating plates are, as before, six inches in advance, if six inches be the amount of the stagger, of the pages printed by the section 1 and its cooperating plates.

For convenience in adjustment suitable stops will be provided for determining the position of the movable section 1 in either adjustment. These stops may be of any suitable construction and located in any suitable position. They will preferably, however, be formed by the brackets 8, these brackets being so arranged that when the section is in one adjustment one side of the bracket 8 on the section 1 is in contact with one side of the bracket 8 on the section 2. When the section is in the other adjustment, the two opposite sides of the bracket are in contact. This is clearly indicated in Figs. 5 and 6, the bracket 8 of the section 1 in the adjustment shown in Fig. 5 being on one side of the bracket 8 of the section 2, and in the adjustment shown in Fig. 6 the bracket on the section 1 is on the other side of the bracket 8 of the section 2. While the brackets form a convenient means of stopping the adjustable section in proper position, any other suitable devices may be substituted therefor.

While the bolts 10 may be depended upon, if desired, to secure the movable section of the impression-cylinder in its two adjusted positions, this action may be assisted, if desired, by providing a set-screw 13, which engages the shaft 3.

It will be seen that by holding the blanket or tympan for each of the sections 12 at each end, and thus avoiding winding it more than once around the cylinder, there is no increased tendency for the blanket or tympan to work loose when the direction of rotation of the couple is changed. This arrangement of tympan, therefore, is peculiarly effective with an impression-cylinder constructed in accordance with the invention.

The various mechanical details by which the invention is carried into effect may be varied widely. The invention is not, therefore, to be limited to the particular construction which has been hereinbefore described.

What I claim is—

1. An impression-cylinder having a plurality of impression-surfaces, and means where-

by a circumferential adjustment may be effected between the surfaces, substantially as described.

2. An impression-cylinder having a plurality of impression-surfaces, means whereby a circumferential adjustment may be effected between the surfaces, and means for securing a tympan or blanket to each of the surfaces, substantially as described.

3. An impression-cylinder having a plurality of impression-surfaces, means whereby a circumferential adjustment may be effected between the surfaces, and means for securing a tympan or blanket to each of the surfaces, said means being arranged to secure each of the ends of said tympan or blankets, substantially as described.

4. An impression-cylinder having two sections, and means for adjusting one of the sections with relation to the other, substantially as described.

5. The combination with a shaft, of an impression-cylinder mounted thereon, said cylinder having a section which is secured to the shaft and a section which is movable about the shaft, and means whereby the movable section is secured in position, substantially as described.

6. The combination with a shaft, of an impression-cylinder mounted thereon, said cylinder having a section which is secured to the shaft and a section which is movable about the shaft, means whereby the movable section is secured in position, and means for securing a tympan or blanket to each of the sections, each of said tympan or blankets being fastened at each of its ends to the securing means, substantially as described.

7. The combination with a form-cylinder carrying staggered plates, of an impression-cylinder having a plurality of sections, and means whereby an angular adjustment may be effected between the sections, substantially as described.

8. The combination with a form-cylinder carrying staggered plates, of an impression-cylinder having a plurality of sections, means for effecting an angular adjustment between the sections, and means for securing a tympan or blanket to each of the sections, each of the ends of said tympan or blankets being fastened to the securing means, substantially as described.

9. The combination with a shaft, of an impression-cylinder having a section movable about the shaft, stops for limiting the movement of the movable section in each direction, and means for securing the movable section in its adjusted position, substantially as described.

10. The combination with a shaft, of an impression-cylinder mounted thereon, said impression-cylinder having a section which is secured to the shaft, and a section which is movable about the shaft, tympan-securing devices for each section of the cylinders, brackets in which said tympan-securing de-



vices are mounted, said brackets being arranged so as to form stops for the adjustable section of the cylinder, substantially as described.

5 11. The combination with a shaft, of an impression-cylinder mounted thereon, said impression-cylinder having a section fixed to the shaft and a section movable about the shaft, and bolts passing through one section  
10 and engaging sockets in the other section, substantially as described.

12. The combination with a form-cylinder carrying staggered plates, of a shaft, an impression-cylinder mounted on the shaft, said  
15 cylinder having a section fixed to the shaft,

and a section movable thereon, bolts passing through one section and engaging sockets in the other section, tympan-securing devices for each section, and brackets in which said securing devices are mounted, said brackets 20 serving as stops to limit the movement in each direction of the movable section, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing 25 witnesses.

OSCAR ROESEN.

Witnesses:

OTTO L. RAABE,  
HENRY S. MOUNT.