

A. W. FELLOWS.
PERFORATING MACHINE.
APPLICATION FILED MAR. 1, 1909.

934,397.

Patented Sept. 14, 1909.

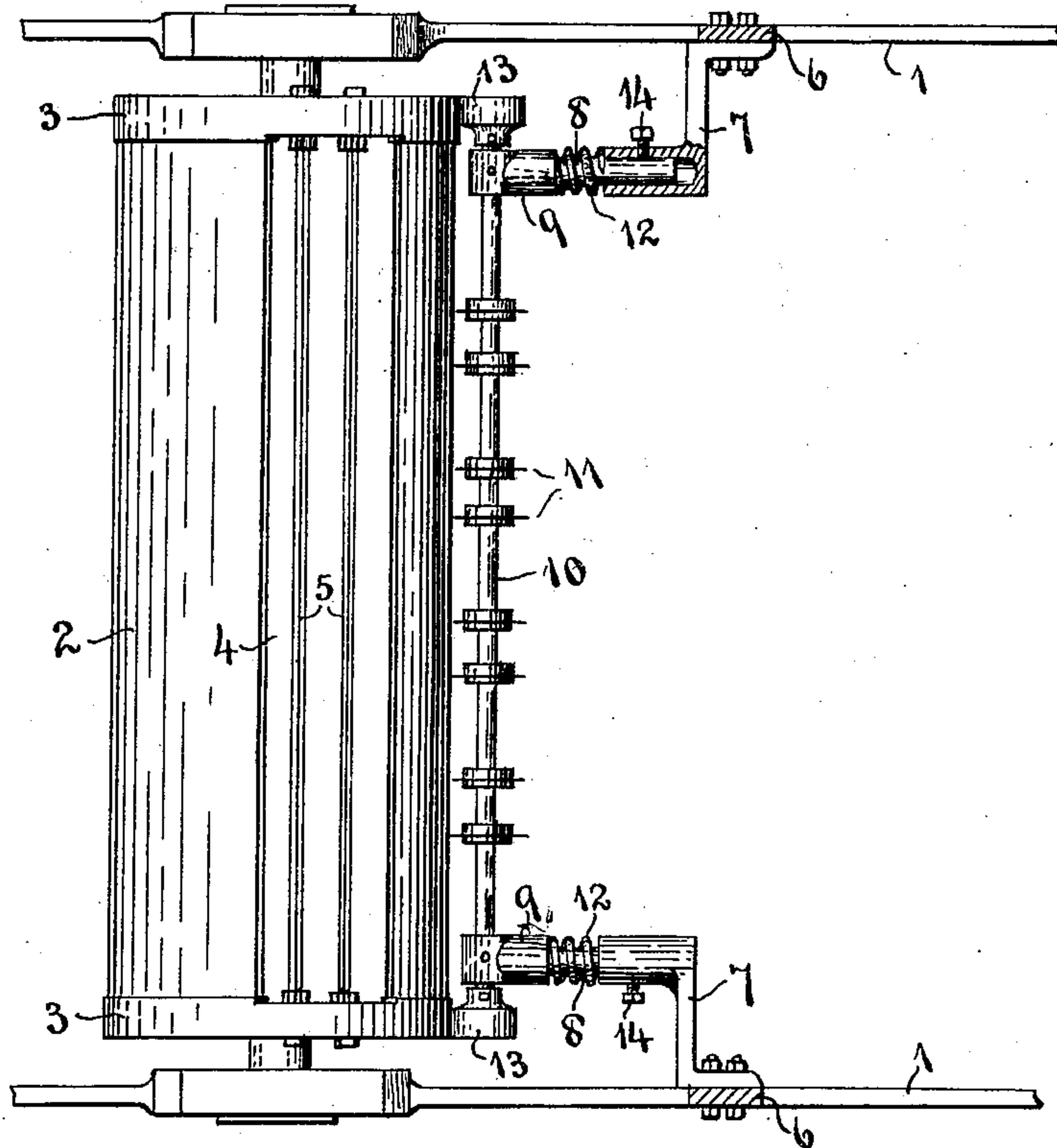


Fig. 1.

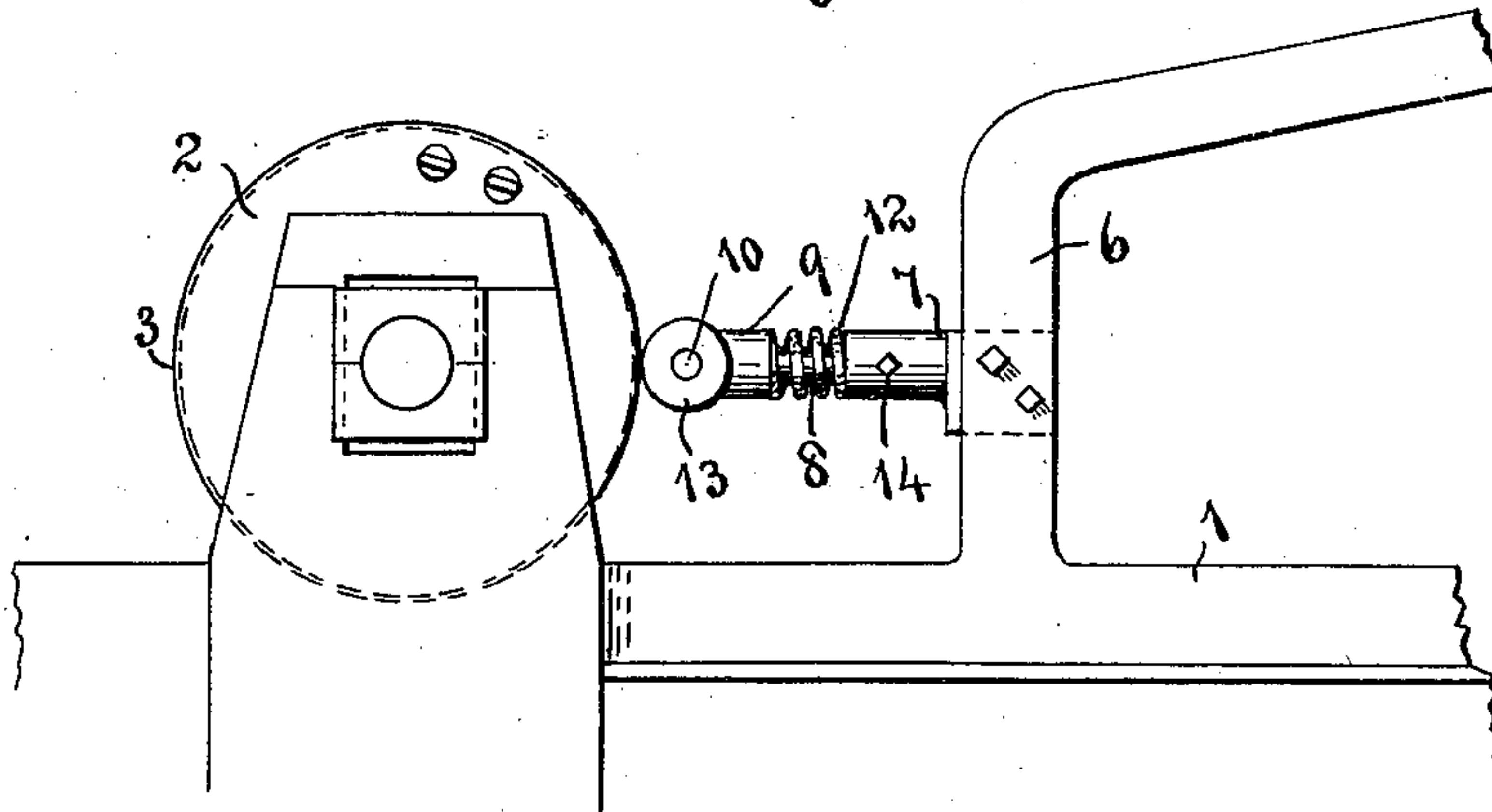


Fig. 2.

WITNESSES:
M. E. Verbeck,
Roswell R. Moss

INVENTOR
Andrew W. Fellows
BY
Eugene Diven
ATTORNEY

UNITED STATES PATENT OFFICE.

ANDREW W. FELLOWS, OF ELMIRA, NEW YORK, ASSIGNOR TO AMERICAN SALES BOOK COMPANY, OF ELMIRA, NEW YORK.

PERFORATING-MACHINE.

934,397.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed March 1, 1909. Serial No. 480,552.

To all whom it may concern:

Be it known that I, ANDREW W. FELLOWS, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Perforating-Machines, of which the following is a specification.

This invention relates to improvements in perforating machines wherein revoluble perforating disks are applied to an impression cylinder; my objects being to provide means for maintaining perforating disks in yielding contact with paper on the impression cylinder to follow irregularities in the surface of the tympan covering of the cylinder; to provide means for maintaining constant revolution of the disks in unison with the cylinder rotations regardless of such irregularities, or of openings across the cylinder where provided to receive the ends of the tympan sheets, or of the rise and fall of the cylinder when the perforating apparatus is applied to two revolution single cylinder printing machines; and, finally, to provide means for the withdrawal of the disks from the cylinder and for fastening them in such withdrawn position, when not in use.

I attain my objects by constructing the machine in the manner illustrated in the accompanying drawings, in which—

Figure 1 represents a plan view of an impression cylinder, and the perforating mechanism as applied thereto; and Fig. 2, a side elevation thereof.

Like numerals designate like parts in the two views.

The invention is herein shown as applied to a printing machine of the single cylinder type; 1, 1, representing portions of the side-frames of the machine, between which, in suitable journal boxes, is mounted an impression cylinder 2. This cylinder at each end is provided with continuous cylindrical surfaces 3, preferably slightly raised to correspond with the thickness of the tympan covering when applied to the cylinder surface between them, and with one or more longitudinal openings, as shown at 4, to receive the ends of the tympan sheets, which ends are fastened upon stretching bars, as shown at 5. On the uprights 6 I fasten guide brackets 7 at each side of the machine, said brackets being bored to receive rods 8

which are provided with bearings 9, for the shaft 10, upon which the perforating disks 11 are adjustably mounted in the usual manner. Coiled springs 12 surround the rods 8 between the brackets and the bearings, the tension of the springs being such as to hold the perforating disks in proper contact with the paper on the impression cylinder to make clean cut perforations.

At each end of the shaft 10, where it projects outside of the journal bearings, are fastened rollers 13, which engage the cylindrical surfaces 3 at each end of the impression cylinder. The guide brackets 7 are provided at 14 with set screws, whereby, when the shaft 10 and journal bearings 9 are drawn back from the impression cylinder, the rods 8 may be locked in the brackets to hold the perforating disks and rollers out of engagement with the cylinder. The function of these rollers is to insure a constant revolution of the disks at the same circumferential speed as that of the tympan surface, while the machine is in operation. Ordinarily the perforating teeth on the disks will be so positioned, as to the tympan surface, that they will cut through the paper to be perforated when the rollers are running in contact with surfaces 3. Should the tympan surface project beyond normal, the spring bearings will yield to the pressure against the disk teeth and the disk rotations will be maintained direct from the cylinder until the rollers are returned to contact with the cylinder surfaces 3. Should there be depressions or breaks in the tympan surface, the rollers will prevent the disks from entering such depressions or openings, and will maintain the disks at constant speed of rotation, until they again engage the paper to be perforated. The disks are thus prevented from slowing down, or stopping, which would result in tearing or cutting the paper, or tympan covering, when again engaged, and before the disks could be brought up to speed again by direct contact only with the cylinder.

In a two revolution single cylinder printing machine, this apparatus will be found particularly adaptable, the disk shaft being then positioned in a plane at right angles to the line of travel of the cylinder, as shown in the drawings, so that the spring bearings will maintain the rollers and disks in proper contact with the cylinder throughout its rise

and fall. It will thus be seen that when a machine supplied with this apparatus is in operation and the disk shaft in operative position, the disks, by reason of the action of
5 springs 12, will approach and recede from the cylinder to follow any irregularities in the tympan covering, and the rollers will maintain the disks at constant speed, thereby effecting a perfect series of perforations in
10 the paper carried by the cylinder, and eliminating all danger of tearing or cutting the paper.

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

15 1. The combination, with a cylinder, of a shaft parallel thereto, one or more perforating disks upon the shaft, journal bearings for the shaft having rods projecting therefrom at right angles to the shaft, supports
20 in which said rods are slidably mounted, springs actuating the bearings to press the shaft toward the cylinder, and rollers on the shaft to engage the peripheral surface of the cylinder.

25 2. The combination, with a cylinder having one or more longitudinal openings and uninterrupted bearing surfaces at each end of such opening or openings, of a shaft

parallel to the cylinder provided with rollers adapted to engage said surfaces, one or
30 more perforating disks upon the shaft, and spring actuated bearings adapted to press the shaft toward the cylinder.

3. The combination, with a cylinder having an impression surface and uninterrupted
35 cylindrical bearing surfaces at each end thereof, of a shaft parallel to the cylinder provided with rollers adapted to engage said bearing surfaces, one or more perforating
40 disks upon the shaft, and spring actuated means for pressing the shaft toward the cylinder.

4. The combination, with a cylinder susceptible of motion in its bearings, of a shaft
45 set parallel to the cylinder and at one side of the plane of motion, rollers on the shaft adapted to engage bearing surfaces on the cylinder, one or more perforating disks on
50 the shaft, and spring actuated means for pressing the shaft toward the cylinder.

In testimony whereof I have affixed my signature, in presence of two witnesses.

ANDREW W. FELLOWS.

Witnesses:

A. M. BOVIER,
W. C. METZGER.