

No. 834,026.

PATENTED OCT. 23, 1906.

A. B. SHERWOOD.
PRINTING PRESS.

APPLICATION FILED OCT. 6, 1905.

Fig. 1.

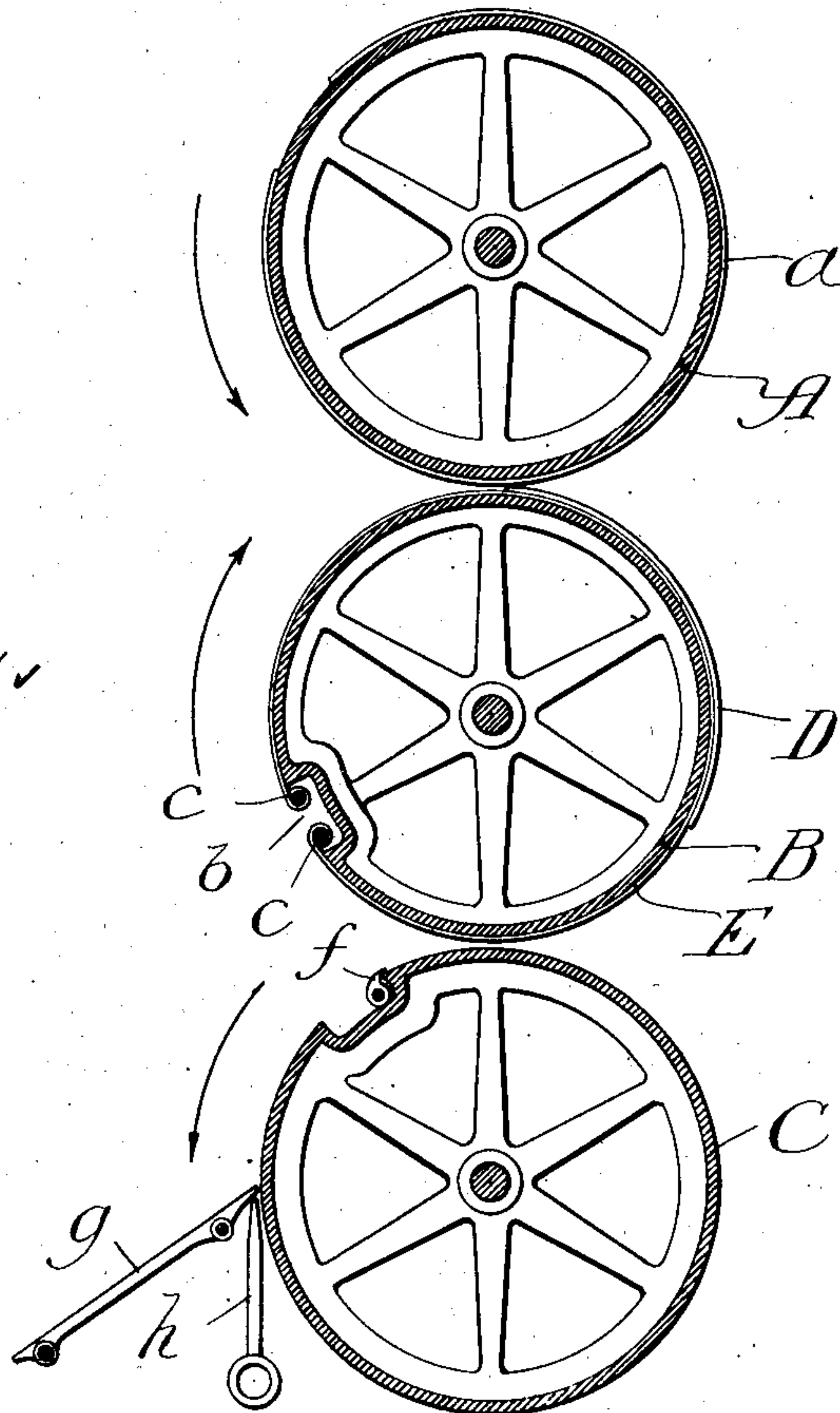
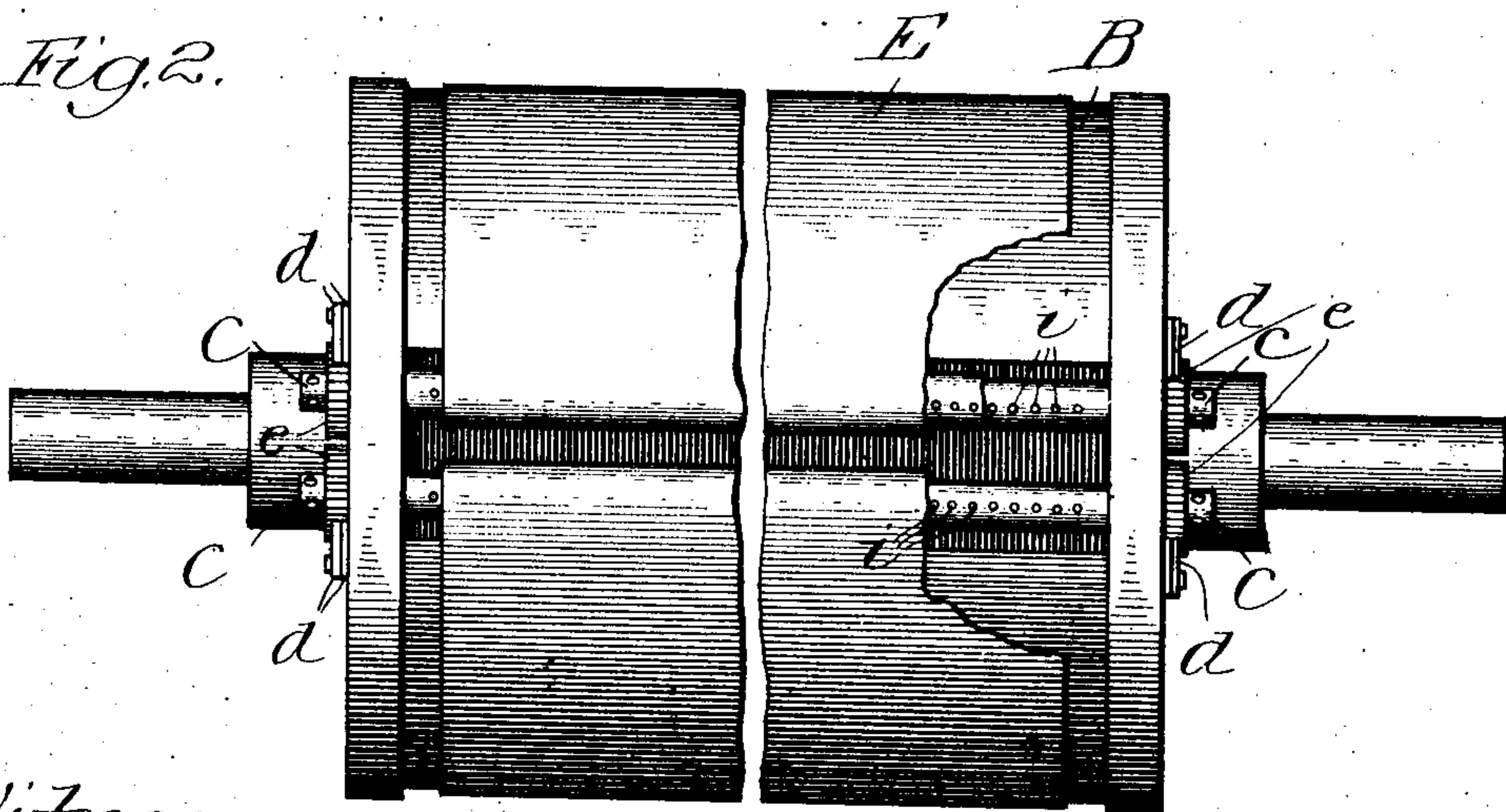


Fig. 2.



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PRINTING-PRESS.

No. 834,026.

Specification of Letters Patent.

Patented Oct. 23, 1906.

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To all whom it may concern:

Be it known that I, ALEXANDER B. SHERWOOD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Printing-Presses, of which the following is a specification.

My invention relates to improvements in printing-presses of the class in which the design or matter to be printed is usually transferred or etched upon a plate or the like which is secured to a plate-cylinder and in which the inked design is imparted to a sheet or rubber or equivalent yielding material by which the printing is performed. The rubber printing-sheet is spread over the printing-surface of a printing-cylinder which co-operates with an impression-cylinder, means being provided for feeding the sheets to be printed between the printing and impression cylinders. It has been usual hitherto in operating printing-presses of this type to provide a sheet of rubber to act as the printing-surface of a length somewhat exceeding the printing-surface of the printing-cylinder, so that the edges of the rubber sheet could be engaged by the fastening means of the cylinder, and the rubber sheets have been thus provided irrespective of the dimensions of the designs which they were intended to print. As a consequence each sheet of paper was caused while passing through the press to contact throughout its entire surface with the surface of the dampened rubber sheet. This has been the cause of much delay and annoyance, for the reason that all air being expelled from between the printed and printing sheets by pressure of the cylinder the printed sheet would tend to cling to the rubber printing-sheet in a manner to interfere with its proper printing and delivery. It has also been a difficult matter to keep printing-sheets of such large dimensions sufficiently clean during operation to prevent printed sheets from being soiled thereby.

My object is to overcome the above-named and other objections to the use of a rubber printing-sheet as hitherto employed by providing the sheet of dimensions no greater than the design to be printed may require and fastening it throughout its rear surface, preferably with suitable cement, to a backing-sheet, which may be of any suitable material, though I prefer to employ for the purpose a textile fabric, such as canvas. The backing-sheet is of a length sufficient to per-

mit its opposite edges beyond the rubber sheet to be engaged by the mechanism provided on the printing-cylinder for adjusting, tensioning, and securing it in place.

In carrying out my invention I also provide the printing-cylinder with improved backing-sheet tensioning and fastening means movable to adjust the printing-sheet with reference to the plate to insure proper registering.

In the accompanying drawings, Figure 1 is a section through the three cylinders and delivery mechanism of the press, showing my improvement upon the printing-cylinder; and Fig. 2, an enlarged broken elevation of the printing-cylinder.

A is the plate-cylinder, adapted to receive and hold a bent plate *a*, which may be a sheet of zinc, aluminium, or other suitable material, with the design to be printed, transferred, engraved, or etched thereon in any suitable manner.

B is the printing-cylinder, provided in one side with a recess *b*, in which are shafts *c*, journaled at opposite ends in bearings on the cylinder. Beyond their bearings the shafts carry ratchet-wheels *e*, engaged by pawls *d* on the cylinder.

C is the impression-cylinder, provided with sheet-grips *f*, and beyond the impression-cylinder is an inclined delivery board or chute *g*. Between the impression-cylinder and chute is a series of vertical air-blast nozzles *h* to facilitate delivery of printed sheets from the impression-cylinder onto the chute.

E is a backing-sheet, preferably of canvas or other textile fabric, of a length to extend over the entire printing-surface of the printing-cylinder and to be wound one or more times at opposite ends about the shafts *c*. The shafts may carry studs or points *i* to engage the ends of the backing-sheet. Properly located upon the backing-sheet is a surface printing-sheet D, of resilient material, such as rubber, suitable for receiving and printing the design imparted thereto in ink by the plate *a*. The printing-sheet may be fastened throughout its reverse side to the backing-sheet with any suitable, preferably waterproof, cement. The printing-sheet should in every instance be smaller in dimensions than the sheets of paper to be printed, and for various reasons it is desirable that the printing-sheet be no larger within reasonable limits than necessary to suitably receive and impart at its obverse surface the design

to be printed. In placing the backing-sheet on the printing-cylinder it may be readily drawn and tensioned by turning one or both of the shafts *c*, to which it is secured. By providing two rotary shafts for the backing-sheet the printing-sheet may be readily moved in either direction circumferentially of the cylinder to properly register it with the design on the plate *a*.

10 In operation during the rotation of the cylinders the plate *a* imparts its inked design to the printing-sheet *D*, which in turn prints the design upon sheets of paper drawn in the usual way by the engaging and releasing grips *f* between the printing and impression cylinders, the sheets being directed by the air-blast onto the chute *g*, and thus delivered from the press.

20 Among the advantages incident to the use of my improvement are that smaller and consequently less expensive sheets of rubber or the like may be employed, that the edges of the printed sheets of paper being free the suction or adhesive action of the rubber will never be sufficient to withdraw the edges of the paper sheets from the grips *f* or carry them around the printing-cylinder, that as the exposed surfaces of the backing-sheets never contact with the inked plate *a* they do not become soiled to soil the sheets of paper, and that as the area of pressing contact between the cylinders is limited by the area of the rubber printing-sheet a material saving in the power necessary to run the press is effected. In the use of a large rubber printing-sheet, as hitherto employed, the fact that it bears against the entire surface of the printed sheet has caused great trouble by reason of its causing the printed sheets, especially when the latter are more or less damp, to bag and stretch in places, resulting in

wrinkles upon the sheets. This objection is entirely obviated by my invention.

I claim—

1. In a printing-press, the combination 45 with a form-cylinder, of a printing-cylinder, a printing-sheet for said printing-cylinder formed of yielding material of approximately the size of the design to be printed, and to which the design on the form-cylinder is transferred, means for applying said sheet to the printing-cylinder consisting of a backing-sheet of greater dimensions than the printing-sheet and upon which the printing-sheet is secured, said backing-sheet adapted to be fastened beyond the edges of the printing-sheet to the printing-cylinder, the size of the printing-sheet being such as to prevent the paper to which the design is finally transferred from being soiled. 50 55 60

2. In a printing-press, the combination with a form-cylinder, of a printing-cylinder, a printing-sheet for said printing-cylinder to which the design on the form-cylinder is transferred, said sheet being formed of yielding material smaller than the sheet onto which the design is finally printed, means for applying said printing-sheet to the printing-cylinder consisting of a backing-sheet of greater dimensions than the printing-sheet and upon which said printing-sheet is secured, said backing-sheet being adapted to be fastened beyond the edges of the printing-sheet to the printing-cylinder, whereby the edges of the sheet on which the design is printed will be free from contact with the printing-sheet. 65 70 75

ALEXANDER B. SHERWOOD.

In presence of—

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