

(No Model.)

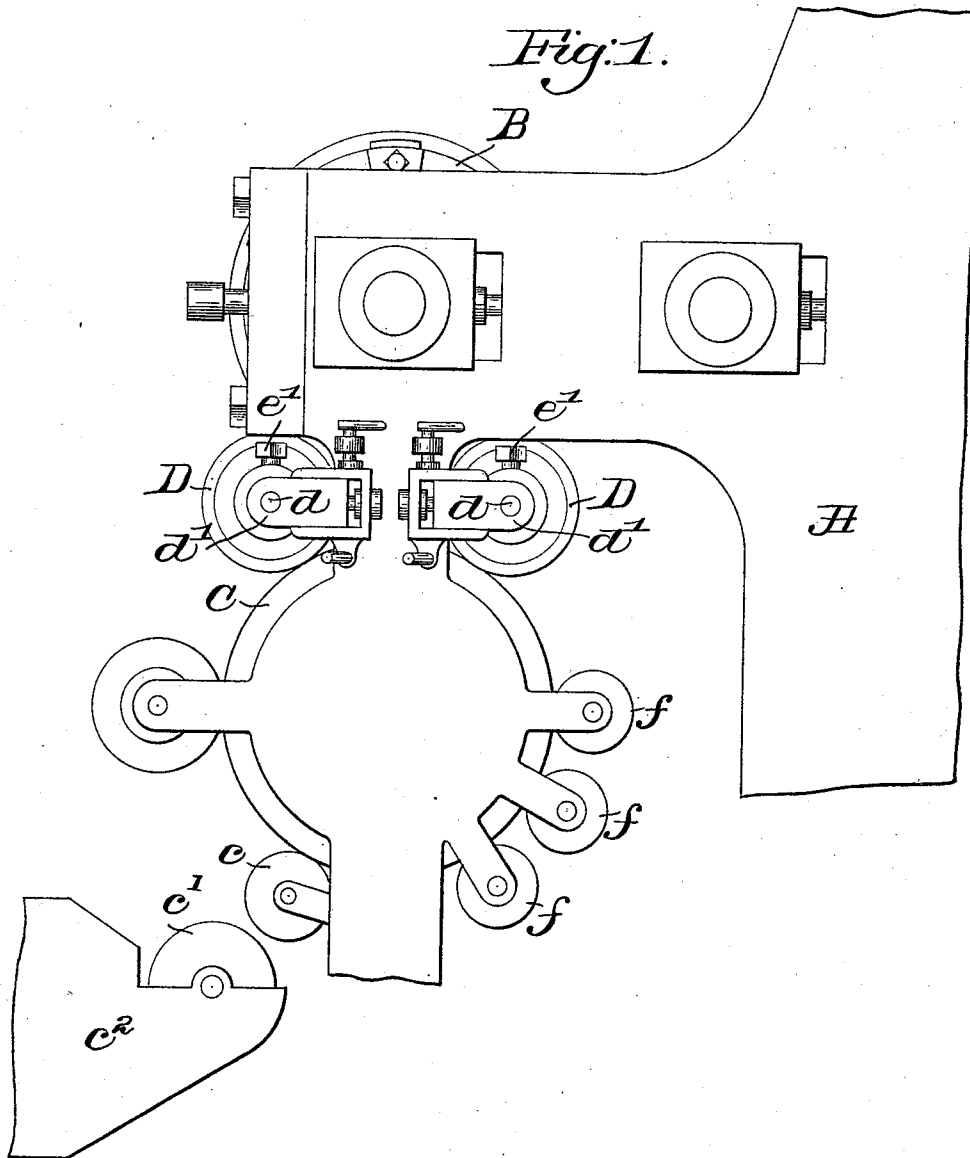
2 Sheets—Sheet 1.

P. SPLITHOFF.

ADJUSTABLE ROLL FOR PRINTING PRESSES.

No. 516,127.

Patented Mar. 6, 1894.



Witnesses.

Fred S. Greenleaf.

Thomas J. Drummond.

Inventor.

Peter Splithoff.

by Crosby & Gregory
Attys.

(No Model.)

2 Sheets—Sheet 2.

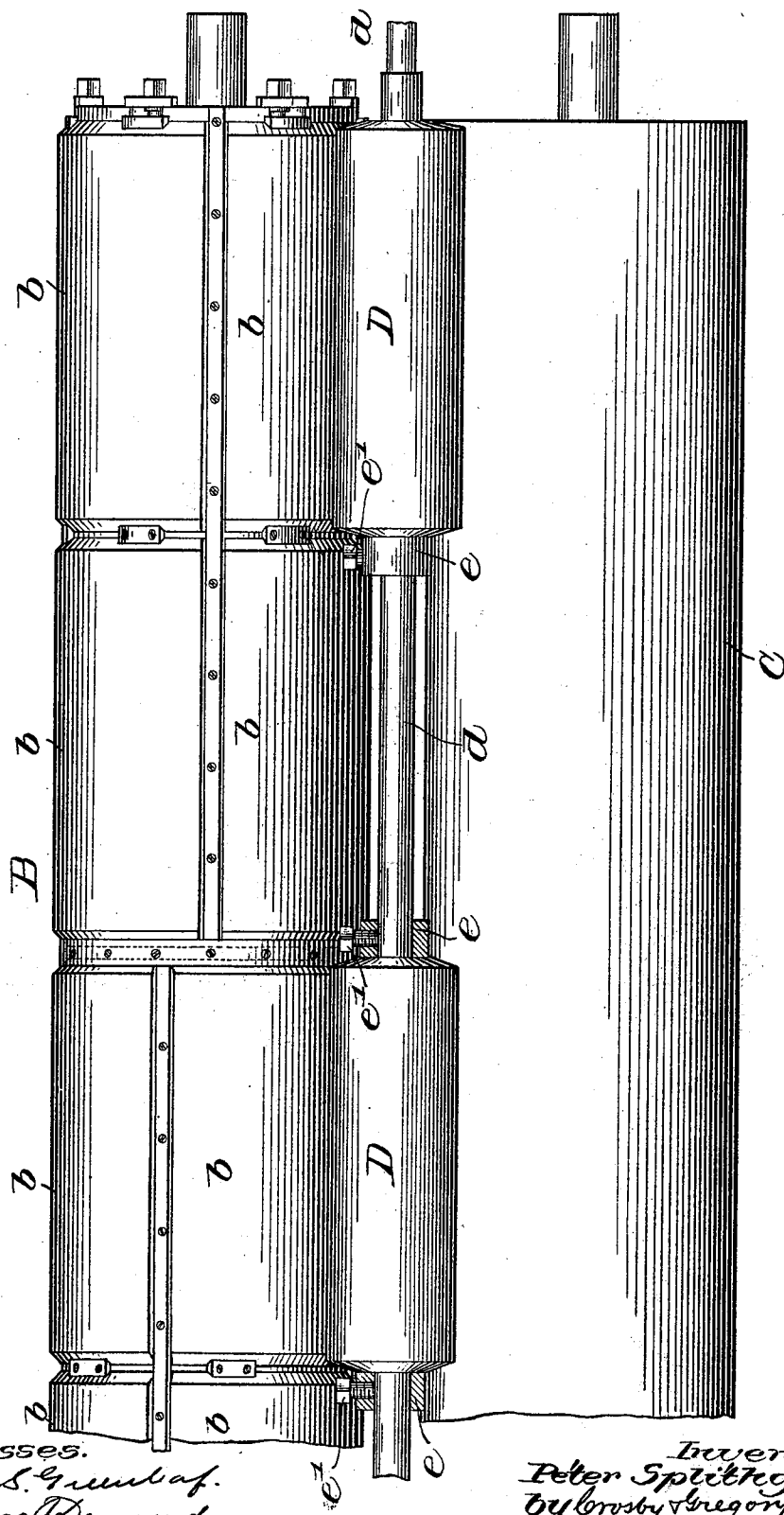
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Fig. 2



Witnesses.
Fred S. Grubb af.
Thomas Drummond.

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by Crosby & Gregory attys.

UNITED STATES PATENT OFFICE.

PETER SPLITHOFF, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO CHARLES E. PIERCE, OF SAME PLACE.

ADJUSTABLE ROLL FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 516,127, dated March 6, 1894.

Application filed October 24, 1893. Serial No. 489,004. (No model.)

To all whom it may concern:

Be it known that I, PETER SPLITHOFF, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Adjustable Rolls for Printing-Presses, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 In the use of printing presses, it is frequently necessary to take an impression from a portion of the plates or type carried by the printing cylinder or bed, without taking an impression from the remaining portion of the
15 plates or type on the same cylinder or bed. For instance, the plates or forms of the printing cylinder or bed may be grouped into several sections of two or more plates or forms each, each plate or form printing an entire
20 page, and while in some instances it is desirable to take an impression from all the sections thus printing as many pages at an impression as there are plates or forms, at another time it may be desirable to print from
25 a certain section or sections only without printing from the remaining sections. In the latter case the paper when run through the press comes in contact only with the section or sections from which an impression is to be taken, and to which alone the ink is applied.
30 The composition form roller for applying and distributing the ink to and upon the plate or form of type from which the impressions are to be taken is made fast upon a shaft or core of sufficient length to extend entirely across
35 the press from frame to frame across the entire width of the printing cylinder or bed, the said composition roller being molded upon the shaft or core at the proper position and of a proper length to apply the ink to
40 any one or more of the sections of plates or forms of type on the printing cylinder or bed from which impressions are to be taken. As each roller shaft or core carries a single roller
45 arranged for a particular section or sections of the printing cylinder or bed, it is necessary to keep at hand at all times a large number of roller shafts or cores, each provided with a roller adapted for use in connection
50 with different sections or combinations of

sections of plates or forms of type upon the printing cylinder or bed. When, therefore, it becomes necessary to change from one or more sections of plates or forms of type on the printing cylinder or bed to other sections
55 differently located, it is necessary to remove the form roller shaft with its roller from the press and substitute therefor another shaft having the roller molded upon it in a different position to apply the ink to the particular section or sections from which the impressions are to be taken. A change in the roller shaft and roller must also be made whenever the positions of the plates or forms of type are
60 changed on the printing cylinder or bed. These rollers are quite expensive, particularly the shafts or cores about which they are molded, and the latter are usually of such great length that to provide sufficient stiffness they are necessarily heavy and require two or more
65 persons to effect a change from one to another. When a short roller is employed, the friction of the plate or type upon the roller, and which should turn the latter, is not always sufficient to readily turn the roller shaft in its bearings and will sometimes cause the plate or
70 type to slip on the surface of the roller, and injure or ruin the same. Sometimes also the roller becomes heated from the heating of the roller shaft or core, or otherwise, and melts or softens at some point, which necessitates the removal of the entire roller and roller shaft or core, and the substitution therefor of an entirely new one.

This invention has for its object to provide
85 a device which shall overcome the defects enumerated above, and in accordance with this invention I provide a single shaft only, which may and preferably will remain permanently in its bearings in the frame of the
90 press. On this shaft I mount one or more adjustable composition rollers, the length of each roller corresponding to the width of one, or it may be more sections of plates or forms of type on the printing cylinder or bed and
95 from which it is desired to print, suitable devices being provided by which to retain the roller or rollers in any adjusted position along the shaft. The roller or rollers may be readily shifted on the shaft to bring it or them
100

in front of and to co-operate with any of the sections of plates or forms of type on the cylinder or bed to which ink is to be applied.

One part of this invention, therefore, consists in an adjustable roller comprising a rotatable shaft adapted to be supported at its ends in journal bearings, and one or more independent rollers loosely mounted upon and to rotate freely on and independently of said rotatable shaft and adapted to be moved longitudinally into different positions along said shaft, and sliding collars mounted on said shaft outside and to retain said roller or rollers against endwise movement thereon, yet permit free and independent rotation of the said roller or rollers on said shaft, and retaining devices to fix said collars in adjusted positions on said shaft, substantially as will be described.

Figure 1 of the drawings is an end elevation of a sufficient portion of a printing press to enable this invention to be understood; and Fig. 2, a partial front elevation of the same.

I have herein illustrated my invention in connection with the well known "web perfecting press," wherein the impressions are taken from stereotyped plates carried upon a rotating cylinder, but it will be understood that the invention is equally applicable to presses wherein the type is carried on a reciprocating bed or any other type of press.

Referring to the drawings, Fig. 1, A, represents a sufficient portion of the frame of a printing press to enable this invention to be understood, said frame having suitable bearings for the various rollers and cylinders to be described. B represents the printing cylinder upon which are arranged the stereotyped printing plates *b* from which impressions are to be taken, the said plates being arranged end to end along the cylinder in sections, each section comprising two or more plates which together extend completely around the printing cylinder. C represents the ink cylinder upon the surface of which ink is applied by a movable feed roller *c*, which, actuated by suitable mechanism, not shown, is moved first into contact with the fountain roller *c'* running in the ink contained in the fountain *c*², and is then moved back into contact with the surface of the ink cylinder to apply the ink thereto. Usual distributing or vibrating rollers *f, f*, bear upon the surface of the ink cylinder and are moved longitudinally by usual mechanism, not shown, to properly distribute the ink over the ink cylinder and to work the same into proper condition. D, D, represent what are known as form rollers, the said rollers running in contact with the ink cylinder and the plates *b* upon the printing cylinder to take the ink from the ink cylinder and apply it to the plates on the printing cylinder, the paper upon which the impression is to be made passing in contact with the particular section or sections on the cylinder which are to be utilized in printing.

While this invention is applicable to all of

the rollers employed in printing presses, I have elected to illustrate my invention in detail in connection with the form rollers D, it being understood, however, that the invention is equally applicable to other rollers in the printing press. The rotatable form roller shafts *d*, Fig. 1, are journaled in suitable adjustable bearings *d'* which may be moved to vary the frictional contact of the rollers with the ink and printing cylinders.

Referring to Fig. 2, the shaft *d* journaled at its opposite end in the bearings *d'* referred to, has loosely journaled or mounted upon it one or more adjustable composition coated form rollers D, which may be of any suitable or desired construction so long as they are capable of rotation on and independent of said shaft. The roller is held in adjusted position on the shaft *d* by means of collars *e* provided with set screws *e'*.

Referring to Fig. 2, if all four of the sections of plates on the printing cylinder have been utilized in printing and it is desired to print from two sections only of the cylinder, it is simply necessary to lift the shaft *d* from its bearings, slacken the set screw *e'* and slip two of the rollers D therefrom. The remaining rollers may then be moved along the shaft *d* until in proper position opposite the sections of plates *b* from which impressions are now to be taken, and the collars *e* clamped at the opposite ends of the rollers to retain them in adjusted position, and the press is ready for work. The rollers D being of a length substantially the same as the width of the sections of plates or printing surface, from which impressions are to be taken, apply the ink taken from the ink cylinder *c* to those sections only from which impressions are to be taken when the press is in operation.

In practice, the number of rolls D employed and the positions of the same may be varied according to the number and location of sections of plates *b* from which impressions are to be taken, and when impressions are to be taken from all of the plates, the rollers will be placed upon the shaft *d* end to end and the use of collars except at the outer ends of the shaft is unnecessary. Thin washers, may, if desired, be placed between the adjacent ends of the abutting rollers. The rollers will preferably run loose upon the shaft *d*, and if the friction should be sufficient at any time, the shaft itself can turn, thus reducing to a minimum any possibility of injury to the surface of the roller by possible slipping over its surface of the printing plates on the cylinder. The ends of the rollers are flush, as shown, in order that two or more may be placed end to end on the same shaft and apply ink to adjacent columns of type on the type bed or cylinder, the rollers when separated being retained in position by the adjacent collars *e*. Whereas, heretofore it has been necessary to provide a separate shaft or core *d* for each arrangement or combination of sections on the printing cylinder, the rollers being molded

upon the various shafts, each in different positions or to present different combinations to accommodate various combinations or positions of the sections, with this my present invention a single shaft only is needed, and which may remain in its bearings at all times except when temporarily removed for adjustment of the rollers, the requisite number of rollers being placed upon the shaft when and where needed by lifting it from its bearings. The changes in the press to permit printing from different plates or sections are thus greatly facilitated, and much time, labor and expense saved. The rollers are readily adjustable along the length of the shaft to accommodate changes in the position of the printing plates, and if it is desired to print with different colors, each of the rollers may be run with a different color, the rollers being readily removable when it is desired to change the combination of the colors for any purpose. The feed rollers *c* as well as the distributing or vibrating rollers *e* may all be formed in like manner to take ink from the reservoir and apply it to the portion or portions of the ink cylinder alone, from which it is to be taken by the form roller or rollers *D*. By employing several removable rollers mounted upon a single shaft instead of having the rollers fixed to the shaft, the rollers which are not to be used may be readily removed from their respective shafts, and thus necessity for cutting off ink at the fountain is avoided, for the rollers properly adjusted will take the ink and apply it to the printing cylinder at such points only as are necessary.

In practice, the composition surface of the roller may be injured by accident, or as is frequently the case, the surface melts or softens at some point due to heating of the roller shaft or other cause, and in either case it has hitherto been necessary to discard the entire roller, including the shaft or core, and supply a new one to take its place. With this my present invention, however, if a roller surface softens at any point, that particular roller

may be removed from its shaft and a new one substituted in its place without discarding the remaining rollers upon the same shaft.

The term "printing press" as employed in this description and in the claim, includes any form of device in which impressions are taken from a printing surface, whether the latter consist of a type or of any other form of surface capable of making an impression; and the term "printing surface" employed in the claim, includes not only the stereotyped printing plates employed in connection with a printing cylinder, but includes as well a flat form of type carried by a reciprocating bed, or any other form of printing surface, this invention being applicable to one type as well as another.

This invention is not limited in all respects to the exact details of construction herein shown, as the same may be varied more or less without departing from the spirit and scope of this invention.

I claim—

The herein described adjustable roller for printing presses, it consisting of a rotatable shaft adapted to be supported at its ends in journal bearings, and one or more independent rollers loosely mounted upon and to rotate freely on and independently of said rotatable shaft and adapted to be moved longitudinally into different positions along said shaft, and sliding collars mounted on said shaft outside and to retain said roller or rollers against endwise movement thereon, yet permit free and independent rotation of the said roller or rollers on said shaft, and retaining devices to fix said collars in adjusted positions on said shaft, substantially as described.

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

PETER SPLITHOFF.

Witnesses:

FREDERICK L. EMERY,
AUGUSTA E. DEAN.