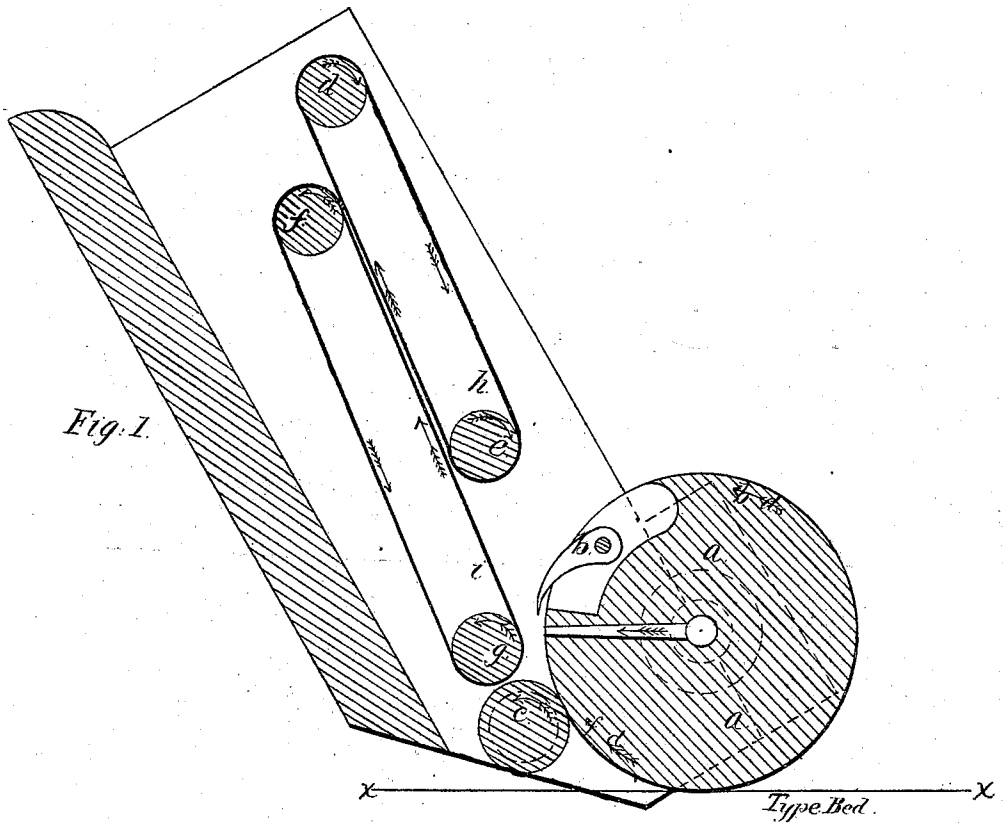
G. McKay. Sheet 1. 2 Sheets.

Paper Feeding Mach.

No. 22968. Patented Feb. 15. 1859.

Fig. 1.



Witnesses.

J. Brosby

James Endicott

Inventor.

Gordon McKay

G. McKay. Sheet 2. 2 Sheets

Paper Feeding Mach.

No. 22968. Patented Feb. 15. 1859.

Fig. 2.

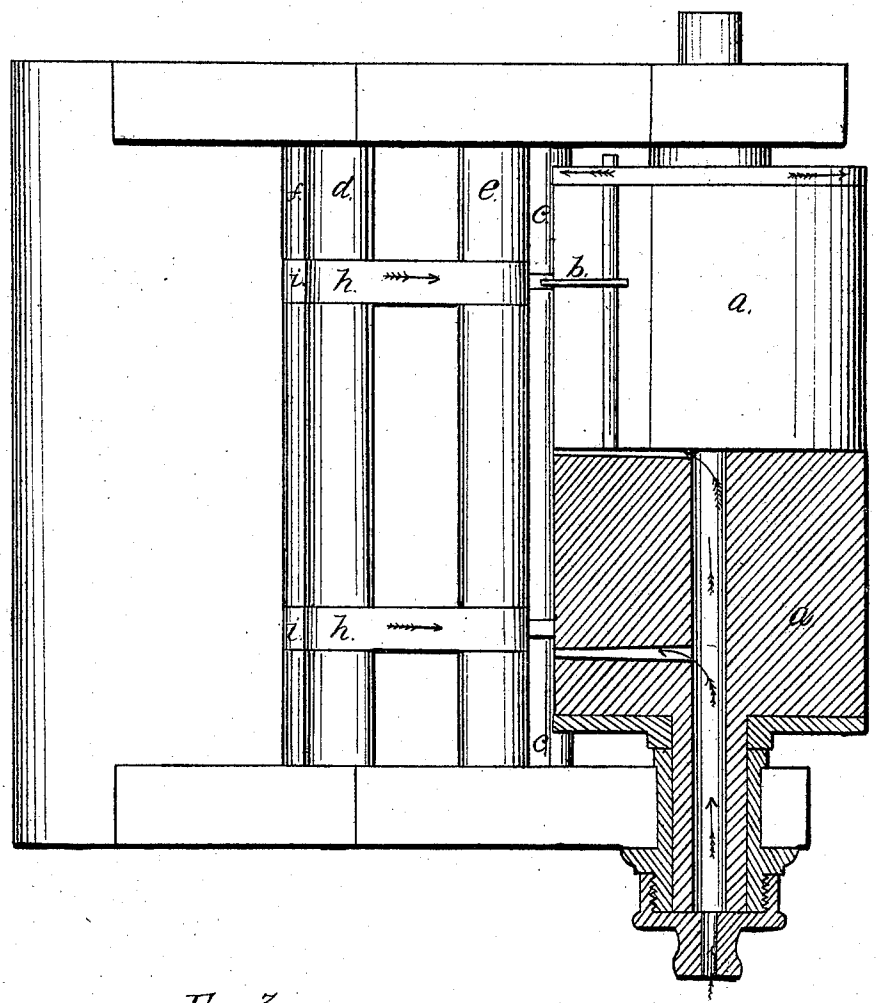
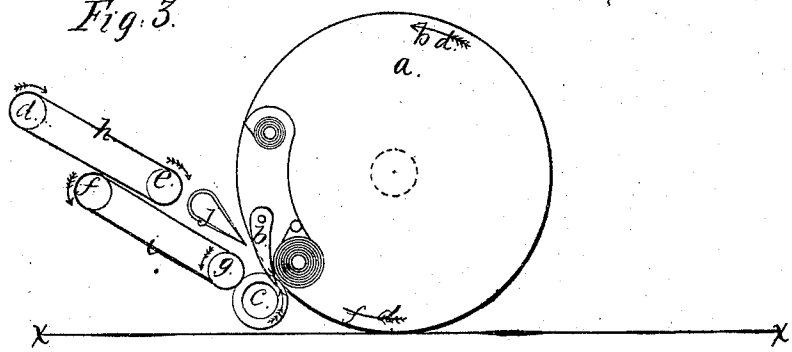


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

G. McKAY, OF BOSTON, MASSACHUSETTS.

PRINTING-PRESS.

Specification of Letters Patent No. 22,968, dated February 15, 1859.

To all whom it may concern:

Be it known that I, GORDON McKAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Printing-Presses; and I do hereby declare the following to be a full and exact description thereof, taken in connection with the accompanying drawings, which form part of this specification, and to the letters of reference marked thereon.

My invention is an improvement on the so called Gurnsey press, patented to Lucius T. Gurnsey Oct. 19th, 1852, and numbered 9342 in the records of United States patents. It is applicable also to many other printing presses now in public use, having impression cylinders, which are well known both in general arrangement and details. It will be unnecessary, therefore, herein to describe the detail of many of the parts refererd to and their operation as this specification is addressed to those skilled in the art of making and using printing presses; and also because the invention consists in a new combination of old parts, all of which are familiar to those skilled as before mentioned. Such persons therefore will find that this description is sufficient to enable them to practice my invention.

By impression cylinder, in this specification I mean a cylinder, or a portion of one, which has an entire or a partial rotary movement about its own axis, to and upon which the paper to be printed is fed, and which conveys it to the type from which it takes impression. Such a cylinder, therefore, fills the functions of a platen in a flat surfaced press. It may be used in conjunction with a flat or cylindrical type bed and the impression is given between the impression cylinder or platen and the type surface. In the Gurnsey press the cylinder is raised from the type surface as the type bed is drawn back under it, after an impression has been taken, to avoid inking the blanket on the cylinder and unnecessary wear of the type, and is depressed toward the type in time to give the next impression.

Previous to my invention impression cylinders have had tapes around them whose function was to guide the sheet, after it was released by the nippers, from the impression cylinder into the control of a sheet delivering apparatus. In such cases it is obvious that the tapes must project from the cylinder the amount of their thickness. It is also obvious that any projection, no matter how slight, from the platen or impressing surface will produce a corresponding increase of impression at the projection. To avoid this injurious inequality of impression where tapes are used upon impressing cylinders the tapes are arranged with reference to the register of the sheet and so as to come either in the margins of the sheet or in the spaces between the printed matter. In this two difficulties arise: the first is that the arrangement of the tapes must be changed as often as the size of the paper or the arrangement of the spaces between the printing is changed. This involves much trouble, and in job presses where the size and arrangement of the work is constantly varying it sometimes happens that it takes more time to arrange and adjust the tapes than is consumed in the actual printing. This is an extreme case, but it is true that, generally, the time lost in adjusting the tapes for job work, bears a large ratio to the whole time needed for the work. The second difficulty is that the tapes are liable to get out of adjustment upon the cylinder and come over the type, causing inelegant impressions injurious alike both to the type and paper. Nor can this well be avoided, for it is necessary that the cylinder should be perfectly true in order to perform the functions of a platen. It cannot have convexities or swells or flanges upon it, for the purpose of keeping the tapes in place, as do pulleys or drums which drive belts or are driven by them. It is true that the tapes may be made to run through guides fixed near the cylinder, but these do not always well accomplish the purpose of keeping the tapes in place, besides which such guides wear the tapes and increase the amount of time and trouble required to change the position of the tapes, inasmuch as the guides have also to be changed.

I am well aware that it is not a new thing to combine mechanical means for producing and directing atmospheric action upon paper in transit, with a cylinder which rotates, simply to feed or to aid in feeding the paper, or to carry tapes, or their equivalents, for such a purpose; but I am not aware that the aforesaid mechanical means have ever been combined with a cylinder whose functions are those of a platen. I am also aware that it is not new to combine an impressing cyl-

inder with the nippers and tapes for the purpose of receiving, holding, and conveying the paper to the type, there to receive an impression, and then releasing the paper and directing it into the control of a sheet delivering apparatus, for it is such a combination that I have improved upon by the removal of the tapes upon the cylinder, and the substitution therefor of mechanical means for producing and directing atmospheric action upon the paper, by which improvement I am enabled to avoid the before described annoyances, resulting from the aforesaid use of tapes, and uniformly to produce better printing.

Figure 1 is a sectional elevation and Fig. 2 a plan illustrating my invention. Fig. 3 shows a modified arrangement of my invention.

Similar letters refer to similar parts in all the figures of the drawings.

The cylinder (*a*) bears, in a recess formed for the purpose, a set of nippers (*b*, *b*) actuated in any well known manner and for the usual purpose. The rotation of the cylinder, indicated by (*f d*), carries the paper, when seized by the nippers, into contact with the type by which the impression is given. The face of the type is indicated by the lines (*x*, *x*). While the cylinder is rotating as above indicated and the paper taking the impression from the type the roll (*c*) is in contact with the cylinder and is rotated thereby. The roll (*c*) is grooved as shown in the drawings for the passage of the nippers. It is evident that when the paper has passed into the line of contact between the cylinder and the roll (*c*) that it is there controlled and fed onward and that the end of the paper when released by the nippers after passing the roll (*c*) is free to be directed to the control of the sheet delivering apparatus which as shown in the drawings consists of the rolls (*d*, *e*, *f*, *g*) and endless tapes (*h*, *i*). The sheet flier usually combined with this apparatus is not represented. When the sheet is released by the nippers it is directed to the delivering apparatus by a blast from a bellows or their equivalent, conducted through the cylinder as shown in Figs. 1 and 2 or similarly to the method shown in Fig. 3 where the pipe directing the blast is separate from the cylinder. The action of the blast should be from about the time when the nippers release the paper until it enters the "bite" of the tapes at the rolls (*e*, *g*).

The kind of apparatus by which the inequality of atmospheric pressure on both sides of the paper is produced as well as the method of operating it may be greatly varied without departing from my invention: for example the pipe (*j*) may be so changed in position and form that an exhausting bellows operating through the pipe would deflect the paper from the cylinder and present it to the action of the sheet delivering apparatus.

The form of my invention illustrated in Figs. 1 and 2 is that which I have used practically with success and is the arrangement I prefer.

From the foregoing description it will be seen that the impression cylinder, nippers, and blast, all act in conjunction, and that the sheet when released by the nippers continues to be pushed onward by the rotation of the cylinder and bite of the sheet between the roller (*c*) and said cylinder, and that the blast serves to direct the sheet, when thus released and fed onward, to any suitable delivering device and which may be a simple inclined board so far as any further delivering force, action, or provision, is required.

Claim:

The combination of an impression cylinder and nippers operating in conjunction with a blast pipe or mechanical means for producing an inequality of atmospheric pressure on the sheet when released by the nippers and as said sheet is forced onward by or with the impression cylinder in its rotary movement, substantially in the manner and for the purpose before set forth.

GORDON McKAY.

Witnesses:

J. B. CROSBY,

JAMES ENDICOTT.