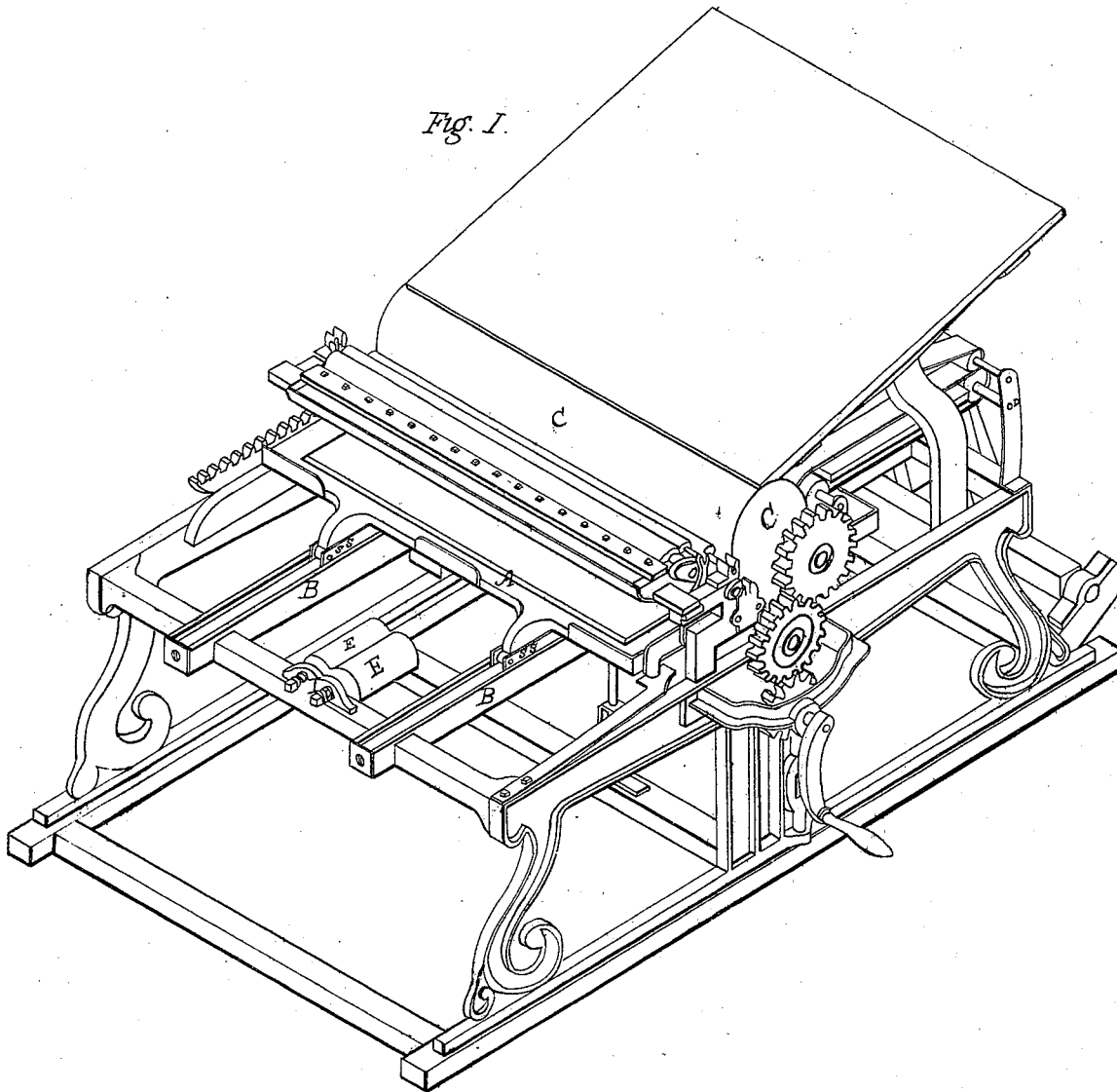


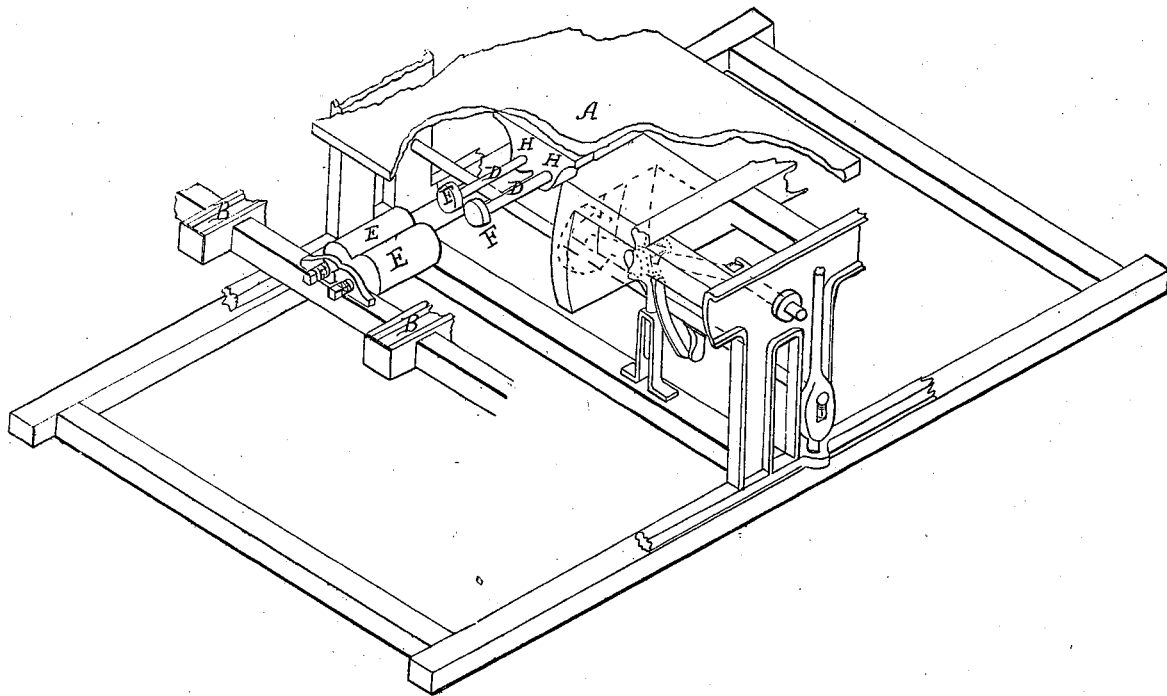
*A. B. Taylor. Sheet 1. 2 Sheets.*  
*Printing Press.*  
*N<sup>o</sup> 4442. Patented Apr. 4. 1846*

*Fig. 1.*

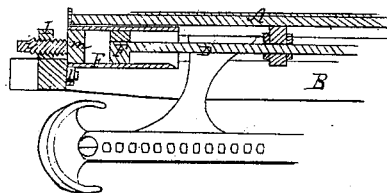


*A.B. Taylor* Sheet 2 of 2 Sheets  
*Printing Press*  
*N<sup>o</sup> 4442.* *Patented Apr. 4, 1846.*

*Fig. 2.*



*Fig. 3.*



# UNITED STATES PATENT OFFICE.

ALVA B. TAYLOR, OF NEW YORK, N. Y.

## CHECKING THE MOMENTUM OF PRINTING-PRESSES.

Specification of Letters Patent No. 4,442, dated April 4, 1846.

*To all whom it may concern:*

Be it known that I, ALVA B. TAYLOR, of the city, county, and State of New York, have invented a new and useful improvement in the double and single Napier printing-presses, but which is applicable to all kinds of printing-presses, in which the form of types is placed on a reciprocating carriage, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a Napier press with my improvement applied; Fig. 2, a perspective view of a portion of the press with the pressing cylinder, inking apparatus, and a portion of the bed which receives the form of types, removed, the more clearly to exhibit the structure and application of my improvement; and Fig. 3, a longitudinal vertical section with the carriage &c. at the end of its course.

Like parts are indicated in the various figures by the same letters.

As the carriage, which carries the form of types, and all the appendages attached to and moving with it in all printing presses of the character above indicated is of considerable weight, much inconvenience has been experienced in consequence of the shock produced at the end of each motion thereof by suddenly arresting the momentum of the moving mass, particularly as velocity of motion is indispensable, and economy of power, room, and time requires that the momentum should be arrested within a short space after the form of types shall have passed from under the pressing roller. To avoid the shock consequent upon the arrest of the moving parts, so injurious to all machinery, particularly where great accuracy of motion and delicacy of construction is required, I make use of the delicate elasticity of atmospheric air, which is gradually compressed in a cylinder or cylinders, at the end of each motion of the carriage, by a plunger or plungers attached thereto and acting on the air, only at the end of each motion, which thus becomes a cushion to resist and arrest by degrees, and with the greatest nicety, the momentum of the moving parts, instead of striking against either

a metal or pneumatic spring arranged in the usual manner, in which the carriage strikes the metal spring or the piston of the pneumatic spring, which must necessarily give a shock avoided by my arrangement.

In the accompanying drawings (A) represents the carriage which receives and carries the form of types, and (B, B), the ways on which it runs, with carriages of truck rollers (S, S) interposed. To the under part of this carriage there is an appropriate flanch or projection (H, H) from which project the rods (D, D) of two metallic plungers (F, F), made to fit accurately the bore of two short cylinders (E, E), connected with the base frame by means of set screws (*i, i*) tapped into the frame at (I) and connected with the cylinders (or in any other known manner of effecting such an end,) so that the position of the cylinders can be adjusted with the greatest nicety, and the resistance increased or decreased at pleasure by advancing or drawing them back, that the bulk of air contained in the cylinders shall be compressed into a smaller or larger bulk, when it is desired to increase or decrease the resistance. Or this can be effected as represented in Fig. 3, by attaching the cylinders to the frame by means of a flanch (*l*), and having the head (*m*) of the cylinders movable and connected with the screws (*i*) so that they can be adjusted by turning the screws, instead of moving the cylinders, this arrangement being preferable to the mode described above. The end of the bore of these cylinders is flared out a little to admit of the free entrance of the plungers at each operation, as they (the cylinders) are made much shorter than the length of motion of the carriage and the plungers attached thereto, with the view to relieve the press from the friction of the plungers and the resistance of the air, which would occasion serious loss of power if the cylinders extended the whole length of the motion of the carriage and plungers, as my object has been to employ resistance only when required, that is, at the end of the motion of the carriage.

From the foregoing it will be apparent that a similar arrangement of plungers and cylinders are applied at each end, although it was deemed necessary to represent only one set, the application being similar at both ends, and that instead of two or more cylinders and plungers at each end, one only

of large size may be employed, by making it of an inconvenient size; and that instead of making the cylinders shorter than the motion of the carriage, so that the plungers shall pass out of, and enter them, they may be made the whole length of such motion, provided the bore be enlarged from their mouth to that part where it is desirable that the compression of the air or the resistance should commence. Or at that part, the cylinders may be pierced with holes of sufficient capacity to give a free egress and ingress to the air while the plungers are moving along that portion of their length where it is desired that the plungers shall not meet with any resistance.

It will be seen from the foregoing that, as the carriage moves with the form of types under the pressing cylinders (C), the plungers attached thereto meet with no resistance, but toward the end of the motion the plungers begin to, and gradually compress the air within the cylinders, and thus

gradually, and without a shock, arrest the motion of the carriage. And as the carriage in printing presses moves with considerable velocity, it is not very important to have the plungers fit the cylinders air tight, as under such velocity the smallness of the secape for the air would not be important, but it would admit of sufficient compression to arrest the momentum of the moving parts without a shock.

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

The method herein described of arresting the momentum of the carriage which carries the form of types in printing presses, by means of plungers that compress air in cylinders only toward the end of the motions of the carriage, as herein described.

A. B. TAYLOR.

Witnesses:

CHAS. M. KELLER,  
JAS. MONTGOMERY.