3 Sheets—Sheet 1.

R. M. HOE.

PRINTING PRESS.

No. 4,025. Patented May 1, 1845.

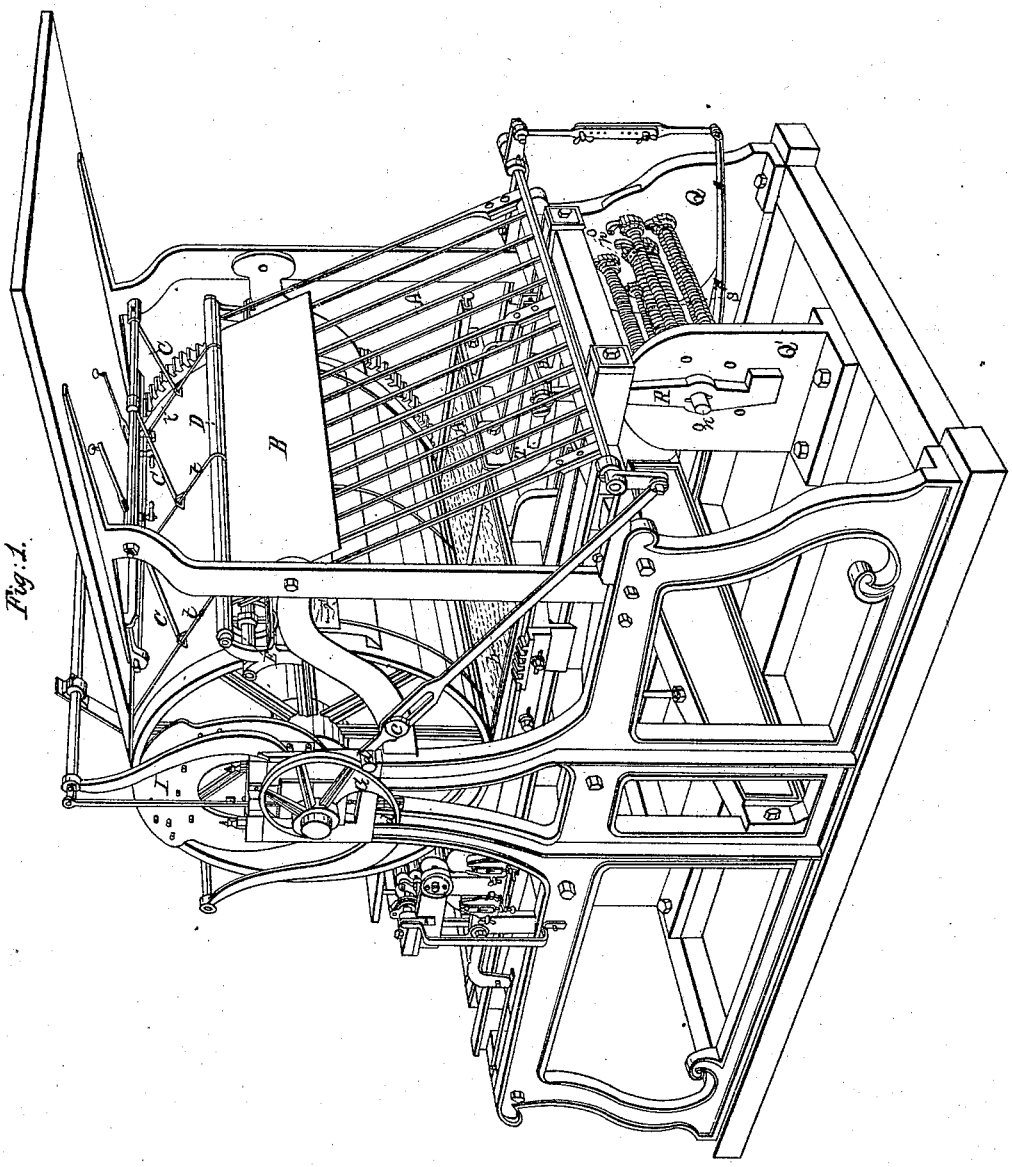

Fig. 1.

3 Sheets—Sheet 2.

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Fig. 2.

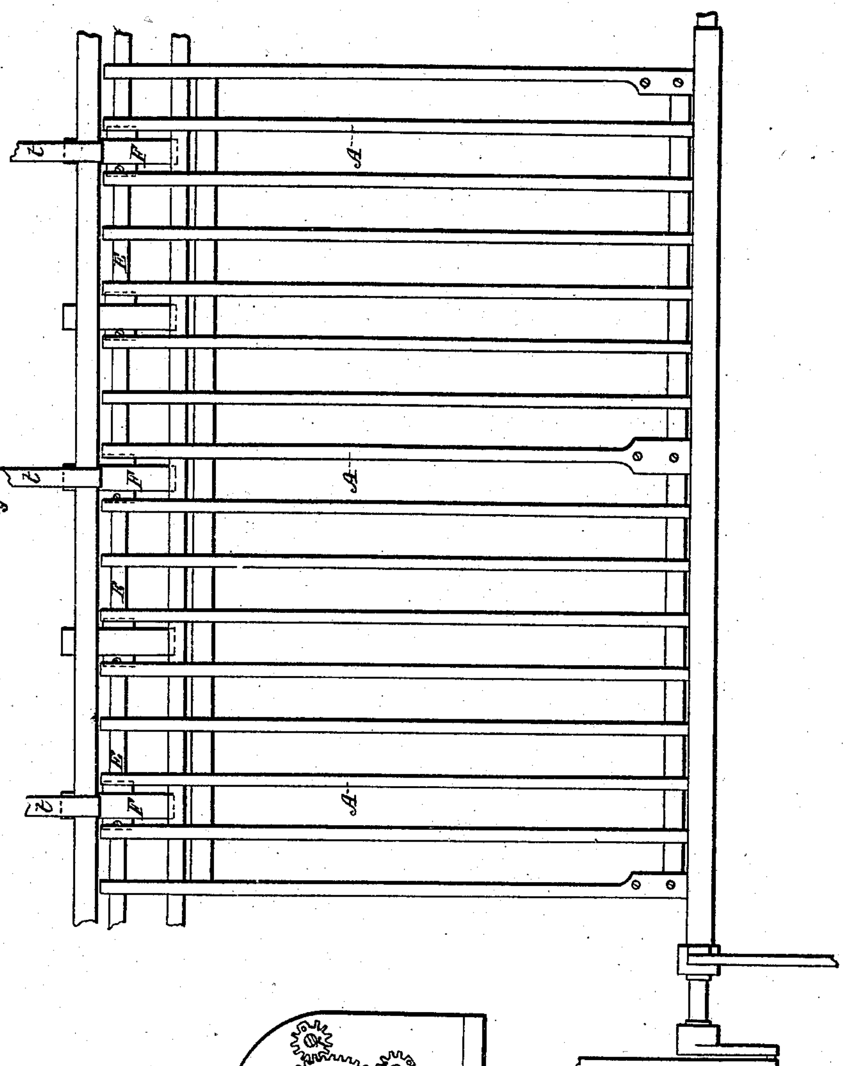
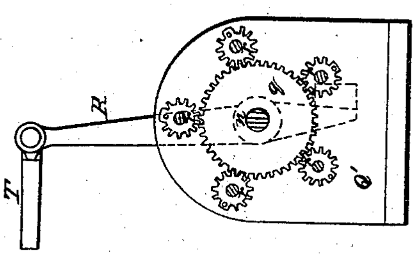


Fig. 5.



3 Sheets—Sheet 3.

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Fig: 3.

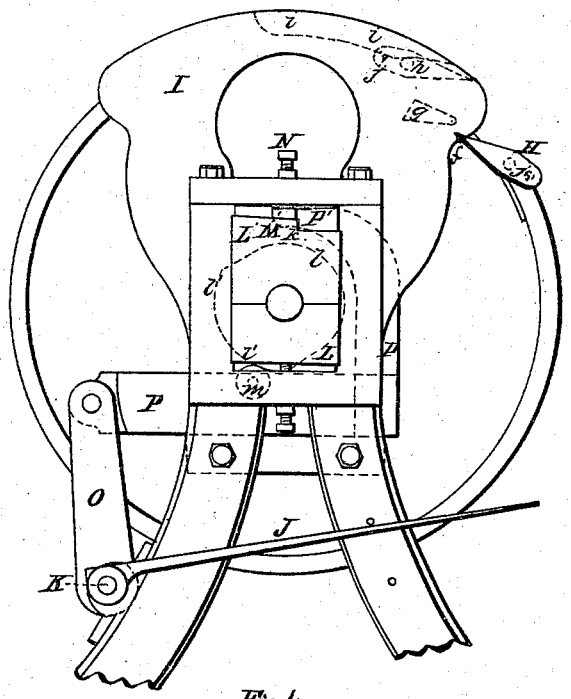
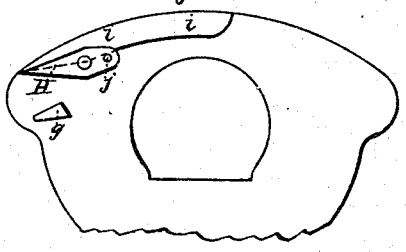


Fig: 4.



UNITED STATES PATENT OFFICE.

RICHARD M. HOE, OF NEW YORK, N. Y.

PRINTING-PRESS.

Specification of Letters Patent No. 4,025, dated May 1, 1845.

To all whom it may concern:

Be it known that I, RICHARD M. HOE, of the city of New York, State of New York, civil engineer and machinist, have made certain new and useful Improvements in the Ordinary Cylinder Printing-Press; and I do hereby declare that the following is a full and exact description thereof.

In the accompanying drawing, Figure 1 is a perspective representation of the cylinder machine with several of my improvements thereon.

The other figures represent part of these improvements in detail.

The first improvement consists in the manner in which I have combined the flying sheet frisket for delivering the printed sheets on to a table, and in the arrangement of the parts connected therewith, by which the cylinder press is adapted to the employment of such a frisket for depositing the sheets.

My second improvement consists in the manner in which I have arranged a simple lever and a cam plate, for operating the grippers, or fingers, that lay hold on the sheet.

My third improvement is in the manner by which the cylinder is raised from the form, when, from any cause it is desired that an impression should not be taken.

My fourth, and last, improvement is in the manner of combining and arranging a series of springs for arresting the momentum of the bed of the press.

A, A, Figs. 1, and 2, are the slats of the frisket for flying or delivering the sheets on to a horizontal table, (which table is not shown in the drawing.) The frisket is represented as in the proper position for receiving the printed sheet, from a cylinder press, one of which sheets is shown at B, in Fig. 1, as passing on to the frisket.

C, C, are the tape guides, which are made adjustable on a rod D, extending along under the feeding board.

E, is a shaft which has on it any required number of rollers, or whirls, for carrying the tapes, which rollers, or whirls, are made adjustable on the said shaft; this arrangement is most distinctly seen in Fig. 2, which is a direct back view of the frisket in the same position as that which it occupies in Fig. 1, but without the printed sheet passing on to it.

F, F, are the adjustable rollers, or whirls, for conducting the tapes and for delivering the sheets on to the frisket. To enable them to do this it is necessary that the whirls F, F, should be received between the points of the slats of the frisket, and as the tapes, *t*, *t*, have to be shifted for different kinds of work, the whirls as well as the tape guides are made adjustable on their shaft by means of set screws.

The following is the manner of actuating the frisket. G is a cam on the shaft of the cylinder the periphery of which bears against a pin, or friction roller *a*, on the end of a rod *b*, that is guided back and forth by a pin *c*, working in a slot on the rod *b*. The cam G, is so formed as to hold the frisket A, stationary while the sheet is passing on to it, its periphery being equidistant from its center to an extent equal, or nearly equal, to a semi-circle; when the point *d*, passes the roller *a*, the spring *s*, draws the frisket into a horizontal position, and delivers a sheet on to the table.

The improved manner of operating the fingers, or grippers, is shown in Fig. 3, where H represents a lever fixed on to the end of the finger, or gripper shaft *e*, which lever is so formed as to cause the gripper shaft to perform a semi-revolution. As the cylinder revolves the point *f*, of the lever H is brought into contact with a projecting piece on the inner face of a cam plate I, affixed to the frame of the press; the place and form of this projecting piece are shown by the dotted lines *g*, and by the same letter in Fig. 4; the contact of the lever H with this projecting piece produces the desired revolution of its axis, and places the lever in the position shown by the dotted lines *h;* the grippers are consequently turned over so as to occupy the ordinary channel prepared for them along the surface of the cylinder, and are ready to be turned back so as to grip a sheet fed in for that purpose. As the lever H passes behind the cam plate I, it is kept in its reversed position by a projecting rim, shown by the dotted lines *i*, *i*, on its upper edge; there is a pin *j*, projecting from the face of the lever H, which passes in contact with the under side of the aforenamed rim, and keeps the grippers in their reversed position until said pin arrives at the termination of the rim, when the cylinder being in

the proper situation for the gripping of the sheet, they are turned over by the action of a spiral spring on their shaft, as in other cylinder presses.

In Fig. 4, the cam plate I, is reversed so as to give a view of the inner side of it, with the lever H, passing behind it, the parts being lettered as in Fig. 3.

For raising the cylinder when an impression is not to be taken, I employ an apparatus which I will now describe. No part of this apparatus is represented in Fig. 1, but it is shown in Fig. 3, which is an end view of the cylinder and of the upper part of the frame by which it is supported.

J, is a lever which is affixed to a shaft K, that crosses the machine, and carries at its opposite end a raising apparatus similar to that represented, to act upon the opposite gudgeon of the cylinder.

L, L′, are the boxes in which the gudgeons run. The uppermost of these boxes L′, has an offset at *k*, by which its height is reduced.

M, is a piece of metal which fills the space between the top of L′, and the end of the set screw N, and if the piece M be made to slide forward so as to stand over the depression caused by the offset *k*, the box L′ may be raised to a corresponding height.

O, is an arm attached to the shaft K, and carrying a slide P, P′ which is situated behind the boxes L, L′; to the upper part P′ of this slide the piece M, is attached, and when the lever J, is depressed, the piece M, will be made to stand over the recess on the box L′.

A cam, shown by the dotted lines *l*, *l*, is made fast at each end of the axis of the cylinder.

m, shown in dotted lines, is a friction roller on the slide P, and when the lever J, is depressed this roller is brought into a position to lift the cylinder by the part *l′*, of the cam coming into contact with it, said part is so situated as to lift it during the time in which an impression would otherwise be taken.

Q, Q, Figs. 1 and 5, are the cheeks of the spring box, containing the springs that serve to check the momentum of the bed of the press. Springs for this purpose have been arranged in various ways, but, as heretofore employed, they have not fully answered the intended purpose.

The difficulties which have been experienced are, as I believe, entirely overcome by my improved apparatus.

R, is a lever that is attached to a center shaft *n*, that extends from end to end of the box, and is surrounded by a strong spiral spring S; this shaft has a ratchet wheel *o*, affixed to one end of its ends which is held by a pawl *p*. One end of the spiral spring is attached to the ratchet wheel; surrounding this center shaft there are five, or any other desired number of, shafts which are, in like manner, provided with ratchet wheels, pawls, and spiral springs. At the opposite end of the shaft *n*, within the cheek Q′, there is a toothed wheel *q*, Fig. 5, which is made fast to the shaft, and to this wheel the spiral spring surrounding the center shaft is also attached; the wheel *q*, gears into pinions, or wheels *r*, *r*, on the surrounding shafts which pinions have their appropriate spiral springs made fast to them, and to the ratchet wheels on their opposite ends.

T, is an arm, or bolt, attached to the upper end of the lever R, upon which the bed of the press strikes, and the center shaft of the spring box is thereby made to revolve to a certain extent; and as its wheel *q*, gears into the pinions *r*, *r*, they also are made to revolve.

The spiral springs surrounding the respective shafts may have any desired degree of tension given to them by means of their ratchet wheels which may be tightened up at pleasure by the pressman. The wheel *q*, and the pinions *r*, may be equal in size, or their relative proportions may be varied to any extent which may be preferred, but, in most cases, it will be found best to make the wheel *q*, from four to six times the diameter of the wheels or pinions *r*. By this arrangement of the spring box the first contact of the bed may be but lightly resisted, while this resistance may be made to increase with any desired degree of rapidity.

Having thus fully described my several improvements in the construction of the ordinary cylinder printing press, and shown the manner in which the parts thereof operate, what I claim as new therein, and desire to secure by Letters Patent, is,

1. The manner in which I have combined the flying sheet frisket with the cylinder printing press, as set forth. I do not claim this frisket as being new in itself, it having been applied to the bed and platen press, but never, as I verily believe, so modified as to adapt it to the cylinder press. I claim, therefore, the manner described of passing the ends of the slats between the adjustable tape rollers F, F, by which they are enabled to conduct the sheet on to the frisket in the position which it must assume in the cylinder press; said frisket being governed in its motion by the cam G, arranged and operating substantially as herein made known.

2. I claim the lifting of the cylinder, when it is desired that it should not bear on the form as it revolves, such lifting being effected by means of the apparatus connected with the lever J, arranged and operating substantially as described.

3. I claim the manner herein made known of constructing the spring box, or apparatus used by me for checking the momentum of

the bed in a cylinder press, but which may be advantageously applied in other machines for a like purpose; said spring box, or apparatus, being furnished with a center shaft carrying a toothed wheel that gears into wheels, or pinions, on several surrounding shafts, the whole of which shafts carry spiral springs arranged, and combined as herein made known, so as to coöperate with each other, in the manner described.

RICHD. M. HOE.

Witnesses:

A. S. BOWEN,

THOS. S. HOLLINGSNONT.