7443X

S. Newton. Sheet 1. 3 Sheets.

Printing Press.

No.

Patented Feb. 26. 1833.

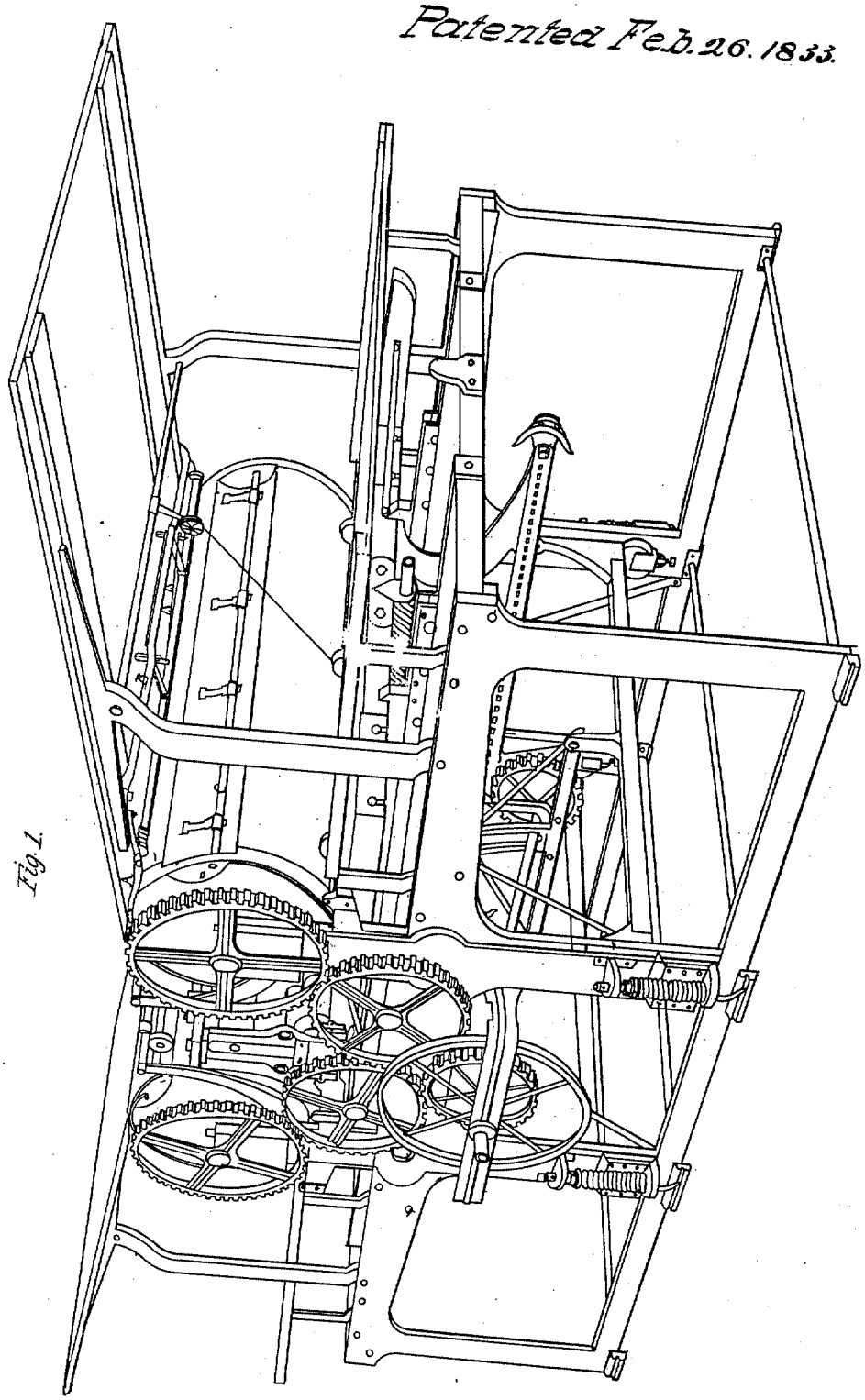


Fig 1.

7443y

S. Newton.

Sheet 2. 2 Sheets.

Printing Press.

No

Patented Feb. 26. 1833.

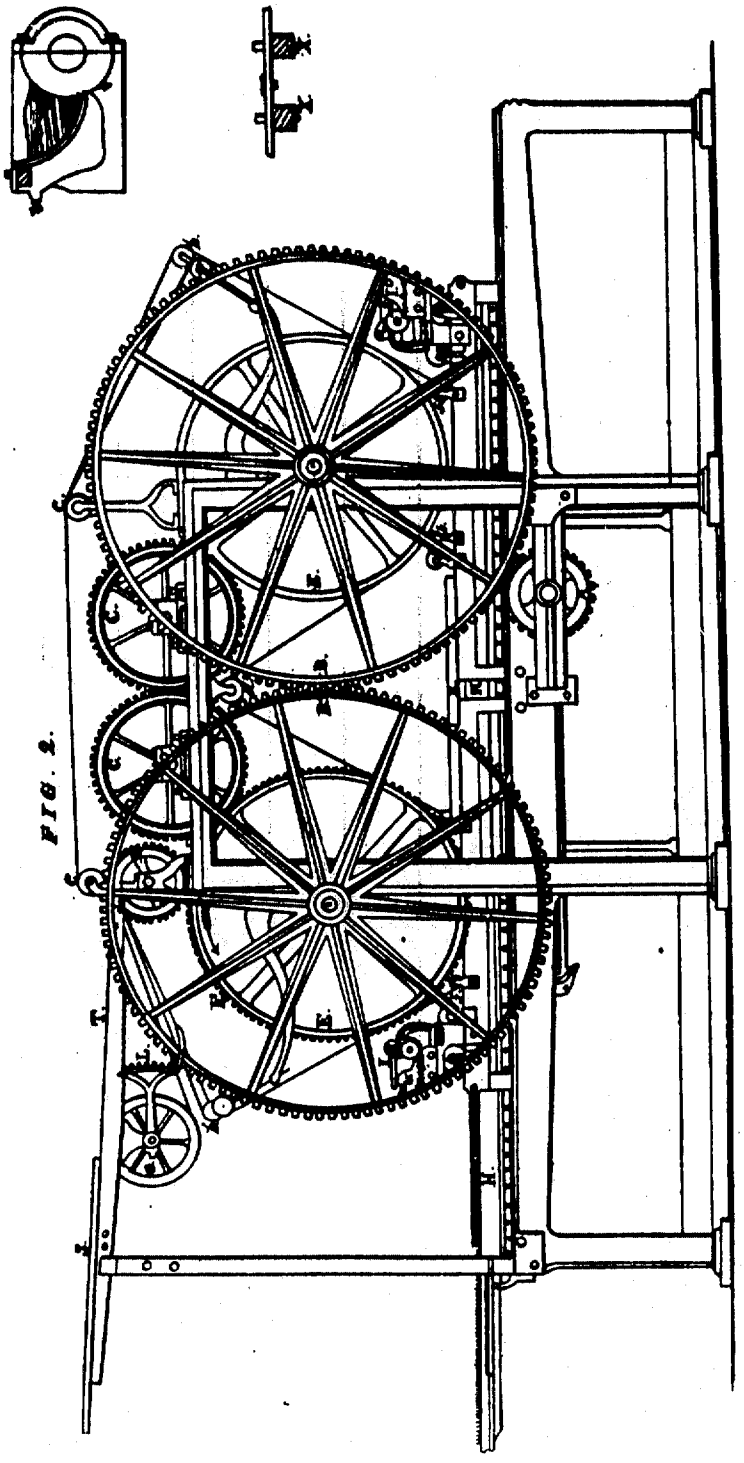


FIG. 2.

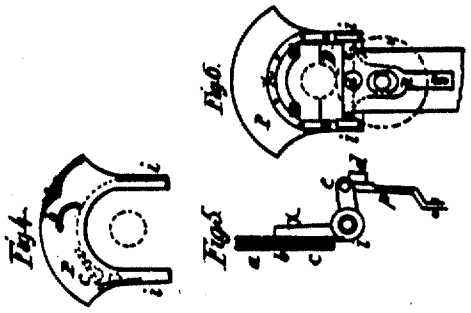
7443X

S. Newton. Sheet 3 Sheets.

Printing Press.

No.

Patented Feb. 20. 1833.



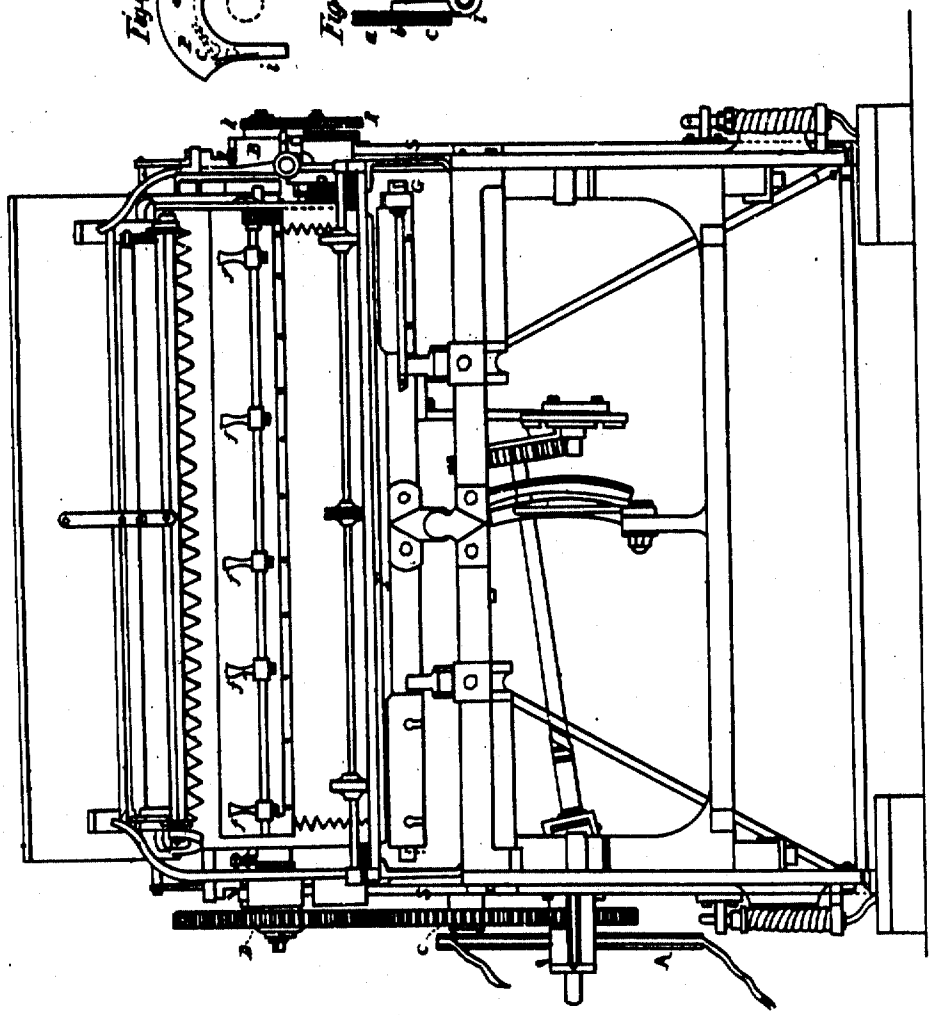


Fig 3.

7443X 2/26/1833

Feb. 26. 1833

Sworn Mentor of New York City

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same, containing a description in the words of Abner Kneeland Sworn Mentor of the improvement in the printing machine called the Double Napier printing Machine.

To all whom it may concern: Be it known that I Abner Kneeland Sworn Mentor of the City of New York have invented certain improvements in the printing machine or Rotary known as the double Napier Printing Machine in contradistinction to Napiers splendor in Great Britain which improvements are applicable to the single cylinder Machine and I do hereby declare that the following is a full and exact description of the said machine and my improvements. Fig 1. Is a perspective view of the machine which being in the general principle the same with the Napier Rotary need require to be particularly described in this. however A is the lever hereafter to be more particularly noticed. B is part of iron to which the sliding connected with the registering apparatus are attached. C. the gripping cylinder with its fingers and the gripping below the surface of the cylinder. Fig 2 is a side view of the machine. A are the levers as in Fig 1. Fig 3 is an end view of the grippers upon the cylinder as pointed in fig 1. This machine has two cylinders each making an impression on the form at every revolution and in this respect as well as in its general construction. The same principle with the Napier Rotary machine before alluded to, but it differs from this machine in the arrangement of that part used for carrying and transferring the sheets from the sheet board to the form of type, by which they are printed and afterwards delivered in their proper places. It differs also in the addition of that part used for perfecting the sheets, and thus making register. For the purpose of taking the sheets from the sheet board and retaining them against the surface of the cylinder until they have received a determinate

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and the type and afterwards cleaning and delivering them in their proper places. I attach to each cylinder the same kind of apparatus, namely chiney as that used by the said Napier in his well known single cylinder Printing Machine for that purpose. That is to say an iron rod or bar which I have called the Gripper arbor. The grippers being so fitted thereon that they may be secured by tightening screws on any part required. Near one end of the gripper arbor there is a pinion of about one inch and a quarter in diameter, fixed permanently and this takes into a wheel which I call the gripper Wheel, of about four inches in diameter having on about one fifth of its circumference teeth which correspond with those on the pinion

A roller of steel or iron called the check Roller made of the same thickness as the gripper wheel is keyed into its face by a steel spring and is thus made to fall into cavities formed on the periphery of the Wheel at suitable distances; thus serving the purpose of stopping and retaining the grippers in their proper places. Near the periphery of the above wheel and and parallel to its axis a pin with a friction Roller on its end projecting one inch or more beyond the end of the cylinder. This in the single cylinder machine at every revolution of the cylinder comes in contact with segments or pieces of iron of suitable form fastened permanently near the end of the cylinder, and these by acting on the above named friction Rollers attached to the gripper wheel, causes the grippers to close and open at every revolution of the cylinder. But in order to adapt these to my machine, a concavity is formed on one side of the cylinder of sufficient depth to admit the gripper arbor and its appendages to be sunk below the face of the cylinder, so as to keep close of the type on the bed as the form passes under the cylinder, and also to allow the grippers with their arbor, to make nearly half a revolution back from the position in which they hold the sheet on the cylinder. The concavity terminates at a little distance from one end of the cylinder so as to leave a check to receive the pivot of one end of the gripper arbor. The other end, on which the pin-

iron is fastened having it's bearing and turning in the arm of a wheel which is fitted to the end of the cylinder shaft and which is also secured by screws against the end of the cylinder, they being of equal diameter. one of the pivots of the gripper wheel is fitted to and turns in one of the arms of this wheel & the other in one of the arms of the cylinder which standing about two inches asthem its and leaves a suitable space for that purpose. The check roller and the spring are also attached to the above named wheel. To cause the grippers to act at every third revolution of the cylinder only I attach the segments a b & c figures 4 & 5. to a plate of iron P of about one fourth of an inch thick — which is permanently fastened to the piece of iron X figs 5. & 6. This piece of iron turns upon a bolt or pin at i i and consequently allowing the plate P to move backward and forward. The piece of iron p. figs 5 & 6. is fitted to and turns on a joint in the piece X. at c c. There is a groove or slot in the lower end of the piece p. thro' which a screw passes into the slide S. in which it is tightened whilst a sufficient space is left between the head of the screw and the slide to allow the piece p to move freely up and down To this piece p is attached the friction roller d figs 5 & 6. which works in an eccentric groove represented by the dotted lines in the wheel R fig. 2. This wheel is driven by a pinion k. fastened on the end of the cylinder shaft and having on it but one third of the number of teeth which there are upon the wheel R. The part y of the groove must be such portion of a circle as will by it's action on the friction Roller keep the plate P in a perpendicular position whilst the cylinder is making about five sixths of a revolution, or for such a period as is required between the commencement of the action of the segments on the grippers until it has opened them, when the top of the plate P. to which the segment a b c are attached, falls back into a horizontal position in order that they may not act on the grippers again until the third revolution of the cylinder, when it is again brought to a perpendicular position. The tapes or cords are conducted by rollers & pulleys.

and are tightened by weights as in the single cylinder machine. For the purpose of perforating the sheets and making register in Bank work, I attach a piece of sheet iron or steel to one end of each cylinder. These pieces may be about one sixteenth of an inch thick. They are let in even with the face of and secured firmly to the cylinder their edges projecting about half an inch round its ends. & containing about two thirds of the way round the cylinder, commencing about two inches back from the gripper arms. To that end of the gripper bar opposite to that on which the pinion is fastened I also attach a smaller roller set off about three fourths of an inch from and parallel with the centre of the arbor. This roller is also set nearly half an inch clear of the end of the cylinder. At a suitable distance back of each cylinder and parallel therewith I place a piece of bar as represented at B in fig 1. These pieces are attached by screws at each end to the beams or pieces that support the bank head to these pieces are fitted slides perpendicular to the face of the bank board. They may be from two to fifteen inches apart and at equal distances from each and to these slides are fitted pieces of metal of such form as may be deemed most convenient for setting and fastening the points which are so attached as to project up through the bank board.

Between the above slides and the cylinder at a distance of from four to six inches from the slides, there is a rod of iron which turns freely on its journals; to this rod two arms are fastened which extend back as far as the above slides and are connected by a link to the pieces fitted to the slides. and one end of this rod is fastened a lever shown at A in figs 1 & 2. the end of which is lifted by the eccentric or roller on the end of the gripper arbor, whereon the gripper closes and is kept up in this place for the proper time by a small roller fitted to the side of the lever which is next to the cylinder and which bears on the sheet of steel or iron placed upon and projecting from the end of the cylinder. In the operation of printing these are small steel points fastened to the cloth on the face of the cylinder and the end of the lever is raised so as not to be acted upon by the eccen-

the rim at the end of the grippers. The sheet of paper is laid on the
frame board with the edge a little over the centre of the cylinder and
as the cylinder turns the grippers catch the sheet and conduct it be-
tween the tapes and the cylinder. The tapes passing the points thro' the
paper which is carried between the cylinder and form and printed on
one side. When the second side is to be printed the form is let down
and the sheet put on the points, the holes made in the sheets by the
points on the face of the cylinder and at the moment the grippers
catch the sheet the points are withdrawn from it by the operation of
the excentric fixed upon the end of the gripper axles which acting
on the before described lever raises the end of it until the roller attach-
ed to the side of it bears on the projecting sheet iron or steel on the
end of the cylinder. When the bearing roller runs off from the end
of the sheet metal the lever is brought down by the action of a spiral
spring attached to the end on which the lever is fixed. during the
next two revolutions of the cylinder. the projecting sheet metal on
the end of the cylinder passes over the roller on the side of the lever.

What I claim as new and for which I ask a Patent, in the ma-
chinery herein described is the application of the above described grip-
pers to a printing machine. the cylinders of which make three revolutions
to one impression, whether the apparatus by which they are acted upon
is constructed exactly in the manner described, or in any other spe-
culation upon the same principle and producing the similar result

I also claim the particular mode herein described of with-
drawing the apparatus which acts upon the grippers, not only pro-
ducing making three but also to three making only two revolutions
to each impression. I also claim the application of the eccen-
tric attached to the ends of the gripper axles to the purpose of
withdrawing the points from the sheets, as applicable to the single [illegible]
as well as the double cylinder Printing Machine

Witness
Thos. Collyer
Edw. Cullingworth Jr

Dated 10th February 1823