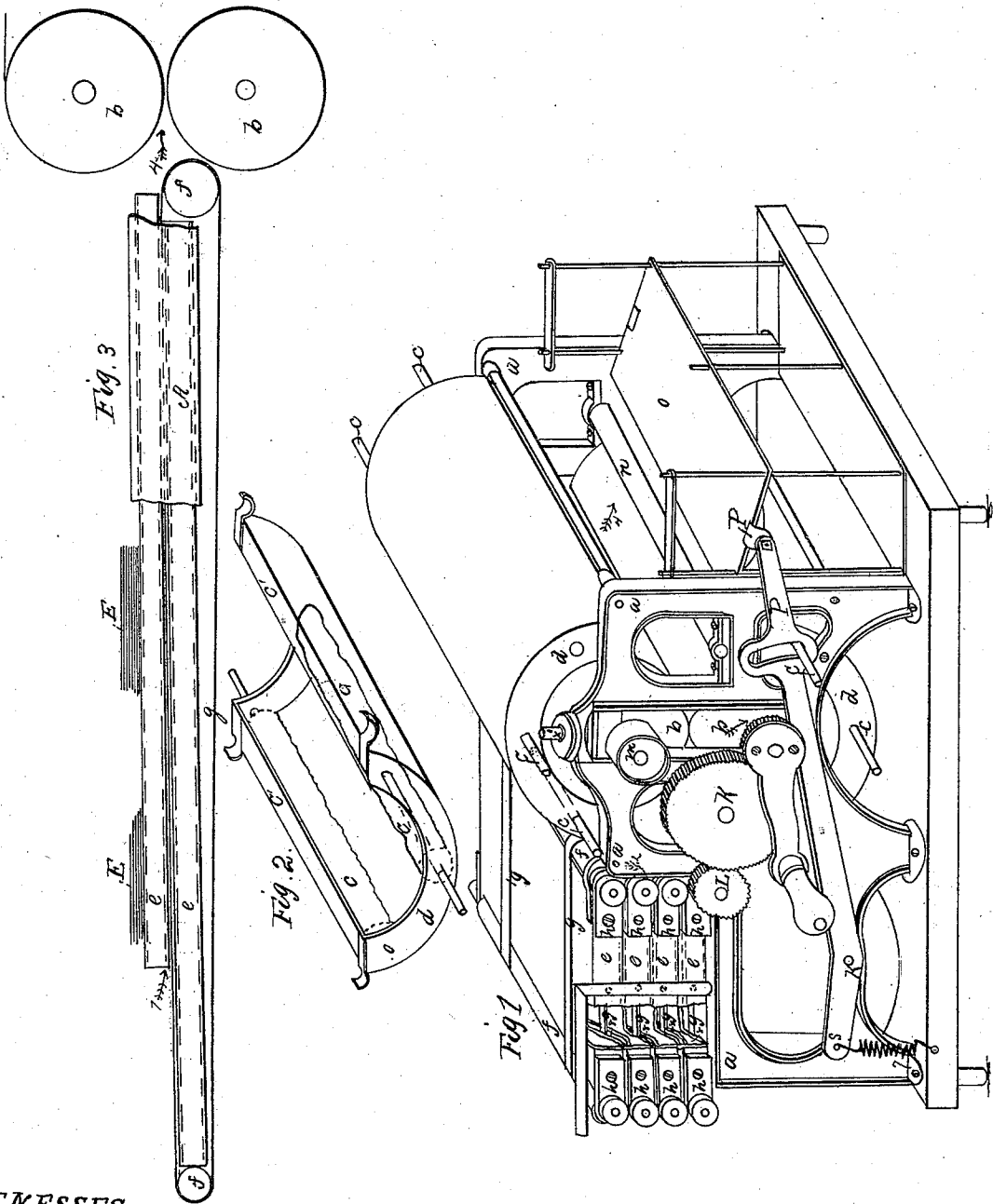


J. NORTH.

Paper Drier.

No. 17,050.

Patented April 14, 1857.



WITNESSES

Wm. P. Smith
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UNITED STATES PATENT OFFICE.

JOHN NORTH, OF MIDDLETOWN, CONNECTICUT.

MACHINE FOR DRYING AND PRESSING PAPER.

Specification forming part of Letters Patent No. 17,050, dated April 14, 1857; Reissued May 19, 1857, No. 464.

To all whom it may concern:

Be it known that I, JOHN NORTH, of Middletown, in the county of Middlesex and State of Connecticut, have invented certain new and useful Apparatus for Drying Printed Paper or Stained Paper and Pressing the Same; and I do hereby declare and ascertain my said invention, referring to the accompanying drawings, in which—

Figure 1, is a perspective representation of the complete apparatus. Fig. 2, is a detached view of one of the sections of the cylinder case or cover. Fig. 3 is a modified machine in which the drying apparatus is in one line.

The present well known mode of drying printed paper is found to be expensive and inconvenient large space is required to hang it up in small parcels, and much time is occupied in the drying as well as labor in the repeated handling, printed sheets cannot be pressed until the ink is thoroughly dry and there is some danger of offsetting and smutting if they are handled or pressed before the ink dries. Now when the printed paper comes from the press it has to be hung in drying rooms on frames these in large establishments occupy great space and involve much labor in the handling and transportation from place to place endangering the clearness of the work. In the drying room the sheets must hang some days and they are then taken to the presses to be calendered or pressed smooth. For this purpose they are placed singly between pasteboards and pressed, thus again occupying much time and expensive machinery. To avoid all this and expeditiously fold the sheets soon after they come from the press is the purpose of my present invention.

For drying and pressing printed paper and the same for stained paper it is necessary by my plan to convey the printed paper on tapes, not touching the printed surface between heated plates or flat chests as near as possible without coming in contact therewith causing them to be thoroughly dried on their passage through and then conveying them between two calendering rollers heated or otherwise where they are pressed smooth, ready for folding. My apparatus

will occupy but little space and performs its work with great expedition and but one handling.

In constructing my machine I make a suitable frame *a*, Fig. 1, on which the two cylinders or press rollers *b b* are hung. The upper half of the upper roller and the lower half of the lower cylinder are covered with a case that is so adjusted and formed as to closely fit said cylinders around the edges and leave a space above. The lower edge of the semi circular case has a flanch *c*¹ that projects inward to the cylinder (this is clearly represented in Fig. 2). Within the case are three more or less cylindrical brushes *e, e, e*, that revolve in the hollow space or chamber between the cylinder and case and the ends of the case *d* project down to the cylinder so as to perfectly inclose the contents of the case between it and the cylinder so as to prevent its escape. I put a quantity of saw dust into the cylinder cases with the rollers and retain it therein by the close fit of the edges of the case to the cylinder. The brushes are made to revolve against the motion of the cylinder and keep the surface clean during the process of passing the printed sheets through the brushes remove the oily and other foreign substances from the cylinders and the saw dust (or other proper substance) absorbs and retains them within the case; thus are the cylinders kept continually clean so as not to smut or slur the printed sheets passing through them. I consider this most important in the operation. Without the cleansing apparatus the cylinders would soon become soiled, and spoil the work when printed or stained work was passed between them to prevent which is the object of the invention.

On the frame *a*, Fig. 1, back of the cylinders *b b* the drying apparatus is affixed. This consists of a series of four more or less steam or other heated hollow plates or chests *e*. At each end of these hollow plates *e* there are rollers *f* placed around which endless tapes or belts *g*, pass which run as clearly represented between the hollow plates. Without touching on these tapes or belts the paper to be dried is carried for-

ward between the plates care being to so
 arrange the belts as not to touch the parts
 that are printed. The plates *e* are heated
 being hollow by steam or hot air passing
 5 through them in a way well known in heat-
 ing plates. The rollers are driven by gear
 J K L &c. The paper enters the drier at
 the point $\rightarrow$ 1, and in the direction indi-
 cated by it and comes out at the point $\rightarrow$
 10 4, perfectly dry and ready to pass directly
 on to the rollers *b b* where it is pressed
 ready for folding or use otherwise. The
 pressure is regulated by means of the screw
 X. The machine may be driven by the
 15 crank J affixed to the axis of the lower cyl-
 nder *b*, the upper cylinder revolves by its
 contact with the lower one or the material
 between them.

After the sheet is pressed it is conveyed
 20 from the cylinders *b* by means of roller *n*
 onto a table *o* suspended on the ends of
 levers P the fulcrums of which are at R.
 To these levers are attached spiral springs
 7, at the point *s* these springs regulate the
 25 height of the table *o* properly to receive the
 sheets of paper as they are pressed, and the
 weight of each of the sheets depresses the
 table sufficiently for the succeeding one. I

inclose my heated plates in a thick wooden
 case or some other suitable nonconductor. 30

Having thus fully described my appa-
 ratus for drying and pressing paper what I
 claim therein as new and for which I desire
 to secure Letters Patent is—

1. The apparatus for cleaning the press- 35
 ing cylinders substantially as herein set
 forth.

2. I do not claim passing sheets of paper
 between heated cylinders or over heated
 plates to dry the same as that has repeat- 40
 edly been done in the manufacture of pa-
 per but such apparatus as heretofore used
 would not answer for printed paper the
 printed surface of which must not be
 touched during the process of drying, but I 45
 claim in combination with the pressing
 cylinders as herein described the drying ap-
 paratus consisting of heated plates or chests
 between which the sheets of printed paper
 are passed on tapes without touching or 50
 dragging thereon as specified.

JOHN NORTH.

Witnesses:

WALDO P. VINAL,
 H. G. STEVENS.

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