I. Adams. Sheet 1. 2 Sheets.

Registering Apparatus.

No. 7205. Patented Mar. 26. 1860.

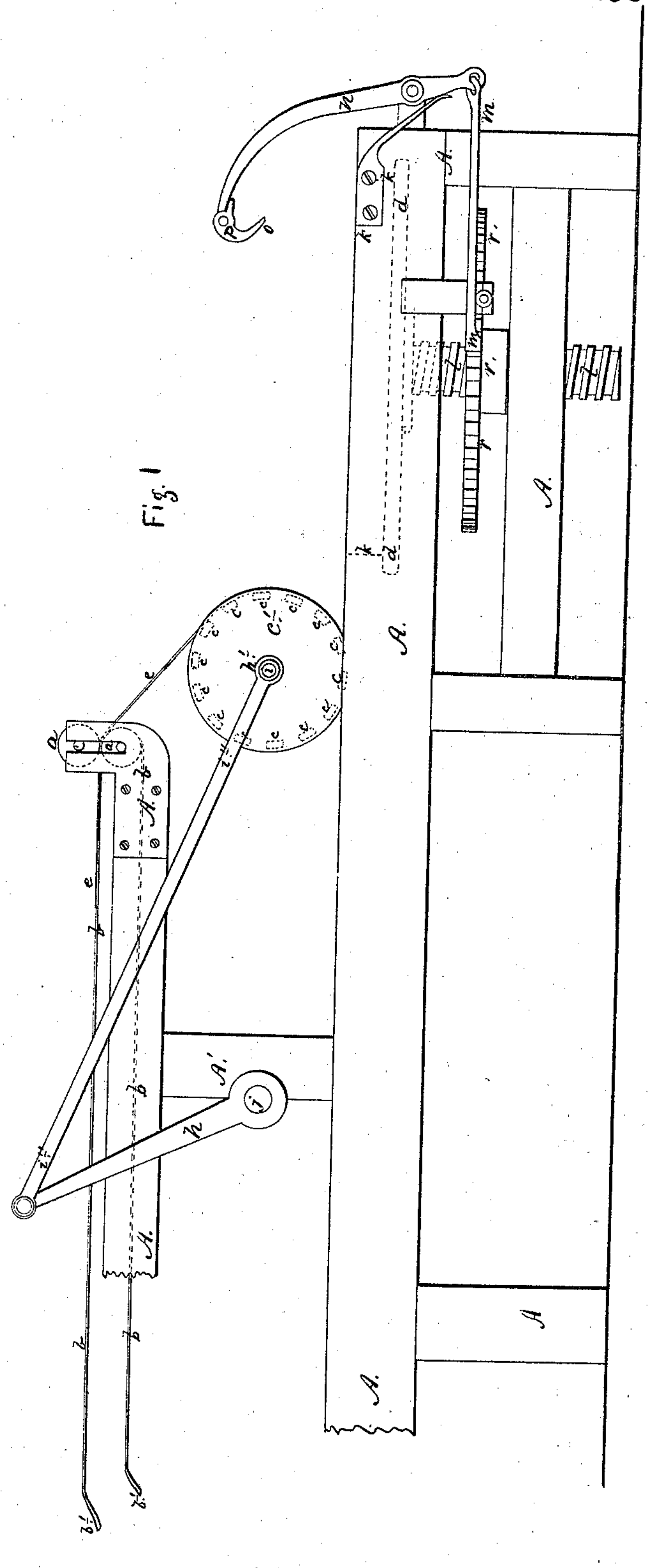

Fig. 1

I. Adams. Sheet 2. 2 Sheets.

Registering Apparatus.

No. 7205. Patented Mar. 26. 1850.

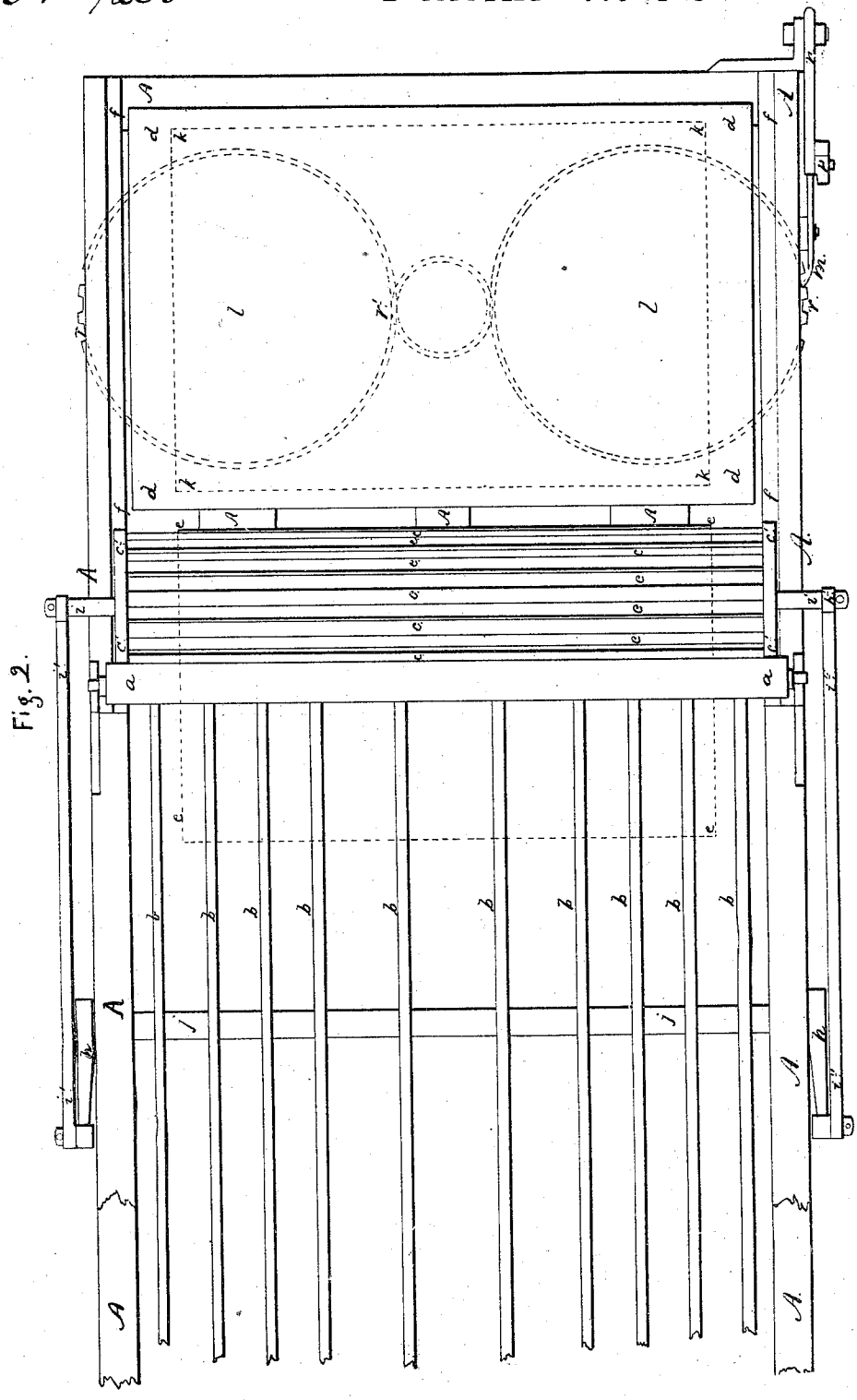

Fig. 2.

UNITED STATES PATENT OFFICE.

ISAAC ADAMS, OF BOSTON, MASSACHUSETTS.

APPARATUS FOR RECEIVING AND TRANSFERRING TO THE PILE SHEETS OF PAPER FOR PRINTING-PRESSES AND PAPER-MACHINES.

Specification of Letters Patent No. 7,205, dated March 26, 1850.

To all whom it may concern:

Be it known that I, ISAAC ADAMS, of Boston, in the county of Suffolk and State of Massachusetts, machinist, have invented a new and useful Improvement in Machinery to be Used in Combination with Machines for Printing and Manufacturing Sheets of Paper for the Purpose of Saving Labor; and I do hereby declare that the following is a full and true description thereof.

My invention consists in so combining a cylinder, or a curved instrument, suitably constructed for the purpose, (instead of the "fly" described in the patent granted to me March 20, 1836), with machines for the printing and manufacturing of sheets of paper, the said cylinder, or curved instrument, shall receive such sheets and pile them upon a table provided for the purpose; and also in so combining certain mechanical powers and movements with such table that the accummulation of sheets upon said table by bringing into contact certain parts produces a movement which causes said table to descend in such manner as to keep the top of the pile upon it at nearly the same height constantly. The increase of the depth of said pile, being used as a means by which to cause the apparatus for the purpose to perform its office.

To enable others, skilled in the art, to make and use my said invention, I will now proceed to describe its construction and operation.

Figure 1, denotes an elevation of the apparatus, and Fig. 2, denotes a top view of the same.

The same letters are used to mark the same parts of the apparatus in both of the said figures.

A, A, A, A, A, A, denotes the frame, which must be suited to the operating parts of the apparatus.

a, *a*, denote rollers, and *b*, *b*, *b*, *b*, *b*, *b*, *b*, *b*, *b*, denote bands, which said rollers and bands are used for conducting the printed sheets from the printing machines, or presses, and delivering them upon the instrument aforesaid, that is to say; the cylinder *c'*, *c'*, *c*, *c*, *c*, *c*, *c*, which cylinder is calculated to receive the said sheets from said rollers and bands, or from any substitute, or substitutes for them, or immediately from said machines, or presses, without the intervention of any additional apparatus between said machines, or presses, and the said cylinder. *d*, *d*, *d*, *d*, denotes the table for receiving and sustaining the pile of sheets as they may be delivered on to it by said cylinder, or curved instrument. The aforesaid bands are represented as being broken off at their left hand ends *b'*, *b'*, it not being deemed necessary to represent the parts to which they may be attached, nor pulleys, or rollers, which they may be made to run over, so as to bring the said bands *b*, *b*, &c. and said rollers *a*, *a*, in proper connection with any printing machine, or printing press, so as to receive its printed sheets and transfer them to the said cylinder *c*, *c*, the characteristics necessary to such parts depending in a measure on the character of the machine, or press to which my said devices may be attached.

The sheets, to be operated on, as they are printed are successively delivered from the printing machine, or press, in any convenient manner, upon the said bands *b*, *b*, *b*, &c. which, being in motion, carry said sheets successively through between the rollers *a*, *a*, as shown by the dotted lines *e*, *e*, Fig. 2 and the lines *e*, *e*, *e*, *e*, Fig. 1. The said cylinder *c'*, *c'*, *c*, *c*, may be composed, as represented in the drawings, of two disks *c'*, *c'*, connected together with a series of staves *c*, *c*, *c*, *c*, *c*, *c*, *c*, *c*, *c*, *c*, *c*, *c*, *c*, which staves should be so placed as to leave small spaces between them, and so that, when taken together, they shall make up the main periphery of the cylinder. The said cylinder (*c'*, *c'*,) rests on the railways *f*, *f*, *f*, *f*, and is made to roll back and forth on said railways by means of the cranks *h*, *h*, which are connected to said cylinder by means of the connecting rods *i'*, *i'*, *i''* *i''* which take hold of the pivots *i*, *i*, which project from the ends of said cylinder. Said cylinder may also be moved by means of cams and vibrating arms, or in any of the various ways in use for the production of such motions.

The cranks *h*, *h*, are attached to the two ends of the shaft *j*, *j*, which shaft rests in proper bearings, or boxes, attached to the perpendicular parts A,' of the frame. Said shaft, (and consequently the cranks *h*, *h*,) is moved by means of toothed wheels, (which wheels take motion from any con-

venient part of the printing machines,) or, said shaft and cranks may be moved in any other proper way.

The operation is as follows:—Supposing the apparatus to be in operation, and a sheet to be passing over the bands *b*, *b*, *b*, *b*, &c., and between the rollers *a*, *a*,—the motion of the cylinder (*c'*, *c'*, *c*, *c*,) being properly timed, and proportioned with the motion of other parts,—when the said sheet shall have emerged through said rollers to the extent of one-half of its width, more or less, (according as the relative velocities of the bands and cylinder may indicate, or require,) said cylinder will move out from under the rollers and bands, (*b*, *b*, *a*, *a*,) and will take the sheet upon its periphery, (as seen at *e*, *e*, *e*, *e*,) as it rolls along toward the table *d*, *d*. The said sheet being thus received upon the surface of said cylinder, it will be smoothly wrapped upon its periphery as said cylinder rolls along, and when the forward edge of the sheet shall come under the cylinder, it will begin to unwrap from said cylinder, and to rest upon the table (*d*,) or heap (*k*, *k*, *k*, *k*,); and in this way—the motion of the cylinder being continued to a sufficient extent for the purpose—the whole sheet will be spread out upon the table, or pile. Successively, immediately after one sheet has been thus delivered, the said cylinder will be made to return back, and to take and deliver another sheet in the same manner as the first. The said cylinder (*c'*, *c*,) may be moved, as aforesaid, by a crank, or cranks, having a regular continuous motion; or said cranks may be made to stop successively, when they shall have drawn the cylinder back under the rollers and bands preparatory to being thrown out to take and deliver a sheet as aforesaid. If the cylinder is made thus to rest between the delivery of the sheets, less motion will answer; but to compensate that, the machinery will be more complicated.

Instead of constructing the cylinder (*c'*, *c'*, *c*, *c*,) as above described, it may be composed of a series of disks, or rings, so placed and secured together as to have spaces of two inches, more or less, between them. And instead of the rollers *a*, *a*, pulleys may be used for the bands *b*, *b*, to run over, and said pulleys may be so suspended, separate from each other, as to admit the disks, or rings, which compose the cylinder, between said pulleys. This mode of construction will admit of the top side of the cylinder being placed as high as said pulleys and bands. Or said cylinder may be made in any way which may be found suitable and convenient.

In order to hold the forward edges of the sheets against the cylinder until the proper movements for them to leave it, in order to lie upon the pile, or table, the said cylinder may be provided with grippers, which may be made similar, in forms and operation, to those in common use for holding the sheets against the cylinders of cylinder printing machines; the operation of said grippers being so timed as to fasten upon the sheets at the proper moments and release them as aforesaid.

Instead of the bands marked with the letter *b*, there may be a series of bands which may be made fast to the frame below the cylinder (*c'*, *c*,) and then be passed up in front of, and then over said cylinder, and back toward the left, far enough to receive the sheets from a printing machine; these ends of said bands, thus passed over the cylinder, may then be secured to weights and be passed down over pulleys in such manner as to allow said cylinder to have its proper reciprocating motion, and in such manner that, when said cylinder shall have its back motion, said weights will take up the slack of said bands, and keep them properly drawn over the cylinder.

The table (*d*, *d*, *d*, *d*,) for sustaining the pile *k*, *k*, *k*, *k*, rests upon two (more or less) screws *l*, *l*, which are operated so as to lower said table, gradually, as the pile of sheets accumulates upon it, by means of the pawl *m*, *m*, and the lever *n*, and said lever is operated by the end *h'*, of the connecting rod *i''*, *i''*, which is made to come in contact with the lower end (*o*,) of a click *p*, which is hinged to the upper end of said lever (*n*). Such click is not absolutely necessary, but being so hinged to the lever (*n*,) that it will give way in one direction, viz: in that toward the left, it is thought to be of some importance to prevent any catching, or sticking of the lever on the part *h'*, (which operates it,) when the cylinder *c'*, *c*, is in its backward motion.

Now supposing the apparatus to be in operation, the table *d*, *d*, having been screwed up to such height that the main periphery of the cylinder (*c*, *c*,) will barely touch the upper surface of said table, (or the pile of sheets on it,) when said cylinder rolls over said table: as said pile of sheets accumulates on said table, it is obvious that it will elevate the said cylinder (*c'*, *c*,), and also the part *h'*, until said part, in its outward passage, will strike the click *o*, which is hinged to the upper end of the lever *n*, as aforesaid. The said part *h'*, so coming in contact with said click will so operate said lever as to cause the pawl *m*, to turn the toothed wheels *r*, *r*, *r'*, which operation, in consequence of said screws *l*, *l*, passing through female screws in the center of said wheels *r*, *r*, will lower said table, and pile, a distance which, in extent, will be in an inverse ratio with the power of said screws, and the lever which operates them. By this means the top surface of the pile may be

kept, constantly, at nearly the same elevation.

My above described invention may be variously modified as circumstances, or fancy, may require; but as all such modifications may readily be made by mechanics skilled in the manufacture of such machinery, I refrain from further description.

I claim, and desire to secure by Letters Patent, the above described device, viz:

1. The cylinder *c' c' c c* in combination with the rollers *a a* and the bands marked *b*—or any device substantially the same—the above named "fly" not being included) for receiving the printed sheets from printing machines, or printing presses, upon a curved, or cylindrical surface, and, by means of said curved, or cylindrical, surface, transferring them, with their printed sides upward, to the pile, or the table provided to receive them.

2. I also claim the device embodied in the combination consisting of the screws *l, l*, the part *m m*, the lever *n*, the part *h'*, the click *p*, the wheels *r r r'*, the tables *d d*, or any device substantially the same, for lowering the pile of sheets; the accumulation of sheets upon said pile governing the operation as aforesaid.

ISAAC ADAMS.

Witnesses:
H. MONTGOMERY,
MORGAN L. ROGERS.