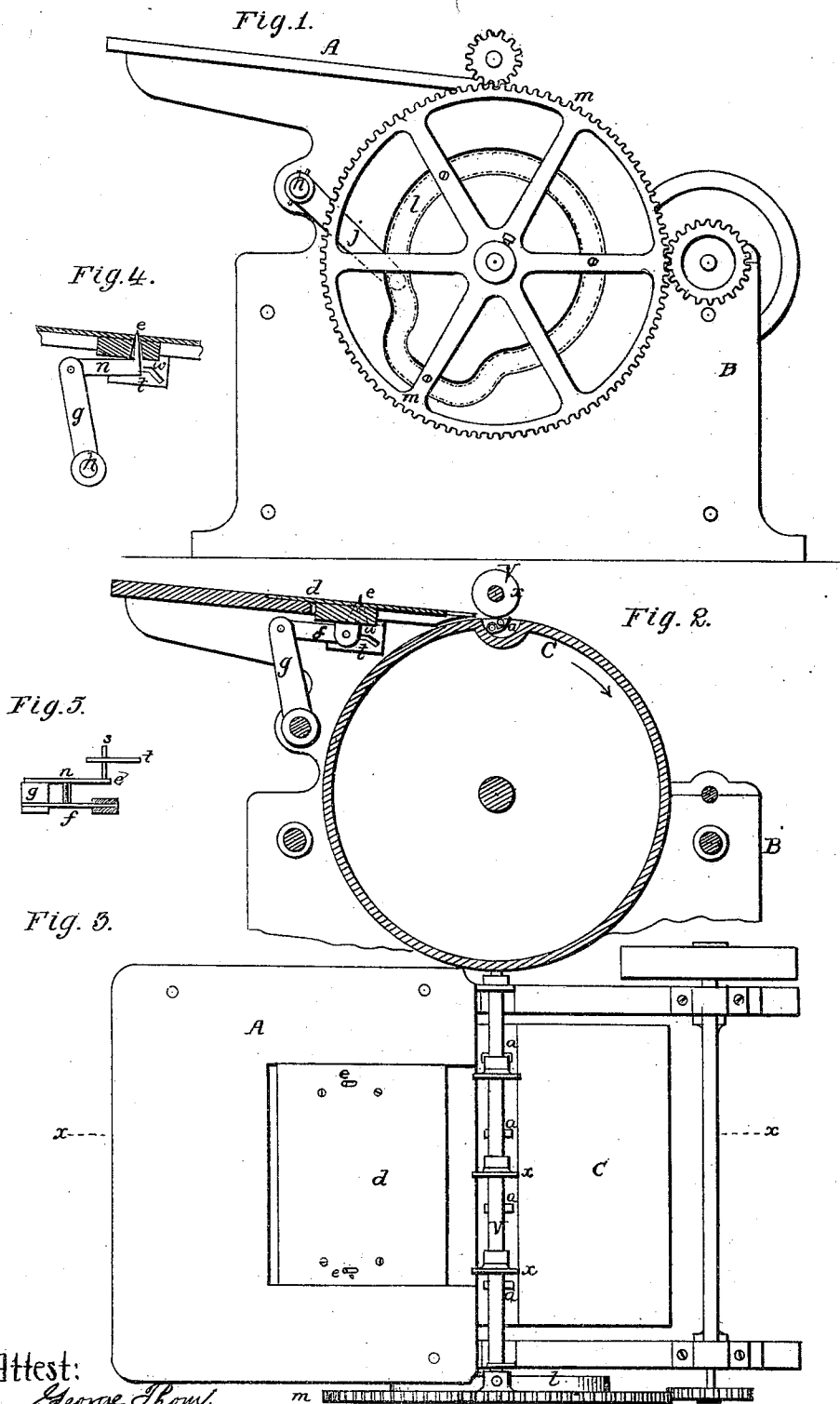


A. DOUGHERTY.

REGISTERING MECHANISM FOR PRINTING-PRESSES.

No. 178,608.

Patented June 13, 1876.



Attest:

George Shoul
Courtney A. Cocher

A. Dougherty, by his atty, Chas. Effort.

UNITED STATES PATENT OFFICE.

ANDREW DOUGHERTY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN REGISTERING MECHANISM FOR PRINTING-PRESSES.

Specification forming part of Letters Patent No. **178,608**, dated June 13, 1876; application filed November 3, 1875.

To all whom it may concern:

Be it known that I, ANDREW DOUGHERTY, of the city of Brooklyn, county of Kings, State of New York, have invented an Improvement in Registering Mechanism for Printing-Presses, of which the following is the specification:

My invention relates to that class of printing-presses in which a revolving cylinder is provided with fingers operating automatically to close upon sheets presented from a table or holder adjacent to the cylinder, and carrying the said sheets upon the surface of the cylinder until they have received impressions from the types; and the object of my invention is to insure the positive and accurate adjustment of each sheet upon the cylinder, so that the impressions made by the type shall not vary in the least from their predetermined positions upon the face of the sheet.

An apparatus by which I carry my invention into effect is illustrated in the accompanying drawing, in which Figure 1 shows a side elevation of sufficient of a printing-press to illustrate my improvement; Fig. 2, a sectional elevation of Fig. 3 on line *xx*; and Fig. 3, a plan view.

In ordinary cylinder-presses the sheets to be printed are fed from a platform, A, to the revolving cylinder C, provided with one or more series of fingers, *a*, which, as they pass from beneath the platform, turn down upon the projecting edge of the sheet, and clamp the latter to the face of the cylinder.

The construction described, while it serves every purpose for ordinary printing, is inefficient in the production of any class of work where it is necessary that the printed matter shall "register"—that is, invariably occupy a predetermined position upon the face of the sheet. This difficulty results mainly from the displacement of the sheets by the fingers *a*, which, as they are turned downward upon the cylinder, will sometimes strike the edge of a sheet and alter the adjustment of the same before clamping it.

I overcome this difficulty by imparting to each sheet, just previous to its seizure by the fingers, and until it is secured, a positive forward motion independent of, but at precisely the same speed, as that of the cylinder. As the motion is positive, there can be no slip in introducing the edge of the sheet beneath the

finger; and as the motion does not differ in speed from that of the periphery of the cylinder, there can be no improper adjustment from the fingers seizing the sheet too quickly or too slowly.

This mode of feeding the sheets may be effected through the intervention of various appliances. I have found in practice that a perfect result is obtained by devices which I will now describe.

The table A is recessed to receive a flat plate, *d*, the surface of which is flush with that of the table, the recess being of such a size that the plate can have a limited movement to and from the cylinder, which movement is imparted through connecting-arms *g f* from a rock-shaft, *h*. At the end of the shaft *h* is an arm, *j*, a pin on the end of which extends into the groove *l* of a cam-wheel attached to the shaft of the cylinder *c*. The groove *l* is of such a shape that the shaft and the plate *d* with their appliances remain stationary during the greater part of the cylinder's revolution; but as the fingers *a* approach the table A from beneath, the plate *d* is caused to move forward, at first slowly, and then more rapidly, until its speed coincides with that of the periphery of the cylinder.

In order that the sheet placed upon the plate *d* may be carried positively with the latter, as well as to secure the proper adjustment of the sheet on the plate, I provide the latter with registering-pins *e*, which are connected with slides having lugs extending into inclined grooves *w* upon the frame of the press, so that as the plate *d* reaches the limit of its forward movement the pins will be drawn downward.

The sheet is placed upon the table when the plate *d* is at the limit of its backward movement, the position of the sheet upon the plate being determined by marks on the sheet through which the pins *e* are passed. As the cylinder revolves, the sheet will be fed forward with a positive movement, first slowly, and then with increased speed, until it is passed beneath and clamped by the fingers to the cylinder, when the pins *e* will be retracted and the plate *d* will return to its first position.

Three things are essential to insure the successful printing of the sheet: first, the sheet must be clamped positively to the cylinder. Tapes or other devices which retain a sheet

upon a cylinder without seizing it promptly and maintaining it in a fixed position, will not suffice; second, the sheet as it is introduced beneath the fingers must move at the same speed as the surface of the cylinder, otherwise it would be seized with a jerk which would tend to displace it; third, the forward movement of the sheet must be positive, in order to resist the effect of the fingers being brought suddenly against its edge. It will be apparent that when each of a series of sheets is placed in the same position upon the pins *e*, all the sheets will be presented to the cylinder in the same manner, will be secured upon the cylinder in the same position, and will receive the impression from the types at the same points.

I have found my invention to be especially servicable in printing tickets, playing-cards, &c., where the backs of the cards on one side the sheet have to be printed in a determined position in respect to the faces upon the opposite side of the sheet.

It will be apparent that the sheets may be secured to the plate by clamps, and that other devices than those described may be employed for feeding the sheets—for instance, the plates *d* may be stationary and the forward movement of the pins *e* alone may serve to carry forward the sheet.

I claim as my invention—

1. The combination, in a cylinder-press, of the rotating cylinder, its fingers for gripping

the sheet to be printed, the table for holding the sheet and appliances, substantially as described, whereby each sheet is fed from the table to the cylinder with a positive movement, and is introduced beneath the fingers at a speed coinciding with that of the surface of the cylinder, all as set forth.

2. The combination, in a cylinder-press, having gripping-fingers for clamping the sheet to the cylinder, of a table and feeding-points, and a cam for actuating the same, the whole operating as described, so that the paper is conveyed to the cylinder by a positive motion, at first slowly, and then at the same speed as the cylinder, is gripped by the fingers while held on the points, and the latter are gradually withdrawn as the sheet is carried by the cylinder, all as specified.

3. The combination, with a cylinder-printing-press, provided with fingers for clamping the sheet, of a reciprocating pointing apparatus, operating to carry on points a sheet of paper toward the cylinder, while the latter is in motion, and to release the sheet after it is secured to the cylinder, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDREW DOUGHERTY.

Witnesses:

WILLIAM H. DOUGHERTY,
EDWARD E. COOPER.