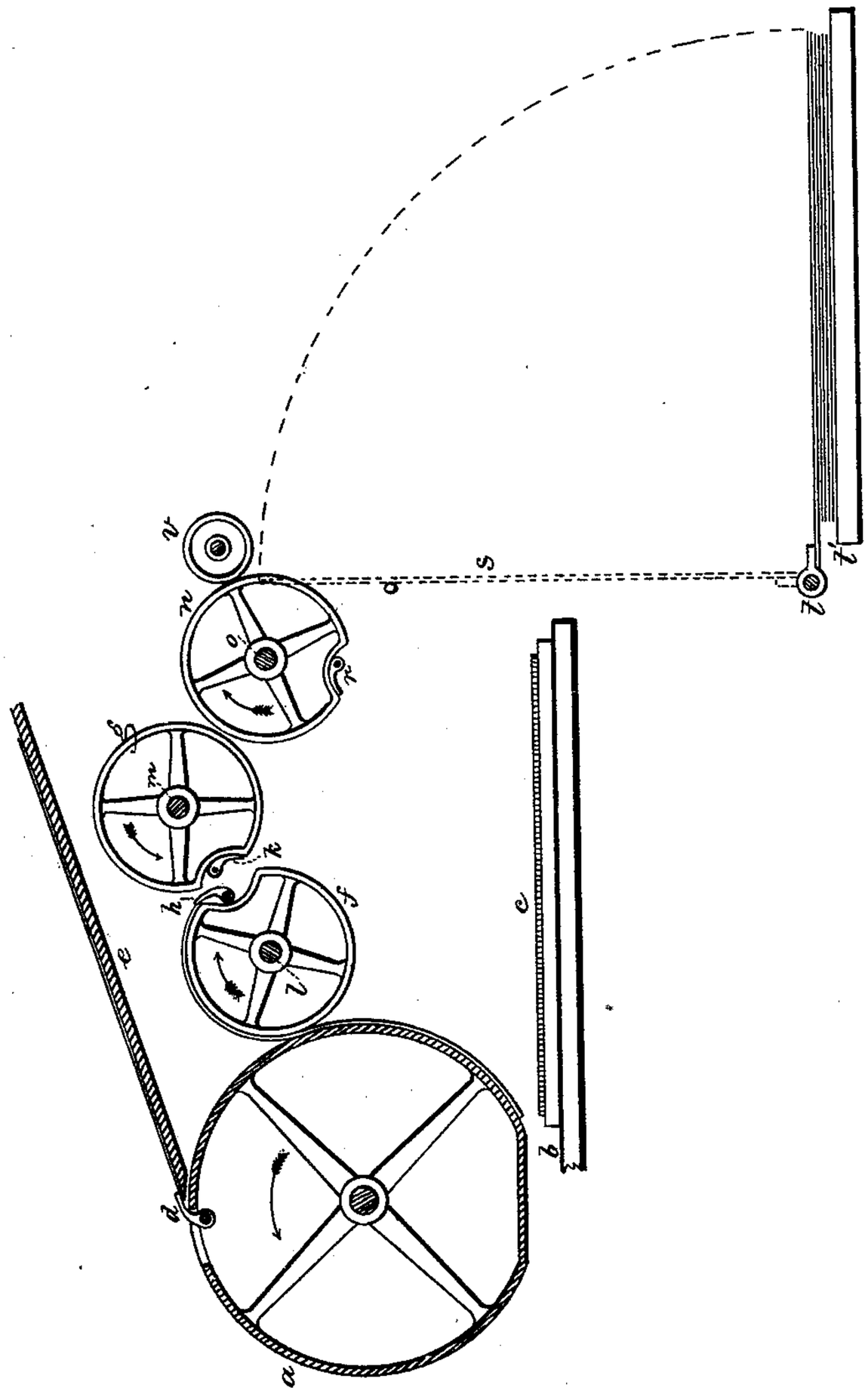
(No Model.)

C. POTTER, Jr.

Delivery Apparatus for Printing Machines.

No. 229,635. **Patented July 6, 1880.**



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CHARLES POTTER, JR., OF PLAINFIELD, NEW JERSEY.

DELIVERY APPARATUS FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 229,635, dated July 6, 1880.

Application filed April 26, 1880. (No model.)

To all whom it may concern:

Be it known that I, CHARLES POTTER, Jr., of Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Printing-Presses, of which the following is a specification.

Before my invention printing-presses had been made in which the type rested upon a reciprocating bed, and the impression was given by a cylinder that carried gripers and delivered the sheet to a cylinder with gripers that carried the sheet up over such cylinder and delivered it in a downward direction.

In some instances the delivery-cylinder has been provided with inclined tapes passing round pulleys at or near the level of the bed, said tapes being employed for the purpose of supporting the sheet and causing it to pass down over the fly that takes the sheet from the tapes and delivers the same upon the fly-board.

In presses of this character the tapes are liable to get out of order.

In presses that I have made the delivery has been by a range of pulleys carrying a griper, the fly-fingers passing in between the pulleys and the sheet passing down vertically in front of the fly.

In many presses the size of the type-form and the consequent distance the type-bed has to travel are such that the sheet cannot be delivered vertically in front of the fly without making a very large and unwieldy delivery-cylinder, and one that would be much larger than the impression-cylinder. If a single intermediate cylinder were used to transfer the sheet from the impression-cylinder to the delivery cylinder or pulleys, the sheet would have to pass up over such intermediate transfer-cylinder and down below the delivery-cylinder, and hence the sheet could not be delivered in the proper position to the fly.

My present invention relates to the combination, with the impression-cylinder and delivery cylinder or pulleys, of two intermediate transfer cylinders or pulleys and gripers, the first of which takes the advancing end of the sheet from the gripers of the impression-cylinder, carries the sheet up over the first transfer-cylinder and down beneath the second transfer-cylinder, the gripers of which take the advancing end of the sheet, and deliver the same to the gripers of the delivery-cylinder, up over which the sheet is carried, so as to be delivered downwardly and vertically, or nearly so, in front of the fly-fingers.

By this improvement I am able to employ comparatively small transfer and delivery cylinders, and to place the fly at such a distance from the impression-cylinder that there is ample room for the movement of the reciprocating bed.

In the drawing I have illustrated the improvement by a vertical section.

The impression-cylinder *a*, type-bed *b*, and form, *c*, of types are all substantially as heretofore employed.

The gripers *d* are used for taking the sheet from the feed-table *e* in the usual manner.

The intermediate transfer-cylinders, *f* and *g*, may be solid cylinders with longitudinal channels for the gripers *h* and *k*; but I prefer to make use of pulleys or short notched cylinders on the respective shafts *l m*, as less likely to blur or injure the impressions.

The delivery-cylinder *n* upon the shaft *o* is preferably made of a range of pulleys, and it is provided with the gripers *r*, and the sheet is delivered vertically in front of the fly *s*. The fly is upon the rocking shaft *t*, and it is operated in the usual manner to lay the sheet on the fly-board *t'*.

The fingers of the fly pass in between the pulleys or short notched cylinders upon the shaft *o*, so that the sheet passes down vertically in front of the fly, and the contact-wheels *v* apply the necessary gripe or holding action to insure the movement of the sheet with the delivery-cylinder after the advancing edge of such sheet is dropped by the gripers.

It is to be understood that the gripers of the respective cylinders are made and operated in any usual or desired manner, and the cams and springs for the same are placed in such positions as to open and close the gripers at the proper times, as well known to press-makers, and the impression-cylinder, transfer and delivery cylinders or pulleys are all geared together, so as to move at the same speed of surface, and the gripers are placed at such points in the periphery of the respective cylinders that the gripers of the impression-cyl-

inder open and relieve the advancing edge of the sheet the moment after the gripers of the first transfer-cylinder seize the said edge, and so on in the transfer from the first transfer-cylinder, *f*, to the second, *g*, and from the second transfer-cylinder, *g*, to the delivery cylinder or pulleys *n*, so that the paper is carried up over the first transfer-cylinder, *f*, down beneath the second transfer-cylinder, *g*, and up over the delivery cylinder or pulleys *n*, and it passes down from the same vertically, or nearly so, in front of the fly *s*.

I claim as my invention—

The combination, with the impression-cylinder and delivery cylinder or pulleys, of two intermediate transfer-cylinders and their gripers, substantially as set forth.

Signed by me this 16th day of April, 1880.

CHARLES POTTER, JR.

Witnesses:
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