

(No Model.)

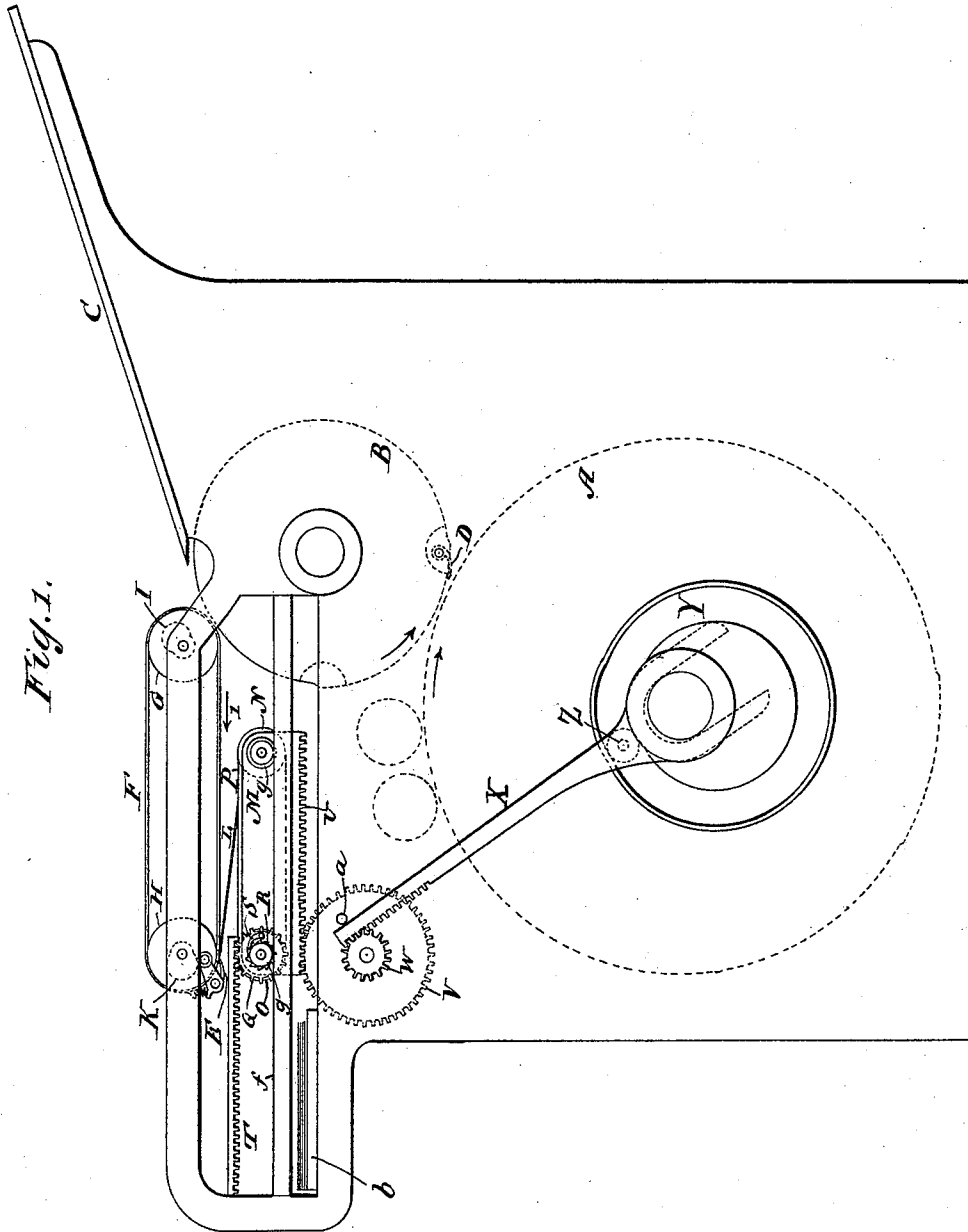
2 Sheets—Sheet 1.

G. P. FENNER.

SHEET DELIVERY APPARATUS FOR PRINTING MACHINES.

No. 405,153.

Patented June 11, 1889.



WITNESSES:

Edvard Wolff.
William Miller

INVENTOR

George P. Fenner.

BY

Van Santwood & Hauff

his ATTORNEYS

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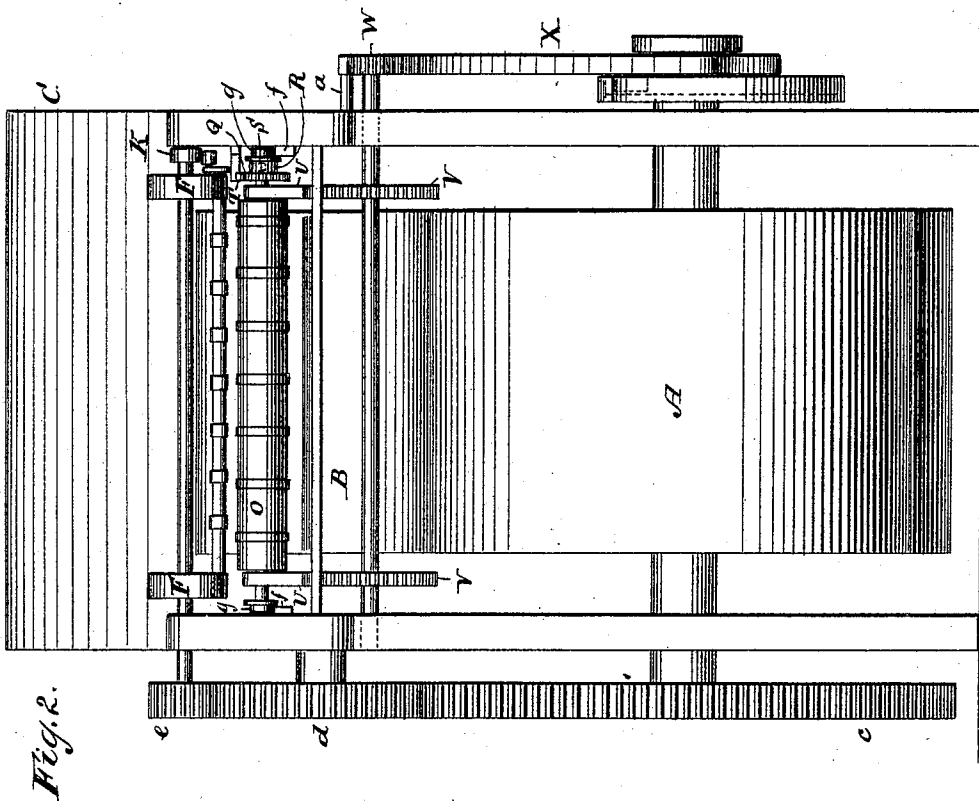
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UNITED STATES PATENT OFFICE.

GEORGE P. FENNER, OF NEW LONDON, CONNECTICUT.

SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 405,153, dated June 11, 1889.

Application filed September 20, 1888. Serial No. 285,878. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. FENNER, a citizen of the United States, residing at New London, in the county of New London and State of Connecticut, have invented new and useful Improvements in Sheet-Delivery Apparatus for Printing-Machines, of which the following is a specification.

This invention relates to an improvement in sheet-delivery apparatus serviceable in printing-presses, as set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a side elevation of a sheet-delivery apparatus. Fig. 2 is an end elevation of what is shown in Fig. 1.

Similar letters indicate corresponding parts.

In the drawings, the letter A indicates a type-bed or type-cylinder, and B an impression-cylinder. A sheet being fed from the feed-board C is taken by the gripper D and carried between the cylinders A B. After being thus printed the sheet is taken by the gripper E on the delivery traveler or tapes F, which move in the direction of arrow 1, Fig. 1. Rollers G H carry the traveler or tapes F, and the cam I trips the gripper E, so as to cause said gripper to take a printed sheet from the cylinder B. The cam K trips the gripper E, so as to cause said gripper to drop the printed sheet. In Fig. 1 the gripper E is shown as being about to be tripped to drop a printed sheet L.

M is a carriage having rollers N O supporting a traveler or tapes P. On the shaft of the roller O is loosely mounted a gear-wheel Q. A toothed wheel R is firmly secured to the shaft of the roller O, and a pawl S is secured to the gear-wheel Q, so that a clutch-connection is formed between the gear-wheel Q and roller O. When the gear-wheel rotates in one direction, the pawl S glides over the teeth of the wheel R without turning said wheel R or the roller O; but when the gear-wheel rotates in the opposite direction the pawl S engages the teeth of the wheel R and rotates said wheel and the roller O and imparts motion to the traveler or tapes P.

A rack T is applied or fixed to the apparatus so as to engage the gear-wheel Q. The carriage M has a rack U engaging the gear-wheel

V. Two gear-wheels V, Fig. 2, are shown adapted to engage two racks U, one at each side of the carriage M; but one gear-wheel V and one rack U might be made to answer. The gear-wheels V are oscillated by a gear-wheel W and rack-bar X. A roller-stud Z and cam Y impart an oscillating or reciprocating motion to the rack-bar, and a pin or arm a, fixed to the press or machine, holds the rack-bar in gear with the wheel W.

The operation of the device is as follows: While the sheet L is being dropped by the gripper E onto the carriage M the carriage is at rest, the cam Y being so formed as to allow the carriage to remain at rest at such moment. When the sheet L has been dropped onto the traveler or tapes P of the carriage, the rack-bar X rotates the gear-wheels V so as to move the carriage toward the receiving-table b. During this motion of the carriage, the rack T rotates the gear-wheel Q in such direction that the roller O, and the tapes P, with the sheet L thereon, remain at rest. When the rack-bar X makes its return-stroke, the carriage M is moved from the receiving-table b toward the impression-cylinder B. During this return motion of the carriage M the rack T rotates the gear-wheel Q in such direction that the roller O is rotated to impart a progressive movement to the traveler or tapes P, that are to move that portion of the carriage-tapes which carries the sheet L toward the receiving-table b. The sheet L, resting on the tapes P, is by this progressive motion of the tapes caused to move off the carriage M onto the receiving-table b.

Suitable gears c d, Fig. 2, convey motion between the cylinders A B, and the gears d e convey motion between the cylinder B and the roller G, about which pass the tapes or traveler F. The carriage M is supported by ways f and rollers g, Fig. 2, so that said carriage can be readily reciprocated by the rack-bar X.

As the cam Y oscillates the carriage M positively in both directions, the use of a spring or weight to restore the carriage to its original position can be dispensed with. The traveler or tapes F, with their gripper E, constitute a simple and effective delivery apparatus for delivering the printed sheet from

the impression-cylinder B to the carriage M.
What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with an impression-
5 cylinder, a delivery apparatus, and a receiving-table, of a reciprocating carriage located under and moving independent of the delivery apparatus, and on which the printed sheet is deposited by the delivery apparatus, and
10 mechanism, substantially as described, for positively moving said carriage in both directions, substantially as described.

2. The combination, with an impression-
cylinder, a delivery apparatus, and a receiving-
15 table, of a reciprocating carriage located under and moving independent of the delivery apparatus, and on which the printed sheet is deposited by the delivery apparatus, and
20 a cam or its equivalent for actuating said carriage, said cam being arranged to allow the carriage to be at rest while a sheet is being deposited on said carriage, substantially as described.

3. The combination, with an impression-
25 cylinder, a delivery apparatus, and a receiving-table, of a reciprocating carriage provided with a traveler or tapes on which the printed sheet is deposited by the delivery apparatus, said tapes having a progressive movement
30 during the return movement of the carriage, and rack, gear, and cam mechanism, substantially as described, for positively moving the carriage in both directions, substantially as described.

4. The combination, with an impression- 35
cylinder, a delivery apparatus, and a receiving-table, of a reciprocating carriage provided with a traveler or tapes on which the printed sheet is deposited by the delivery apparatus, a rack and clutch-connection for imparting to 40
the tapes a progressive movement during the return movement of the carriage, and a rack, gear, and cam mechanism, substantially as described, for positively moving the carriage in both directions, substantially as described. 45

5. The combination, with an impression-
cylinder, a delivery apparatus, and a receiving-
table, of a reciprocating carriage provided with a traveler or tapes on which the printed
sheet is deposited by the delivery apparatus, 50
said tapes having a progressive movement during the return movement of the carriage, but being motionless during the forward movement of the carriage, a rack on the carriage, a gear engaging the rack, a cam, and a 55
connecting rack-bar between the cam and gear, substantially as described, for positively moving the carriage in both directions, substantially as described.

In testimony whereof I have hereunto set 60
my hand and seal in the presence of two subscribing witnesses.

GEORGE P. FENNER. [L. S.]

Witnesses:

NATHAN BABCOCK,
WILFRED D. WELLS.