

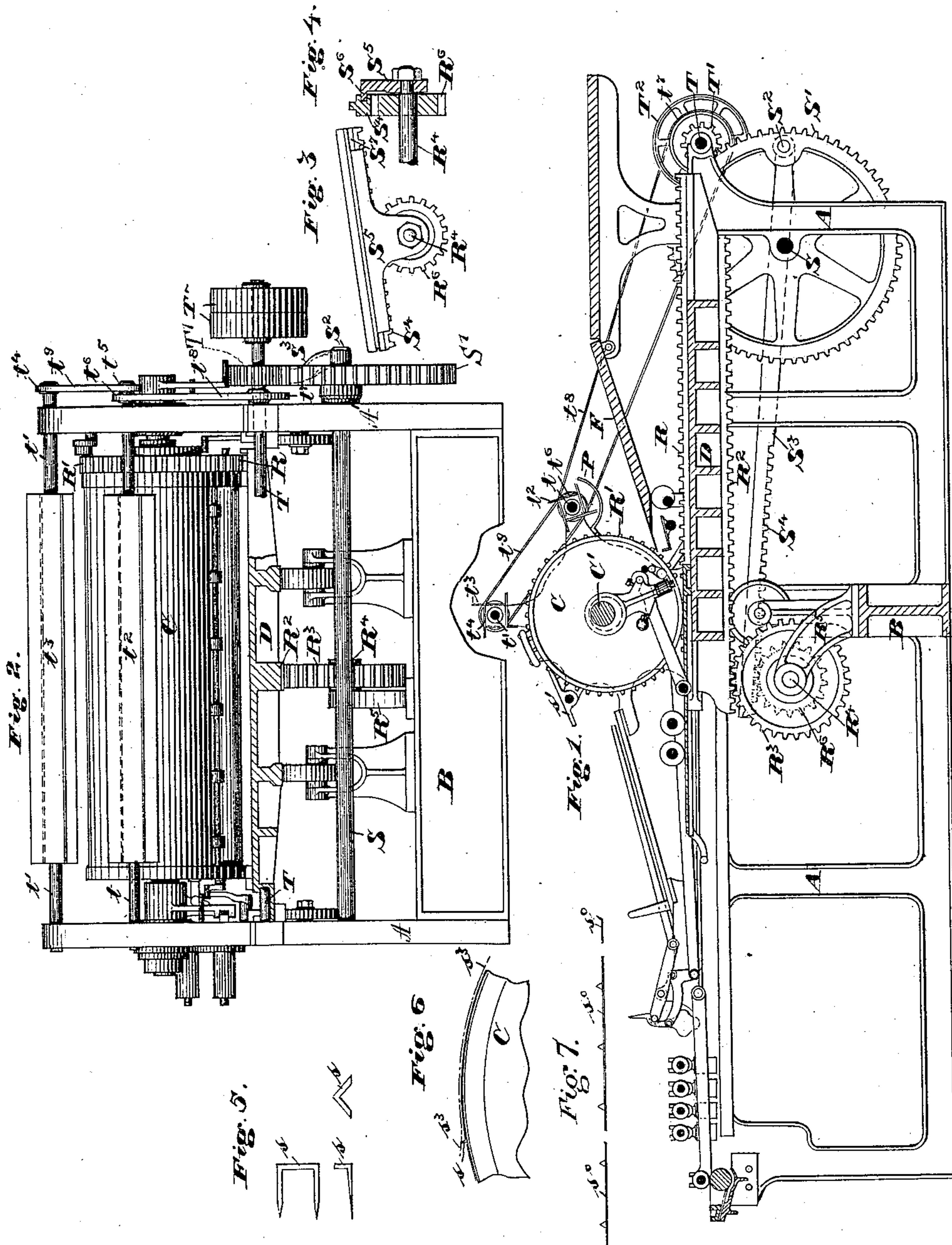
(No Model.)

J. T. HAWKINS.

SHEET DELIVERY APPARATUS FOR PRINTING MACHINES.

No. 336,108.

Patented Feb. 16, 1886.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN T. HAWKINS, OF TAUNTON, MASSACHUSETTS.

SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 336,108, dated February 16, 1886.

Application filed May 6, 1885. Serial No. 164,557. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. HAWKINS, of Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and
5 useful Improvements in Sheet-Delivery Apparatus for Printing-Machines, which invention or improvement is fully set forth and illustrated in the following specification and accompanying drawings.

10 The object of this invention is, in an oscillating-cylinder press delivering the sheets from the top of the cylinder, to provide means for keeping the sheet in contact with the cylinder-surface or its covering during its delivery,
15 which shall cause a current or currents of air to be directed upon the said cylinder or interposed sheet for said purpose.

The invention consists of the parts and combinations of parts, as herein described, and
20 specifically set forth in the claims.

In the accompanying drawings, Figure 1 is a side elevation, principally in longitudinal vertical section, through the center of the machine. Fig. 2 is a rear elevation of the machine, with the type-bed partly in section, the
25 driving-shaft partly broken away, and the feed-board and concomitant parts removed for the sake of greater clearness of illustration. Fig. 3 is a side view of the arrangement of an oscillating guide for the connecting-rod rack, and
30 Fig. 4 is a transverse section through the same. Figs. 5, 6, and 7 illustrate details hereinafter described.

In said figures the several parts are respectively indicated by letters as follows:

A and A' are the main or side frames; D, the type-bed; C, the impression-cylinder, rotating upon an eccentrical rock-shaft, C'.

40 R is a rack secured to the upper side of the bed D.

R' is a gear-wheel secured to the cylinder C.

R² is a rack secured to the under side of the bed D.

45 R⁴ is a shaft journaled at one end in the frame A, and at the other end in a bracket, R⁵, secured to the cross-stay B. To the inner side of the shaft R⁴ is secured a gear-wheel, R³, engaging the rack R², and upon its outer end, outside of frame A, is secured another gear-
50 wheel, R⁶.

S is a shaft journaled in the frames A and

A'. On shaft S, outside of frame A, is secured a gear-wheel, S', carrying a crank-pin, S². Articulated to crank-pin S² is a connecting-rod, S³, having its free end formed into a rack, S⁴, engaging the gear-wheel R⁶. 55

S⁵ is a guide oscillating freely upon the shaft R⁴, within which said shaft freely turns. The guide S⁵ has formed upon it a projecting tongue, S⁶, which fits into a corresponding
60 groove, S⁷, formed in the side of the rack S⁴. The projecting guide S⁵ holds the rack S⁴ in proper depth of mesh with the gear-wheel R⁶.

T is a shaft journaled in the frames A A'. The shaft T has secured to it the pinion T', engaging the gear-wheel S'. The shaft T also
65 carries on its outer end either pulleys T² or a crank, (not shown,) according as the machine may be driven by either hand or other power. The shafts t t' are journaled in the frames A A', each shaft carrying rotary fans t² t³. Upon
70 the shafts t and t' are secured pulleys t⁴, t⁵, and t⁶, and upon shaft T is secured a pulley, t⁷. Enwrapping pulleys t⁷ and t⁶ is a belt, t⁸, and enwrapping pulleys t⁵ and t⁴ is another belt, t⁹. 75

P is a guard extending across the machine, (not shown in Fig. 2,) to prevent the air discharged from the fan t² from disturbing the sheets upon the feed-board F of the machine. The sheet-supports s s' support the tail end of
80 the sheet from contact with cylinder C, and a series of stripper-fingers, s', strip the sheet from the cylinder, both in the manner substantially described in the application filed by me on the 15th day of March, 1884, (Case A,) 85
Serial No. 124,297.

The operation of the machine is as follows: Power is applied to the shaft T by the pulleys T² or by a crank, as the machine can be actuated either by hand or other power. The pinion
90 T' imparting rotary motion to the crank-gear S', the connecting-rod S³ operates as an oscillating and reciprocating rack and imparts oscillating motion to the shaft R⁴ and reciprocating motion to the bed D by means of the gear-
95 wheels R⁶ and R³ and the rack R². The gear-wheels R³ and R⁶ may be varied in proportion, so as to give to the bed D any length of travel as compared to the throw of the crank-pin S² that may be desired. The rotary fans t² and t³ are
100 driven by means of the pulleys t⁷, t⁶, t⁵, and t⁴ and belts t⁸ and t⁹, so as to project currents of

air against the face of cylinder C or the sheet upon it. The guide S^5 sliding in the groove S^7 of the rack S^4 , and oscillating with it about the center of the shaft R^4 , keeps the rack S^4 constantly in gear at the proper depth of mesh with the gear-wheel R^6 .

I do not herein claim the sheet-supports $s s^0$, *per se*, nor the means for reciprocating the type-bed, said means for reciprocating said bed being claimed in another application filed by me on the 28th day of April, 1884, bearing the Serial No. 129,651.

Having thus fully described my said improvements, as of my invention I claim—

15 1. In a printing-press in which the sheets are delivered from the top of the cylinder, in combination with said cylinder, means for projecting currents of air against the sheet upon it, to insure frictional contact between the sheet and cylinder during delivery, consisting of a rotating fan or fans, as $t^2 t^3$, arranged between the points of feed and delivery, and suitably driven by any rotary member of the machine, substantially as set forth.

25 2. In an oscillating-cylinder printing-press in which the sheets are delivered tail first from

the impression-cylinder, the combination, with said cylinder, of sheet-supports, as $s s^0$, for supporting the tail margin of the sheet away from contact with the impression-cylinder, and rotating fans, as $t^2 t^3$, for projecting currents of air against the sheet, to insure frictional contact between the sheet and cylinder during the process of delivery, substantially as set forth.

35 3. In the sheet-delivery apparatus of an oscillating-cylinder printing-press, in which the sheets are delivered tail first from the cylinder, the combination, with said cylinder, of sheet-supports, as $s s^0$, for supporting the tail margin of the sheet from contact with the cylinder, rotating fans, as $t^2 t^3$, for projecting currents of air against the sheet, to insure frictional contact between the sheet and cylinder during the process of delivery, and a series of stripper-fingers, as s' , for stripping the sheets from the cylinder, substantially as set forth.

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