

(No Model.)

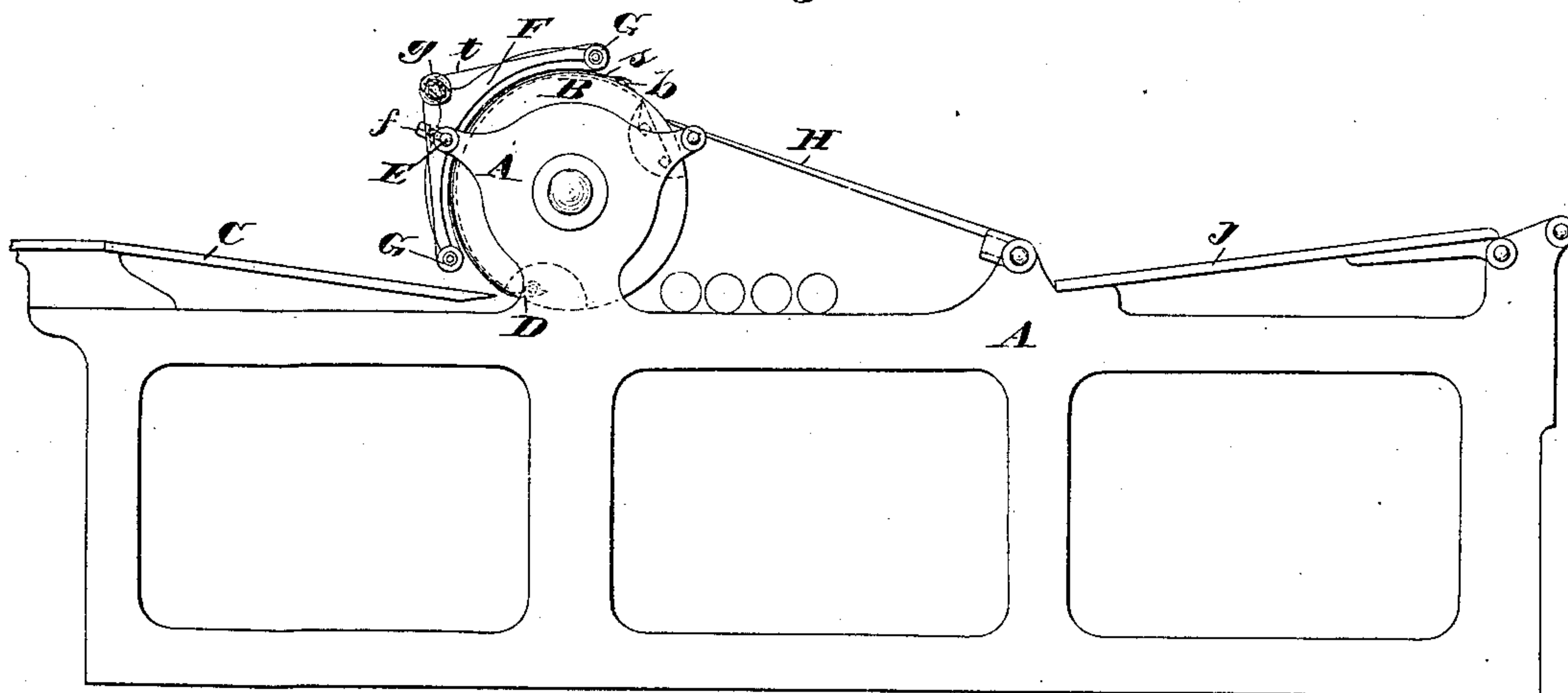
J. T. HAWKINS.

# SHEET DELIVERY APPARATUS FOR PRINTING MACHINES.

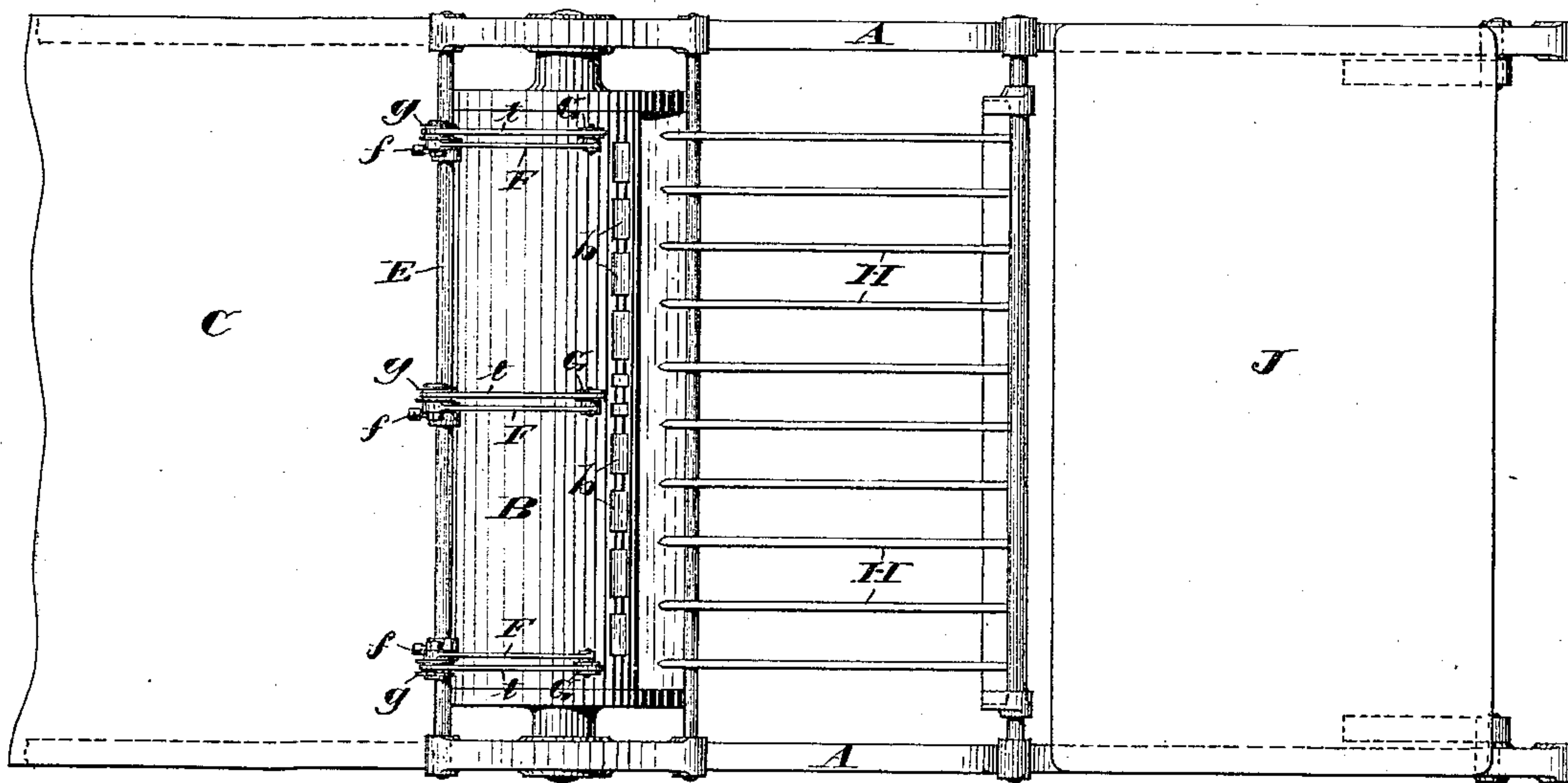
No. 336,109.

Patented Feb. 16, 1886.

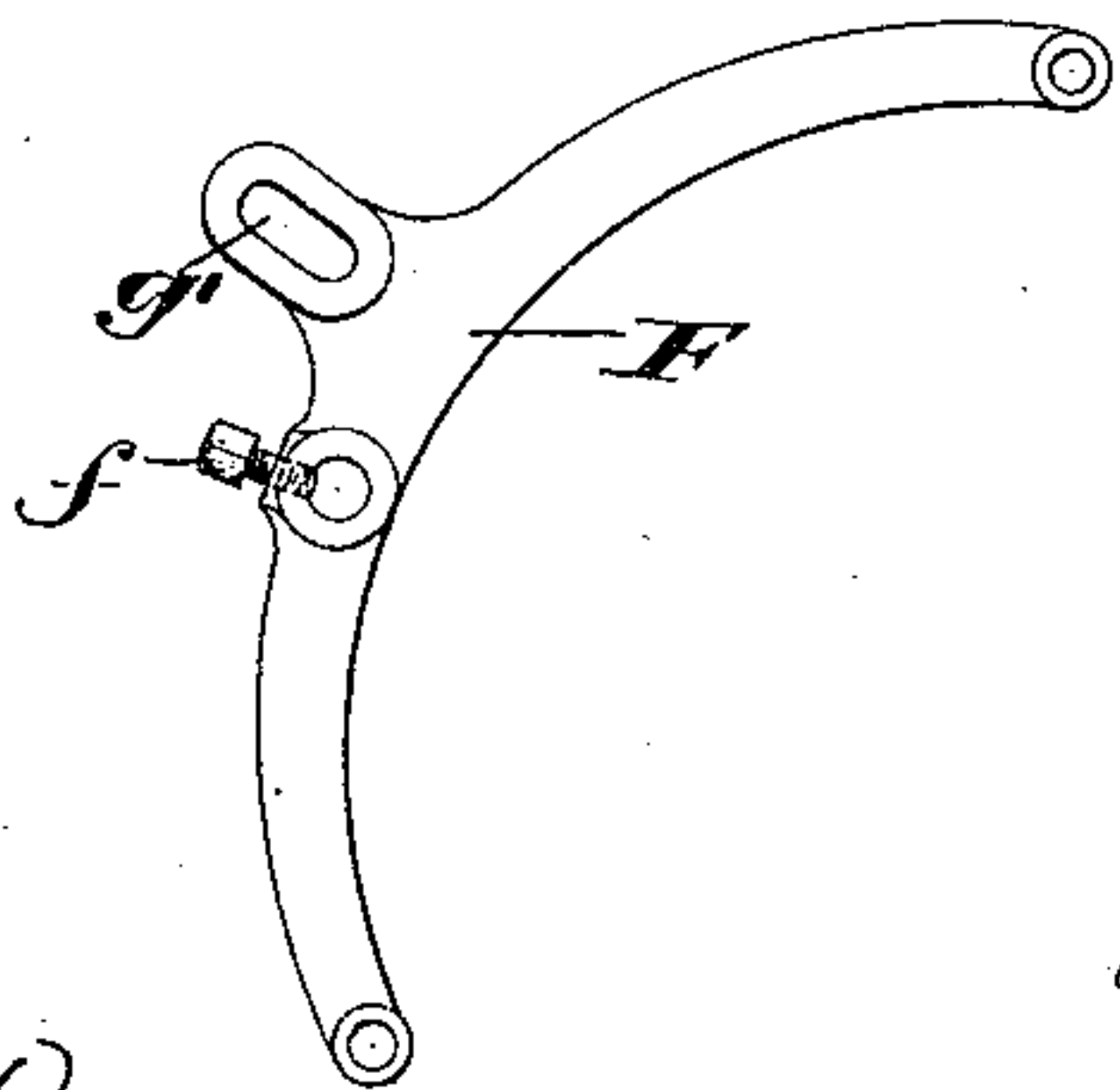
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses:*

John Tully  
Francis P. Reilly

*Inventor:*

*Inventor:*  
John T. Hawkins  
*by* O. M. Wooster  
*Attorney.*

# UNITED STATES PATENT OFFICE.

JOHN T. HAWKINS, OF TAUNTON, MASSACHUSETTS.

## SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 336,109, dated February 16, 1886.

Application filed August 24, 1885. Serial No. 175,154. (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 a new and useful Improvement in Sheet-Delivery Apparatus for Printing-Machines, which invention or improvement is fully set forth and illustrated in the following specification and accompanying drawings.

This invention relates more particularly to a printing-press having an oscillating cylinder fed at its bottom and delivering the sheet tail first from its top, or near its top, being an improvement upon the invention described in a pending application filed by me May 6, 1885, bearing the Serial No. 164,557.

The object of the invention is to hold the sheet in contact with the impression-cylinder of a cylinder-press and prevent the sheet from falling away from said cylinder during its rotation, while the grippers which clamp the sheet to said cylinder by one edge are moving through that part of their path below a horizontal plane passing through the axis of the cylinder.

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

In the accompanying drawings, Figure 1 shows a side elevation, and Fig. 2 a view in plan, of such parts of an oscillating-cylinder press as are involved in this invention. Fig. 3 is a side view of one of the arms carrying the tape-pulleys, showing a slot in said arm for carrying an adjustable tightening and leading pulley.

In said figures the several parts are respectively indicated by letters, as follows: A A are the main frames; B, the impression-cylinder, made to oscillate or rotate about one revolution in each direction by mechanism omitted as not essential to this invention. C is the feed-board. J is the receiving-board. D are the cylinder-grippers which take the sheet from the feed-board C. E is a rod secured at its ends in the frames A A. F F F are two or more curved arms secured adjustably upon the rod E by the set-screws *f*. Each of the arms F carries at each extremity a small tape-

pulley, G, running upon suitable studs secured in the arms F. Near the central part of each of the arms F is mounted another tape-pulley, *g*. The pulleys *g* rotate upon studs, which are adjustably secured in the slot *g'*, for the purpose of tightening the tapes *t*, which run in contact with the surface of the cylinder B and around the pulleys G *g*.

In Fig. 1 the cylinder is shown in position with a sheet upon it, just ready to commence its retrograde or non-printing revolution, to deliver the sheet tail first upon the stripper or fly fingers H, as fully explained in my pending applications, Serial Nos. 124,297 and 151,282, filed, respectively, March 15, 1884, and December 27, 1884.

The tapes *t* are so placed that they fall upon unprinted margins of the sheet where so desired, and their pressure upon the sheet serves to prevent the sheet, however short, from falling away from contact with the cylinder, and insures its reaching the stripper or fly fingers H. The frictional contact of the sheet with the cylinder B and that of the tapes *t* with the sheet serves to drive the tapes. The elastic sheet-supports *b*, upon which the tail of the sheet rests, serve to keep it slightly elevated from contact with the cylinder at that point. The sheet is indicated by the letter *s*.

The mechanism operating to open and close the grippers D and to oscillate the fly-fingers H is not shown, not being essential to this invention.

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

1. In an oscillating-cylinder printing-machine, in combination with an oscillating impression-cylinder delivering the sheet tail first, stripper-fingers, as H, for stripping the sheet from said cylinder, leading and tightening pulleys, as G *g*, and a series of endless tapes, as *t*, running in contact with a portion of said cylinder's circumference, and thence over said pulleys, whereby the sheets are delivered to and upon said stripper-fingers, substantially as and for the purposes set forth.

2. In an oscillating-cylinder printing-machine delivering the sheet from its impression-cylinder tail first, in combination with said



cylinder, leading and tightening pulleys, as  
G *g*, a series of endless tapes, as *t*, running  
in contact with a portion of the circumfer-  
ence of said cylinder, and thence over said  
5 pulleys, elastic sheet-supports, as *b*, and strip-  
per-fingers, as H, all arranged and operating  
substantially as described, whereby sheets of  
varying sizes are held in frictional contact

with the surface of said cylinder during its  
delivery rotation and the delivery of said 10  
sheets upon said stripper-fingers insured, sub-  
stantially as and for the purposes set forth.

JOHN T. HAWKINS.

Witnesses:

ELISHA T. JACKSON,  
J. F. HALEY.