J. W. KELLBERG.

Delivering Apparatus for Printing-Presses.

No. 167,840. Patented Sept. 21, 1875.

Fig 1

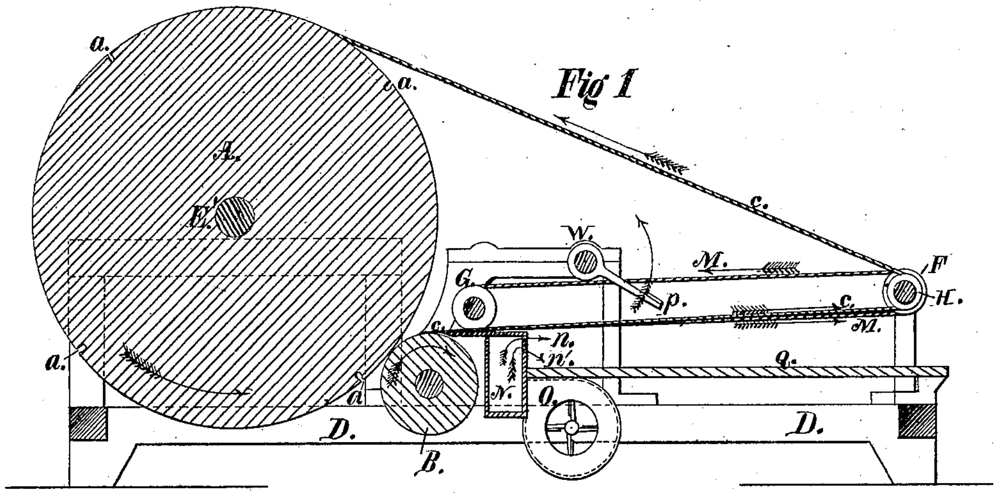


Fig 2

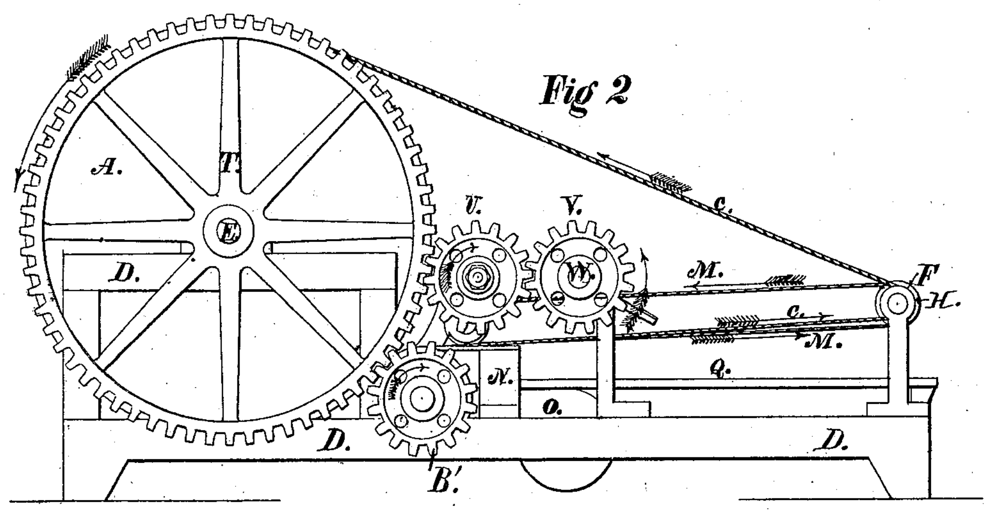
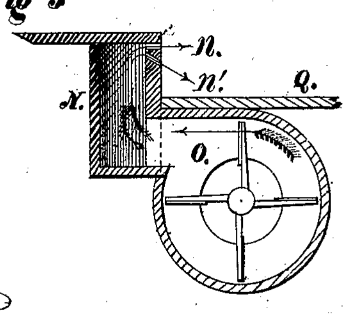


Fig 3



Witnesses:

Stanley Williams
Ana. M. Sallade

Inventor:

John W Kellberg
by A M Stout his atty

2 Sheets--Sheet 2.

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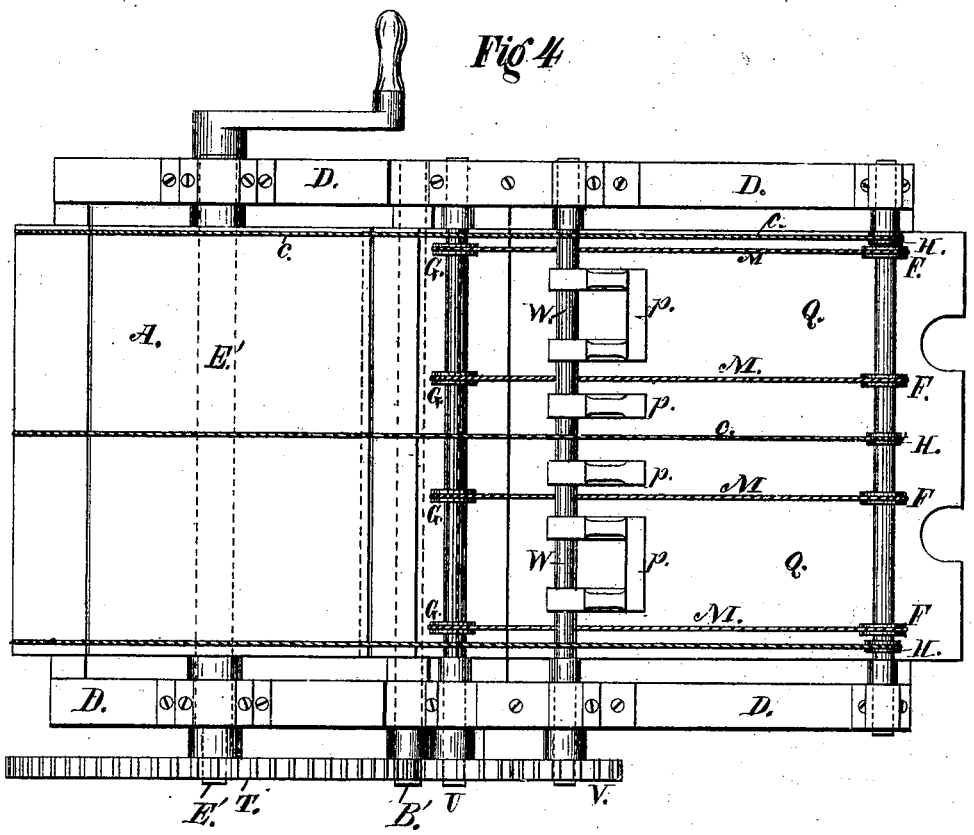
Fig 4



Witnesses:
Stanley Williams
Jno. M. Gallaher

Inventor
John W. Kellberg
by Munn & Co Attys

UNITED STATES PATENT OFFICE

JOHN W. KELLBERG, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN DELIVERING APPARATUS FOR PRINTING-PRESSES.

Specification forming part of Letters Patent No. **167,840**, dated September 21, 1875; application filed November 3, 1873.

CASE A.

To all whom it may concern:

Be it known that I, JOHN W. KELLBERG, of Philadelphia, county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Devices for Delivering Paper from Printing-Presses, of which the following is a specification:

My said improvements are designed for rotary perfecting printing-presses; and my invention relates, first, to the combination of any suitable blowing apparatus and an air-chamber, which is provided with two several series of openings for the escape of jets of air rearward from the blower. One series of such jets issues out horizontally just under the sheet of paper that has been severed from the web or roll, and is designed to bear up the sheet against the series of endless traveling-tapes, hereinafter described, while it is being conducted to the place of delivery in the rear by said tapes, until its rear end shall clear the said air-chamber, when and where it will be stricken down upon a fly-board provided for it by an automatic revolving knocker; but the other series of such jets passes obliquely downward, and serves to hold the severed sheet after it has been deposited upon the fly-board steadily in position, until a succeeding sheet has been deposited thereon.

My invention relates, secondly, to a fly apparatus consisting of two parallel spindles, having their bearings upon the main frame, one of which is located near the second impression-cylinder of the printing-machine, and the other is located farther rearward, and each is provided with a series of pulleys, all of the same diameter, and a series of endless tapes travel upon and around the two series of pulleys, and which, when put in motion by the series of gear-wheels, hereinafter described, serve to conduct the sheet rearward over the fly-board at a much higher rate of speed than that imparted to it by the second impression-cylinder. This increased rate of speed is designed to open an interval between the rear end of the severed sheet and the forward end of the web, so that when the sheet shall have cleared the air-chamber, and arrived at a position directly over the fly-board, the automatic knocker will have time and room to strike it down upon the same, and move out of the way of the succeeding sheet, all of which, however, will be hereinafter described and explained, with especial reference to the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical central section of so much of such a printing-machine as aforesaid as will illustrate the construction and arrangement of my said improvements; Fig. 2, a side elevation of the same; Fig. 4, a plan view thereof; and Fig. 3, a cross-section of the blower and air-chamber.

A is the second impression-cylinder, provided with slots *a* for the knife on B, the male cutting-cylinder. D is the housing or frame; E, the journal of cylinder A. G and F are the two series of pulleys on their respective spindles, and M the series of endless tapes that travels over them; H, another series of pulleys on the same spindle with series F, and much smaller in diameter than the latter, and over these pulleys H and the cylinder A, and partly over cylinder B, travel the endless tapes *c*. Q is the fly-board, and *w* the shaft, and *p* the fingers of the revolving knocker, which is so arranged that the ends of its fingers will strike down the tail end of the sheet just after it clears the air-chamber, the two several series of openings in which are indicated by *n* and *n'*.

The arrows in Fig. 1 indicate the course of the currents or jets. O is the blowing apparatus, and the cylinder A imparts motion to the whole by means of its gear-wheel T, gear B', on cylinder B, gear U upon the spindle of pulleys G, and gear V on the spindle W of the knocker.

The cylinder A and the male cutting-cylinder B sever the sheet from the web, which is fed to the second impression-cylinder A from above, and the tapes *c* serve to conduct the severed sheet under tapes M, which move at a much higher rate of speed, as specified, because the diameters of their pulleys G and F are much greater than those of pulleys H, and for the same reason tapes M move in a lower

plane, as they approach the place of delivery, and they alone are in contact with the sheet, and move the same.

What I claim as new and as my invention, and desire to secure by Letters Patent, is—

1. The combination of the tapes M, passing over the two larger series of pulleys G and F, the knocker *p*, the blower O, and the air-chamber N, provided with two separate series of air-openings, *n* and *n'*, adapted to deliver and pile the sheets on the fly-board, substantially as described and set forth.

2. The combination of the smaller pulleys H on the rearmost spindle, the second impression-cylinder A, with their endless tapes *c*, and the outer fly-pulleys F, on the same spindle with series H, and the inner fly-pulleys G, on their own spindle, and the endless tapes M, traveling over them, all constructed and arranged substantially as and for the purpose described.

JOHN W. KELLBERG.

Witnesses:
LUKE V. SUTPHIN,
GEORGE WOOD.