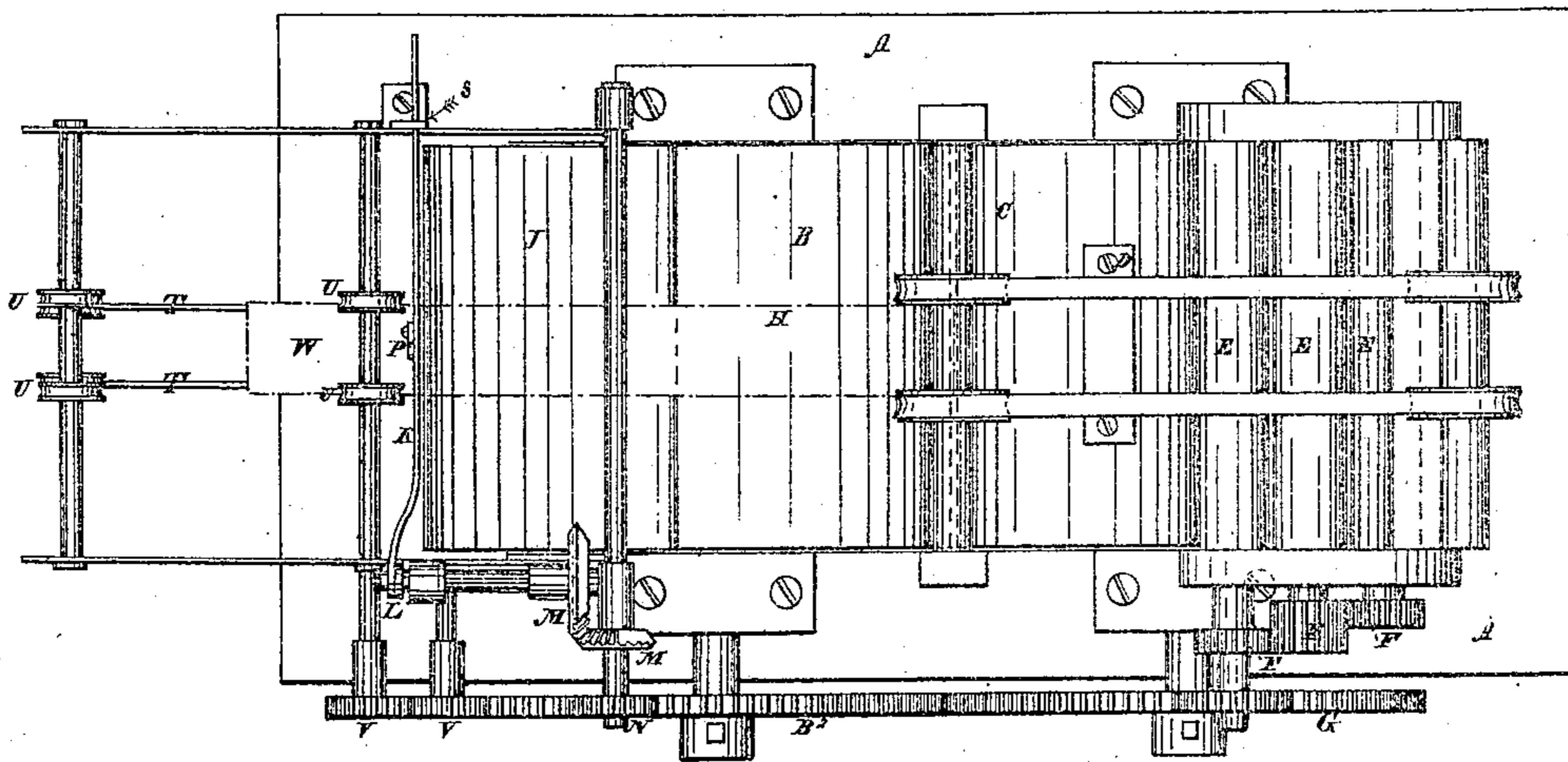
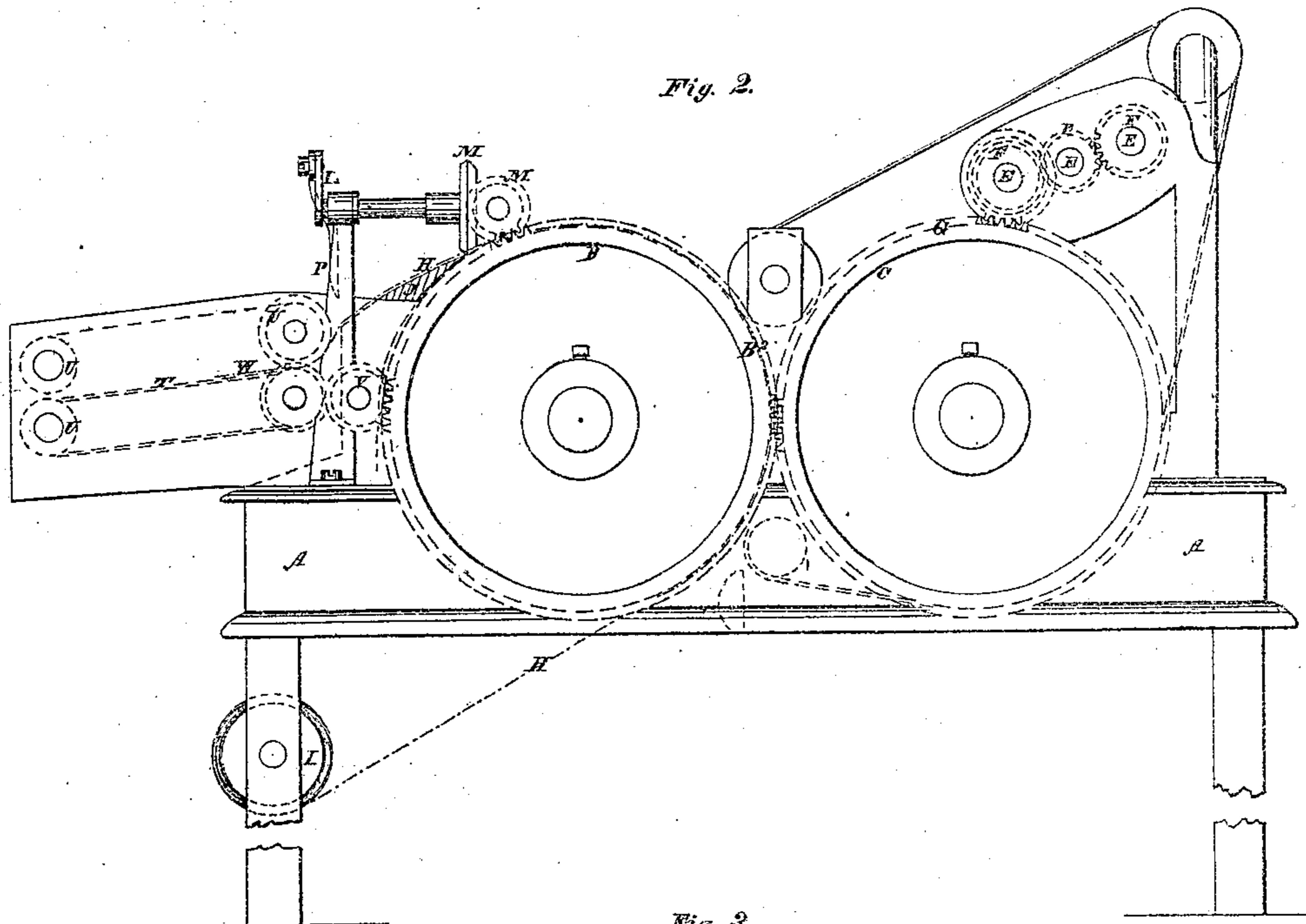


*J. Polhemus & C. H. Lilienthal*  
*Printing Press*  
*N<sup>o</sup> 71058. Patented Nov. 19, 1867.*

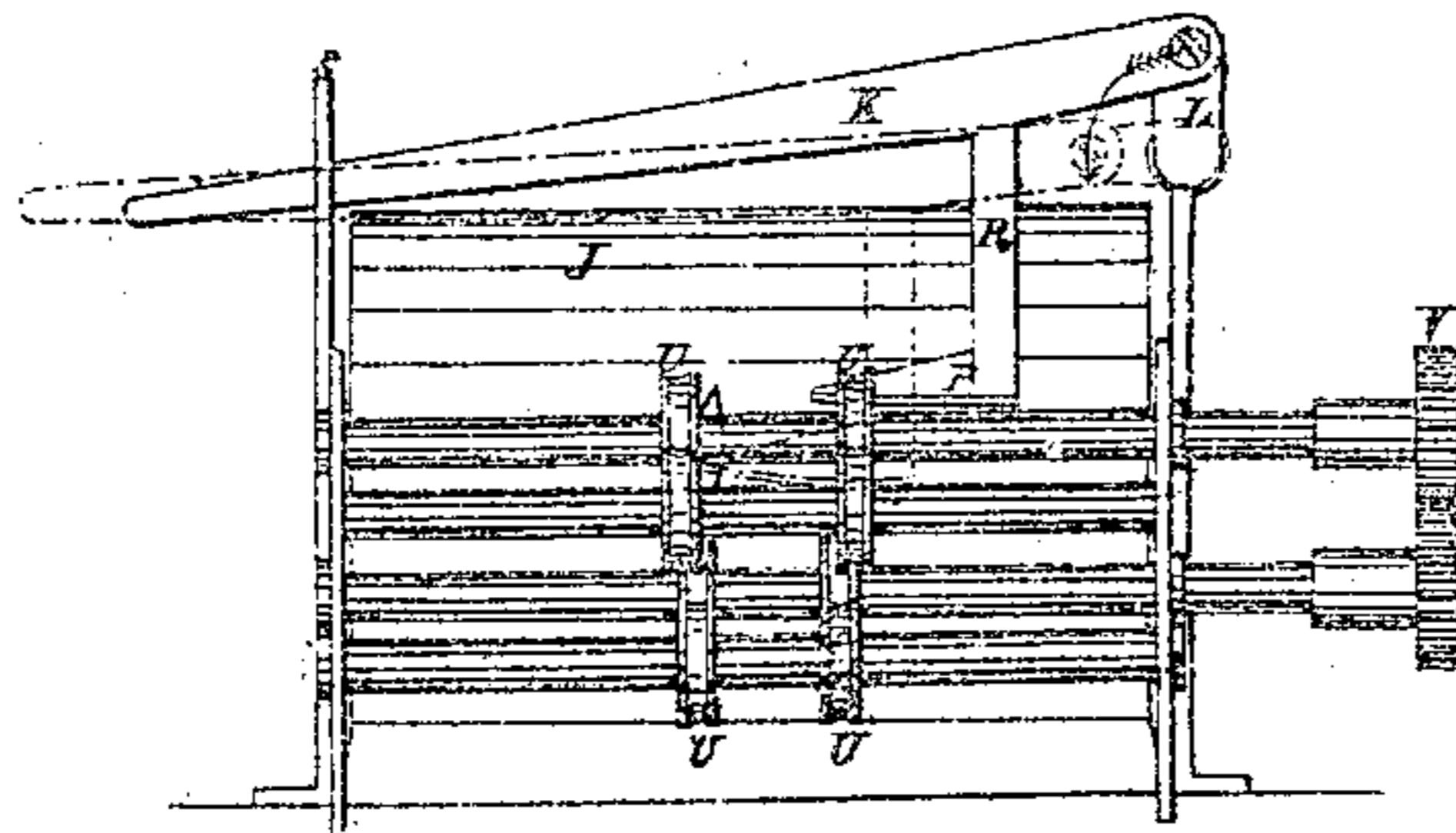
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses.

*Charles Barrett*  
*Charles L. Barrett*

Inventor;

*John Polhemus*  
*C. H. Lilienthal*

# United States Patent Office.

JOHN POLHEMUS, OF JERSEY CITY, NEW JERSEY, AND CHRISTIAN H. LILIENTHAL, OF YONKERS, NEW YORK, ASSIGNORS TO C. H. LILIENTHAL, OF YONKERS, NEW YORK.

*Letters Patent No. 71,058, dated November 19, 1867.*

## IMPROVED APPARATUS FOR PRINTING ON TIN-FOIL.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, JOHN POLHEMUS, of Jersey City, State of New Jersey, and CHRISTIAN H. LILIENTHAL, of Yonkers, Westchester county, State of New York, have invented certain new and useful Improvements in Presses for Printing on Continuous Sheets of Tin-Foil; and we do hereby declare that the following is a full description of the same.

The object of our invention is to overcome the objection to handling tin-foil during the process of printing, and thereby leaving ink-stained finger-marks on it, and at the same time printing it with more rapidity than it is possible to do in single sheets on hand or power-presses; and the nature of our invention consists, first, in the combination of a continuous sheet of tin-foil with a revolving-cylinder press, whereby the inking, printing, and carrying forward of the sheet of tin-foil is continuous; second, in combining with a revolving-cylinder press for printing on a continuous sheet of tin-foil an intermittent shear-cutter, for the purpose of severing the tin-foil as it comes from off the cylinder into small sheets of printed matter; third, in combining, with the intermittent shear-cutter, a series of endless bands, for the purpose of receiving and carrying off the subdivided sheets of tin-foil.

But to describe our invention more particularly, we will refer to the accompanying drawings, forming a part of this specification, the same letters of reference, wherever they occur, referring to like parts.

Figure 1 is a plan view of the press.

Figure 2 is a side elevation of the same.

Figure 3 is a front end view of the press, showing the shear-cutter in red outline in the act of cutting.

Letter A is the frame of the press, having arranged in it, on suitable bearings, two cylinders, B and C, of equal diameter. On the face of the cylinder C is secured a series of printing-blocks or plates, D. These plates may be made of various sizes to print either large or small sheets of tin-foil, as may be desired for the different-sized packages. To ink them, a series of inking and distributing-rollers, E, is rotated by means of cog-wheels F on their ends, gearing into a large cog-wheel, G, on the end of the shaft of the cylinder C. The object of this cog-wheel is also to transmit a uniform rotatory motion through the cog-wheel B<sup>2</sup> to the carrying cylinder B, the face of which, being arranged in close contact with the face of the cylinder C, so that as the sheet of tin-foil H (shown by red outlines) from off the reel I (arranged on the under side of the front end of the press) passes up between the cylinders B and C, and back over the cylinder B, it will receive an impression from the type-plate, and thus be printed without the intervention of any extraneous pressure or of handling it. When printed, the continuous sheet of foil is carried forward and over the shell J, covering the upper front portion of the cylinder B. The front edge of the shell forms a straight edge. The object of this shell is, first, to carry the sheet of tin-foil away from the carrying cylinder; and, second, by means of its straight edge, form a bearing, against which a cutter may operate to sever the continuous sheet into small printed sheets. The cutting device, for severing the sheet of tin-foil, operates by means of a reciprocating rod, K, attached to a crank, L, rotated by means of two bevelled-pinion wheels, M, propelled by a wheel, N, gearing into the cog-wheel B<sup>2</sup>. To regulate or control the action of the cutter in making or subdividing the continuous sheet into large or small sheets, the pinion-wheel N is changed for either a larger or smaller wheel, as may be required for the different sizes of printed sheets. The shear P is attached to a reciprocating rod, K, by an arm, R, and has a slightly curved or rounded lower edge. The object of this curvature of edge, in connection with the guide S for holding the reciprocating rod K in a horizontal position across the face of the press, is to cause the shear to act simultaneously throughout its entire cut. To act otherwise, that is, progressively, as shears ordinarily do, would be to cut the foil obliquely, in consequence of the continuous motion of the press in delivering the sheet.

It will be obvious that this precise arrangement for severing the sheets of foil, as it comes from the press, may be modified. We have used a rotatory cutter with very good results, and for some purposes find it to answer very well; but, as a rule, we prefer to use the reciprocating cutter, though we do not wish to be limited to the use of it to the exclusion of any equivalent devices for the purposes set forth.

For the purpose of carrying off the printed sheets of foil W, after being severed from the continuous sheet,

endless bands T are arranged to run over rollers U, which are propelled by cog-wheels V gearing into the cog-wheel B<sup>2</sup>, and thus a relative and uniform speed is given to the endless bands to carry off the printed sheets fast enough to prevent the succeeding printed sheet from falling upon it to soil or deface it.

It will be obvious that the working of the press will be effected by the application of any suitable power, by means of a crank or pulley and bands. As these are common and well known, it is not essential to describe them.

Having now described our invention, we will proceed to set forth what we claim, and desire to secure by Letters Patent of the United States, premising, however, that our invention is based upon and limited to the single object of printing on a continuous sheet of tin-foil, and not intended to cover broadly the principle of operation exhibited in revolving-cylinder printing-presses; it being well known that the substances of paper and cloth differ entirely from tin-foil, which requires great delicacy of treatment, not only in printing on it, but also in handling it, and therefore as a new material, that is, a continuous sheet of tin-foil, not at all in conflict with the general principles of printing-presses.

What we claim, therefore, is—

1. In combination with a continuous sheet of tin-foil and shell J, the intermittent shear-cutter P, or equivalent therefor, operating as hereinbefore set forth, and for the purposes described.

2. We also claim, in a printing-press for printing on a continuous sheet of tin-foil, the combination of the intermittent shear-cutter with the series of rollers U and bands T, for the purposes hereinbefore set forth.

JOHN POLHEMUS,  
C. H. LILIENTHAL

Witnesses:

CHARLES BARRITT,  
CHARLES L. BARRITT.