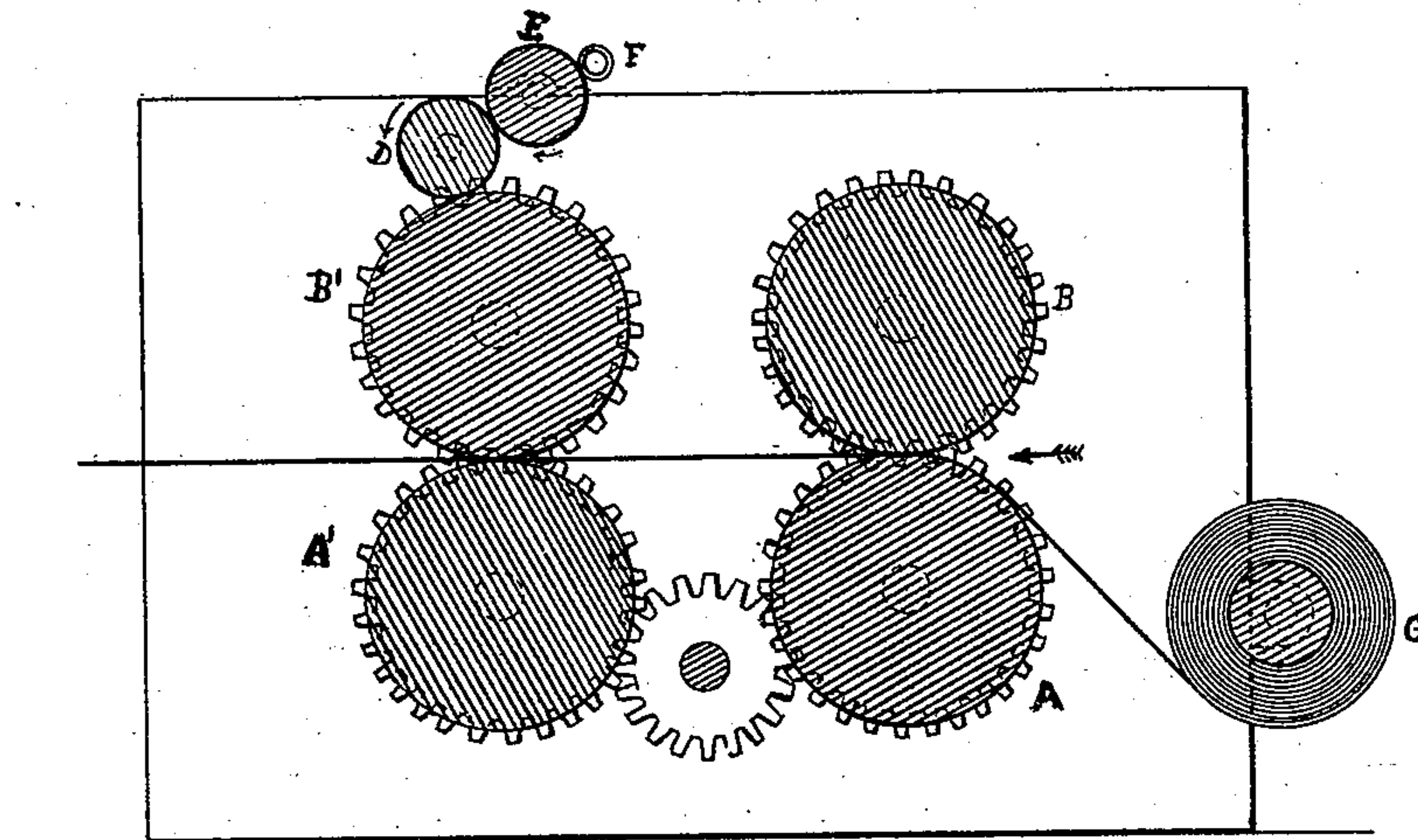


J. L. FIRM.  
Set-off for Printing-Machines.

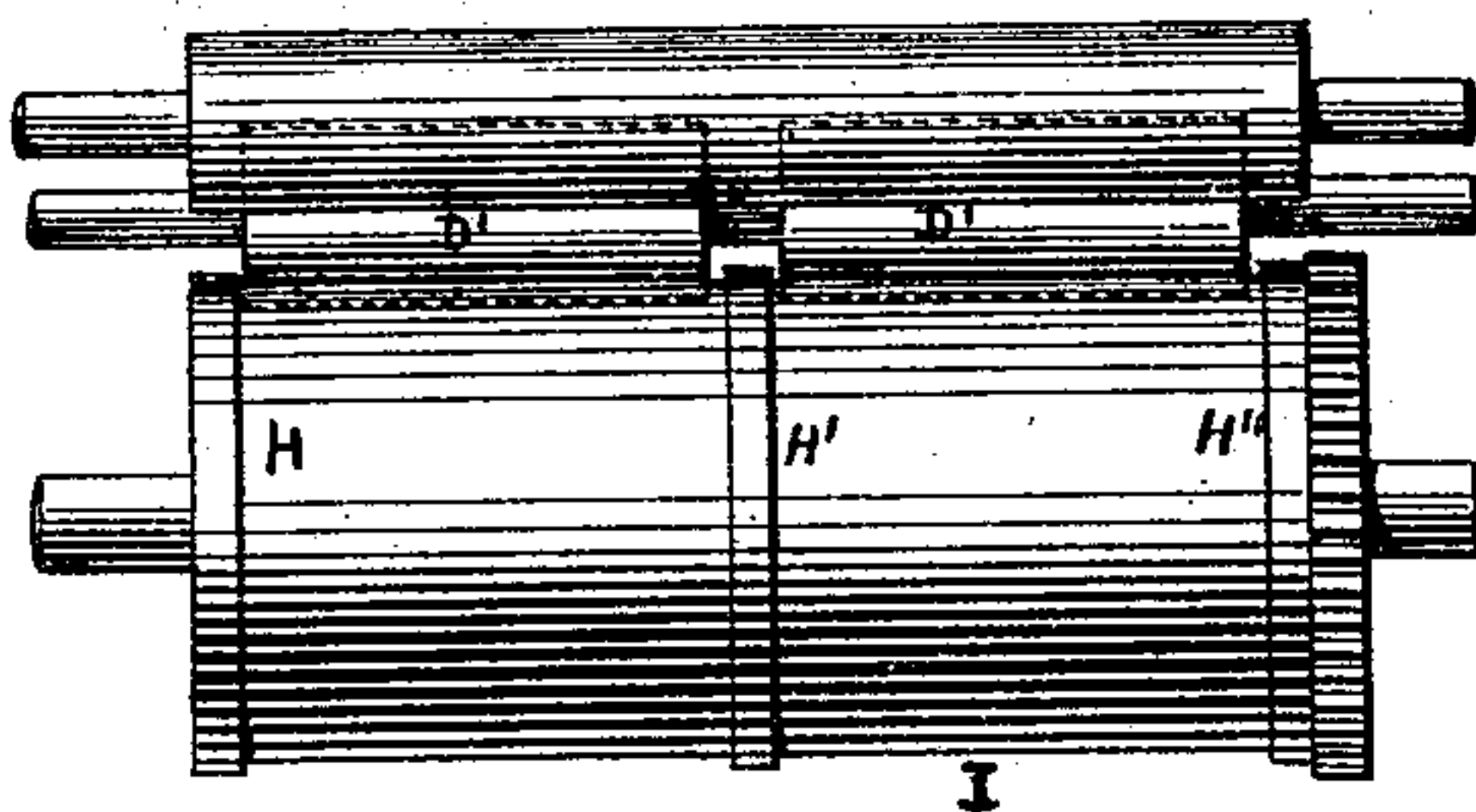
No. 227,157.

Patented May 4, 1880.

*Fig. 1*



*Fig. 2*



*Witnesses:*  
*William A. Mass,*  
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*Inventor.*  
*Joseph L. Firm.*

# UNITED STATES PATENT OFFICE.

JOSEPH L. FIRM, OF NEW YORK, N. Y.

## SET-OFF FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 227,157, dated May 4, 1880.

Application filed November 17, 1877.

*To all whom it may concern:*

Be it known that I, JOSEPH L. FIRM, of the city, county, and State of New York, have invented certain new and useful Improvements in Cylinder Printing and Perfecting Presses to avoid Set-Off; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to that class of printing-presses known as "perfecting-presses," and which are used to print both sides of a sheet or web of paper.

The invention proceeds upon the well-known fact that rollers of glue and molasses or equivalent composition exert a suction upon surfaces upon which they move, so that, in printing-presses, if they move in contact with the inking apparatus, they will take up the ink from its feed and distribute it to any clean surface in their path.

Now my invention consists in combining a printing-press roller made of glue and molasses or equivalent composition with the impression-cylinder for the purpose of preventing set-off. This combination further obviates the necessity for the use of endless aprons or blankets, slip or blank-sheet rolls in the web, or cylinders or rollers for the printed sheet to travel over.

In the drawings illustrating my invention Figure 1 is a longitudinal section of a portion of a rotary perfecting-press, and Fig. 2 is an end view of a similar press, showing a modification.

A A' and B B' represent the cylinders, to which the paper is fed from a roll or web, G. The paper first passes between the impression-cylinder A and the form-cylinder B, and has its upper surface printed, and next passes to the impression-cylinder B' and form-cylinder A', and has its under surface printed. The ink from the form-cylinder B on the sheet not having had time to dry when it reaches the im-

pression-cylinder B', when it gets the pressure from the form-cylinder A' a portion of the fresh ink is transferred to the surface of said cylinder B'.

A roller, D, made of glue and molasses or equivalent composition is arranged so as to run in contact with the impression-surface of the cylinder B', and takes up the ink that will set off, and transfers it to the receiving cylinder or roller E. This roller E is kept clean by a wiper, F, in contact therewith. In Fig. 2 I illustrate the use of tapes in this connection. The set-off roller D' is cut or divided intermediate of its length and at its ends, so that it will not come into contact with the tapes H H' H'' on the impression-surface of cylinder I.

Various mechanical devices may be employed to drive the set-off roller D, such as gearing it direct to the impression-cylinder B'; but a simple means for the purpose consists in arranging the roller in such close contact with the impression-surface of cylinder B', as illustrated in the drawings, that there will be sufficient friction to cause such roller to rotate, as in the direction indicated by the arrow, and communicate motion to the receiving-cylinder E.

I am aware that revolving brushes and metal rollers have been used to remove the set-off from impression-cylinders, but they have all more or less failed, for where cylindrical surfaces have to be built up by overlaying the metal cylinder, or where the blankets on the impression-cylinder have been indented by the contact of the form-cylinder, they would fail to enter the concave surfaces.

Having thus described my invention, what I claim is—

A set-off roller, made of glue and molasses, or equivalent composition, in combination with the impression-cylinder of a printing-press.

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Witnesses:

WILLIAM A. MASS, [L. S.]  
HORACE BAKER. [L. S.]