G. F. READ.

MEANS FOR CONTROLLING AND DIRECTING MOVING SHEETS OR WEBS.

APPLICATION FILED MAY 6, 1910.

1,015,836.

Patented Jan. 30, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

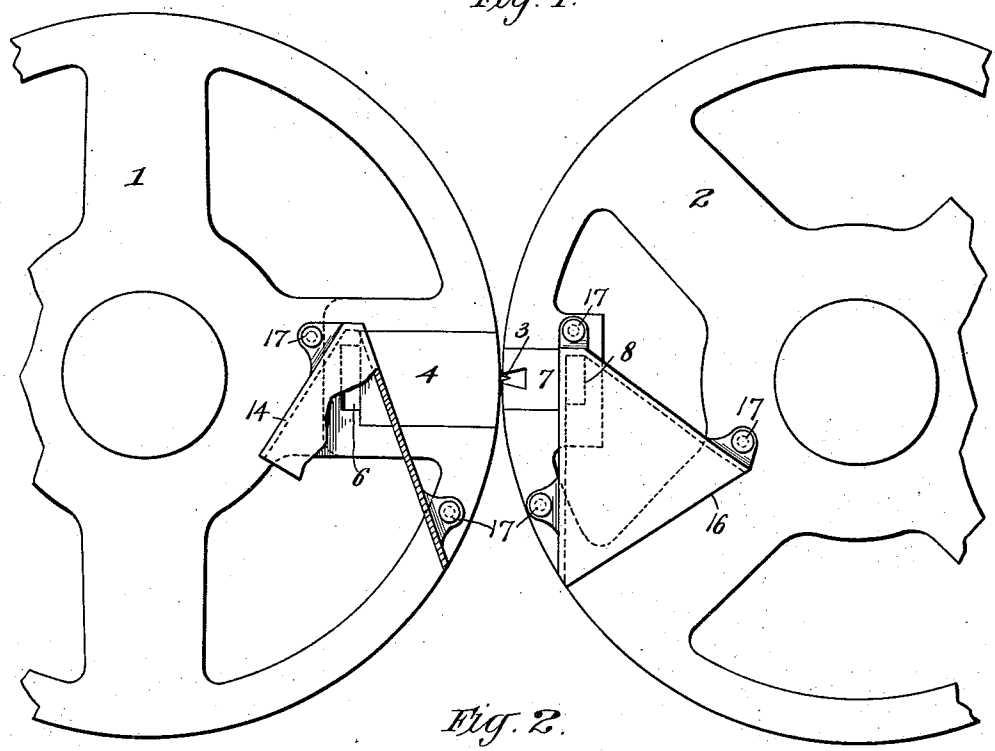
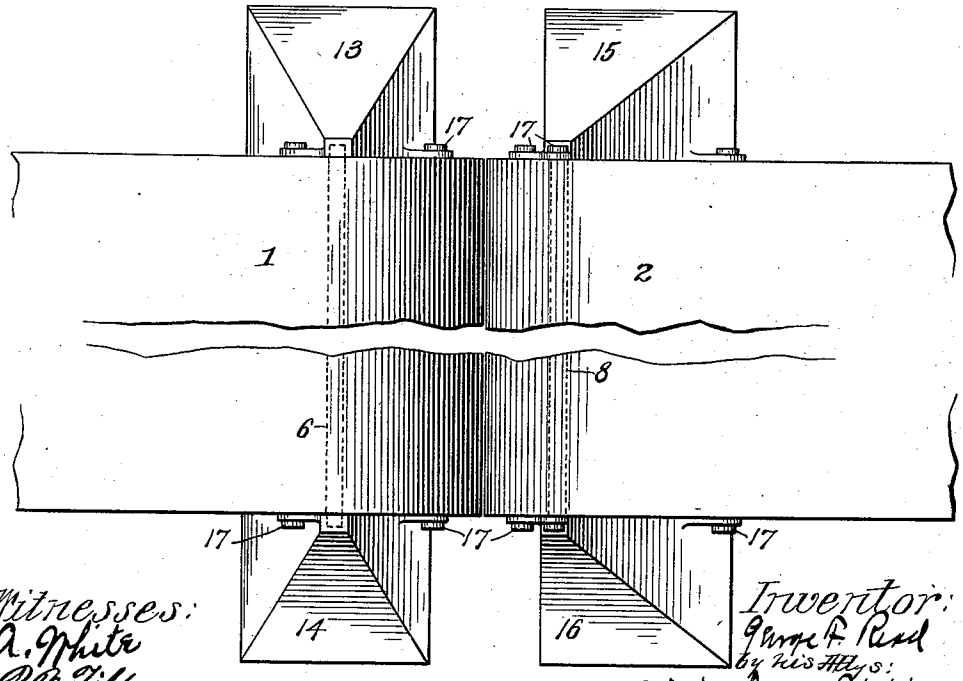


Fig. 2.



Witnesses:
A. White
O. B. Tibbetts

Inventor:
George F. Read
by his Attys:
Phillips, Lawyn, Reid & Kennedy

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 3.

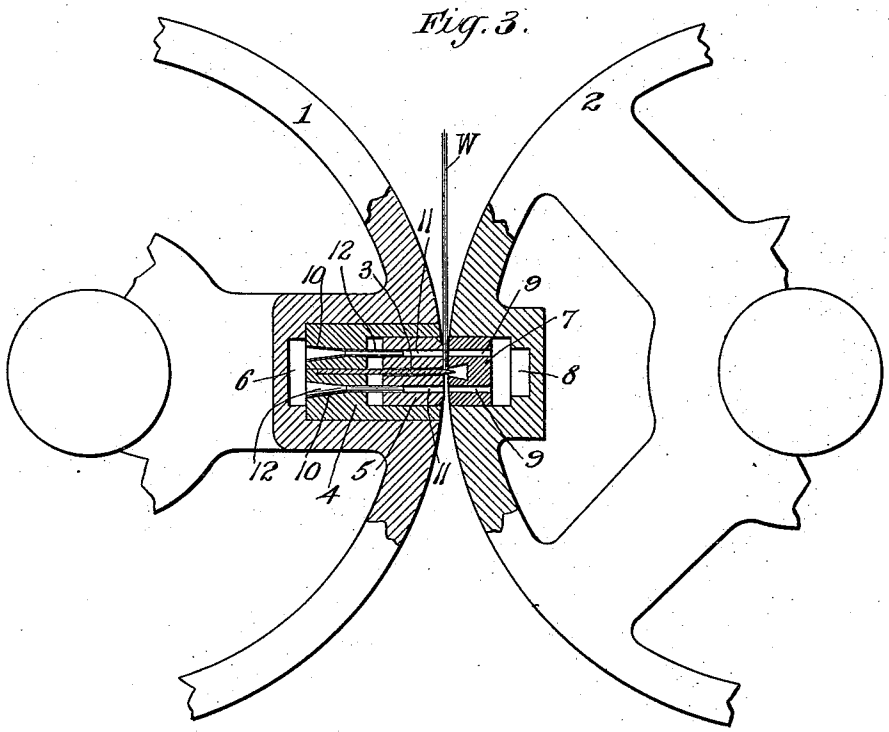


Fig. 4.

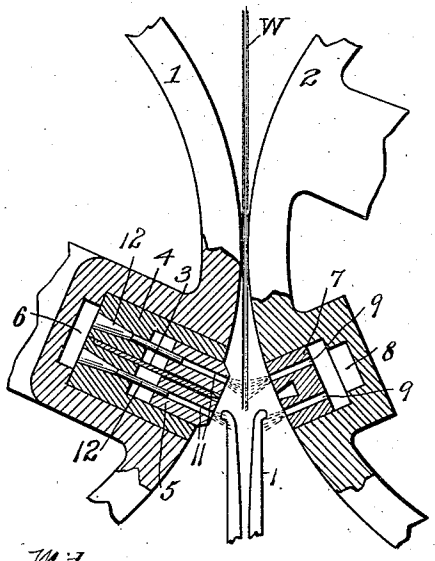
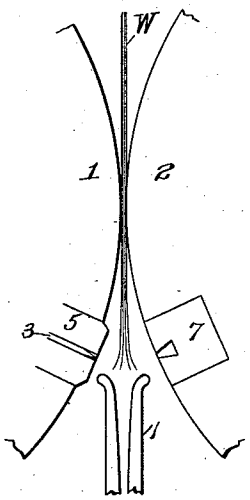


Fig. 5.



Witnesses:
A. White
P. F. Tilden

Inventor:
George F. Read
by his Atty's:
Philipp. Lawyer Rice & Kennedy

UNITED STATES PATENT OFFICE.

GEORGE FRANCIS READ, OF LONDON, ENGLAND, ASSIGNOR TO R. HOE AND CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MEANS FOR CONTROLLING AND DIRECTING MOVING SHEETS OR WEBS.

1,015,836. Specification of Letters Patent. **Patented Jan. 30, 1912.**

Application filed May 6, 1910. Serial No. 559,708.

To all whom it may concern:

Be it known that I, GEORGE F. READ, a citizen of the United States, residing at London, county of Middlesex, England, have invented certain new and useful Improvements in Means for Controlling and Directing Moving Sheets or Webs, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in means for controlling and directing moving sheets or webs.

In handling webs or sheets, particularly in printing and similar machines, it has been proposed to employ currents of air to impinge upon the sheet or web for the purpose of directing it or controlling it. It has, as a rule, been proposed to use such a construction in connection with a cylinder around which or past which the web or sheet moves, the purpose usually being to clear the web or sheet from the cylinder. The devices suggested for producing the air currents have, however, been more or less complicated, and, therefore, expensive to build, and such constructions have not gone into general use.

The present invention has for its object to produce a simple and effective construction in which a current or currents of air are utilized for the purpose of controlling and directing the movement of webs or sheets.

More specifically considered, the object of the invention is to provide a pair of cutting cylinders with a simple and effective means for generating and directing currents of air against sheets or webs passing between the cylinders, for the purpose of properly directing the movement of such webs or sheets.

In the accompanying drawings which illustrate one embodiment of the invention, Figure 1 illustrates in end elevation a pair of cutting cylinders constructed to embody the invention. Fig. 2 is a plan view of the construction shown in Fig. 1, the center of the cylinders being broken away. Fig. 3 is a view similar to Fig. 1 with certain parts of the cylinders broken out to show the interior construction. Fig. 4 is a detail view, illustrating the parts more particularly shown in Fig. 3, but in a different position. Fig. 5 is a detail view illustrating the operation of an ordinary form of cutting mechanism used in web printing machines.

Machines embodying the invention will include in their construction a rotary part or member provided with an air channel past which the sheet or web, the movement of which is to be controlled, moves, this channel having an outlet by which the air may be directed against the sheet or web. This channel and outlet may be formed in various ways. The particular construction selected for the purpose of illustrating the invention comprises a pair of cutting cylinders 1, 2, the cylinder 1 being provided with the usual knife 3 fixed in a carrier block 4, this block being located, as usual, in a recess in the cylinder. The usual sheath or cover block 5 is shown in connection with the knife, the springs by which this block is operated, which are common in such constructions, not being shown. The recess in the cylinder in which the carrier block 4 is located is formed to provide an air channel, as 6. The cylinder 2 is provided with the usual cutting wood 7 located in a recess therein, the recess being formed to provide an air channel, as 8, behind the block.

In the particular construction illustrated, the outlet for the channel 8 is formed by providing the block 7 with a series of perforations, as 9, and the outlet for the channel 6 is formed by providing the block with a series of perforations, as 10, and the block 5 with a series of perforations, as 11, short tubes, as 12, being mounted in the perforations of the block 5, and extending into the perforations of the block 4.

A plurality of sheets or webs W is shown as passing between the cylinders.

In order to set up the necessary currents of air, in machines embodying the invention the rotary part or member provided with the air channel will also be provided with an air collector or hood. In the particular construction shown, the cylinder 1 is provided with two such hoods 13, 14, there being one hood located at each end of the channel 6, and in communication with the channel, and the cylinder 2 is also provided with two such hoods, as 15, 16, these hoods being in communication with the channel 8. The hoods may be secured to the cylinder in any suitable manner, as by screws 17, passing through feet or flanges on the hood.

The operation of the construction will be readily understood from the description above given. As the cylinders rotate, the

air is gathered by the hoods and forced through the channels 6 and 8 and out through the outlets of these channels against the webs passing between the cylinders.

When a plurality of webs are passed between cutting cylinders, as in the construction shown, difficulty is sometimes experienced in causing the ends of the webs to properly enter the guides beyond the cylinders, for the reason that the ends of the webs fan out, as indicated in Fig. 5, which shows a pair of cutting cylinders of the ordinary type delivering to a guide, as 18. Referring to Fig. 4, it will be seen that owing to the impingement of the currents of air on each side of the webs they will be held centrally with respect to the guide 18 and enter the same.

While the invention has been shown in connection with cutting cylinders, it will be understood that it may be used in other relations and that such use is contemplated. It will be further understood that while in the particular construction selected to illustrate the invention, the currents of air are delivered against the sheets or webs on both sides, because it is desired that the webs shall travel in a straight line after leaving the cylinder, the invention may be embodied in constructions having only a single rotating member delivering a current of air on one side of the web or webs.

Other changes and variations may be made in the constructions employed which will readily suggest themselves to those skilled in the art. It will be understood, therefore, that the invention claimed is not limited to the specific construction hereinbefore shown and described.

What is claimed is:

1. The combination with a rotary member past which a web or sheet is led, said member being provided with an air channel having an outlet by which the air is directed against the passing web or sheet, of an air collector mounted on said member, the collector, channel and outlet being in open communication.

2. The combination with a pair of rotary members between which sheets or webs are led, each of said members being provided with an air channel having an outlet by which air is directed against the passing sheets or webs, of an air collector on each member, the collector, channel and outlet being in open communication.

3. The combination with a pair of cutting cylinders provided with cutting devices, said cylinders being formed to provide air channels behind the cutting devices, of air outlets through said cylinders, and an air collector for each cylinder in communication with its channel, said outlets delivering air simultaneously.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

GEORGE FRANCIS READ.

Witnesses:

ALFRED S. BISHOP,

FREDERICK GRAFTON LONGEE.