No. 819,307. PATENTED MAY 1, 1906.

T. M. NORTH.

PRINTING MACHINE.

APPLICATION FILED AUG. 7, 1905.

4 SHEETS—SHEET 1.

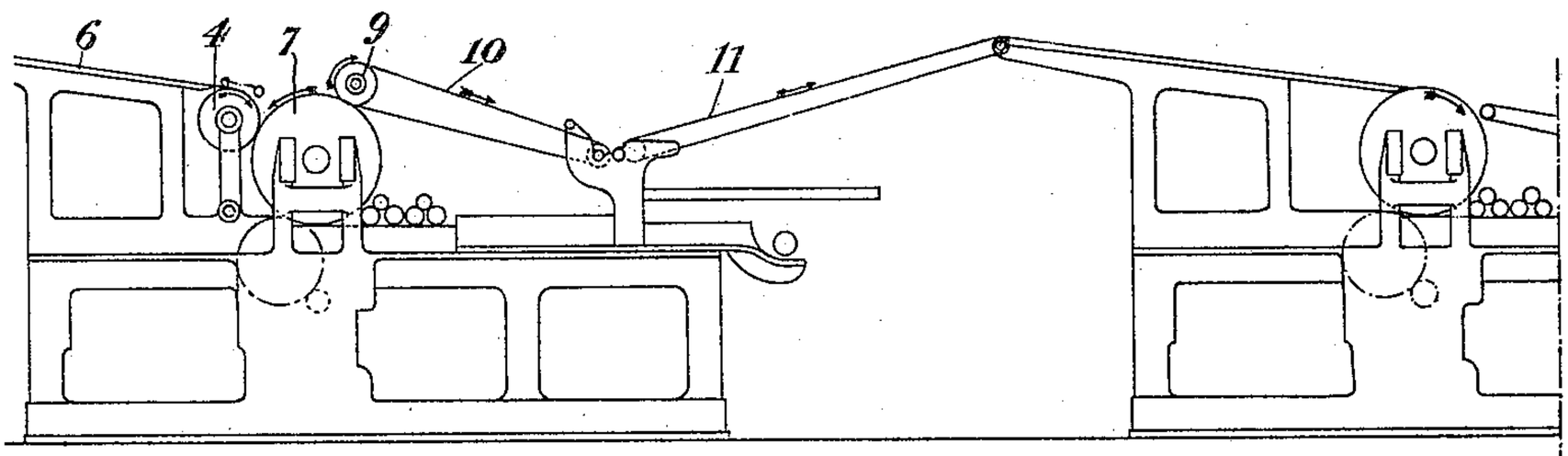


Fig. 1.

Witnesses
Warwick Hy. Williams.
Wm. Sutherland Robinson

Thomas Merrifield North
Inventor
per Chas. S. Woodroffe.
Attorney

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

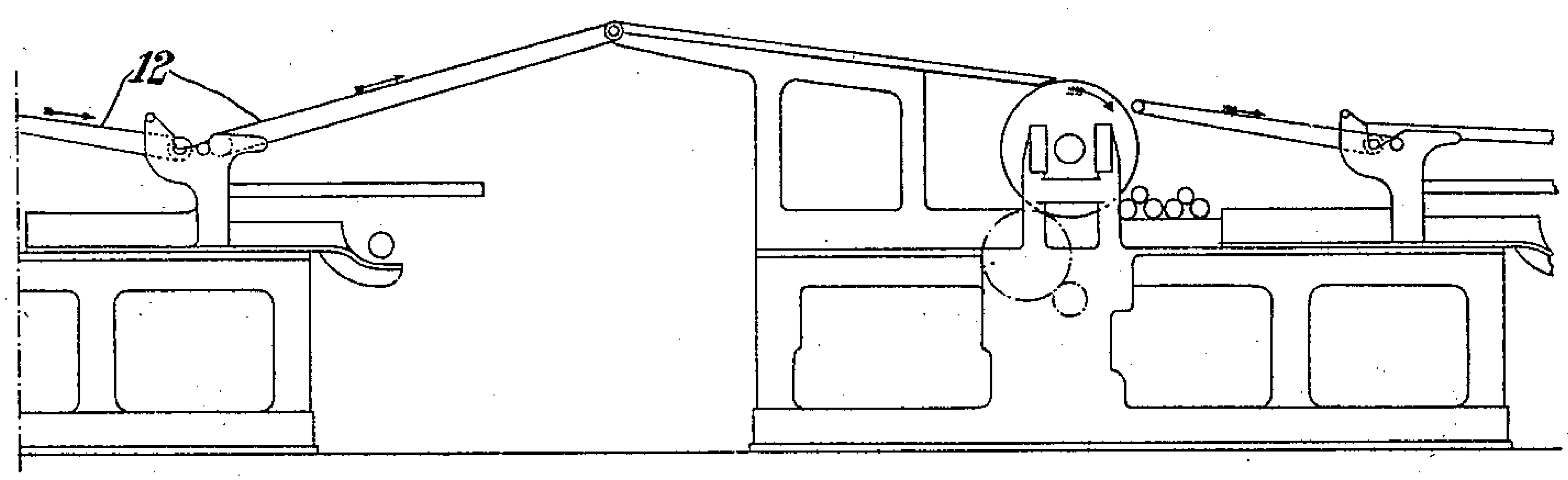
No. 819,307. PATENTED MAY 1, 1906.

T. M. NORTH.

PRINTING MACHINE.

APPLICATION FILED AUG. 7, 1905.

4 SHEETS—SHEET 2.



Nº III

Fig. 1ª

Witnesses

Warwick Hy. Williams

Wm. Sutherland Robinson

Thomas Merrifield North

Inventor

per Chas. S. Woodroffe,

Attorney

No. 819,307. PATENTED MAY 1, 1906.

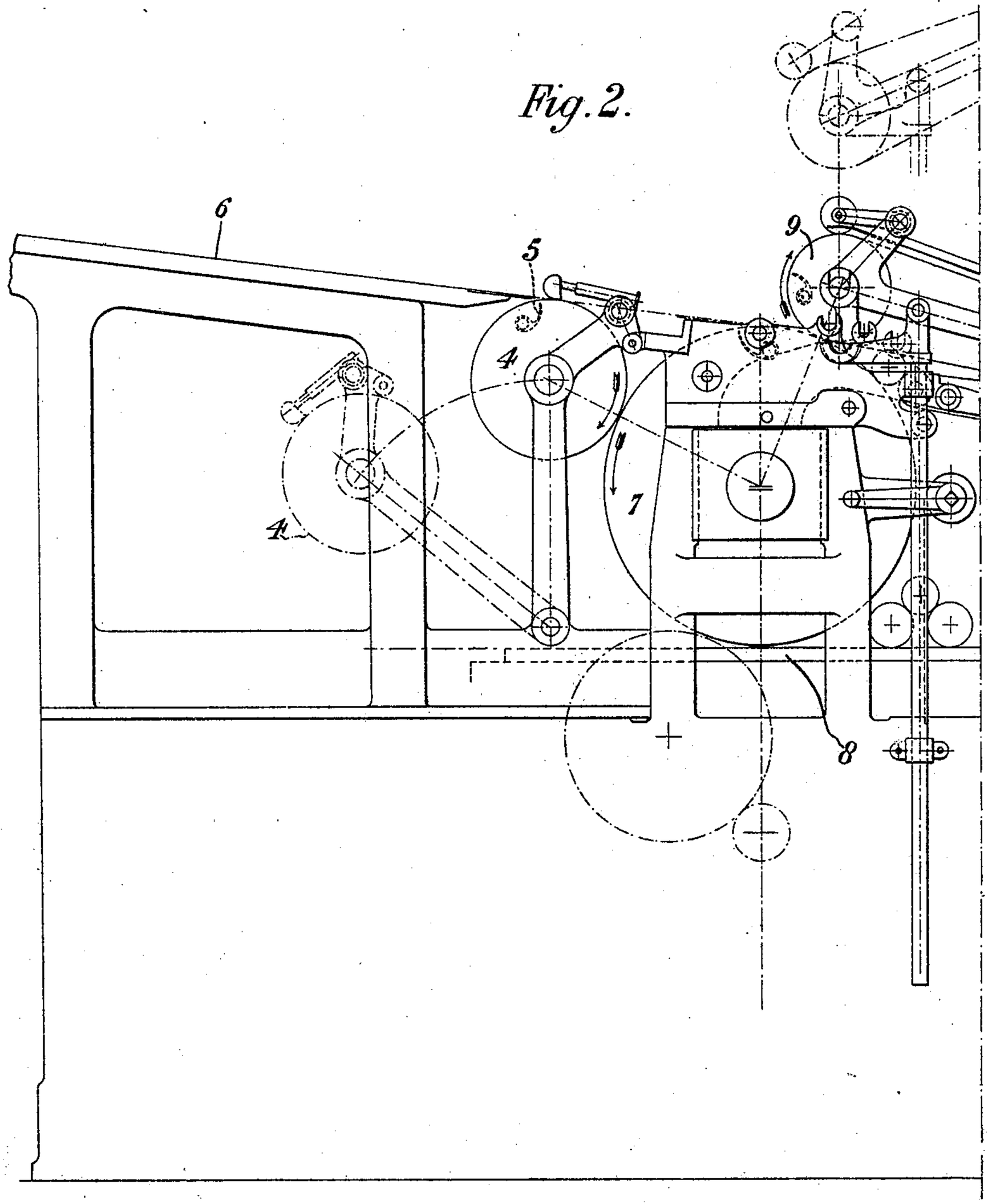
T. M. NORTH.

PRINTING MACHINE.

APPLICATION FILED AUG. 7, 1905.

4 SHEETS—SHEET 3.

Fig. 2.



Witnesses
Warwick Thy. Williams.
Wm. Southerland Robertson.

Thomas Merrifield North.
Inventor
per Chas. S. Woodroffe
Attorney.

No. 819,307. PATENTED MAY 1, 1906.

T. M. NORTH.

PRINTING MACHINE.

APPLICATION FILED AUG. 7, 1905.

4 SHEETS—SHEET 4.

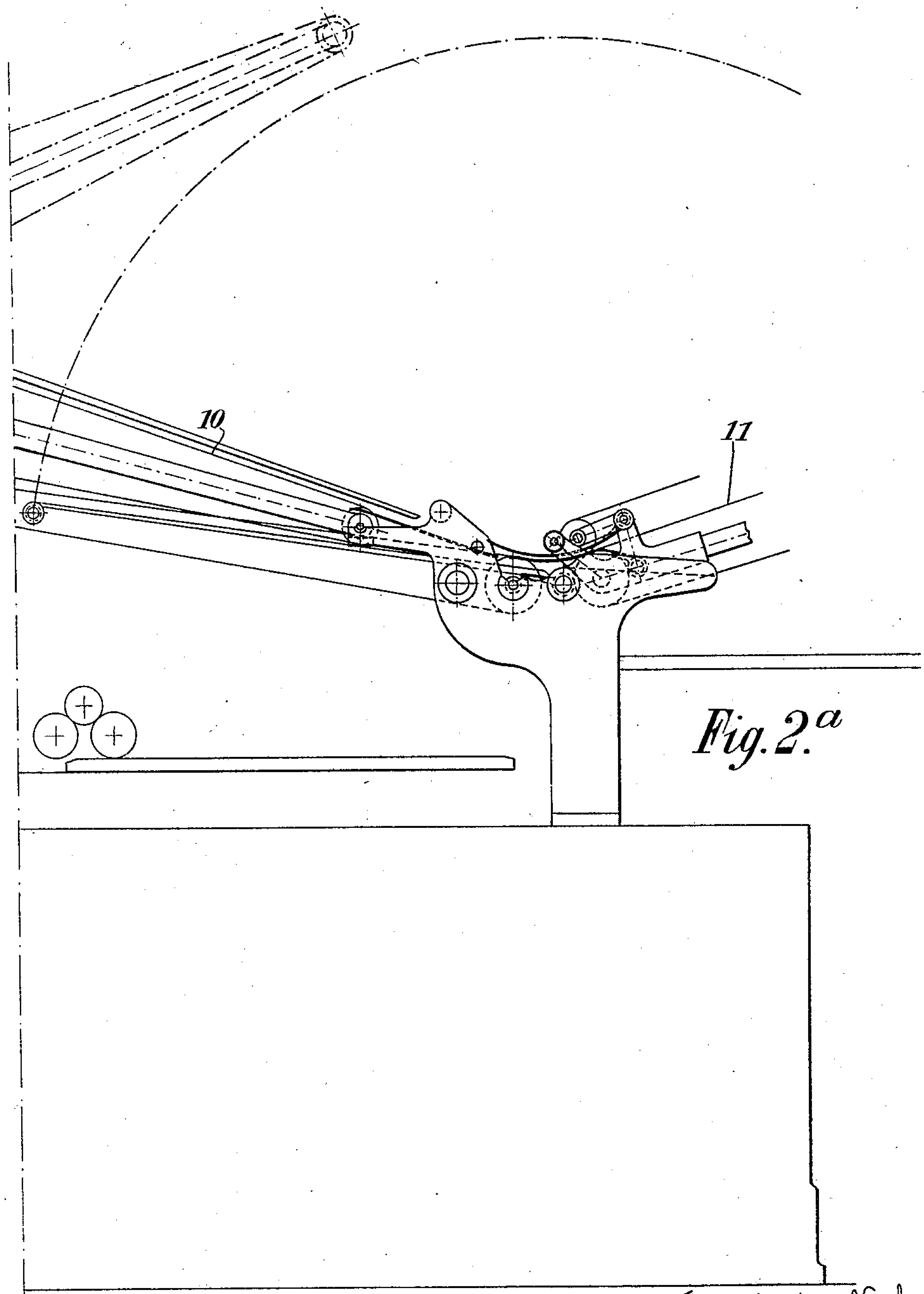


Fig. 2a

Witnesses

Warwick Hy. Williams

William [illegible]

Thomas Merrifield North.

Inventor

per Chas. S. Woodroffe,

Attorney

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS M. NORTH, OF LONDON, ENGLAND, ASSIGNOR TO LINOTYPE AND MACHINERY LIMITED, OF LONDON, ENGLAND.

PRINTING-MACHINE.

No. 819,307. Specification of Letters Patent. Patented May 1, 1906.

Application filed August 7, 1905. Serial No. 273,187.

To all whom it may concern:

Be it known that I, THOMAS MERRIFIELD NORTH, of 188 and 189 Fleet street, in the city of London, England, have invented new and useful Improvements in Printing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to printing-machines, and has for its principal object to enable a connected series of sheet-fed printing-machines to automatically turn out "perfected" work—that is to say, work printed on both sides, the work on one side being the result of one impression and that on the other side being the result of either one impression or two or more superimposed color impressions.

The invention will be best understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation showing diagrammatically a series of three machines arranged to produce perfected work according to the present invention, and Fig. 2 is an enlarged side elevation of a portion of the first machine of the series shown in Fig. 1.

According to this invention the first machine, which in Fig. 1 is marked No. I, is provided with a supplementary rotating cylinder 4, hereinafter referred to as a "transfer-cylinder," having suitable grippers 5, Fig. 2, and adapted to engage the sheets as they are supplied from the feed-board 6 and transfer them to the impression-cylinder 7, which latter brings them into contact with the printing form or surface 8 in such manner that each sheet receives this first impression on its under side. From this No. I machine the sheets are transferred by the gripper-cylinder 9 and carrier-tapes or equivalent devices 10 11 to the next or No. II machine of the series, this second machine being of any ordinary type and adapted, as ordinarily, to produce an impression on the top side of the sheet, and from this No. II machine the sheet is conveyed by the ordinary carrier devices 12 to the No. III machine, where it receives a further color impression on that already produced on the top side of the sheet by the No. II machine, and so on, the sheet may be carried to any desired number of further machines, each one adding a further color impression to those already produced on the top side of the sheet by the Nos. II and III machines.

As indicated by the arrows marked in the drawings, the No. I machine is caused to operate in a direction the reverse of that in which the other or others of the series is or are caused to operate; but to enable the said No. I machine to be adapted to alternatively print on the top side (instead of, as before described, on the under side) it may be arranged so as to be operated in the same direction as that in which the following machine or machines works or work. In such an arrangement means are also provided whereby the transfer-cylinder 4 may be rendered inoperative—as, for example, as indicated in dotted lines in Fig. 2—and whereby the feed-board 6 may be adjusted so that the sheets passing thereover may be directly fed to the impression-cylinder 7, and whereby, further, the gripper-cylinder 9 and its allied transfer devices 10 may, as indicated in dotted lines in Fig. 2, be moved into a position in which they are inoperative. When the No. I machine is adjusted so that it is in the alternative condition just described, it is capable of working either as a single machine independently of the Nos. II and III machines or conjointly therewith in producing multicolor-work on one and the same side of the sheets.

I claim—

In a connected series of sheet-fed printing-machines, the combination of a machine adapted to print a single impression only on one side of a sheet, means capable of adapting the said machine to print alternatively on the other side of the sheet, another machine adapted to print only on one side of the sheet and means adapted to automatically conduct the sheet from the first to the second named of such machines.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

THOMAS M. NORTH.

Witnesses:
WARWICK HY WILLIAMS,
HENRY HART.