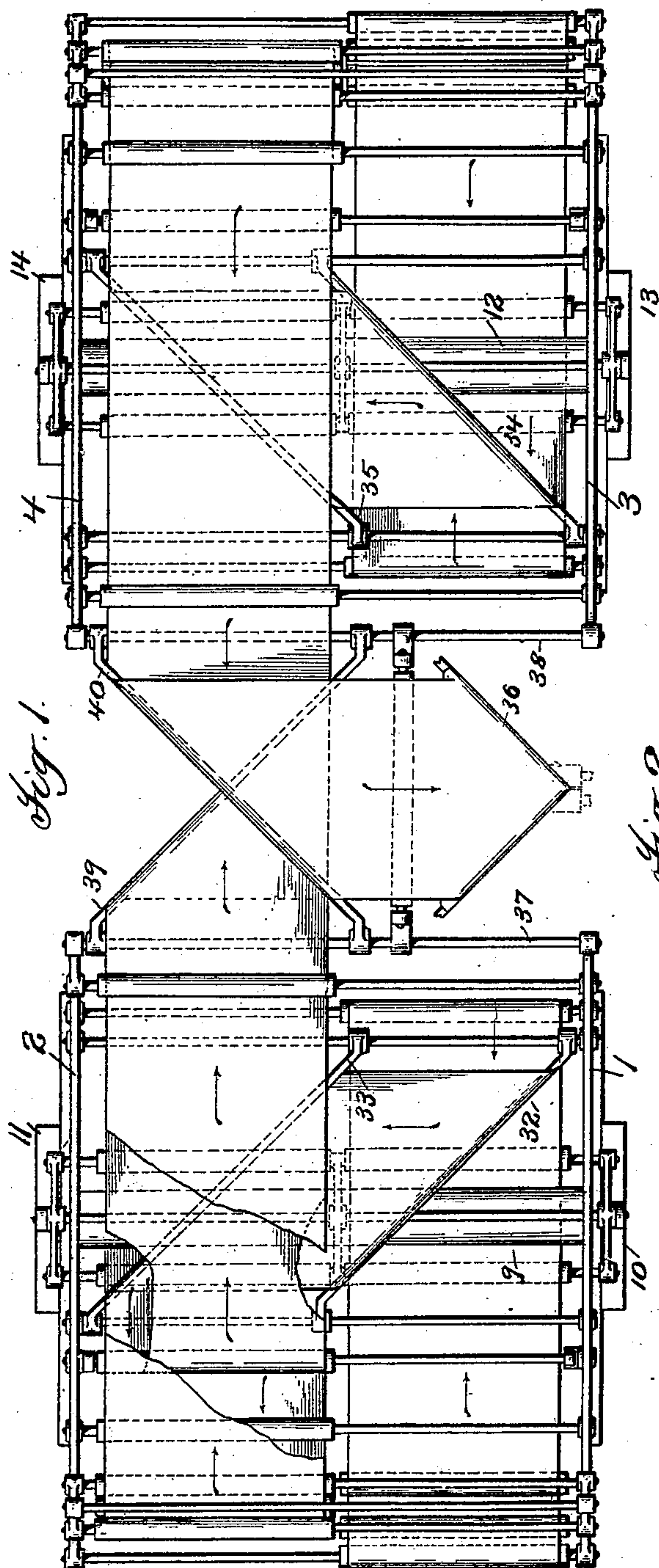


No. 689,518.

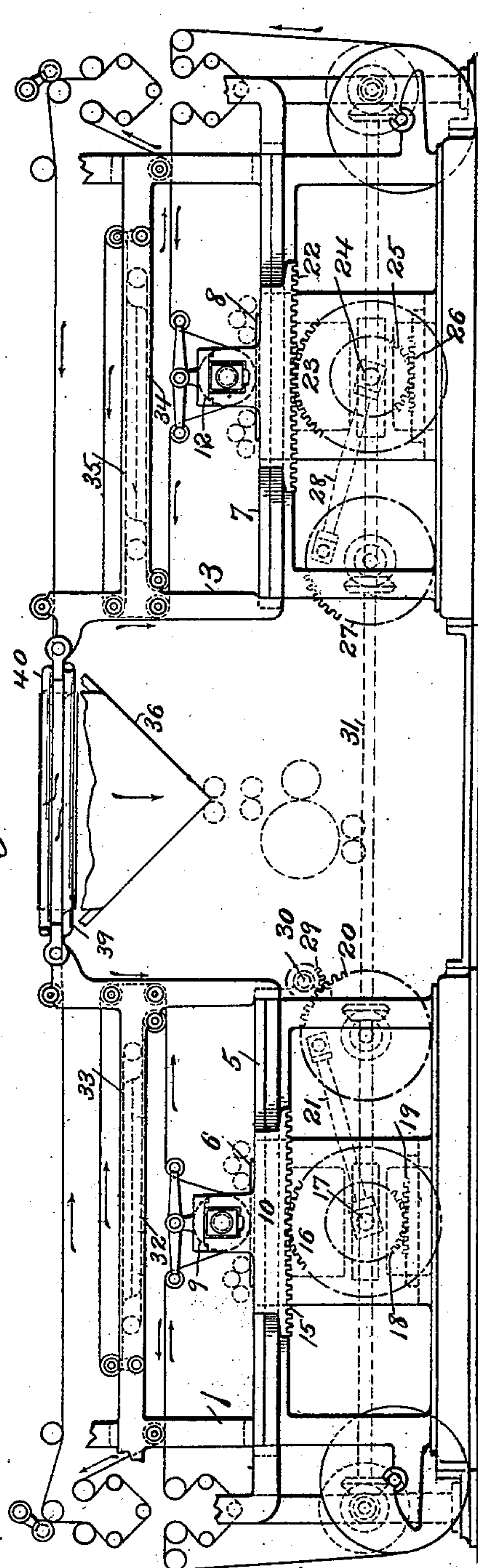
Patented Dec. 24, 1901.

G. F. READ.
PRINTING MACHINE.
(Application filed Mar. 21, 1900.)

(No Model.)



Attest:
J. A. Graves
T. F. Kehoe



Invento.
George T. Read
By Philip Phelps Hanger
Hllys

UNITED STATES PATENT OFFICE.

GEORGE F. READ, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ROBERT HOE AND CHARLES W. CARPENTER, OF NEW YORK, N. Y., COPARTNERS UNDER THE FIRM-NAME OF R. HOE & COMPANY.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 689,518, dated December 24, 1901.

Application filed March 21, 1900. Serial No. 9,492. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. READ, a citizen of the United States, residing at New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Printing-Machines, 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 printing-machines.

It is the object of this invention to produce a simple and compact printing-machine employing a plurality of double-wide couples, each of the couples being capacitated to perfect a web or print the same in colors, the couples being so arranged with relation to each other that a common delivery mechanism for the couples may be located in the space between two of the couples.

With this and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same parts, Figure 1 is a plan view of a printing-machine constructed in accordance with the invention. Fig. 2 is a side elevation of the machine illustrated in Fig. 1.

Referring to the drawings, the machine which has been selected to illustrate the invention employs two double-wide couples, each of said couples consisting of a flat bed and a traveling cylinder.

In the drawings, 1 and 2 indicate a pair of side frames, and 3 and 4 indicate another pair of side frames. The frames 1 and 2 serve to support a bed 5, on which are arranged side by side two sets of forms 6. The frames 3 and 4 serve to support a bed 7, on which are arranged side by side two sets of forms 8. Coöperating with the forms on the bed 5 is a cylinder 9, said cylinder being supported in bearings in suitable carriages 10 and 11, said carriages moving on ways on the side frames 1 and 2. Coöperating with the forms on the

bed 7 is a cylinder 12, said cylinder being supported in bearings in suitable carriages 13 and 14, said carriages moving on ways on the side frames 3 and 4.

Any suitable means may be employed for reciprocating the carriages 10 and 11, thus causing the cylinder 9 to reciprocate over the forms on the bed 5. In the construction shown each of the carriages 10 and 11 is provided with a rack 15, and said racks are engaged by gears 16, which are located close to but outside the side frames 1 and 2. The gears 16 are mounted on the ends of a shaft 17, which moves in slots in the side frames, said shaft being also provided with gears 18, which mesh with stationary racks 19. The shaft 17 is reciprocated by a crank-wheel 20, which is connected to the shaft by means of a connecting-rod 21.

The construction just described for driving the cylinder is a modification of a well-known multiplying railroad-gear mechanism, the operation of which is well understood by those skilled in the art.

In the same manner the carriages 13 and 14 are provided with racks 22, which are engaged by gears 23, mounted on a shaft 24, which moves in slots in the side frames 3 and 4, said shaft also carrying gears 25, which mesh with stationary racks 26 and are driven from a crank-wheel 27 by means of a connecting-rod 28.

Any suitable means may be used for driving the crank-wheels 20 and 27. In the machine shown the crank-wheel 20 is driven by means of a pinion 29, mounted on a power-shaft 30, and the machine is provided with a way-shaft 31, which is geared to the shaft of the wheel 20. This way-shaft is provided with gearing by which it drives the wheel 27 and certain other parts of the machine.

In the machine shown a web is led between one end of each of the cylinders and one set of forms, after which each web is transferred laterally and then led between the other end of the cylinder and the other set of forms. During the operation of being transferred the web may or may not be reversed, according as it is desired to perfect it or print it in colors.

Any suitable form of web-transferring or

web transferring and reversing mechanism may be employed. In the construction shown the web from the cylinder 9 and its cooperating forms is led over a pair of angle-bars 32 and 33, which transfer the web laterally and turn it over in a manner well understood by those skilled in the art. In the same manner the web from the cylinder 12 and its cooperating forms is led over a pair of angle-bars 34 35.

In the machine shown the side frames 1 and 2 and the parts carried by them are spaced from the side frames 3 and 4 and the parts carried by them, and in this space is located a delivery mechanism to which the printed webs from each couple are led and in which they are properly associated. Any suitable form of delivery mechanism may be employed. Preferably, however, said delivery mechanism will consist of an ordinary longitudinal folder 36, which is or may be supported on rods 37 and 38, the rods 37 being supported in brackets on the side frames 1 and 2 and the rods 28 being supported in brackets on the side frames 3 and 4. In the construction shown the folder faces outwardly.

Suitable guides are provided in order to direct the webs to the folder. In the machine shown these guides consist of angle-bars 39 and 40, these bars being also supported on the rods 37 and 38. The usual drawing-off and cutting and collecting cylinders may be and preferably will be used with the longitudinal folder, and such parts are indicated in dotted lines in Fig. 2. These parts are, however, so well known that a description of them is thought unnecessary.

In this class of machines, as is well understood, the web is fed into the machine by constantly-running feeding-in mechanism and is fed out by constantly-running feeding-out mechanism. In the machine shown each couple is provided with a separate constantly-running feeding-in and feeding-out mechanism, and each of said mechanisms has cooperating with it a web-controlling device. These feeding mechanisms and web-controlling devices may be of any usual or desired form. Preferably, however, they will be of the form shown in my companion application filed of even date herewith, Serial No. 9,491, and reference is made to that application for a fuller description of them.

The invention has been shown and described in connection with a machine employing two couples, the couples being spaced apart and the delivery mechanism located between the couples. It is to be understood, however, that more than two couples may be used, if desired, and will be used when a larger product is desired. While, furthermore, the machine which has been selected to illustrate the invention is of the traveling-cylinder type, it will be understood that the invention may be embodied in machines in which the double-wide couples are of a different type—as, for instance, both members

of the couples might be rotating cylinders. It is further understood that the invention is not to be limited to the specific details of construction which have been described in the foregoing specification.

What is claimed is—

1. In a printing-machine, the combination with a plurality of double-wide couples, of suitable transferring mechanism, whereby a web may receive one printing on one end of each couple and a second printing on the other end thereof, and a delivery mechanism common to all the couples located between two of the couples, substantially as described.

2. In a printing-machine, the combination with a plurality of double-wide couples, of suitable transferring and reversing mechanism whereby a web may receive one printing on one end of each couple and a second printing on the other end thereof, and a delivery mechanism common to all the couples located between two of the couples, substantially as described.

3. In a printing-machine, the combination with a plurality of double-wide couples each consisting of a cylinder and a bed carrying two sets of forms arranged side by side, of means for producing a reciprocating movement between the members of each couple, a suitable transferring mechanism whereby a web may receive one printing on one end of each couple and a second printing on the other end thereof, and a delivery mechanism common to all the couples, said mechanism being arranged between two of the couples, substantially as described.

4. In a printing-machine, the combination with a plurality of double-wide couples each consisting of a cylinder and a bed carrying two sets of forms arranged side by side, of means for producing a reciprocating movement between the members of each couple, a suitable transferring and reversing mechanism whereby a web may receive one printing on one end of each couple and a second printing on the other end thereof, and a delivery mechanism common to all the couples, said mechanism being arranged between two of the couples, substantially as described.

5. In a printing-machine, the combination with a plurality of double-wide couples each consisting of a cylinder and a bed carrying two sets of forms arranged side by side, of means for reciprocating each cylinder over its bed, a suitable transferring mechanism whereby a web may receive one printing on one end of each couple and a second printing on the other end thereof, and a delivery mechanism common to all the couples, said mechanism being arranged between two of the couples, substantially as described.

6. In a printing-machine, the combination with a plurality of double-wide couples each consisting of a cylinder and a bed carrying two sets of forms arranged side by side, of means for reciprocating each cylinder over its bed, a suitable transferring and reversing

mechanism whereby a web may receive one printing on one end of each couple and a second printing on the other end thereof, and a delivery mechanism common to all the couples, said mechanism being arranged between two of the couples, substantially as described.

7. In a printing-machine, the combination with a plurality of double-wide couples each consisting of a cylinder and a bed carrying two sets of forms arranged side by side, of means for reciprocating each cylinder over its bed, a suitable transferring mechanism whereby a web may receive one printing on one end of each couple and a second printing on the other end thereof, a longitudinal folder arranged between two of the couples and facing outwardly, and a guide for directing each web to the folder, substantially as described.

8. In a printing-machine, the combination

with a plurality of double-wide couples each consisting of a cylinder and a bed carrying two sets of forms arranged side by side of means for reciprocating each cylinder over its bed, a suitable transferring and reversing mechanism whereby a web may receive one printing on one end of each couple and a second printing on the other end thereof, a longitudinal folder arranged between two of the couples and facing outwardly, and a guide for directing each web to the folder, substantially as described.

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

GEORGE F. READ.

Witnesses:

F. W. H. CRANE,
L. ROEHM.