No. 800,766. PATENTED OCT. 3, 1905.

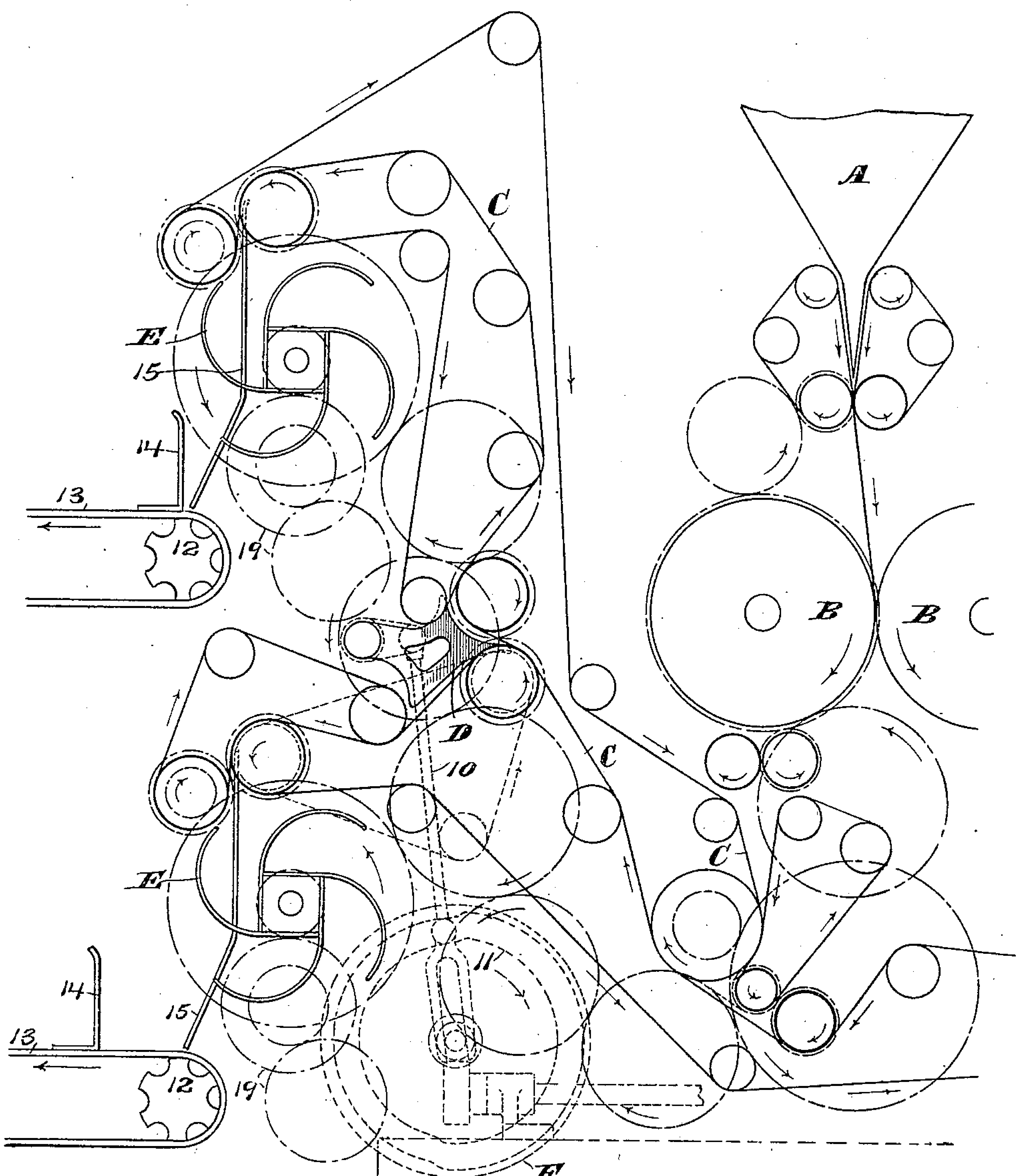
W. SPALCKHAVER.

DELIVERY MECHANISM FOR PRINTING PRESSES AND THE LIKE.

APPLICATION FILED DEC. 21, 1903.

3 SHEETS—SHEET 1.

Fig. 1.



Attest:
[signatures]

Inventor:
William Spalckhaver
by Philipp Sawyer Rice & Kennedy
Attys

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3 SHEETS—SHEET 2.

Fig. 2.

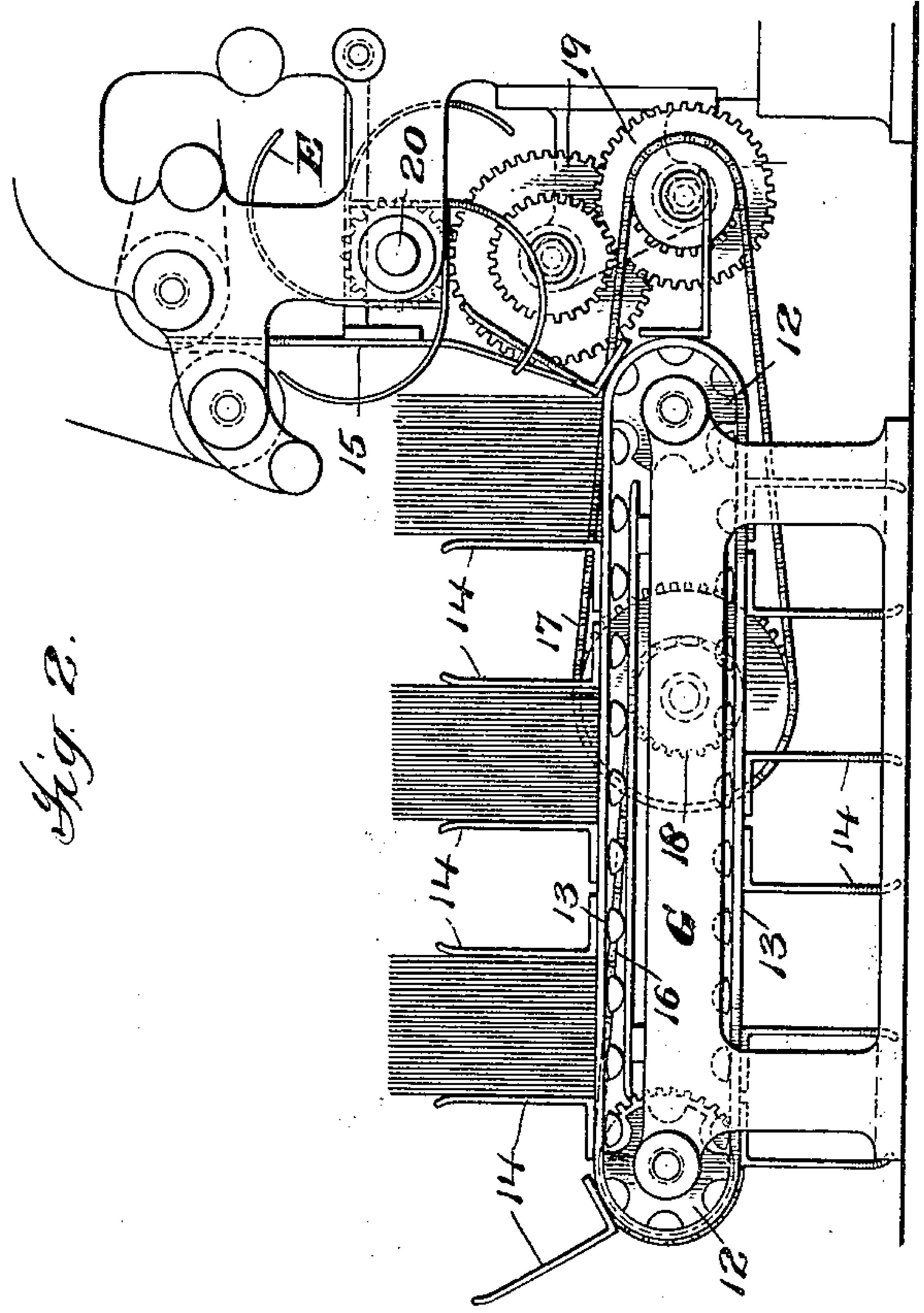
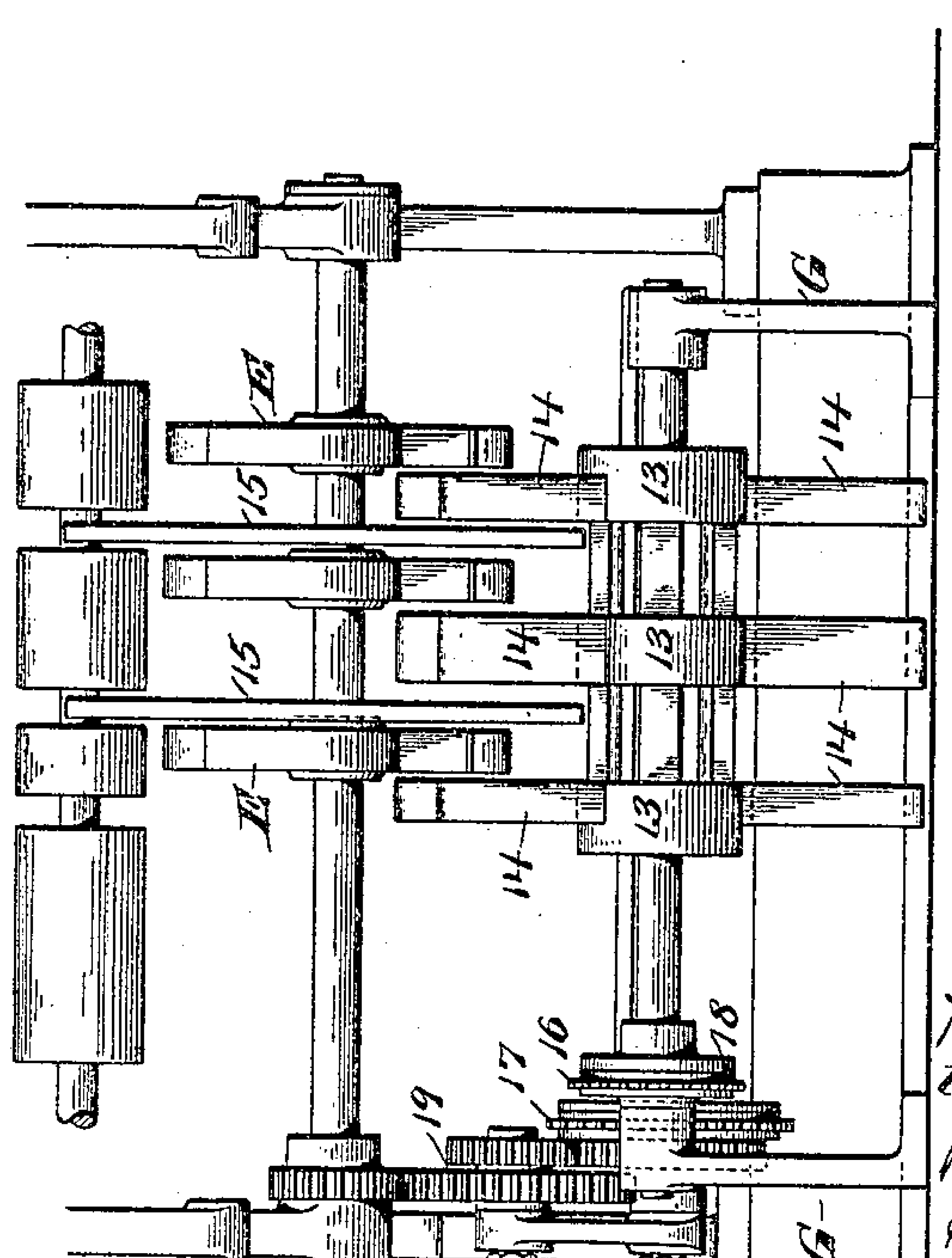


Fig. 3.



Attest:
J. McBorst
G. Valiani.

Inventor.
William Spalckhaver
by Philipp Sawyer Rice & Kennedy
Attys

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3 SHEETS—SHEET 3.

Fig. 4.

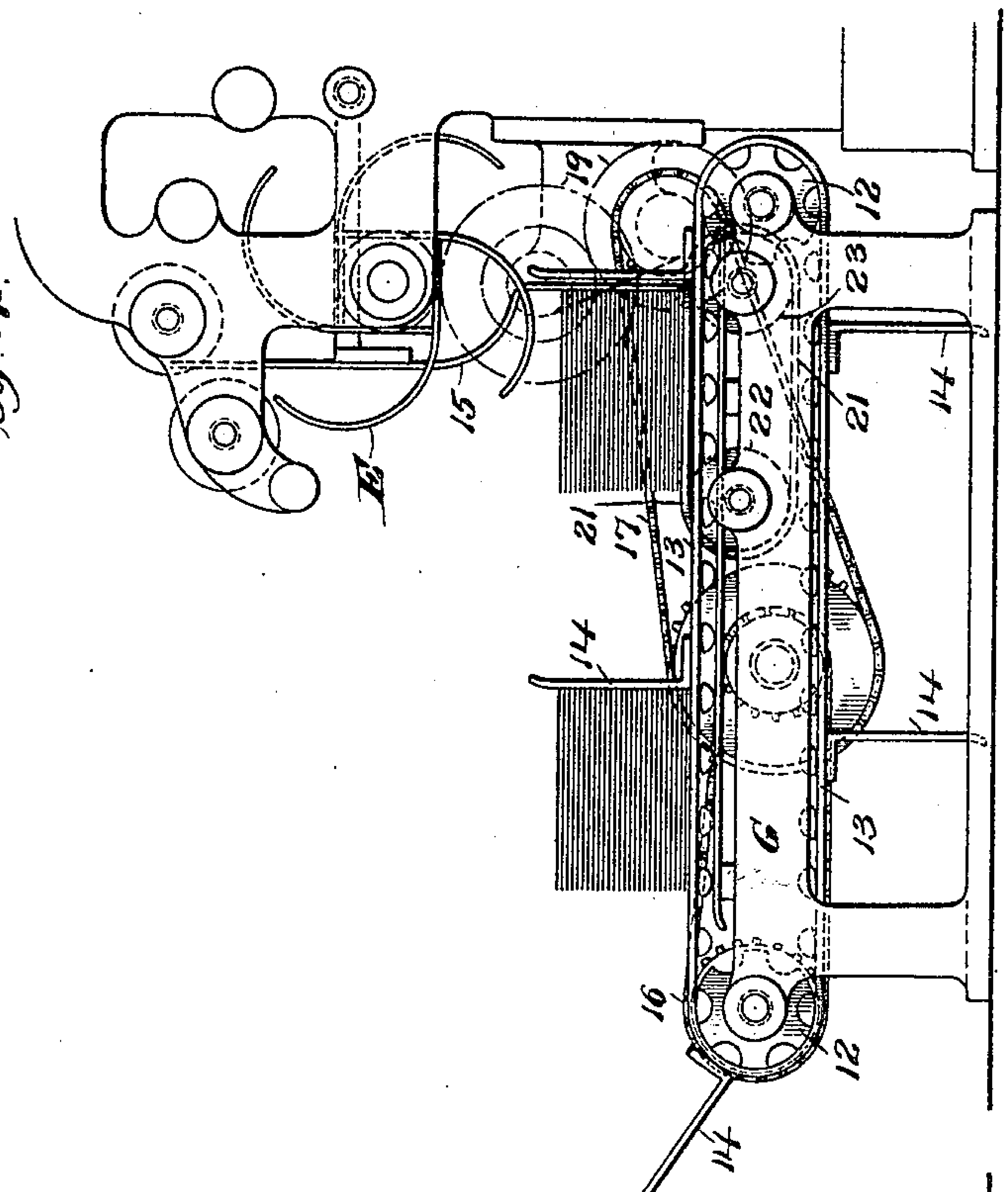
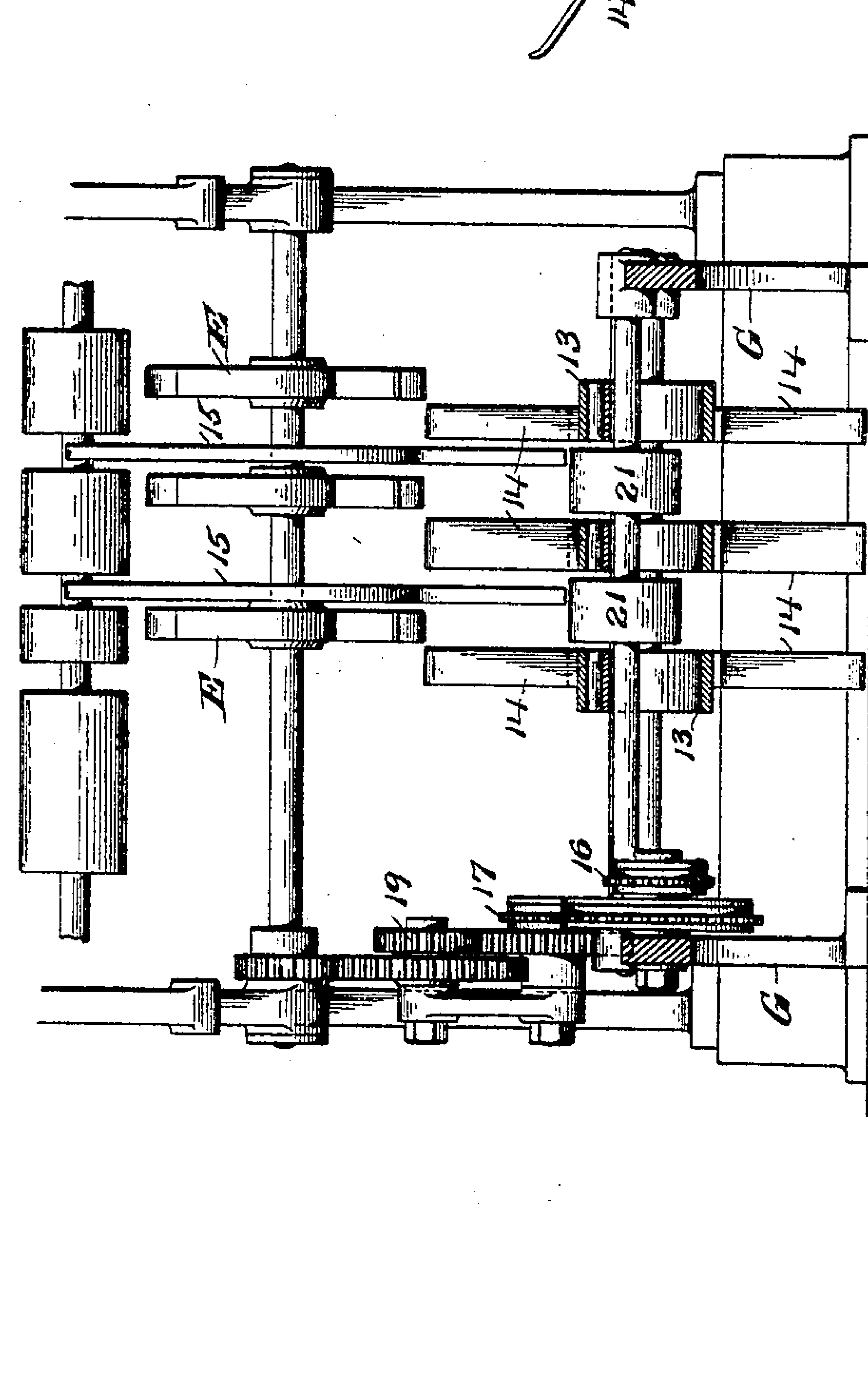


Fig. 5.



Attest:
J. McBord
J. Italiani.

Inventor:
William Spalckhaver
by
Philipp Sawyer
Rice & Kennedy
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM SPALCKHAVER, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT HOE, OF NEW YORK, N. Y.

DELIVERY MECHANISM FOR PRINTING-PRESSES AND THE LIKE.

No. 800,766. Specification of Letters Patent. Patented Oct. 3, 1905.

Application filed December 21, 1903. Serial No. 185,981.

To all whom it may concern:

Be it known that I, WILLIAM SPALCKHAVER, a citizen of the United States, residing at New York city, county of Kings, and State of New York, have invented certain new and useful Improvements in Delivery Mechanism for Printing-Presses and the Like, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an improved mechanism for delivering a pile of sheets which is designed especially for printing-presses, but may be used also with sheet-feeding mechanism in other machines.

The especial object of the invention is to provide an improved construction of that class in which a plurality of delivery mechanisms are used and the required number of sheets counted, delivered, and bundled by the different delivery and bundling mechanisms successively, the feed of the sheets to the different delivery mechanisms being controlled and the sheets counted by suitable means, as by a cam-controlled switch, as shown, for instance, in United States Letters Patent Nos. 700,238 and 745,385.

For a full understanding of the invention a detailed description of a construction embodying the same in the preferred forms will now be given in connection with the accompanying drawings, forming a part of this specification, and the features forming the invention will then be specifically pointed out in the claims.

In the drawings, Figure 1 is a diagrammatic view showing my invention as applied to a web-printing machine with two deliveries. Fig. 2 is an end elevation of one of the deliveries and bundling mechanisms in the preferred form for delivering the sheets on edge. Fig. 3 is a rear elevation looking to the left in Fig. 2. Figs. 4 and 5 are views similar to Figs. 2 and 3, showing another bundling mechanism with the sheets delivered flat.

Referring to said drawings, A is the longitudinal folder, and B the cutting, collecting, and folding cylinders, of a web-printing press, from which the folded sheets pass to tapes C, by which the sheets are carried past a switch D and delivered to one or the other of two flies E, according to the position of the switch. The switch D is operated by a cam-rod 10, having a bowl running in a cam-groove 11 on cam F, the switch thus being held in position to direct the required number of sheets—say twenty-five sheets—to the upper fly E, as in the position of the switch shown in Fig. 1, and the switch is then moved upward to deliver the required number of sheets to the lower fly E, and so on, delivering alternately by the two flies. From the flies E the sheets pass to the bundling mechanism, which in the form shown in Figs. 2 and 3 is as follows: On the frame or table G are mounted rolls or disks 12, which carry endless belts or chains 13, on which are mounted series of fingers 14, arranged in pairs at distances apart suitable for receiving and holding between them the number of sheets desired, so that a bundle of sheets is collected between each pair of these fingers. These belts 13 move slowly past the fly E and receive the successive papers from the guide 15, down which they pass with the fly, the speed of movement of the belts being according to the delivery of the sheets to enable each successive sheet to be fed in behind the preceding sheet. The tapes may be driven by any suitable means, so as to be timed correctly relatively to the fly. As shown, rolls 12 are driven by sprocket-chains 16 17 and suitable gearing 18 19 from the fly-shaft 20, so as to move the belts and fingers 14 at the desired speed.

The operation of the construction will be clear without a detailed description, it being understood that the required number of sheets counted by the position of the switch D are delivered by one of the flies E between a pair of the fingers 14 on the slowly-moving belts 13, so as to form a bundle of sheets, and the switch D is then shifted to direct the sheets to the other fly E, during which delivery the next pair of fingers of the bundling mechanism which last received the sheets are brought into position for receiving the sheets, and the bundles of sheets on the tapes 13 of both deliveries are slowly advanced, giving the sheets time to dry thoroughly, and the bundles are removed by hand or otherwise as the fingers pass around the outer roll 12.

The bundling mechanism shown in Figs. 4 and 5 is substantially the same as that shown in Figs. 2 and 3, and the operation is the same, except that the sheets are not delivered by the fly directly to the belts 13; but in connection with these belts stationary belts are used, upon which the sheets are piled flatwise

by the fly E, and the fingers 14 on the belts 13 remove the complete piles of sheets successively from the stationary belts onto the slowly-moving belts 13 for final delivery. As shown in Figs. 4 and 5, the stationary belts 21 are mounted on rolls or disks 22 23, and the fingers 14 are timed so as to engage the rear end of the pile of sheets when the pile is completed and the sheets directed by switch D to the other delivery and advance the pile of sheets to the end of the belts 21, where they pass onto the belts 13, the belts 21 moving with the pile of sheets as the latter are advanced by the fingers 14, but being stationary when the sheets are being piled upon them.

It will be understood that the invention is not to be limited to the exact construction or arrangement of the parts illustrated, but that modifications may be made in this construction while retaining the invention claimed.

What I claim is—

1. The combination with sheet-advancing means, of a plurality of deliveries, means for counting the sheets and directing the required number of sheets to the deliveries successively, and a separate set of continuously-moving fingers for each delivery for moving the bundles of counted sheets away from the deliveries.

2. The combination with continuously-operating sheet-advancing means, of a plurality of deliveries, means for counting the sheets and directing the required number of sheets to the deliveries successively, and separate pairs of fingers for each delivery mounted on an endless carrier and between which the counted sheets are received from the deliveries to form bundles.

3. The combination with continuously-operating sheet-advancing means, of a plurality of deliveries, means for counting the sheets and directing the required number of sheets to the deliveries successively, and separate pairs of fingers for each delivery mounted on continuously-moving endless carriers and between which the counted sheets are received edgewise from the deliveries to form bundles.

4. The combination with sheet-advancing means, of a plurality of deliveries, means for directing the required number of sheets to the deliveries successively, and separate slowly-moving belts for each delivery, said belts having pairs of fingers between which the counted sheets are received from the deliveries to form bundles.

5. The combination with sheet-advancing means, of a plurality of deliveries, means for counting the sheets and directing the required number of sheets to the deliveries successively, and continuously-moving fingers 14 for each delivery spaced apart at such distances as to bring a set of fingers into position to take sheets from one delivery when the required number of sheets have been delivered by the other delivery.

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

WILLIAM SPALCKHAVER.

Witnesses:
F. W. H. CRANE,
LOUIS ROEHM.