No. 789,979. PATENTED MAY 16, 1905.

A. D. KLABER.

PRINTING MACHINE.

APPLICATION FILED JAN. 5, 1904.

2 SHEETS—SHEET 1.

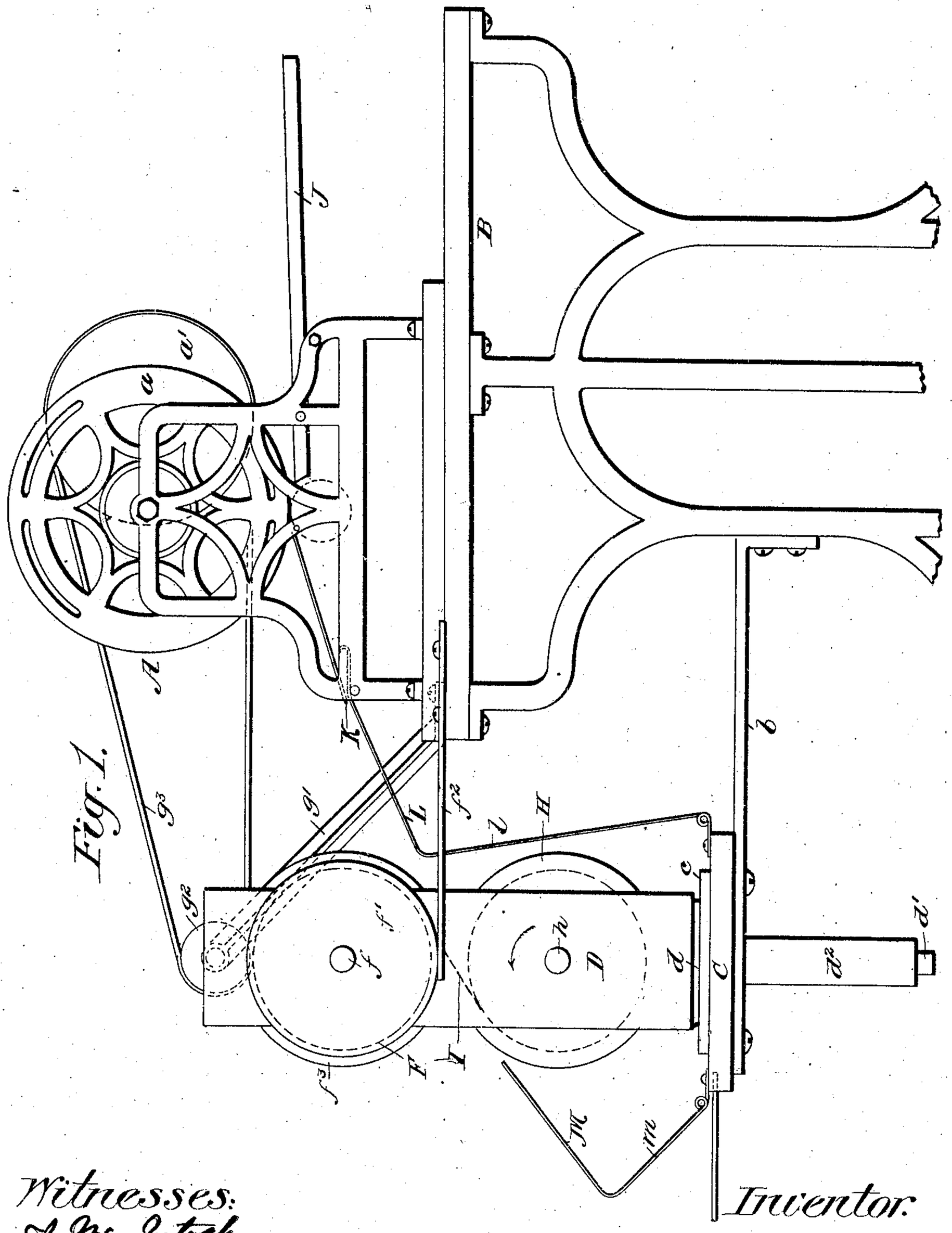

Fig. 1.

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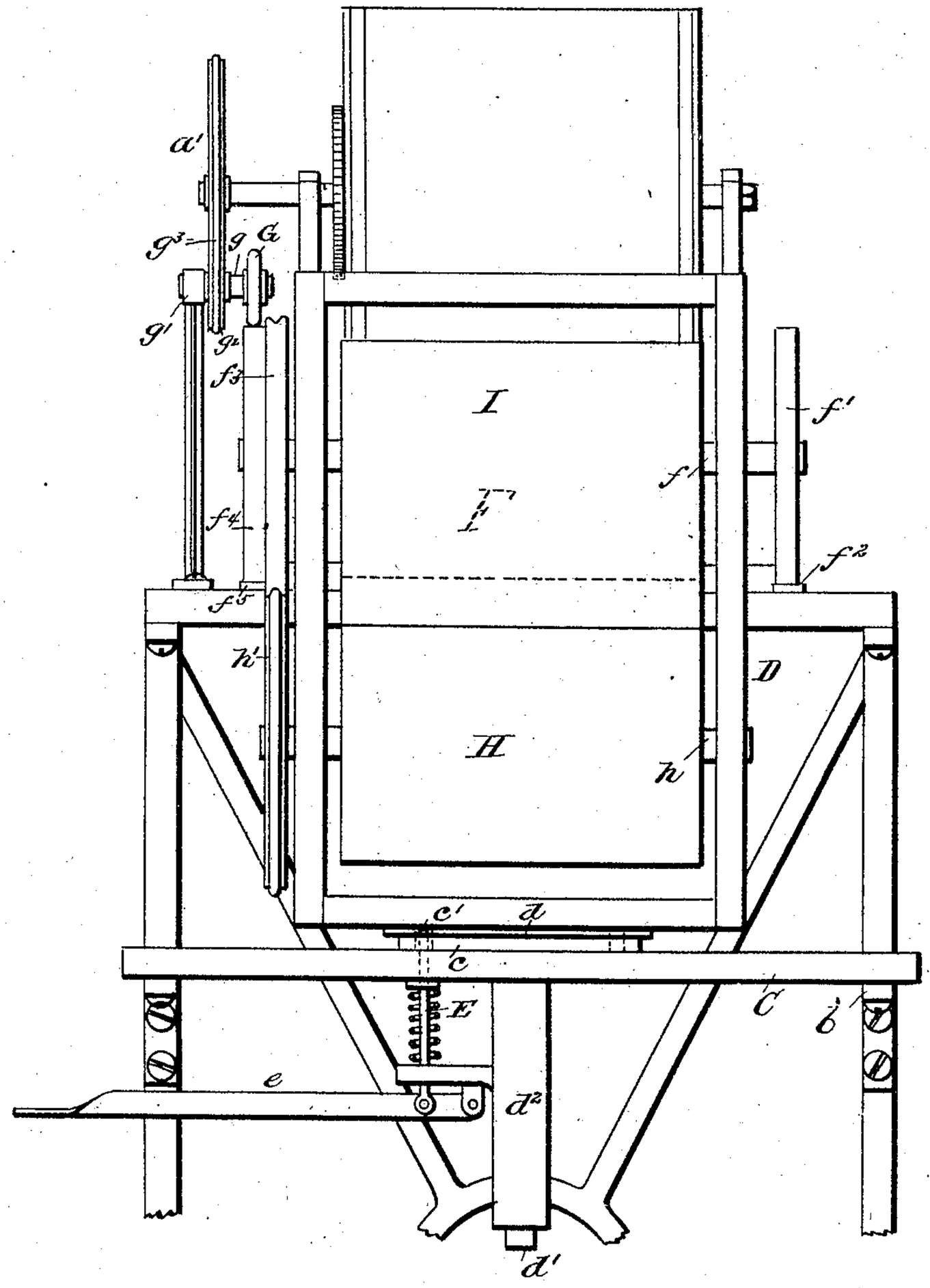
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

AUGUSTUS D. KLABER, OF LONDON, ENGLAND, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 789,979, dated May 16, 1905.

Application filed January 5, 1904. Serial No. 187,841.

To all whom it may concern:

Be it known that I, AUGUSTUS D. KLABER, a subject of the King of Great Britain, residing at London, England, have invented a certain new and useful Improvement in Printing-Machines, of which the following is a description.

The object of the present invention is to provide a printing-machine supplied with means of a simple but effective character for preventing offsetting upon the sheets printed therein. In carrying out the invention I employ in connection with such a printing-machine a mechanism for collecting the printed sheets as they are fed from such machine upon a band or webbing, preferably of absorbent paper or other material, suitably mounted—as, for instance, upon rolls or drums and fed from one roll or drum to the other. Such printed sheets are not only collected upon such band or webbing, but also dried or blotted thereon and subsequently delivered in any suitable manner.

Although applicable to printing-machines generally, the invention has been designed particularly for stencil-printing or duplicating apparatus and will be described herein as an adjunct of such a device.

In the drawings, Figure 1 is a side elevation, and Fig. 2 an end elevation, of a stencil-duplicating machine, such as the rotary neostyle, provided with my invention.

Referring to the drawings, in which similar letters denote corresponding parts, A indicates a stencil-duplicating machine, such as the rotary neostyle, here shown as mounted upon a stand or table B, having an outwardly-extending shelf C, supported on brackets *b*. The duplicating-machine is provided with the rotary drum *a*, to which rotary movement may be imparted in any suitable manner, and which movement is transmitted, by means of suitable gearing or other connection, to a pulley *a'*, the purpose of which will be presently described.

D designates a roll-frame, here shown as mounted upon a plate *d*, pivoted, by means of the rod *d'*, in a sleeve d^2 upon the shelf C, carried by the brackets *b*.

In conjunction with the mechanism just described a locking device is employed, here shown as a spring-pressed bolt E, actuated by the lever *e*, the upper end of said bolt projecting through a perforation in the shelf C, through the board *c* on said shelf, and into one or the other of the perforations *c'*, formed in the plate *d*. When the locking device is in engaging position, (in which it is shown in Fig. 2,) the roll-frame D is rigidly secured in one or the other of its two positions hereinafter described.

F designats a roll mounted upon a shaft *f* in the side members of the frame D. Outside said frame this shaft is provided on one side with the wheel *f'*, keyed or otherwise secured thereto and with which coacts a spring-brake f^2, here shown as carried by the stand or table upon which the apparatus is mounted. The other end of said shaft *f*, also outside the frame D, is provided with a pulley f^3 and a wheel f^4, the latter being outside the former and both being loosely mounted on said shaft. If desired, I may also employ in connection with the wheel f^4 a spring-brake f^5, similar to the brake f^2 and also carried by the stand upon which the mechanism is mounted.

G designates a friction-pulley, here shown as mounted upon a shaft *g*, supported by bracket *g'* and carrying belt-pulley g^2, coacting, by means of belt g^3, with the pulley *a'*, driven from the drum of the neostyle or other duplicating apparatus.

H designates a roll similar to the roll F and also mounted within the frame D upon a shaft *h*. One end of this shaft outside said frame D is provided with a pulley *h'*, engaging with the pulley f^3, mounted on the shaft *f*.

I designates a band or webbing carried upon one of the rolls F H and fed therefrom to the other.

J designates the feed-tray, and K the delivery-board, of the duplicating-machine.

L designates a supplementary delivery-board, here shown as mounted upon rods or

wires *l*, the lower ends whereof are secured to the shelf C.

M designates a guard, here shown as supported by rods or wires *m*, carried also by the shelf C.

The operation of the apparatus is as follows: Motion imparted to the drum A of the stencil-printing device is transmitted to the pulley *a'* and thence to the pulley g^2 and friction-pulley G. The wheel f^4 and pulley f^3 being attached, the rotary movement is, through these wheels, transmitted to the pulley *h'* of the lower roll H. The roll F has therefore only such motion as is imparted to it as the roll H draws the band or web I therefrom, and the coaction of the brake f^2 with the wheel *f'* on the shaft of said roll F prevents said roll from overrunning. The sheets to be printed are fed over the feed-tray J and after being printed upon by the stencil on the periphery of the drum of the duplicating-machine are passed out over the delivery board or chute K and over the supplementary delivery-board L to the surface of the roll H and between such surface and the band or web I, being taken up thereon. Consequently the successive sheets are wrapped upon said roll H as the movement progresses and kept out of contact, as each is covered successively by successive portions of said band or web. After the operation just described has continued sufficiently long to transfer all of the band or web I from the roll F to the roll H said rolls and the frame in which they are mounted may be reversed (being released for such reversal by the locking device E, above described) and the operation continued, the sheets already printed upon and carried upon the roll H being delivered therefrom properly blotted or dried, and simultaneously the printing continued, the subsequent sheets being collected upon the opposite side of the band or web I. Upon such reversal the friction-pulley G will coact with the wheel *f'*, whereby the roll F will be driven, as well as the roll H, the movement of the latter being in this case dependent upon the pull of the web or band I from this roll to the roll F. Said band or web now being made to travel in the opposite direction—*i. e.*, from the roll H to the roll F—the printed sheets fed over the supplementary delivery-board L will be carried by the band I and collected upon the roll F. Simultaneously the printed sheets formerly collected upon the roll H will be released therefrom and delivered upon the delivery-board N, being prevented from displacement by the guard M.

It is obvious that any number of copies may be printed, collected, dried, and delivered in the manner hereinbefore described, this number being independent of the length of the band or web I, since after this has been utilized from one end to the other the frame containing the rolls on which such web or band is mounted may be reversed and the operation continued as before. It will also be obvious that the apparatus herein described may be modified in many respects without departing from the spirit of the invention—as, for instance, by the employment of gearing rather than frictional contact for the driving of the various parts, &c.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a printing-machine, the combination with printing mechanism, of two reversible rolls arranged in juxtaposition thereto and a band or web carried thereby, mechanism for transmitting motion to said rolls and feeding said band or web from one to the other and means for delivering sheets to said band or web to be wrapped between the same and the roll or core on which it is wound, substantially as set forth.

2. In a printing-machine, the combination with printing mechanism, of two rolls reversible in a horizontal plane and arranged in juxtaposition thereto, a band or web of absorbent material carried thereby, and means for transmitting motion to said rolls and feeding said band or web from one to the other to collect and deliver prints to and from said band or web, substantially as set forth.

3. In a printing-machine, the combination with printing mechanism, of two rolls reversible in a horizontal plane arranged in juxtaposition thereto and a band or web carried thereby, mechanism for transmitting motion from said printing mechanism to said rolls and feeding said band or web from one to the other and means for delivering sheets to said band or web to be wrapped between the same and the roll or core on which it is wound, substantially as set forth.

4. In a printing-machine, the combination with printing mechanism, of rolls operating in two alternative positions, both in substantially the same horizontal plane and reversible relatively to said mechanism, substantially as set forth.

5. In a printing-machine, the combination with printing mechanism, of rolls operating in two alternative positions, both in substantially the same horizontal plane and reversible relatively to said mechanism, and a band or web fed from one of said rolls to the other, substantially as set forth.

6. A printing or duplicating machine comprising a web of absorbent paper, rollers for feeding said web operating in a substantially fixed horizontal plane, and a horizontally-reversible frame for supporting said rollers and for alternately presenting the two sides or surfaces of the web to the printing or duplicating machine, substantially as hereinbefore described.

7. A printing or duplicating machine, comprising a web of absorbent paper, rollers for feeding said web operating in two alternative

positions in substantially the same horizontal plane, a frame for supporting said rollers and for alternately presenting the two sides or surfaces of the web to the printing or duplicating machine, said frame being reversible, and means for locking said frame in either of the alternative positions, comprising a bolt forced into engagement by a spring and a pivoted lever for withdrawing said bolt from such engagement, substantially as hereinbefore described.

8. A printing or duplicating machine, comprising a web of absorbent material, rollers for feeding the same operating in two alternative positions in substantially the same horizontal plane, a reversible frame for alternately presenting the two surfaces of the web to the printing or duplicating machine, and connections for driving the rollers from the latter machine in the desired direction when either surface of the web is presented to the machine, substantially as hereinbefore described.

9. A printing or duplicating machine comprising a web of absorbent paper, rollers for feeding said web, a reversible frame for alternatively presenting the two sides or surfaces of the web to the printing or duplicating machine, and means for driving the rollers in the desired direction according to which face of the web is presented to the duplicator, comprising a loose wheel on one end of the axle of one roller and a fixed wheel on the other end, a fixed wheel on the axle of the other roller and engaging said loose wheel, and a driving-wheel for driving either of the wheels upon the axle of the roller first named according to the direction of rotation required, such driving-wheel being in turn driven off the printing or duplicating machine, substantially as hereinbefore described.

10. A printing or duplicating machine, comprising a web of absorbent material, rollers for feeding the same operating in two alternative positions, both in substantially the same horizontal plane, a horizontally-reversible frame for supporting said rollers, driving-wheels for rotating said rollers in either direction, and a brake for tensioning the web adapted to be applied alternately to two of said wheels, substantially as set forth.

11. A printing or duplicating machine, comprising a web, rollers for feeding the same operating in two alternative positions, both in substantially the same plane, and means for so delivering sheets to said web and rollers as that said sheets will be collected and wound by said web upon one of said rollers, substantially as described.

12. The combination with a frame, and means for reversing the same in a horizontal plane upon a vertical pivotal point, of rollers carried by said frame and operating in two alternative positions in substantially the same plane, a web and means for feeding said web from one of said rollers to the other to collect or deliver sheets passed to said web, substantially as described.

This specification signed and witnessed this 23d day of October, 1903.

AUGUSTUS D. KLABER.

Witnesses:
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A. NUTTING.