

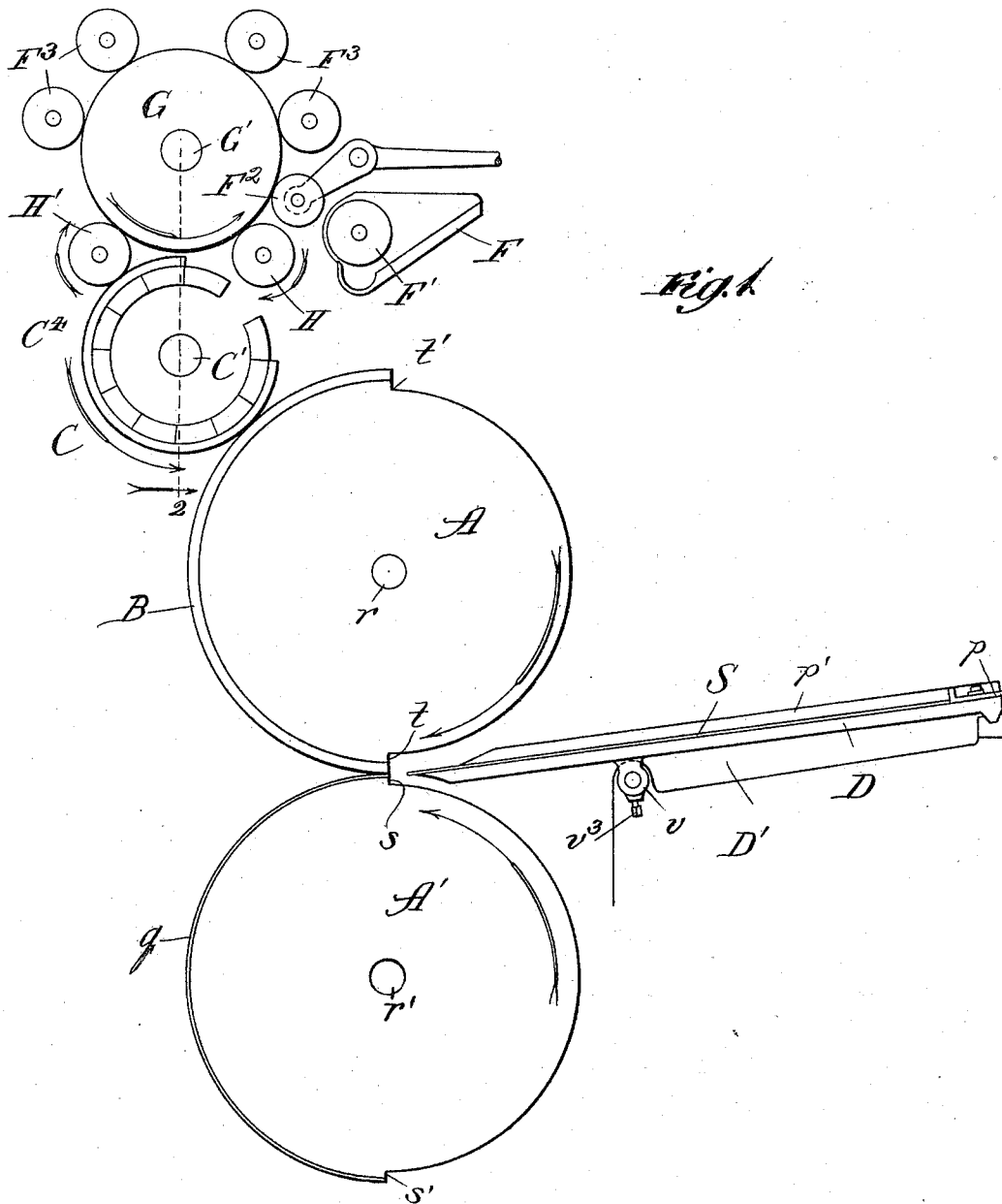
(No Model.)

4 Sheets—Sheet 1.

J. J. CLAUSE.
PRINTING MACHINE.

No. 585,907.

Patented July 6, 1897.



Witnesses:
 Geo. S. Chylad.
 Lute J. [unclear]

Inventor:
John J. Clause
By Dyrnforth ^{and} Dyrnforth,
Attys.

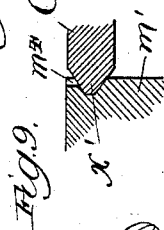
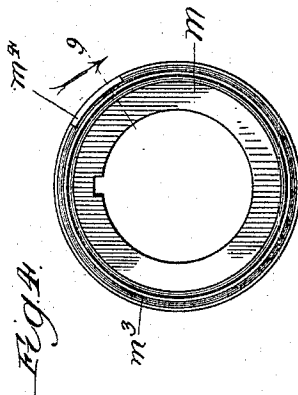
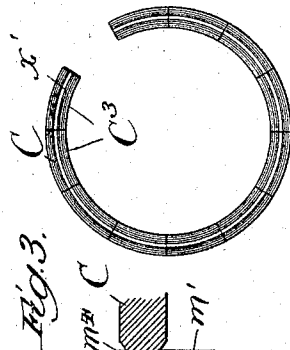
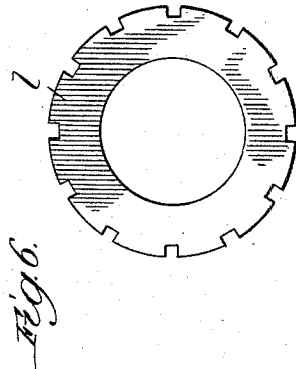
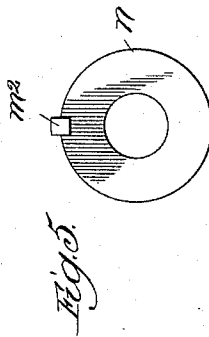
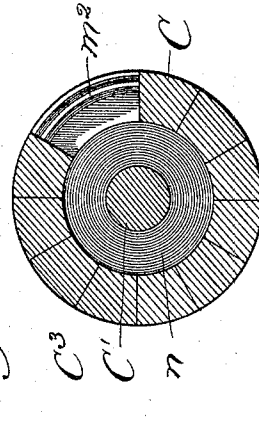
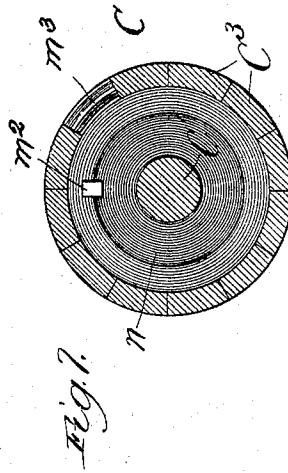
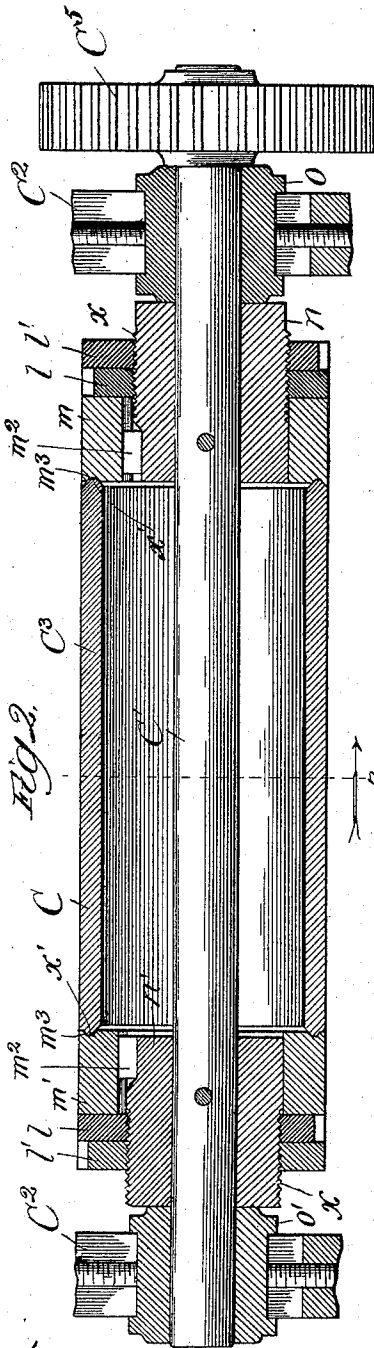
(No Model.)

4 Sheets—Sheet 2.

J. J. CLAUSE.
PRINTING MACHINE.

No. 585,907.

Patented July 6, 1897.



Witnesses:
Chas. E. Chyler
John J. Clause

Inventor:
John J. Clause,
By *Dyrenfurth & Dyrenfurth*
Attys.

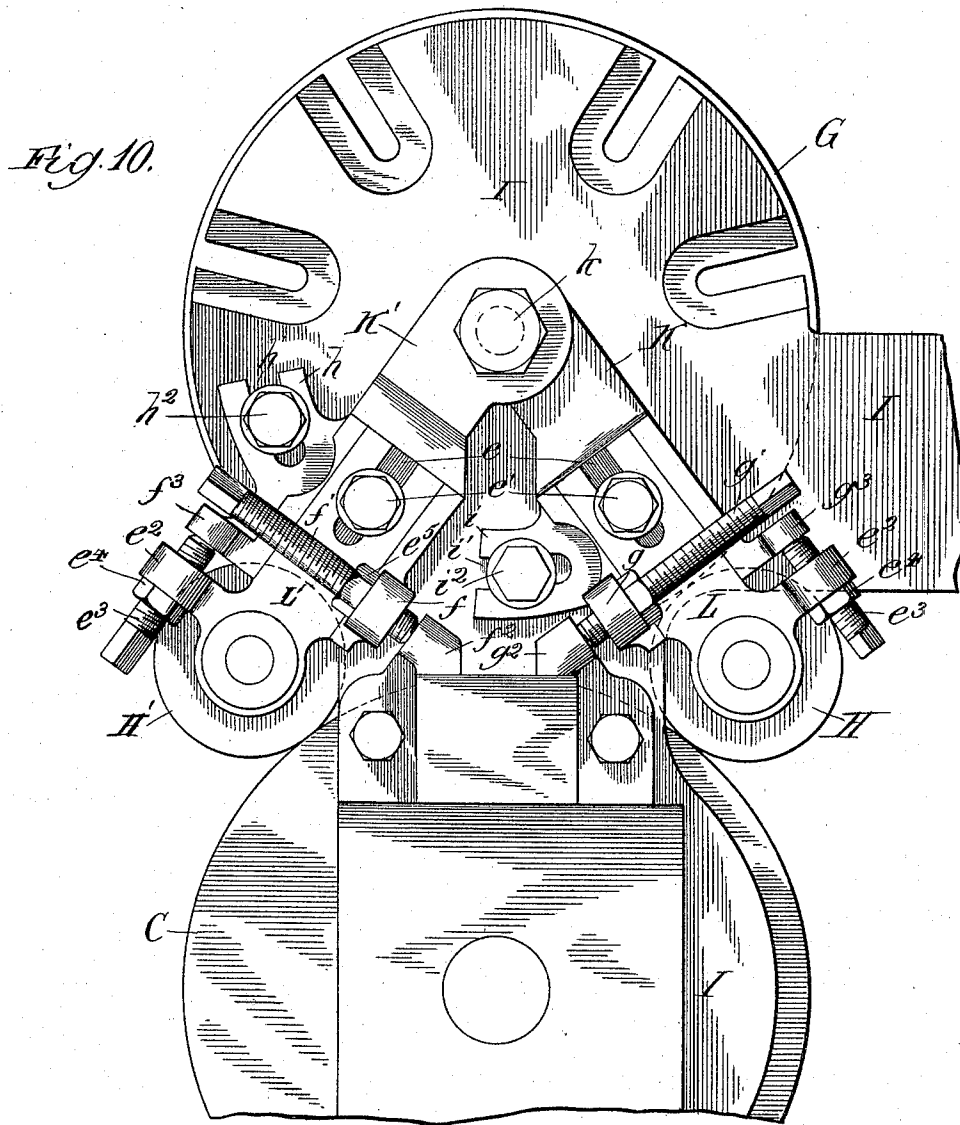
(No Model.)

4 Sheets—Sheet 3.

J. J. CLAUSE.
PRINTING MACHINE.

No. 585,907.

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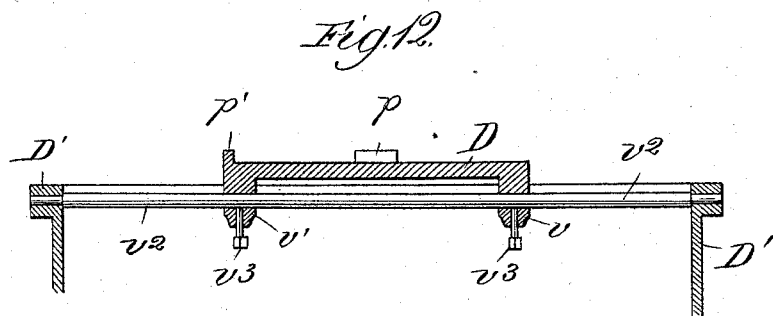
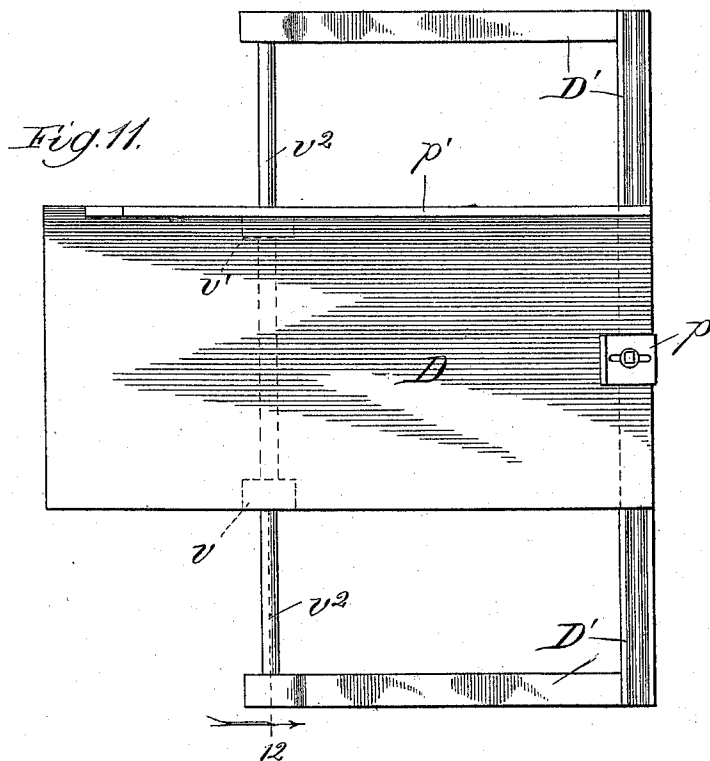
Witnesses:
 Jas. E. Gaylad,
 Lute J. Miller.

Inventor.
John J. Clause,
By Pyrenforth^{son} Pyrenforth,
Attys—

J. J. CLAUSE.
PRINTING MACHINE.

No. 585,907.

Patented July 6, 1897.



Witnesses:
Edw. J. Clark,
John J. Alter.

Inventor,
John J. Clause,
By *Dyrinfurth & Dyrinfurth,*
Attys.

UNITED STATES PATENT OFFICE.

JOHN J. CLAUSE, OF CHICAGO, ILLINOIS, ASSIGNOR TO FRANKLIN RUDOLPH,
OF SAME PLACE.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 585,907, dated July 6, 1897.

Application filed March 24, 1896. Serial No. 584,643. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. CLAUSE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Printing-Machines, of which the following is a specification.

My invention relates to an improvement in the class of cylinder printing-machines; and it is especially designed, though not necessarily restricted in its use, for printing upon the surface of sheet metal, more particularly tin, by way of ornamentation.

The more important objects of my invention are to provide a gripperless feed for the sheets upon which the imprinting action of the machine is to be exerted; to provide a peculiarly convenient means of adjustment of the sheet with relation to the cooperating cylinders between which it is carried to receive the impression; to enable the form-cylinder to be conveniently adjusted upon and removed from the rotary shaft which carries it, and to provide for the independent adjustment of the inking form-roller with relation to the distribution and form cylinders, whereby the adjustment of the inking-roller may be made with relation to the form-cylinder without disturbing its relation to the distribution-cylinder.

Referring to the accompanying drawings, Figure 1 is a diagram showing the several rollers and cylinders in their relations to each other, together with the adjustable feed-table and the adjustable stop at the rear end of its upper side. Fig. 2 is a broken section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow; Fig. 3, an end view of the segmental metal form-cylinder; Fig. 4, an end view of one of the sliding recessed collars, between which the segments of which the form-cylinder may be composed are centered; Fig. 5, a similar view of one of the externally-threaded sleeves for the shaft of the form-cylinder; Fig. 6, a similar view of one of the notched fastening-nuts for the adjustable collars of the form-cylinder; Fig. 7, a section taken at the line 7 on Fig. 2 and viewed in the direction of the arrow; Fig. 8, a view like that presented by Fig. 7, showing a modification; Fig. 9, a broken section taken at the

line 9 on Fig. 4 and viewed in the direction of the arrow; Fig. 10, a broken view presenting in end elevation the distributing-cylinder and the form-cylinder with the interposed form-rollers and the adjusting mechanism for one end of the latter; Fig. 11, a plan view of the feed-table on its support, and Fig. 12 a section taken at the line 12 on Fig. 11 and viewed in the direction of the arrow.

A and A' are respectively a feeding transfer-cylinder and its cooperating feeding-cylinder, respectively journaled on central rotary shafts *r* and *r'* in a suitable frame (not shown) and geared together in a manner well known to those skilled in the art to which my invention relates to cause the cylinders to rotate in contrary directions, as indicated by the arrows in Fig. 1.

The cylinder A is reduced in diameter throughout one-half or thereabout of its circumference to present the unyielding or immovable longitudinal shoulders *t* and *t'*, between which, about the larger circumferential section, extends the rubber transfer-blanket B to receive the impression from the form-cylinder C, hereinafter described.

The cylinder A', which should be of the same diameter as the cylinder A, is similarly cut down about one-half of its circumference to afford the unyielding or immovable shoulders *s* and *s'*, between which, about the larger section of the cylinder, there should be applied a suitable covering *q*, of unbleached muslin or other suitable fabric. The purpose of thus reducing the diameters of the cylinders A and A' is to utilize only a portion of each and cause the two to cooperate when their shoulders *t'* and *s'* come together as a feed for the sheet S, say of tin, adjustably supported, to be presented to the feed on an adjustable feed-table D, as hereinafter described. Inasmuch, therefore, as only a portion of the surface of each of the cylinders A and A' is utilized, they are to all intents and purposes merely sections of cylinders or half-cylinders.

The feed-table D, the width of which need be only slightly in excess of that of the sheet S imposed upon it, is supported on a frame D' to project at its forward edge between the cylinders A and A', behind which forward edge it

carries pendent lugs v and v' , provided with set-screws v^3 , and through which passes a rod v^2 at the front of the frame, whereby the feed-table, the rear portion of which rests upon the back of its supporting-frame, may be adjusted laterally by sliding it back and forth upon the rod v^2 to bring the sheet imposed upon it into position to register with any desired circumferential portion of the transfer-surface of the cylinder A. Along one edge of the table D extends a guide-stop p' , and at its rear end is provided an adjustable stop p , affording a straight edge to cooperate with the stop p' for enabling ready adjustment of the sheet in true position upon the feed-table. Obviously the stop p may be provided in any position on the feed-table toward its forward end, at which it may be desired to afford a back-stop to the sheet according to its required registration with the transfer-surface of the cylinder A.

The preferred construction of the form-cylinder C is that best illustrated in Figs. 2 to 8, inclusive, and of which the following is a description: C' is the rotary shaft, journaled in bearings o and o' in a side frame C² and carrying at one end the driving-gear C⁵. Abutting against the inner ends of the bearings o and o' are the sleeves n and n' , firmly secured upon the shaft C to rotate with it, and each being threaded throughout a portion of its outer circumference, as shown at x . The sleeves n and n' are encircled by the collars or heads m and m' , adjustably secured in place by keys m^2 , each collar having a circumferential groove m^3 about its inner end, into which leads a recess m^4 from the outer edge of the collar. At the outer end of each collar is secured upon the respective sleeve a nut l and a jam-nut l' , each of which nuts may be notched peripherally, as shown of the nut in Fig. 6, to adapt it for the application to it of a spanner-wrench. The body of the cylinder C is formed of segmental bars C³, either of metal, as represented in Figs. 2, 3, and 7, or of wood, as represented in Fig. 8, and the bars are beveled at their opposite ends, as shown at x' , to adapt them to enter the grooves m^3 in the collars m and m' . The object of thus forming the cylinder in sections is to enable one or more of the bars C³ to be taken out or omitted and thereby permit the cylinder with the longitudinally-slotted form C⁴ about it to be readily removed by slipping it off the shaft C' transversely thereof, and also to enable the bars C³ to be adjusted inside the form C⁴ and with the latter inserted into position in the machine with the ends of the segmental bars extending into the grooves m^3 of the collars m and m' , which are then advanced toward each other sufficiently far to grip the segmental bars between them by properly manipulating the nuts l and l' for the purpose. In order that, then, the last of the segmental bars may be introduced into place, the recesses m^4 in the collars are provided to extend back farther than the depth

of the grooves m^3 , whereby that segment may be laid at its ends into the recesses and the collars further tightened by turning the set-screws to center the segments of the cylinder.

In Fig. 1 I indicate the fountain F, containing the metal fountain-roller F', the ductor F², and the several vibrating rollers F³ in their operative positions with relation to the distributing-cylinder G on the rotary shaft G'. This cylinder and the various rollers are supported and geared together on a suitable frame, a portion of which is represented at I in Fig. 10, in a manner to cause them to rotate and perform their several functions as in other printing-machines of the class to which my improvement relates and in a manner which is well known to those skilled in the art, so that no detailed illustration thereof is required in this connection.

H and H' are the form-rollers, supported to extend between the distributing-cylinder G and the form-cylinder C and provided at their opposite ends with my improved adjusting mechanism (shown in Fig. 10) to enable the adjustment of either with relation to the form-cylinder without disturbing its adjustment with relation to the other cylinder.

Following is a description of the adjusting mechanism referred to, which is provided at each end of the frame I, though shown at only one end thereof in Fig. 10, owing to the nature of the view selected for illustration, but inasmuch as that at the opposite end is a duplicate of the mechanism shown it will be understood from the description of the latter.

K and K' are arms, each pivotally supported independently of the other at one end, at k , on the frame I, the arm K having an ear i projecting laterally from its inner edge and containing an arc-shaped slot i' , at which it embraces a stud i^2 on the frame, and the arm K', having an ear h projecting from its outer edge and containing an arc-shaped slot h' , at which it embraces a stud h^2 on the frame. At the inner edges of the arms K and K' are provided the internally-threaded annular lugs g and f , the former affording a bearing for a set-screw g' , which abuts against a stop g^3 on the frame, and the latter affording a bearing for a set-screw f' , which abuts against a stop f^3 on the frame, and from the outer edges of these arms there project, respectively, the stops g^3 and f^3 .

L and L' are brackets containing longitudinal slots e in their upper ends, at which they embrace studs e on the arms K and K', these brackets affording at their lower ends bearings for the form-rollers H and H' and having outwardly-extending internally-threaded lugs e^2 , affording bearings for set-screws e^3 , which abut, respectively, against the stops g^3 and f^3 .

As will be seen, the form-rollers are supported to bear against the distributing-cylinder G and the form-cylinder C. To adjust either roller with relation to the distributing-cylinder, it is only necessary to turn the re-

spective set-screw e^3 in the proper direction, upon loosening the nut e^4 , to slide the bracket L or L' up or down upon the respective arm K or K', and to adjust either form-roller with relation to the form-cylinder it is only necessary to turn the respective set-screw g' or f' in the proper direction, after loosening its nut e^5 , to swing the arm on its pivot k upon the arc described by the circumference of the distributing-cylinder, thus to cause the form-roller to bear more or less tightly against the form-cylinder.

To employ my improved printing-machine for printing on sheet-tin S, the sheet is properly adjusted upon the table D, and the latter is adjusted on its frame D' to register the sheet with the proper portion of the transfer-blanket B on the cylinder A. The blanket B takes the impression from the form on the cylinder C, and when the sheet is fed between the rollers A and A' it is grasped between the shoulders t' and s' and thus fed between them, receiving upon its upper surface the transfer of the impression from the blanket.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a printing-machine, the combination of the distributing-cylinder G and form-cylinder C with the interposed form-rollers, the transfer-cylinder A carrying a blanket B, and cylinder A' coöperating therewith, said cylinders A and A' being reduced in diameter throughout a portion of the circumference of each to afford shoulders at the opposite ends of their coöperating surfaces to grasp the sheet to be printed and afford a gripperless feed, and a feed-table projecting between said cylinders A and A', the whole being constructed and arranged to operate, substantially as described.

2. In a printing-machine, the combination with the cylinders A and A', of a frame D' having a front bar v^2 , a feed-table D supported on said frame and adjustably fastened upon said bar, a rigid stop p' extending along one side of the table and a stop p on the table for adjusting a sheet thereon to be printed at the rear end of the sheet, substantially as and for the purpose set forth.

3. In a printing-machine, the combination of a form-cylinder C comprising a rotary shaft C' carrying heads near its opposite ends, the body of said cylinder being formed of segmental bars removably clamped endwise between said heads to surround said shaft, and a longitudinally-slotted cylindrical form C⁴ surrounding and fitting about said body, substantially as and for the purpose set forth.

4. In a printing-machine, a form-cylinder C comprising, in combination, sleeves n and n' secured on a rotary shaft C' near its opposite ends, collars m and m' adjustably supported on said sleeves to encircle them and provided with circumferential grooves m^3 and recesses m^4 in their opposing ends, nuts screwed upon said sleeves against the outer

ends of the collars, and segmental bars C³, tapered at their opposite extremities to enter said grooves and clamped between said collars, substantially as and for the purpose set forth.

5. In a printing-machine, the combination with the distributing-cylinder and form-cylinder and the frame in which they are journaled, of a form-roller supported to extend between said cylinders, and means for adjusting said form-roller with relation to the form-cylinder without disturbing its adjusted relation to the distributing-cylinder, substantially as described.

6. In a printing-machine, the combination with the distributing-cylinder and form-cylinder and the frame in which they are journaled, of a form-roller supported to extend between said cylinders, arms pivoted on the frame concentrically with said distributing-cylinder, journal-bearings for said form-roller adjustably supported on said arms, and means for independently adjusting said roller with relation to the distributing-cylinder and the form-cylinder, substantially as described.

7. In a printing-machine, the combination with the distributing-cylinder and form-cylinder and the frame in which they are journaled, of a form-roller supported to extend between said cylinders, arms pivoted on the frame concentrically with said distributing-cylinder, brackets supported on the arms to be adjusted lengthwise thereof and affording journal-bearings for said roller, and set-screw-adjusting means for turning the arm to adjust the form-roller with relation to the form-cylinder and to adjust said form-roller with relation to the distributing-cylinder, substantially as described.

8. In a printing-machine, the combination with the distributing-cylinder and form-cylinder and the frame in which they are journaled, of arms K and K' suspended on pivots k on said frame concentric with said distributing-cylinder and provided with set-screw bearings g and f and studs e' and with slotted lugs i and h embracing studs i^2 , h^2 , on the frame, brackets L and L' on said arms and having slots e , e' , at which they embrace studs e' thereon, said brackets terminating at their lower ends in journal-bearings, form-rollers H and H' supported in said journal-bearings to extend between the distributing-cylinder and form-cylinder at opposite sides thereof, set-screws g' and f' in said bearings g and f and abutting against stops g^2 and f^2 on said frame, and set-screws e^3 in the bearings e^2 and abutting against stops g^3 , f^3 , on said arms, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

JOHN J. CLAUSE.

In presence of—

J. H. LEE,
R. T. SPENCER.