

1,401,423.

C. A. MEISEL.
PRINTING PRESS.
APPLICATION FILED MAR. 29, 1920.

Patented Dec. 27, 1921.

2 SHEETS—SHEET 1.

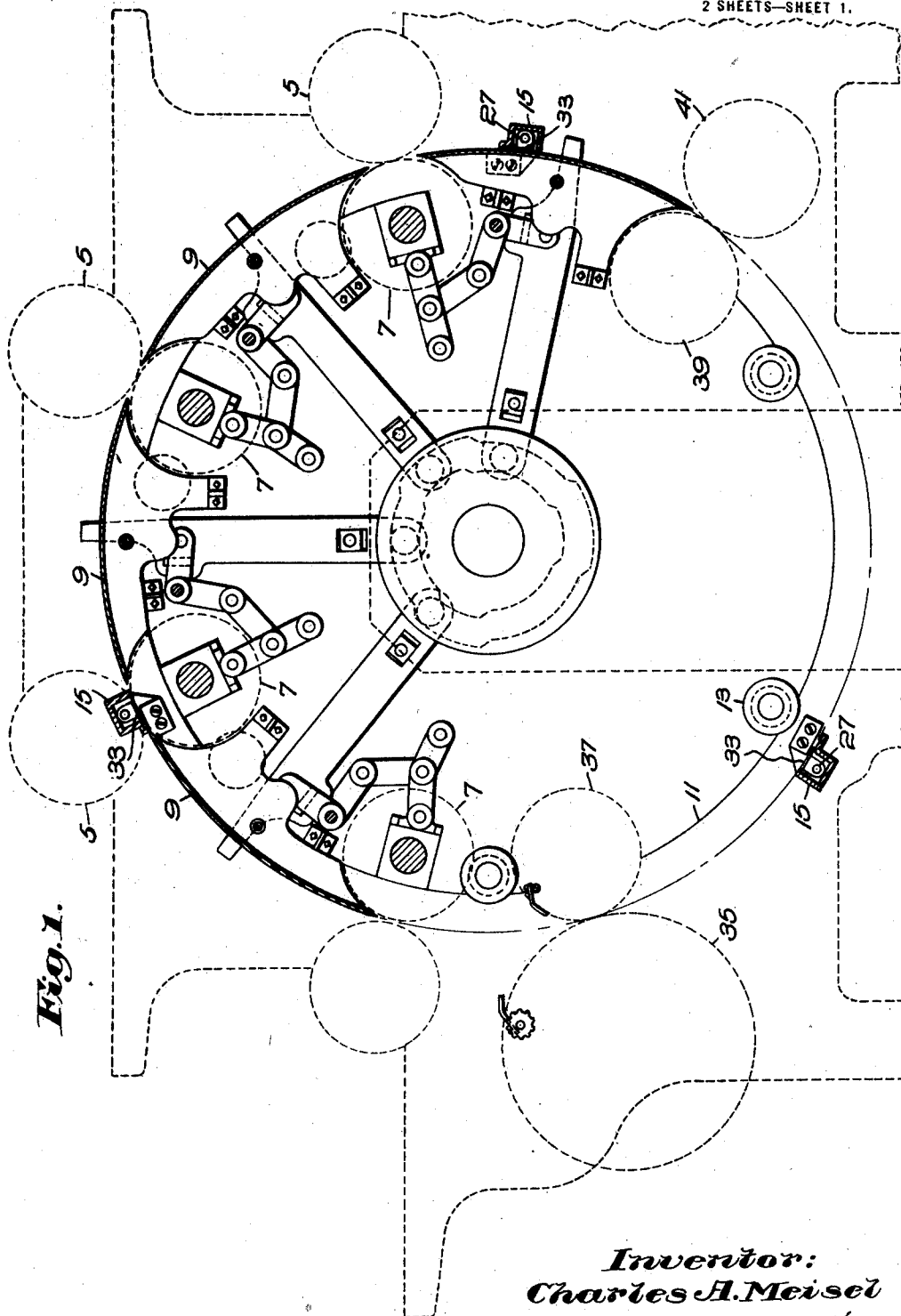


Fig. 1.

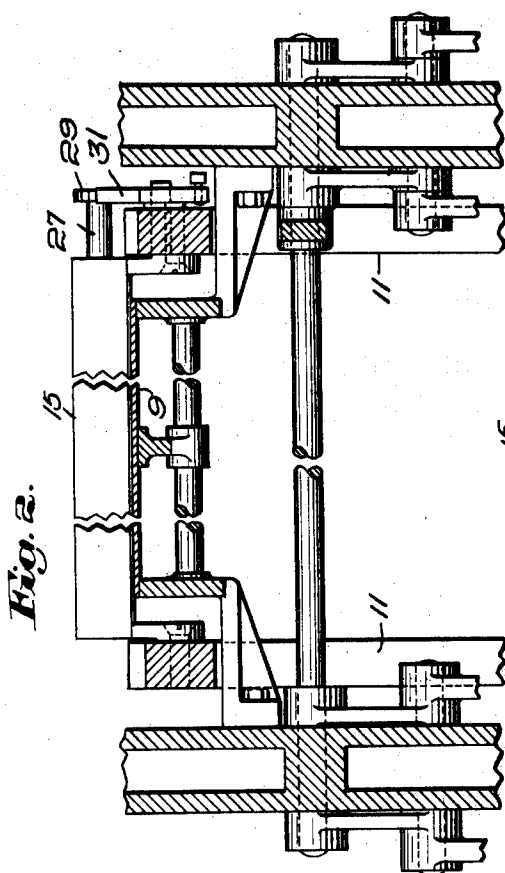
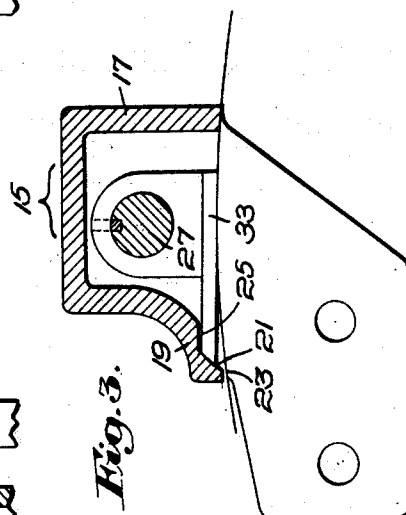
Inventor:
Charles A. Meisel
by Emory Booth, James Varney
Attys.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES A. MEISEL, OF DORCHESTER, MASSACHUSETTS, ASSIGNOR TO MEISEL PRESS MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

PRINTING-PRESS.

1,401,423.

Specification of Letters Patent.

Patented Dec. 27, 1921.

Application filed March 29, 1920. Serial No. 369,599.

To all whom it may concern:

Be it known that I, CHARLES A. MEISEL, a citizen of the United States, and a resident of Dorchester, in the county of Suffolk, Commonwealth of Massachusetts, (whose post-office address is 944 Dorchester avenue, Boston 25, Massachusetts,) have invented an Improvement in Printing-Presses, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to printing presses and has to do more particularly with the manner of feeding the paper, the purpose being to maintain a perfect control of the sheet of the paper so that it may be accurately fed to the printing mechanism. For example, the paper may be printed on successively with different colors in perfect registration.

My invention will be best understood by reference to the following description of one embodiment of my invention, taken in connection with the accompanying drawings, wherein—

Figure 1 is a partly diagrammatic and partly sectional view of a press embodying my improvements;

Fig. 2 is an enlarged transverse section taken between the two of the printing couples; and

Fig. 3 is an enlarged transverse section through a gripper bar.

Referring to the drawings I have herein shown as an example of my invention a multicolor press embodying successive printing couples including plate cylinders 5 and impression cylinders 7. Herein these couples are arranged so that the contact lines of the cylinders correspond to the elements of a cylinder, using that word in its geometric sense, so that if a sheet is carried around in a cylindrical path it will pass successively through the couples.

To support and guide the sheet and insure its accurate advance to successive couples suitable sheet supporting surfaces 9 corresponding to segments of the cylinder are interposed between successive couples. A sheet may be advanced along these surfaces and between successive couples by a suitable orbitally movable carrier at a constant linear speed.

In the present embodiment of my inven-

tion the carrier consists of two ring gears 11 (see Fig. 2) rotating on rolls 13 (see Fig. 1) on the frame of the machine and connected at intervals by gripper bars 15, the whole having somewhat the aspect of a lantern wheel, the gripper bars corresponding to the trundles thereof.

The gripper bars 15 are arranged to carry the sheet around in the cylindrical path corresponding to the surfaces of the supports 9 and the contact lines of the printing couples and sweep directly over the former. The ring gears 11 may be driven in any suitable manner (not shown) and uniform rotation thereof causes the gripper bars to move with a constant linear speed along the cylindrical path and thus uniformly advance the sheets between successive couples.

In Fig. 3 I have there shown a view of the gripper bar 15 on an enlarged scale. The bar 15 may include a suitable housing 17 having a rearwardly extending flange portion 19 which, as shown in Fig. 1, is presented toward the supporting surfaces 9 and makes substantial contact therewith, there being just sufficient clearance to admit the sheet and permit the gripper bar to advance. The flange portion 19 is provided with a rabbet 21, thus providing an edge portion 23 which is presented to the supporting surfaces 9 and a portion 25 outwardly offset therefrom and parallel thereto.

The housing 17 receives a rock shaft 27 of ordinary construction carrying (see Fig. 2) a pinion 29 adapted to be operated by a sector 31 in well known manner. The rock shaft carries the gripper fingers 33 adapted to swing open inwardly toward the center of ring gears 11 and closing from inward into the rabbet 21 and making contact with the surface 25.

The grippers firmly hold the sheet with the edge bent over the portion 23 of the gripper bar and the main body portion of the sheet extending rearwardly from the lower face of this edge portion 23 coincident with the cylindric feeding path defined in part by the supporting surfaces 9. The closing of the gripper fingers 33 into the rabbet permits the sheet to be held as close to the supporting surfaces as its thickness and necessity of movement may permit, the fingers not being interposed between the path of the sheet and the supporting surfaces. The construction with the fingers opening in-

wardly furthermore permits the portion 19 against which the fingers close to be made of strong and substantial construction.

Referring to Fig. 1 in the example of the invention shown the paper is delivered to grippers on the intake cylinder 35 arranged to rotate substantially tangent to the path of the gripper bars 15 and exterior thereto and is delivered from this cylinder to gripper fingers of a transfer cylinder, relatively staggered to the gripper fingers of the cylinder 35, cylinder 37 rotating tangent to the sheet path and interiorly thereof. As the gripper bar 15 passes the cylinder 37 the edge of the sheet is brought into the sheet path, the fingers 33 open inwardly and close from inward on the edge of the sheet presented by the transfer cylinder 37. The fingers of this cylinder, which are traveling at the same linear speed, open, releasing the sheet to the fingers of the gripper bar, and the sheet is delivered to this bar in the manner already explained, being held firmly directly exterior to the cylindric surface defined by the contact lines of the couples and the supporting surfaces 9 without any substantial clearance. The sheet is similarly delivered by a transfer cylinder 39 and a delivery mechanism herein typified by a cylinder 41.

In the example of my invention shown the sheet is carried at a constant speed and is always supported during the printing operation, being curved to the segment of the cylinder and not altering from this shape during its travel through the press. It may thus be conveniently controlled and carried for printing of the successive couples thereon in accurate registration. The construction of the gripper element not only provides for a firm grip on the leading end of the sheet but permits it to be held and advanced directly along the outer surfaces of the supports 9 without any possibility of movement toward and from the same due to the holding of the leading edge raised above the surface.

Having thus described in detail the particular form of my invention chosen for

purposes of illustration in the accompanying drawings the principles exemplified thereby which I claim as new and desire to secure by Letters Patent, I shall express in the following claims.

Claims:

1. A printing press comprising in combination one or more printing couples, a sheet supporting surface over which the sheet is advanced in the printing operation, a carrier for the sheet comprising a bar overlying said surface and having a portion substantially contacting therewith and means for holding the end of a sheet bent over said contacting portion of the bar.

2. A printing press comprising in combination one or more printing couples, a sheet supporting surface over which the sheet is advanced in the printing operation, a carrier for the sheet comprising a bar overlying said surface and having a rabbeted portion substantially in contact therewith and gripper means closing in the rabbet.

3. In a press one or more printing couples ranged about a cylindric sheet path, sheet supporting surfaces along said path, a gripper mechanism directly exterior to said path to advance a sheet substantially coincident with said surfaces and including a bar having a portion closely adjacent said surfaces and a portion offset therefrom and fingers closing from inward against said second portion.

4. In a press one or more printing couples ranged about a cylindric sheet path, sheet supporting surfaces along said path, a gripper mechanism directly exterior to said path to advance a sheet substantially coincident with said surfaces and including a bar having a portion closely adjacent said surfaces, a portion offset therefrom and joined thereto by an oblique surface and finger closing from inward against said portion and having oblique surfaces opposing the oblique surface of the bar.

In testimony whereof, I have signed my name to this specification.

CHARLES A. MEISEL.