

No. 844,113.

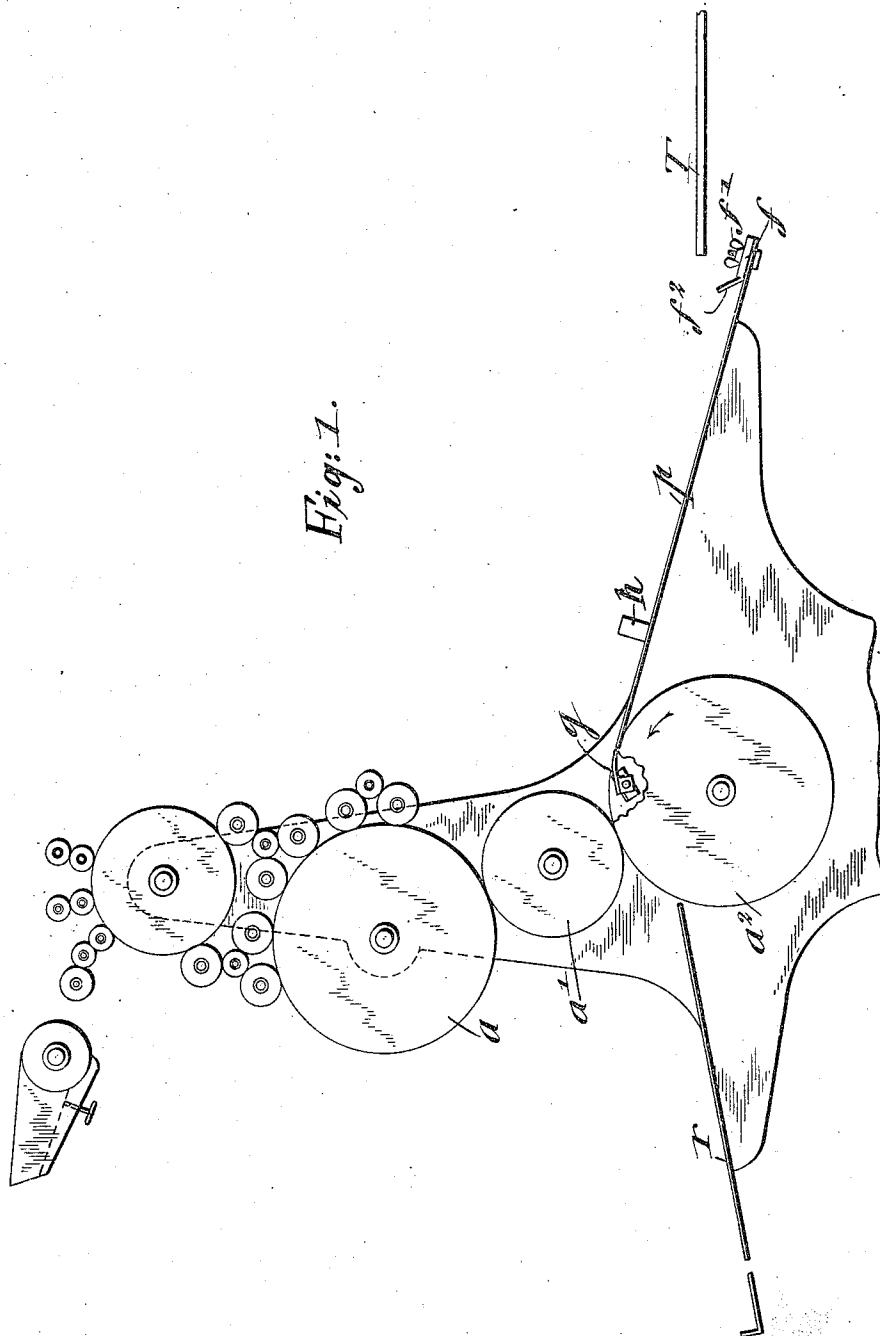
PATENTED FEB. 12, 1907.

A. J. FORD.

FEED DEVICE FOR SHEET METAL PRINTING MACHINES.

APPLICATION FILED FEB. 28, 1906.

2 SHEETS—SHEET 1.



Witnesses

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Edward A. Pear

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By his Attorneys

Inventor

Albert J. Ford

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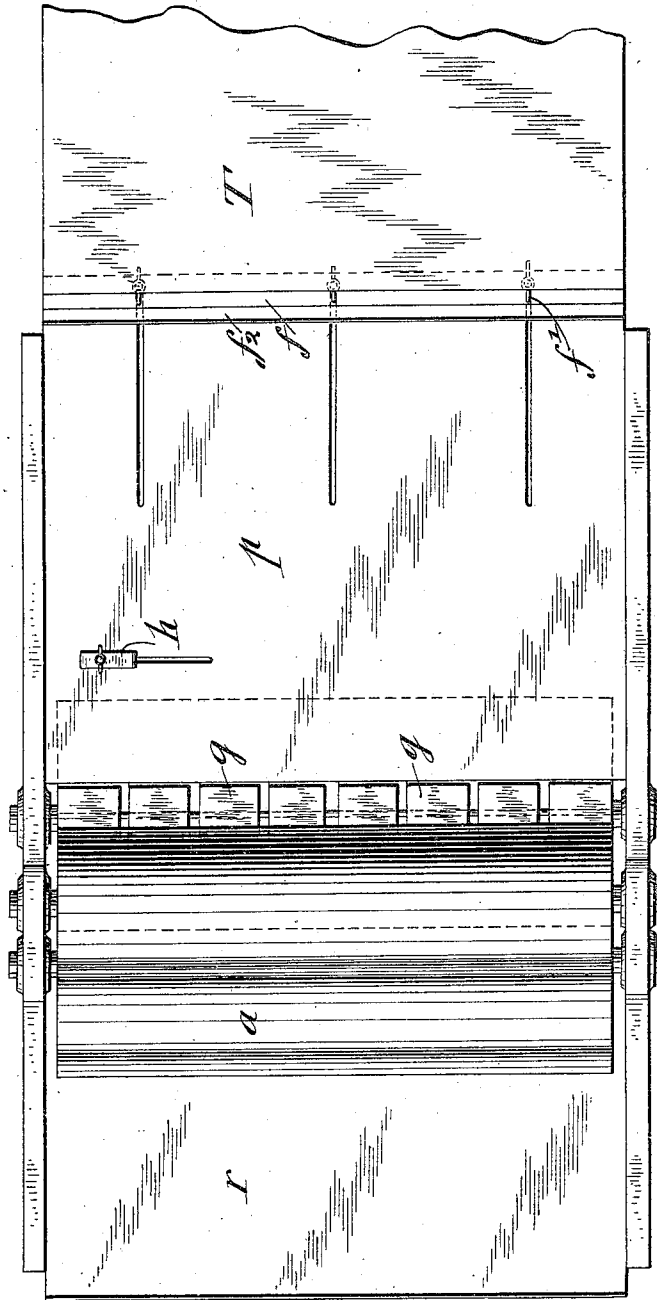
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2 SHEETS—SHEET 2.

Fig. 2



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UNITED STATES PATENT OFFICE.

ALBERT J. FORD, OF NEW YORK, N. Y., ASSIGNOR TO THE FUCHS & LANG MANUFACTURING CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FEED DEVICE FOR SHEET-METAL-PRINTING MACHINES.

No. 844,113.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed February 28, 1906. Serial No. 303,473.

To all whom it may concern:

Be it known that I, ALBERT J. FORD, a citizen of the United States, residing in New York, in the borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Feed Devices for Sheet-Metal-Printing Machines, of which the following is a specification.

In printing-machines for printing upon sheet metal and other relatively stiff materials it has been customary to employ a feed board or table which is inclined downwardly with respect to the transfer and impression cylinders and to employ guides at the forward ends of said feed board or plate where the same is adjacent the contact-line of said cylinders, said guides being moved at a predetermined time in order to release the sheet to be printed and permit the same to be taken hold of by grippers and fed through between the impression and transfer cylinders. It has been found that by such a construction it is impossible to obtain a perfect register of the printing matter upon the sheet, whether said matter is printed in black or in a plurality of colors, by reason of the fact that the movement of the guides away from the sheet before the grippers take hold of the sheet cannot be effected without a certain slipping or shifting of the latter.

The primary object of this invention is to provide a feed device for printing-machines of the type indicated in which the shifting of the sheet is entirely prevented and in which the sheet is fed between the transfer and impression cylinders at exactly the proper time, whereby a perfect register is obtained.

A further object of this invention is to provide a feed device in which the sheet may be very accurately adjusted with respect to the grippers of the impression-cylinders, said adjustment being both longitudinal and transverse to said grippers, whereby the accurate positioning of the sheet is insured.

With these and other ends in view the invention consists in the novel features, arrangements, and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings, in which the same reference characters designate the same parts in the two figures, Figure 1 is a side elevation of a feed device constructed in

accordance with the invention, a part of the impression-cylinder being broken away in order to show one of the grippers; and Fig. 2 is a plan view of Fig. 1.

In the drawings, *a* indicates the form or plate cylinder, to which ink is supplied in any suitable manner, as by the inking-rollers diagrammatically illustrated. Mounted below and rotating in contact with the form-cylinder *a* is the smaller transfer-cylinder *a'*, and said cylinder in turn rotates in contact with a larger impression-cylinder *a''*, which is provided with a longitudinally-extending row of grippers *g*, by means of which the sheet to be printed is grasped and fed between the transfer and impression cylinders. It is in the means for feeding the sheet to said grippers *g* that my invention especially consists. Instead of providing a feed-plate which is inclined downwardly, so that the sheet to be printed slides by gravity between the cylinders *a'* and *a''* when released, I employ a feed-plate *p*, which is mounted adjacent the impression-cylinder *a''* and has its inner edge approximately in contact and tangential thereto, said plate *p* being inclined downwardly from the upper portion of the impression-cylinder, as shown.

For the purpose of positioning the sheet upon the feed-plate *p* a transverse feed-gage *f* is provided. Said feed-gage consists of a bar which extends transversely to the feed-plate at its outer lower end and is adjustable longitudinally thereto by means of slots in said plate and clamping-screws *f'*, coöperating with said slots in the manner indicated.

In order to adjust the sheet laterally of the feed-plate, a side gage *h* is provided at one side of the feed-plate. Said side gage is adjustable transversely to the feed-plate and longitudinally to the impression-cylinder by means of a transverse slot in the feed-plate and a clamping-screw, the connection between said side gage *h* and the feed-plate being similar to that between the latter and the transverse bar *f*. However, the gage *h* instead of being constituted by a bar, as is said transversely-disposed gage, is formed of a small angle-piece, as shown.

A feed-table *T* is located adjacent the outer end of the feed-plate *p*, and at the side of the impression-cylinder which is opposite the feed-plate is located a receiving plate or

table *r* to receive the sheets after their passage between the transfer and impression cylinders.

In operation the sheets to be printed are laid upon the table *T* at the ingoing end of the press and are placed one by one upon the inclined feed-plate *p*. The sheet is positioned upon said feed-plate by means of the transversely-disposed gage-bar *f*, the upwardly-extending flange or lip *f*² of which retains said sheet against sliding downwardly on the feed-plate and away from the impression-cylinder, which such sheet, owing to gravity, would otherwise do. The end gage *f* is adjusted longitudinally to the feed-plate to such an extent that the upper edge of the sheet will slightly overlie the upper edge of the feed-plate, and thereby come into contact with the grippers *g* of the impression-cylinder during the rotation of the latter. When said grippers contact with the upper edge of the sheet, they grasp the same and carry it between said impression-cylinder and the transfer-cylinder, said cylinders then feeding the sheet between them while printing the same. In order to insure the proper placing of the printed matter laterally of the sheet, the side gage *h* is moved transversely of the feed-plate to the required degree.

By the construction described the blank sheet remains absolutely stationary on the feed-plate until said sheet is engaged by the grippers, and no shifting of the same by

which a perfect register would be prevented is possible. This feeding device can be applied to any cylinder-press which has a continuous motion and which might be used for printing on sheet metal or other heavy stiff materials.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In a feed device for sheet-metal-printing machines, the combination, with the transfer and impression cylinders, of a longitudinally-disposed row of grippers carried by the latter cylinder, a feed-plate having one end in close proximity to the path of travel of said grippers and inclined downwardly from said end, and a sheet-retaining bar disposed transversely of said feed-plate at the lower end thereof, said bar being adjustable longitudinally of said feed-plate in order to make the sheet project at its upper edge slightly beyond the upper edge of said feed-plate and into the path of said grippers, the sheet being fed upwardly along said feed-plate and between said cylinders solely by the action of said grippers.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ALBERT J. FORD.

Witnesses:

PAUL GOEPEL,
HENRY J. SUHRBIER.