

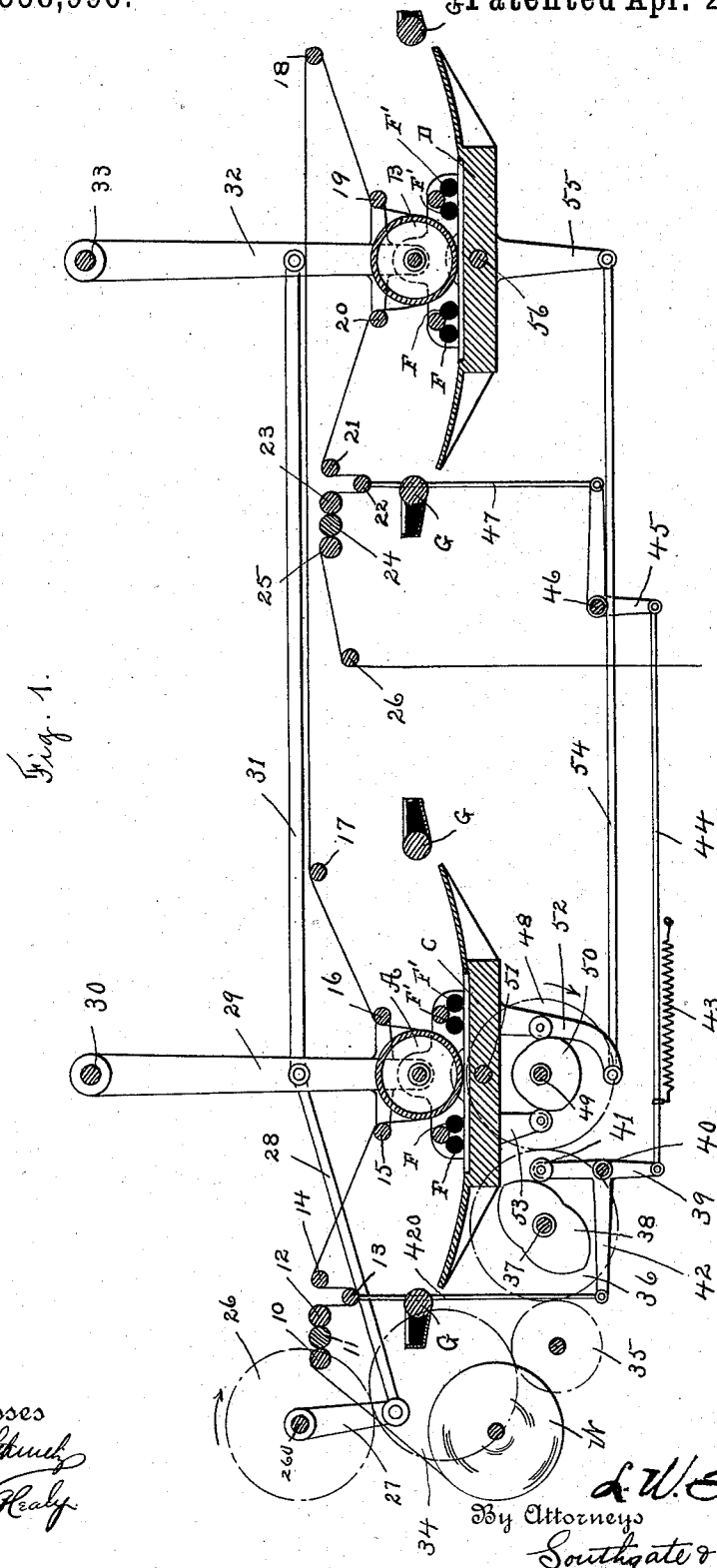
(No Model.)

2 Sheets—Sheet 1.

L. W. SOUTHGATE.
PRINTING MACHINE.

No. 558,996.

Patented Apr. 28, 1896.



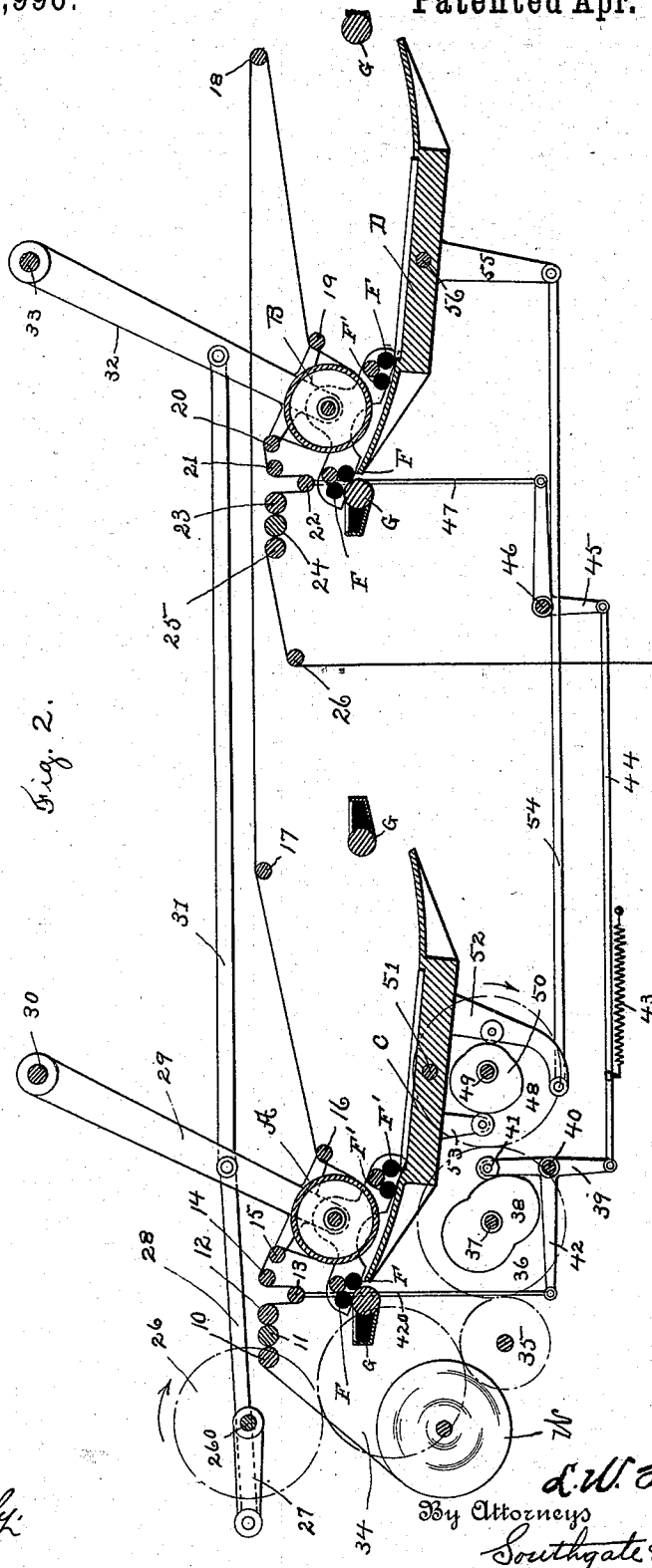
(No Model.)

2 Sheets—Sheet 2.

L. W. SOUTHGATE.
PRINTING MACHINE.

No. 558,996.

Patented Apr. 28, 1896.



Witnesses
Wm. F. Schuch
E. M. Healy

Inventor
L. W. Southgate
By Attorneys
Southgate & Southgate

UNITED STATES PATENT OFFICE.

LOUIS W. SOUTHGATE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE CAMPBELL PRINTING PRESS AND MANUFACTURING COMPANY, OF NEW YORK, N. Y.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,996, dated April 28, 1896.

Application filed May 22, 1894. Serial No. 512,140. (No model.)

To all whom it may concern:

Be it known that I, LOUIS W. SOUTHGATE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Printing-Machines, of which the following is a specification.

My invention relates particularly to what are known as "traveling-cylinder" printing-presses; and the object of my invention is to provide a machine for printing and perfecting a web of paper by means of impression-cylinders which are reciprocated in a curved path of travel; and to this end my invention consists of the parts and combinations of parts, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying two sheets of drawings, Figure 1 is a diagrammatic sectional view of a printing-machine constructed according to my invention, and Fig. 2 is a similar view showing the parts in a different relative position.

Referring to the drawings and in detail, A designates an impression-cylinder, which co-operates with a form-bed C and is journaled upon a shaft mounted in a pivoted yoke or framework formed by arms 29, which are journaled upon a horizontal shaft 30. Mounted upon and carried by the journals of the impression-cylinder A, I provide suitable carriages or frames, in which are mounted form-rollers F F and F' F', which coöperate with ink-fountains G G and the ink-tables carried by the form-bed to properly ink the form of type which may be secured upon the bed.

In order that the form-bed C may tip or oscillate to conform to the path of travel of its impression-cylinder, the form-bed is journaled on a central transverse horizontal shaft 51.

B designates the second impression-cylinder, which is journaled upon a shaft mounted in a pivoted frame or yoke formed by the arms 32, which are journaled on a horizontal shaft 33.

Mounted upon and carried by the journals

of the impression-cylinder B, I provide carriages or frames, which are also provided with form-rollers F F and F' F', which coöperate with ink-fountains G G and ink-tables carried by the form-bed D to properly ink the form of type secured upon the form-bed.

In order that the form-bed D may be tipped or oscillated to conform to the path of its impression-cylinder, it is journaled upon a transverse horizontal shaft 56.

With the impression-cylinders and form-beds thus arranged a web of paper may be led from the web-roll W, journaled at one end of the press, up between the feeding-in rollers 10, 11, and 12, under a looping-in roller 13, over a guide-roller 14, around a guide-roller 15, down, under, and around the first impression-cylinder A, over a guide-roller 16, over and around the guide-rollers 17 and 18, around the roller 19, down, under, and around the second impression-cylinder B, over the guide-roller 20, around the roller 21, under and around the looping-out roller 22, up between the feeding-out rollers 23, 24, and 25, from which feeding-out rollers the web may be led over the guide-roller 26, down and out of the press to any approved form of cutting or folding device.

The gearing which I preferably employ for actuating my improved printing-machine may be arranged as follows:

35 designates the power-gears, which are fastened upon a shaft, to which power may be applied in any approved manner. Meshing with and engaging the gears 35 I provide intermediate gears 34, which in turn mesh with and engage driving-gears 26, which are fastened upon a shaft 260. Fastened upon the shaft 260 are cranks 27, which are connected with and oscillate the arms 29 by means of pitmen 28, the arms 29 being in turn connected to the arms 32 by means of pitmen 31.

The looping-rollers for intermittently drawing the web through the press may be operated in any approved manner, and, as shown in the drawings, the power-gears 35 mesh with and drive gears 36, secured to a shaft 37, which carries suitable cams 38 for moving the looping-rollers in one direction.

As shown in the drawings, T-shaped levers

pivoted on a horizontal shaft 40 are provided with horizontal arms 42, connected at their outer ends to frames 420, in which is journaled the looping-in roller 13. The downwardly-extending arms 39 of the T-shaped levers are connected by pitmen 44 with bell-crank levers 45, journaled upon a horizontal shaft 46, and actuating-arms 47, which carry the looping-out roller 22, these parts being actuated in one direction by means of the cams 38 and being moved in an opposite direction by means of springs 43, secured to the pitmen 44.

Meshing with and engaging the gears 36 I provide gears 48, secured upon a horizontal shaft 49, located directly below the shaft 51, upon which the form-bed C is journaled. For the purpose of oscillating or tipping the form-bed C to conform to the path of travel of its impression-cylinder the shaft 49 is provided with cams 50, which engage with rollers journaled upon lugs 52 and 53, extending down from the form-bed C, the cams 50 being so proportioned that the form-bed will be tipped or turned and the type-forms held in contact with the impression-cylinder while the impression-cylinder is oscillated or reciprocated over its bed.

The form-bed D is connected to the form-bed C by means of the extended arm or lug 52, extending down from the form-bed C, the rods or links 54 and the arms or lugs 55 extending down from the form-bed D, and the type-bed D will thus be oscillated or reciprocated synchronously with the type-bed C to retain its type-forms in contact with its impression-cylinder as the same is oscillated or reciprocated thereover.

The feeding-in rollers, the feeding-out rollers, and the distributing-rollers of the ink-fountains may be actuated by any of the usual forms of gearing which are used in presses of this character, and I am aware that many changes may be made in the construction

of my printing-machines by those who are skilled in the art without departing from the scope of my invention, and that many different means may be used for tilting or oscillating the form-beds to conform to the path of their respective impression-cylinders, and I do not wish, therefore, to be limited to the construction which I have shown and described, but—

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. The combination in a web-printing machine, of a pivoted frame, an impression-cylinder mounted therein, web-guides also mounted in said frame, means for oscillating said frame, a form-bed, means for moving the same to conform to the path of travel of the impression-cylinder, web-guides for leading a web to and from the cylinder, guides mounted in said frame, and a web-shifting device arranged to shift the web when the impression-cylinder is out of impression, substantially as described.

2. The combination in a web-perfecting printing-machine of pivoted frames, an impression-cylinder and web-guides also mounted in said frames, means for oscillating said frames, a form-bed with which each impression-cylinder is adapted to coact, means for moving the form-beds to conform to the path of travel of the impression-cylinders, web-guides for leading a web to one of said cylinders, from this cylinder to the other cylinder, and from the last cylinder, and a web-shifting device arranged to shift the web when the impression-cylinders are off impression, substantially as described.

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

LOUIS W. SOUTHGATE.

Witnesses:

PHILIP W. SOUTHGATE,
E. M. HEALY.