No. 639,802. Patented Dec. 26, 1899.

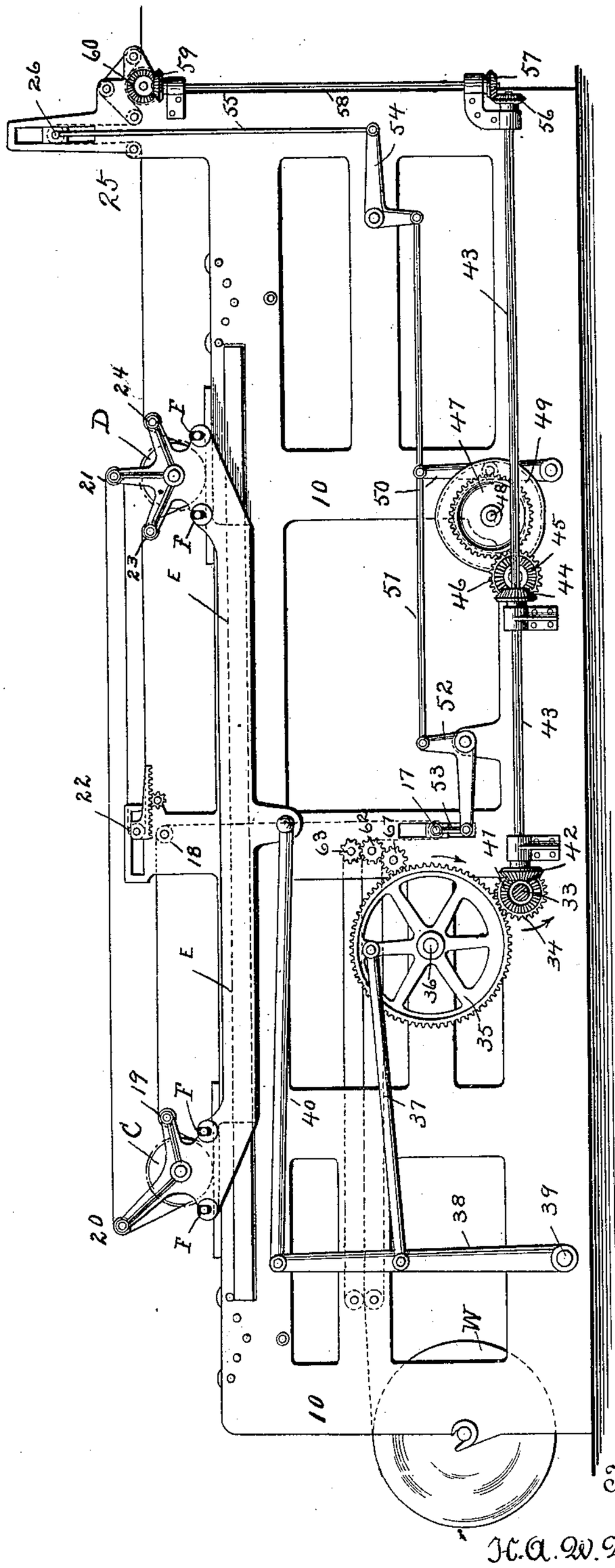
H. A. W. WOOD.

PRINTING MACHINE.

(Application filed June 20, 1894. Renewed May 27, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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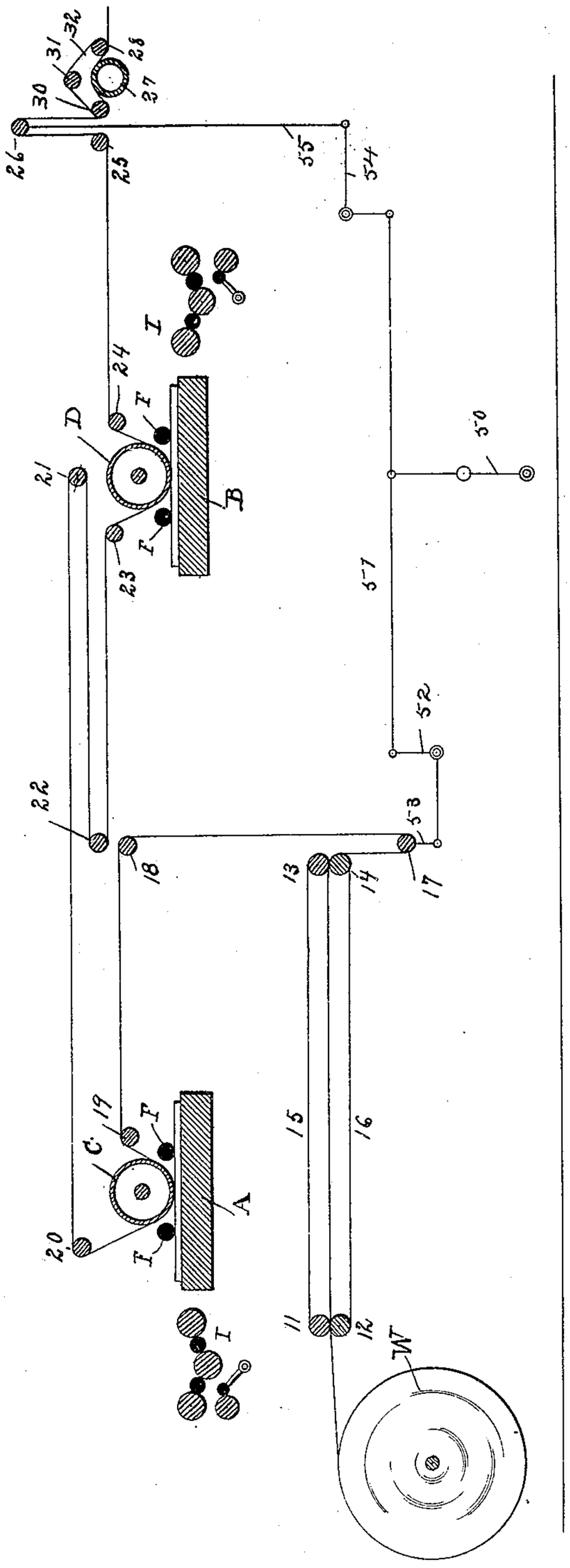
(No Model.) 2 Sheets—Sheet 2.

Fig. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR TO THE CAMPBELL PRINTING PRESS AND MANUFACTURING COMPANY, OF SAME PLACE.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 639,802, dated December 26, 1899.

Application filed June 20, 1894. Renewed May 27, 1899. Serial No. 718,536. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Printing-Machines, of which the following is a specification.

My invention relates to that class of printing-machines which are known as "traveling-cylinder" web-printing presses; and the object of my invention is to provide an improved construction in which the web will have a very simple and direct path of travel in such position that it will leave at least one of the type-forms so that the same will be readily accessible.

To these ends my invention consists in 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 side elevation of a printing-machine constructed according to my invention, and Fig. 2 is a diagrammatic sectional view of the same.

Referring to the drawings and in detail, C designates the first impression-cylinder, which coöperates with a stationary form-bed A, and D designates the second impression-cylinder, which coöperates with a similar stationary form-bed B. The impression-cylinders C and D are journaled in a suitable framing or carriage E, which is guided upon suitable ways carried by the side frames 10 of the press.

At each side of each of the impression-cylinders I provide suitable form-inking rollers F, which coöperate with a suitable ink-distributing apparatus I in order to properly ink the forms upon the stationary form-beds A and B.

Journaled in the side frames 10 at one end of the press I provide a web-roll W, from which the paper is led into the press between the constantly-running feeding-in tapes 15 and 16. The endless tapes 15 pass over suitable tape-rollers 11 and 13, and similar endless tapes 16 pass over the tape-rollers 12 and 14, the tapes being driven or actuated as hereinafter described.

As shown in the drawings, it will be seen that the web is led into the press so that the feeding-in devices are located below one of the stationary form-beds. I consider this arrangement desirable, as it enables me to economize space and to form a compact machine, and by introducing the web into the press between the two stationary beds, as will be hereinafter explained, it will be seen that I am enabled to deliver the web directly from one end of the press.

From the constantly-running feeding-in tapes the web passes down under the looping-in roller 17, between the stationary form-beds, up and around a guide-roller 18, journaled in the side frames of the press, over and around a guide-roller 19, journaled in the cylinder-carriage, down under and around the first impression-cylinder C, over and around a guide-roller 20, also journaled in the cylinder-carriage, over and around a guide-roller 21, journaled in the cylinder-carriage, over and around an adjustable register-roll 22, journaled in the side frames of the press, over a guide-roller 23, journaled in the cylinder-carriage at one side of the second impression-cylinder D, down under and around the impression-cylinder D, over and around a guide-roller 24 at the opposite side of the impression-cylinder D, under and around a guide-roller 25, journaled in the side frames, over the looping-out roller 26, and over and around the constantly-running feeding-out roller 27. As shown in the drawings, the feeding-out roller 27 coöperates with suitable endless tapes 32, the tapes 32 being led over suitable tape pulleys or rollers 28, 30, and 31, as shown. By providing this path of travel of the web it will be seen that the impression-cylinder C will be mounted, substantially, in a loop of the web, (as the roller 20 could be omitted, if so desired,) and it will also be seen that when the impression-cylinder C travels to the right, as considered in the drawings, this loop of the web will be given up, and the web would become slack if it were not for the roller 21,

which forms a loop in the web and takes up the same as fast as it is given out on account of the motion of the impression-cylinder C, or, in other words, the impression-cylinder C and the roller 21, which moves synchronously therewith, form a loop in the web, which may be shifted back and forth without slackening the web or affecting the feeding-in and delivery ends thereof, and by this construction it will be seen that when the impression-cylinder C is at the right-hand end of its travel, as shown in the drawings, the web will be shifted from over the form-bed A, which leaves the form-bed easily accessible, so that the forms can be secured in place thereon. I consider this construction a feature of importance, as in the ordinary forms of traveling-cylinder printing-presses the web is led over the form-beds in such position as to practically prevent access thereto, and in using this form of press it has heretofore been customary to secure the forms in place after the web is threaded through the machine, which results in considerable delay in the printing owing to the difficulty in properly securing the forms on the bed. This class of presses is of course ordinarily employed in printing newspapers, and in my construction one of the forms, which may be set up from standard matter, is secured in place upon the form-bed B.

The web is threaded through the machine, the form to be secured upon the bed A being kept open until the last minute, the last operation before printing being simply to secure this form in place upon its bed A, which can be almost instantly done, and I am enabled to commence the printing at once when the form has been secured in place, which of course is a feature of importance in newspaper-work, and of course this same saving is made where a number of forms are placed abreast on each bed.

The gearing for driving the press may be arranged in any of the ordinary or preferred manners. As shown in the drawings, 33 designates a power-shaft, to which power may be applied in any of the ordinary or preferred manners. Fastened upon and turning with the power-shaft 33 I provide gears 34, which mesh with and actuate the driving-gears 35, which are secured upon a shaft 36. Suitable crank-pins carried by the driving-gears 35 are connected by pitmen 37 and actuate levers 38, which are secured to the cross-shaft 39 The levers 38 are connected with and drive the cylinder-carriage E by means of suitable pitmen 40, as shown. The constantly-running feeding-in tapes may, if desired, be driven from one of the driving-gears 35 by means of a pinion 61, which meshes with and drives a gear 62, fastened to the tape-roller 14, the gear 62 in turn meshing with and driving a gear 63, secured to the tape-roller 13. Actuated and driven from the power-shaft 33 by means of bevel-gears 41 and 42 I provide a horizontal shaft 43. Secured to the horizontal shaft 43 I provide a bevel-pinion 44, which meshes with and drives a bevel-gear 45, having a spur-gear 46 secured thereto, which meshes with and drives a gear 47 for actuating the cam-shaft 48, journaled in the side frames of the press, as shown. Fastened upon and secured to the cam-shaft 48 are suitable cams 47, which actuate rollers journaled upon suitable levers 50, as shown. The levers 50 are connected by suitable pitmen 51 with bell-crank levers 52, which actuate the looping-in roller 17 by means of pitmen 53, and to bell-crank levers 54, which actuate the looping-out roller 26 by means of pitmen 55. Actuated and driven from the horizontal shaft 43 by means of bevel-gears 56 and 57 I provide a vertical shaft 58, which in turn actuates and drives the constantly-running feeding-out roller 27 by means of the bevel-gears 59 and 60. It is evident, however, that many different arrangements of gearing or driving mechanism can be adopted without departing from the spirit of my invention, which relates particularly to the path of the web through the machine, and I am aware that many changes may be made by those who are skilled in the art without departing from the scope of my invention as expressed in the claims.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with two form-beds, a traveling impression-cylinder coöperating with each form-bed, web-guides adapted to lead the web to the first impression-cylinder, a looping-roller moving with the impression-cylinders, to which the web passes from the first impression-cylinder, a stationary roll around which the web then passes to the second impression-cylinder, and a web manipulating or feeding mechanism, substantially as described.

2. The combination of two form-beds arranged in substantially the same horizontal plane, a traveling impression-cylinder coöperating with each form-bed, means for leading the web into the machine up between the form-beds, a looping-roller moving with the impression-cylinders to which the web passes from the first impression-cylinder, and around which the same is looped between the two impression-cylinders, a stationary roll interposed between the looping-roller and the second impression-cylinder, and a web manipulating or feeding mechanism, substantially as described.

3. The combination in a printing-press of two form-beds, a traveling impression-cylinder coacting with each form-bed, web-guides comprising web-guides on the frame, a looping-roller moving with the impression-cylinders interposed in the path of the web be-

tween the two impression-cylinders, and a stationary roll interposed in the path of the web between the looping-roller and the second impression-cylinder, means for adjusting this last-named roll whereby the same may act as a register-adjusting device, and a web manipulating or feeding mechanism, substantially as described.

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

H. A. WISE WOOD.

Witnesses:
J. L. BROWER,
H. W. COZZENS, Jr.