(No Model.) 2 Sheets—Sheet 1.

J. C. FOWLER & E. A. HENKLE.

WEB TURNING AND REVERSING DEVICE FOR PRINTING MACHINES.

No. 383,568. Patented May 29, 1888.

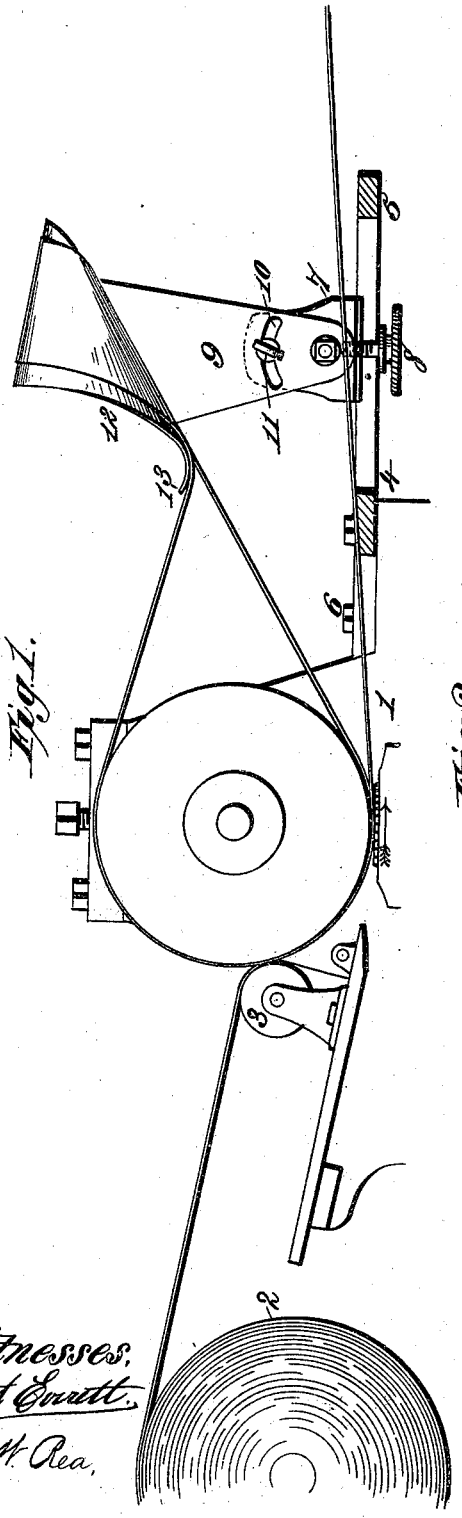

Fig. 1.

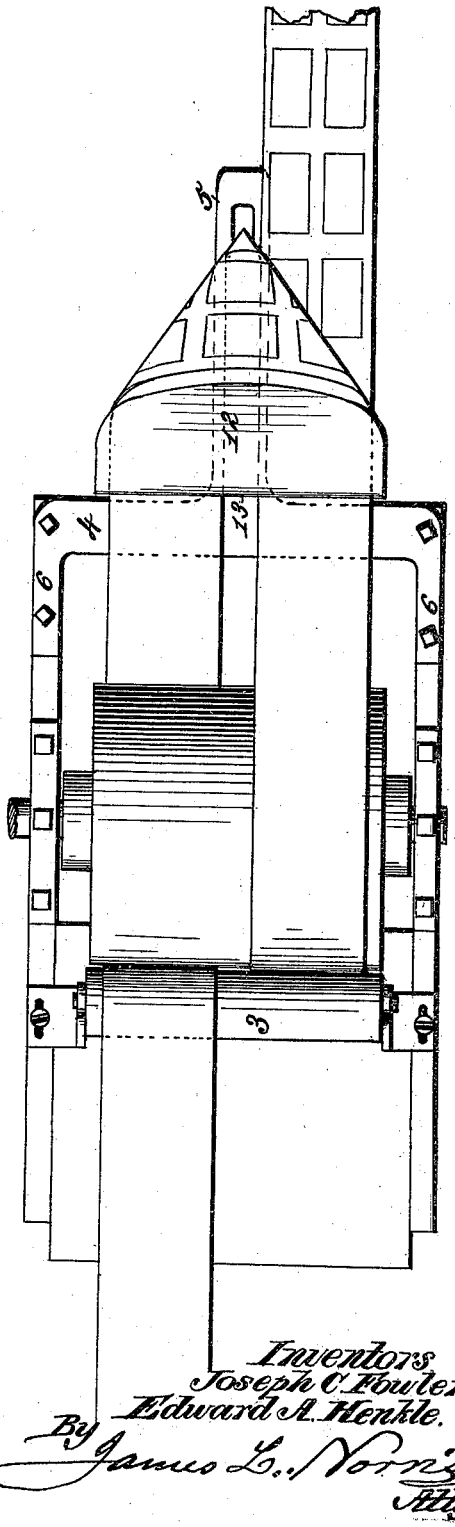

Fig. 2.

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By James L. Norris.
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(No Model.) 2 Sheets—Sheet 2.

J. C. FOWLER & E. A. HENKLE.

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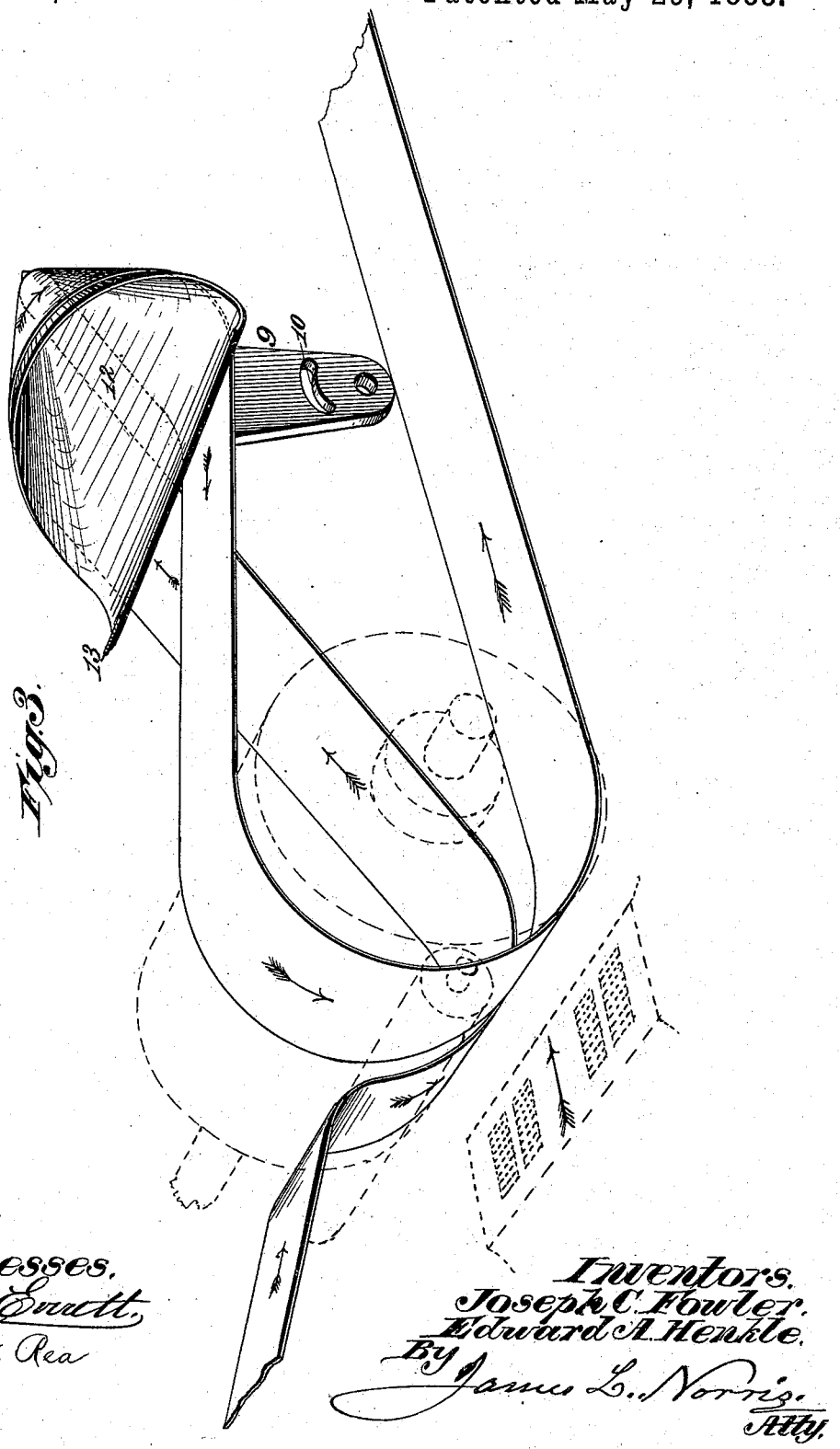

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH C. FOWLER AND EDWARD A. HENKLE, OF WASHINGTON, DISTRICT OF COLUMBIA.

WEB TURNING AND REVERSING DEVICE FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 383,568, dated May 29, 1888.

Application filed July 14, 1887. Serial No. 244,286. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH C. FOWLER and EDWARD A. HENKLE, citizens of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Web Turning and Reversing Devices for Printing-Machines, of which the following is a specification.

Our invention relates to that class of printing-presses in which the impressions are made upon a continuous web, which may afterward be cut and folded in any suitable manner.

It is the purpose of our present invention to provide a simple device for reversing the movement of the continuous web after it has been printed on one side, in order that it may be again subjected to the action of the printing mechanism and printed upon the other side, or "perfected."

It is the special purpose of our invention to provide a device for this purpose in which the blank or uprinted surface only of the web shall be subjected to contact, and in which the friction of the traveling strip shall be reduced to the minimum, thereby wholly obviating the danger of offset from the printed surface and the risk of tearing the paper through rapid travel of the web. It is our purpose, also, to provide an extremely simple, adjustable, and comparatively inexpensive device capable of attachment without change to any form of printing-press in which continuous-web printing is practicable, and adapted to turn or reverse the direction of movement of the paper as it comes from the printing mechanism without subjecting the printed surface to contact of any kind.

The invention consists in the several novel features of construction and new combinations of parts hereinafter fully set forth, and specifically defined in the claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a portion of a printing mechanism with our invention applied. Fig. 2 is a plan view of the parts shown in Fig. 1. Fig. 3 is a detail perspective view illustrating our invention.

In the said drawings the reference-numeral 1 denotes any form of mechanism suitable for continuous-web printing, and for the sake of convenience we have shown a single bed and a single impression-cylinder. The web is illustrated as taken from a roll, 2, whence it passes between the bed and the cylinder, a binding-roll, 3, being employed to hold the web against the surface of the cylinder and give sufficient frictional contact to prevent slipping and cause the web to be presented smoothly to the type. Upon the other side of the impression-cylinder we mount a suitable support, 4, which in this instance is a T-piece of metal bolted to the press, as shown at 6, Figs. 1 and 2. The arm 5 of this support is slotted, and in the slot is mounted a bracket, 7, fastened at any suitable point by a set-screw, 8. Upon the bracket 7 is pivotally mounted a plate, 9, having a curved slot, 10, through which passes a set-screw, 11, tapped into the bracket. Upon the upper end of the plate 9 is rigidly mounted the turning or reversing device 12, having substantially the form shown in Figs. 1 and 3, flattened upon one side, and having the flattened side prolonged and provided with a curve, 13. This device is mounted upon the plate 9, its flattened side being downward or adjacent to the plate and its base adjacent to the impression-cylinder. The flattened side of the reversing device forms an angle with the plate, viewed in side elevation; but this arrangement is not absolutely essential, provided the adjustment is such that a line drawn tangent to the lower side of the impression-cylinder shall coincide substantially with the flattened side of the reversing device, as shown in Fig. 1.

The web passing from the supply-roll 2 is carried over the tension and binding roll 3, thence under the impression-cylinder. From this point it rises to the flattened surface of the turning and reversing device 12 on one side thereof, winds over the upper surface thereof and down under the other side of the flattened portion, whence it passes over the impression-cylinder and is carried under the same to print the other side. It will be seen from Figs. 2 and 3 that the web passes first under one end of the impression-cylinder and upon its return under the other end; but it is evident that the web may be returned to and printed by any other suitable mechanism.

In the drawings we have indicated a form of press in which book-printing may be accomplished, two pages of the book being printed on one side of the web, which, upon its return, is perfected by the impression of the two remaining pages on the reverse side, and directly opposite those first printed. In order to provide for proper register, the reversing device 12 is rendered adjustable by means of the bracket 7, moving in the slot 10. The pivotal adjustment of the plate 9 is to permit the operator to bring the flattened side into line with a tangent to the cylinder whenever the bracket 7 is adjusted toward or from the printing mechanism.

We make the reversing device (shown in Figs. 1 to 3) of sheet metal for the sake of lightness, though it might be made of any other material and be solid.

What we claim is—

1. In a printing-press, a web turning and reversing device consisting of a metallic body of substantially conoidal form, flattened upon one side, and mounted upon a plate having pivoted adjustment, substantially as described.

2. In a printing-press, the combination, with the press-bed, of a web turning and reversing device consisting of a hollow stationary body of substantially conoidal form, having one side flattened, and provided with a pivotally-mounted plate, a set-screw adjustably connecting said plate to the press-bed, and means, substantially as described, for giving pivotal adjustment to said plate, substantially as described.

3. In a printing-press, the combination, with the press-bed having a longitudinal slot, of a bracket having a set-screw moving in said slot, a plate pivotally mounted on said bracket and having a curved slot through which a set-screw passes into the bracket, and a web turning and reversing device mounted on the end of said plate, substantially as described.

4. The web turning and reversing device described, consisting of the metallic body 12, of substantially conoidal form, having one side flattened and prolonged in the direction of the base of the device, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH C. FOWLER.
EDWARD A. HENKLE.

Witnesses:
J. A. RUTHERFORD,
GEO. W. REA.