

S. G. ADAMS & C. L. LEONORI.

PRINTING DEVICE.

No. 403,082.

Patented May 14, 1889.

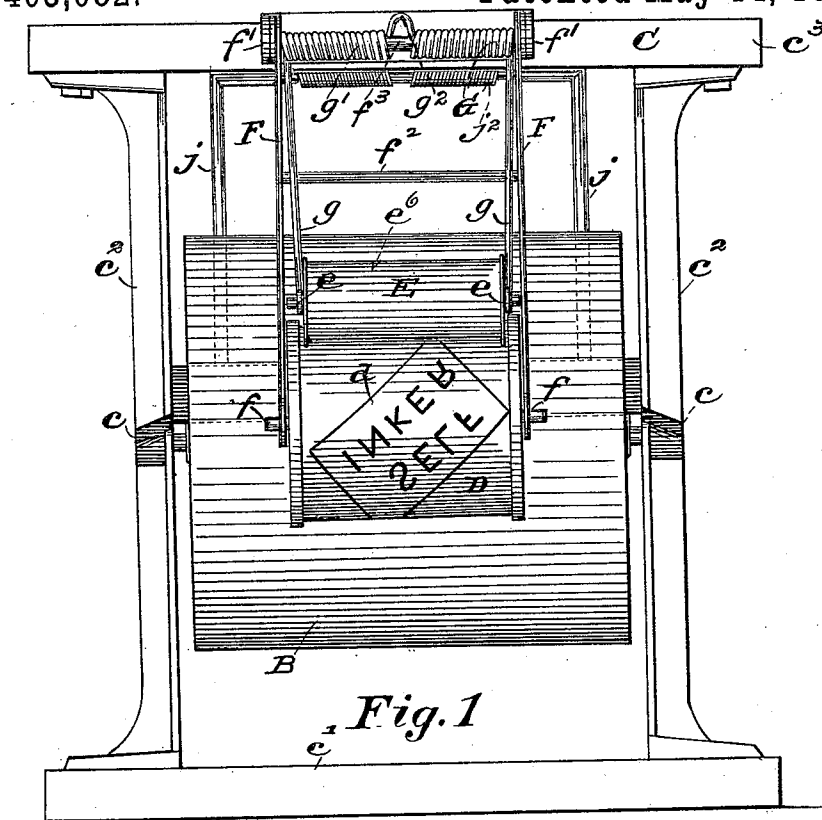


Fig. 1

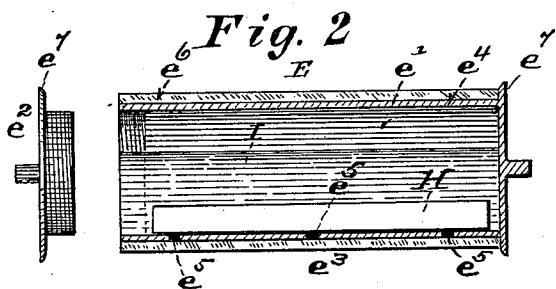


Fig. 2

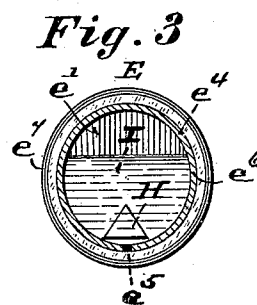


Fig. 3

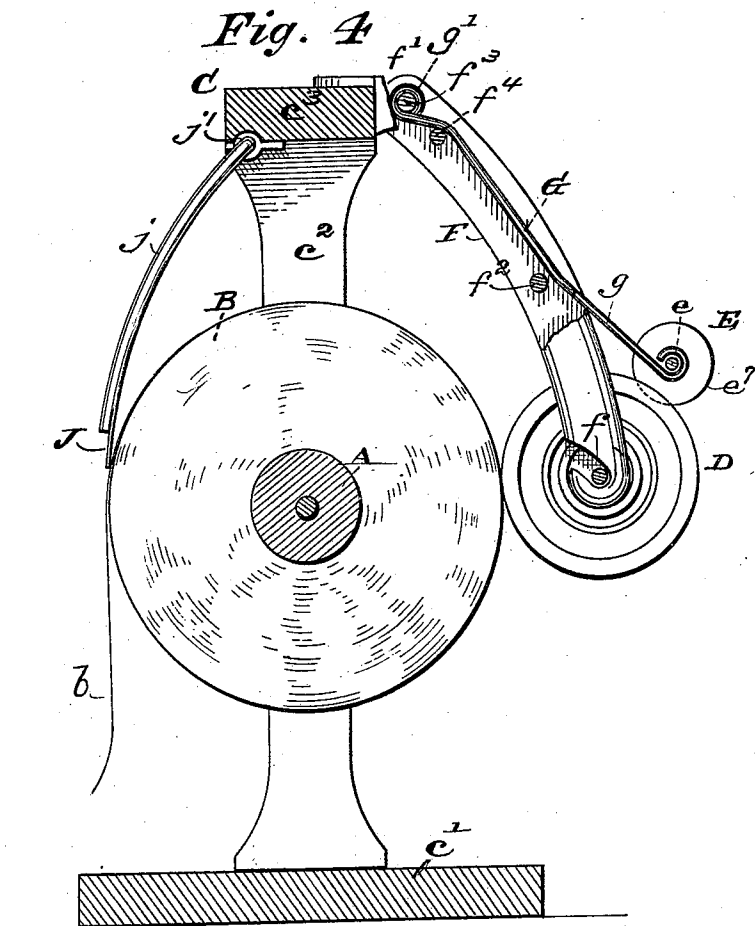
Witnesses:
G. W. Groom

Inventor:
Stephen A. Adams
Charles R. Leonori
by C. Conolly atty.

S. G. ADAMS & C. L. LEONORI.
PRINTING DEVICE.

No. 403,082.

Patented May 14, 1889.



Witnesses:
Wm. Sanford
L. W. Groom

Inventor:
Stephen G. Adams
Charles L. Leonori
by C. P. Moody atty

UNITED STATES PATENT OFFICE.

STEPHEN G. ADAMS AND CHARLES L. LEONORI, OF ST. LOUIS, MISSOURI.

PRINTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 403,082, dated May 14, 1889.

Application filed May 7, 1888. Serial No. 273,040½. (No model.)

To all whom it may concern:

Be it known that we, STEPHEN G. ADAMS and CHARLES L. LEONORI, of St. Louis, Missouri, have jointly made a new and useful Improvement in Printing Devices, of which the following is a full, clear, and exact description.

The improvement relates to that class of printing devices in which a roll of paper or other material capable of being rolled and being printed upon is so combined with a printing device that as the web is unrolled the impressions are made upon it, and the unwinding of the web effects the operation of the printing device.

The present improvement relates to the detail of construction and combination of the several parts, substantially as is hereinafter more especially set forth and claimed, aided by a reference to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation of the improved device, looking toward that side to which the printing mechanism is applied; Fig. 2, a longitudinal section of the inking-roll, its removable end being shown detached; Fig. 3, a cross-section of the inking-roll, and Fig. 4 an end sectional elevation of the improved device.

The views are upon various scales, and the same letters of reference denote the same parts.

The roller A, upon which the roll B of paper, &c., is supported, is suitably journaled in bearings *c c* in a frame, C, so that by drawing upon the free end of the paper web the roll B can be unwound. The frame C in the present instance consists, substantially, of the base *c'*, the uprights *c² c³*, and the top plate, *c³*. The inking mechanism is composed mainly of the form-bearing roller D, the inking-roller E, and means for holding the form-bearing roller and the roll B in such relation as shall cause the unwinding of the roll B to effect the rotations of the form-bearing roller and its form *d* to be impressed upon the roll B, and for holding the form-bearing roller and inking-roller in such relation as shall cause the rotation of the form-bearing roller to effect the rotation of the inking-roller and the application of the ink to the form *d*.

To this end the form-bearing roller is held and journaled in bearings *f* in an arm F, which at *f'* is hinged to the frame C, and by means of the spring G made to close toward the roll B, and thereby hold the form-bearing roller against the roll B as the roll B diminishes in diameter. The bearings *e e* of the inking-roller E are conveniently provided by extending the portions *g g* of the spring G downward past the bar *f¹ f²* of the arm F, substantially as shown in Figs. 1 and 4, and shaping them at the lower end to form the bearings.

The action of the spring is readily understood from an inspection of the drawings, the upper portion, *g'*, of the spring being coiled around the bar *f³* of the arm F, and at *g²* being shaped to form a shoulder to come against the frame C, or some fixed part upon the frame, and, by means of the portions *g g*, made to bear against the arm F below the point where the arm F is hinged to the frame C, as upon the bar *f⁴*. Below the bar *f²* the extensions *g g* of the spring are contrived so as to cause the inking-roller to be sprung toward the form-bearing roller.

The inking-roller is shown more distinctly in Figs. 2 and 3. It is made hollow to contain the ink, and to enable the ink to be introduced into the chamber *e'* in the roller the end *e²* of the roller is made detachable, and a convenient mode of making it detachable is to adapt the end to be screwed into the main portion *e³* of the roller, substantially as shown. The shell *e⁴* of the roller has fine perforations *e⁵* in it, to enable the ink to flow from the chamber *e'* to the exterior of the roller, and there to saturate and be distributed upon some material—such as a cloth—which answers as an inking-pad, *e⁶*, for applying the ink to the form *d*. The position of the perforations *e⁵* is a matter of importance. It is impracticable for them to be distributed all around the roller-shell, as thereby the upper ones for the time being become air-vents and cause the ink to flow freely through the lower ones, and cause trouble, especially when the device is not being used. Therefore the perforations are concentrated, and the best method we find is to arrange them in line and longitudinally along one side only of the roller, substantially as

shown. By this means the ink cannot leak from the roller-chamber e' , when the roller is turned to bring the perforations in the upper part of the roller, and when the roller is turned to bring the perforations underneath the ink cannot flow freely through the perforations because there is no air-vent above. The ink therefore can neither be wasted nor be applied too freely to the form d .

To insure a sufficient delivery of the ink, (usually an aniline ink,) means are introduced into the roller-chamber e' which shall operate to force the ink through the perforations as the roller is rotated. As the most desirable means, we employ a part like the triangular bar H, Figs. 2 and 3, which is loose within the roller-chamber, and which, as the roller rotates, operates to facilitate the outward flow of the ink I. We have used shot for the same purpose, or even an ordinary nail; but whatever similar agent is employed it serves to promote the flow of the ink, as described, and to assist in keeping the ink from becoming clogged about the perforations. The flanges e^i e^j of the inking-roller serve to keep the pad from encountering only the form d of the form-bearing roller.

The device upon the opposite side of the roll B is provided with a cutter, J, which is held by the arm j , which in turn is hinged to the frame C at j' . The spring j^2 forces the cutter against the roll B as it diminishes in diameter, and so that the web end b can be torn against it.

The triangular bar H falls with one of its sides over the perforations e^5 , and conse-

quently is particularly adapted to produce a constant and equal flow of ink through said perforations. It must be observed that the cross-section of said bar is equilateral, as is fully shown in Fig. 3.

We claim—

1. In a printing device, the hollow inking-roller E, having the circumferential outstanding flanges e^7 at its ends, closed at one end by the screw plug or stopper e^2 , provided with a single longitudinal line of perforations, e^5 , surrounded by the cloth e^6 , which does not stand out quite as far as the flanges from the surface of the roller, and the interior loose bar, H, having a cross-section in the shape of an equilateral triangle, substantially as specified.

2. The herein-described printing device, composed of the frame C, having the base c' , uprights c^2 , and top plate or bar, c^3 , the paper-roller A, journaled in bearings in the uprights c^2 , the arm F, hinged to one side of the top plate and having the cross-bars f^3 and f^4 , the coiled spring G, having the arms g , the inking-roller E, journaled in eyes in the ends of said arms, and the form-bearing roller D, journaled in the ends of the arm F, substantially as specified.

Witness our hands this 27th day of April, 1888.

STEPHEN G. ADAMS.
CHARLES L. LEONORI.

Witnesses:

C. D. MOODY,
C. C. LOGAN.