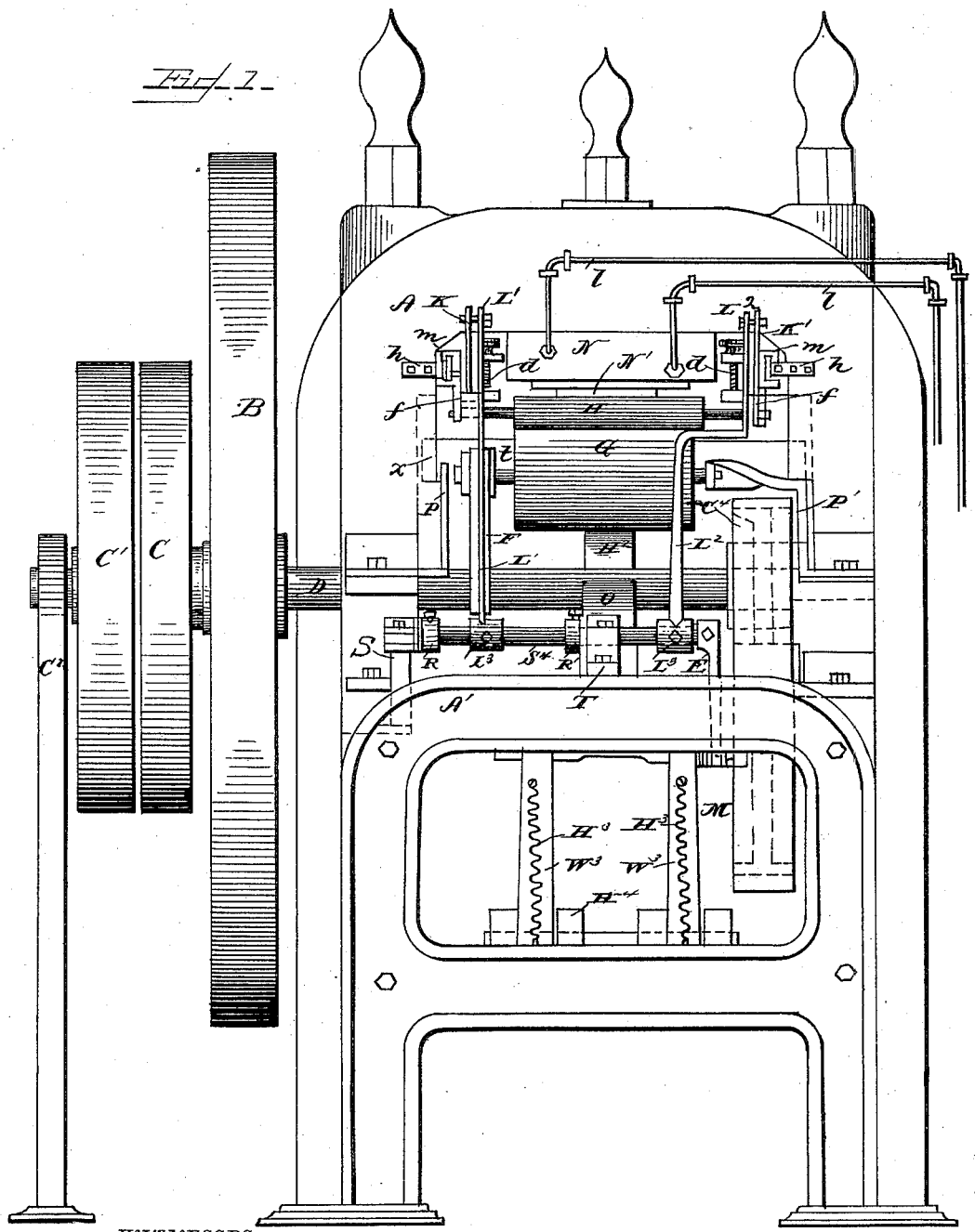
(No Model.) 3 Sheets—Sheet 1.

H. K. DRAWBAUGH.

INKING ATTACHMENT FOR EMBOSSING AND PRINTING PRESSES.

No. 302,830. Patented July 29, 1884.

Fig. 1.



WITNESSES

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(No Model.) 3 Sheets—Sheet 2.

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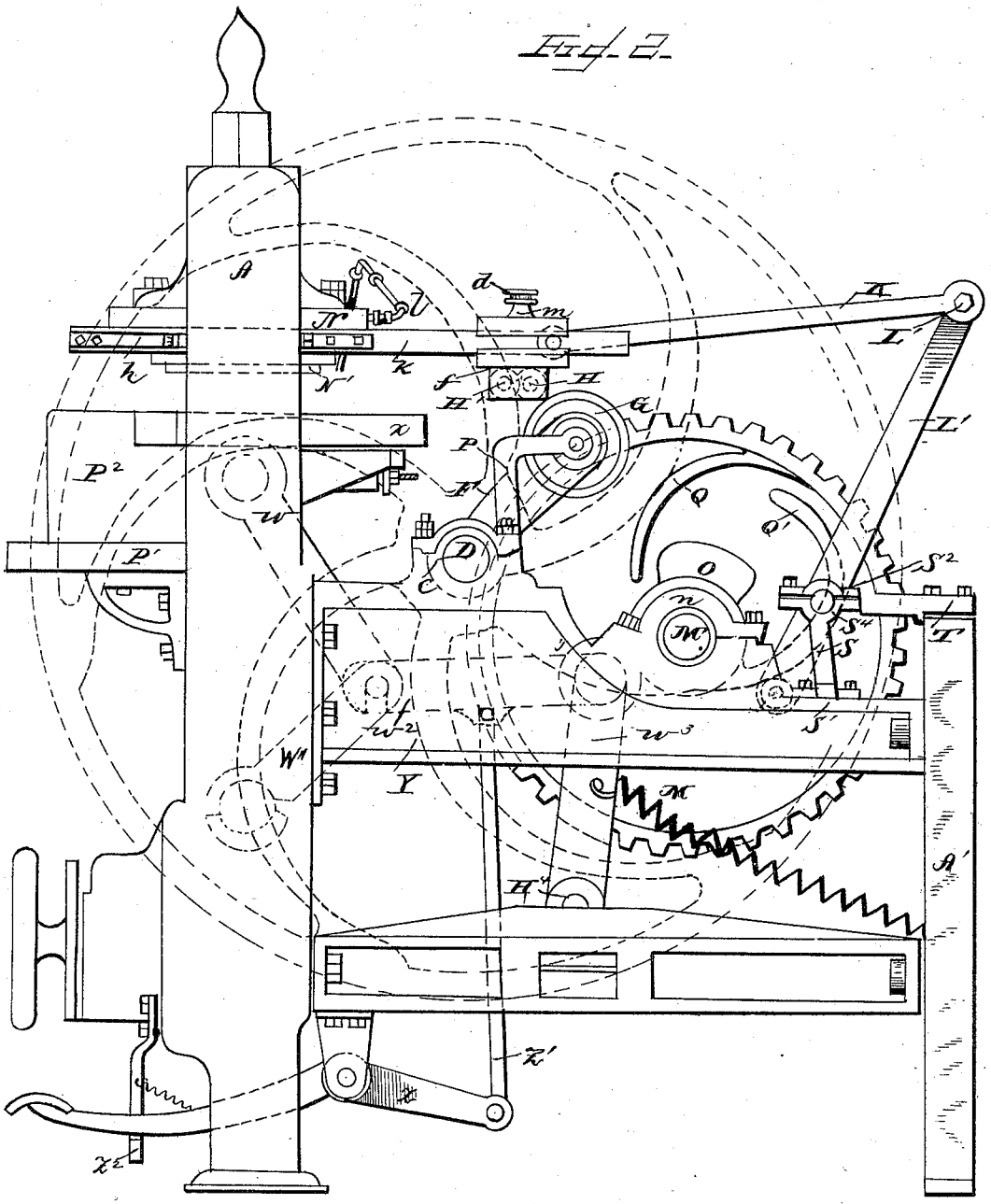
Fig. 2.



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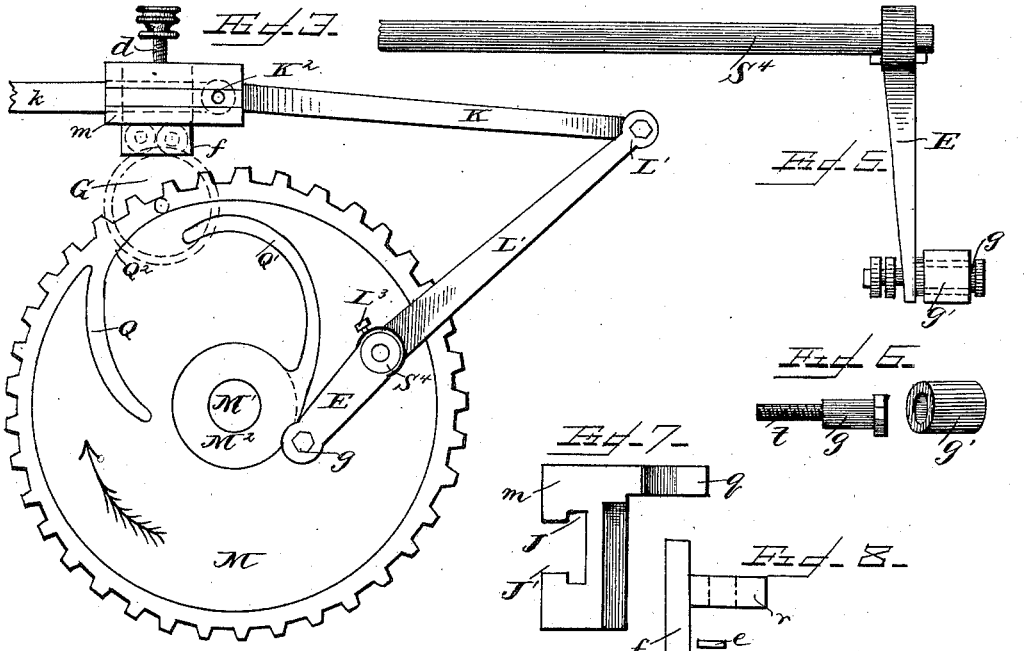

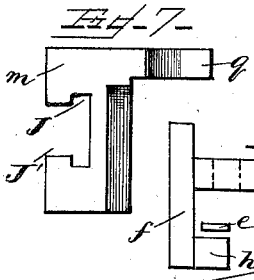

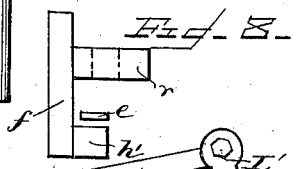

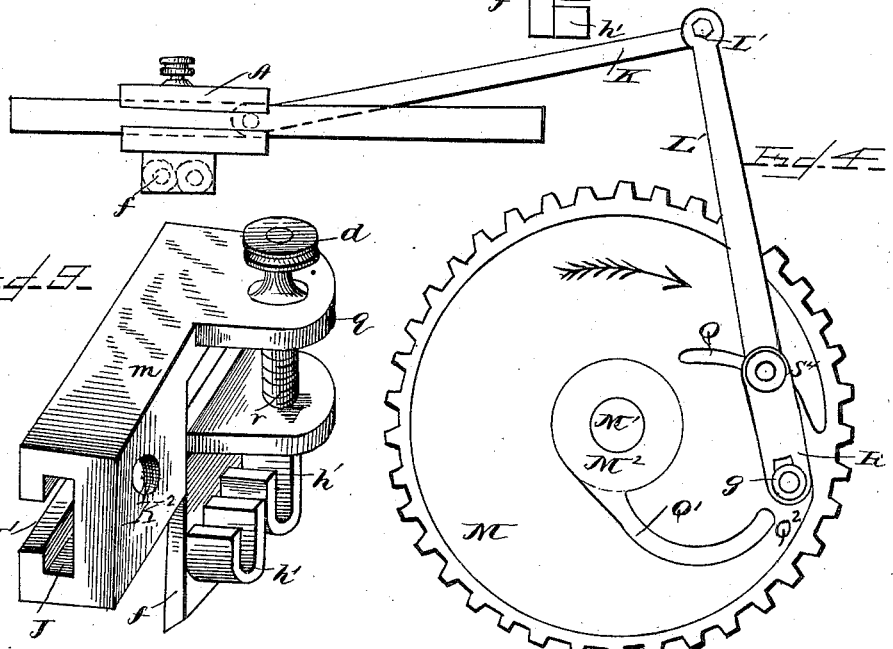

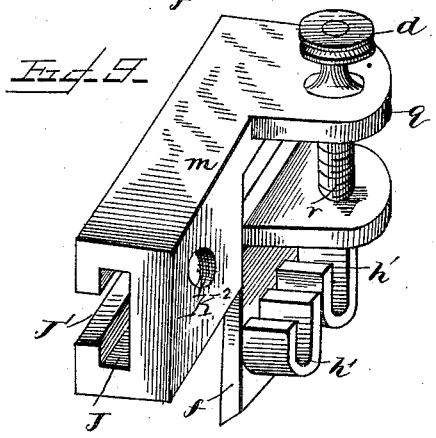

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UNITED STATES PATENT OFFICE.

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INKING ATTACHMENT FOR EMBOSSING AND PRINTING PRESSES.

SPECIFICATION forming part of Letters Patent No. 302,830, dated July 29, 1884.

Application filed August 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, HARMAN K. DRAWBAUGH, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented a new and useful Inking Attachment for Embossing and Printing Presses, of which the following is such full, clear, and exact description as will enable those skilled in the art to which it appertains to make and use the same by aid of the accompanying drawings.

My invention is applicable to several forms of popular embossing-presses already in use; and for illustration a Sanborn embossing-press is shown in the drawings with my inking attachment applied thereto. Moreover, the principles of my so-called "attachments" are not solely for refitting old presses, but may be employed in building new combined embossing and printing presses, so that both operations—smashing and printing—may be performed on the same press. Its principal novel and useful features are, first, the combination, in a convertible embossing and printing press, of a peculiar cam on the inner face of main wheel, it being composed of eccentric parts and a central concentric part with adjustably-mounted rock-shaft, adapted with wrist thereon to be actuated by contact with said cam to receive rocking motion therefrom, with inking-rollers coupled by links with swinging arms on said shaft, whereby said rollers are reciprocated on guides to traverse the stationary form, and to pause intermittingly while on or in contact with the constantly-rotating ink-distributing cylinder; second, the said rock-shaft provided with crank and wrist, and arranged on supports upon the machine-frame to be at right angles to the face of main wheel, in combination with adjustable sleeve on said shaft, by adjusting which the shaft may be endwise shifted for gearing with said cam and disgearing therefrom.

In the further description of my invention reference is had to the accompanying drawings, in which Figure 1 represents a rear elevation of a Sanborn embossing-press with my improved inking attachment thereon. Fig. 2 represents a side elevation of the same with fly-wheel and pulleys removed. Fig. 3 represents the master-wheel with double cam thereon, and rock-shaft with its connections in retracted position. Fig. 4 represents said wheel, cam, and rock-shaft in advanced position, as when engaged in the act of inking. Fig. 5 represents an elevation of the rock-shaft with crank and anti-friction roller on its wrist. Fig. 6 represents the said wrist pin or stud and the anti-friction roller. Fig. 7 represents an end view of one of the slides carrying the inking-rollers. Fig. 8 represents one of the adjustable bearing-blocks on said slides. Fig. 9 represents a perspective view of one of the adjustable slides for the inking-rollers aforesaid.

Similar reference-letters denote similar parts throughout the several views.

Letter A denotes the front end of said press, A′ the rear end of the same.

B denotes the fly-wheel; C C′, the driver and the idle pulley, respectively; C^2, the exterior support for shaft D, having said wheel and pulleys thereon, as shown, and on its inner end said shaft has on it the pinion C^4, (shown in dotted lines,) which drives the master-wheel M, which latter moves the shaft M′, and the eccentric O thereon, which latter works the compound toggles W W′ W^2 W^3, and thereby actuates the platen X, in the usual manner.

Z denotes a treadle; Z^2, a stop therefor, and Z′, the link connecting treadle and toggle-beam W^2, whereby the motion of the levers may be interrupted in the usual way.

P′ denotes the press-receiver; P^2, curbs therefor.

N denotes the press-head, and *l* steam-fittings for heating the same by communication of its interior with a boiler.

N′ denotes a form or plate.

The master-wheel M has on its disk or inner face the double cam Q Q′, which, in conjunction with the wheel-hub M^2, operates the inking attachments, combined and arranged therewith in a novel manner. Said wheel, when newly made, can have my said improved cam cast thereon with very little additional cost and no additional labor.

For refitting presses already extant, the cam-sections Q and Q′ may be bolted or riveted to

the wheel, its face being deeply recessed between its rim and hub, the sections Q and Q′ being abutted thereto.

The travel of the anti-frictional wrist *g g′* is as follows: Starting at the most eccentric point in the cam against the rim Q^2, with the wheel M rotated in the direction denoted by the arrow, said wrist is engaged by the concave side of cam-section Q, and thereby guided centerward until it arrives at the hub M^2 and stands against it while said cam-section Q passes it or rotates on—that is, it stands still bearing against said hub for about one-third of a revolution of the wheel M. The position of the levers of the apparatus is such now that they act by gravity to keep said wrist in said position, as shown in Fig. 3. On the further rotation of said wheel the cam-section Q′ engages said wrist by contact with its convex side, and thereby guides the same eccentrically until it is deflected nearly to the rim Q^2, whereat, by a cut or path between said cam-sections Q Q′ or their equivalent, the said wrist arrives again at the starting-point, from which its travel was traced—that is, at its initial point against section Q. The inclination of the levers of the apparatus is now such that they act by gravity to keep said wrist pressed against section Q. The deflections of the crank E by said wrist *g g′*, guided by cam Q Q′, as described, cause the shaft S^4 to rock and the arms L′ L^2 thereon to oscillate, said arms being pivoted at their ends to links K K′, which latter are pivoted at their other ends to slides *m* on the guides *k*, pass said slides back and forth, and likewise the inking-rollers H H′ supported thereon. Said reciprocatory motion of said slides and rollers is rectilinear; but said rollers also are rotated by circumferential contact with the ink-distributing cylinder G, which is driven by a belt, F, connecting its pulley *t* with shaft D. Said rollers H H′ dwell on or against said cylinder in the intervals of pressing or rest from their transverse motion. Said transverse movement may be varied by adjusting the stud *g* in a slot in the crank E, thus varying its radius and consequently its throw and that of the arms L′ L^2. The ink-distributing cylinder G is mounted rearward from the press-bed to allow the cylinder to be adjusted rearward unobstructedly for large work. The rock-shaft S^4 is located rearward still farther to be out of the way of said cylinder, and to deliver inking-rollers H H′ to dwell thereon. Said shaft has the two supports S and T. Said support S is a post erected on rail Y, as shown; but in new presses the cap *n* of shaft M′ may be prolonged to support said shaft S^4 thereon. The post shown is designed for refitting machines already in use. The other bearing of said shaft S^4 is, in the support T, arranged inward from the end, having the crank E thereon, as shown in Fig. 1, so that the arm L^2 on said shaft, as arranged between said crank E and said support T, may leave surplus space between its socket L^3 and said support to allow the shaft S^4 to be shifted away from the wheel M sufficiently to disgear the wrist *g g′* from the cam-sections Q Q′ when embossing or smashing only is to be done on the press.

The act of disgearing is more particularly provided for as follows: On shaft S^4 are two sleeves, R R′, arranged directly inside of the supports S and T, respectively. The same are held in place by set-screws. When the set-screw of sleeve R is slacked the sleeve may be slipped farther inward from the said support S, and the shaft itself may then be slipped or shifted at its bearings freely, the said sleeves being the only keepers for said shaft longitudinally; hence, said wrist may be disgeared at will, and the inking attachment will be suspended for running the embossing-machine distinctly therefrom. The arms L′ L^2 are attached to the shaft S^4 by sockets or butts L^3, with set-screws, as shown in Fig. 1. The arm L′ is direct, and arm L^2 is offset to vibrate free of wheel M, and carry its connecting-link K′ parallel with link K. The links K K′ are pivoted at their ends similarly, respectively, to the arms L′ L^2 and to the slides *m*, being joined to the latter at K^2 on their inner sides and centrally opposite the guideways therein. The slides are entered on guides *k*, which pass through the ways J in the same. Said guides are supported in horizontal and parallel direction on the jambs in the opening in the arch or uprights A, to which latter they are attached by braces *h* bolted to them and to said jambs, as shown. The said braces *h* are of narrower bar than the guides *k*, that they may let pass the slides *m* cut open at J′ for this purpose. Each of said slides *m* has vertically-adjustable bearings *h′ h′*, or block *f* connected with it by dove-tail joint, and by a screw, *d*, traveling in an extension, *r*, on said block *f*, and swiveled in the extension *q*, and thereby raising or lowering said block, and thereby also raising or lowering the inking-rollers H H′ supported in said bearings *h′ h′*. The inking-cylinder G is mounted on supports P P′, as shown. The nuts or screws for securing the cap on the journals of shaft D may also secure said supports at the same time. Said cylinder G is of sufficient diameter to afford ample distributing-surface thereon. The same is arranged parallel with and has circumferential contact with the inking-rollers H H′, which latter dwell on it and are set in motion by contact therewith during about one-third of each revolution of the wheel M, while the cam-sections Q Q′ are intermittent or inoperative. The cylinder may be supplied with ink manually in the usual way; or it may communicate with a duck-roller in a fountain in any well-known or approved way. The inking-rollers H H′ may be adjusted vertically by the screws *d* to bear against forms or dies for embossed work of varying heights or inclinations. The inking-rollers H H′ have their journals supported in open bearings *h′ h′* pro-

vided with keepers therefor, that they may be readily removed for repairs or dressing.

I am aware that my inking attachment may be embodied in the make-up of new embossing-presses resembling the one shown in the drawings in the particular of having a master-wheel making one revolution to each advance of the press-platen, and having the same somewhat remote from said platen or from the press-head, as in such the cam-sections Q Q′ can be readily added with little added cost, and the rock-shaft supports can be made modifications of the master-wheel journal-cap, and an arm on the rear end, A′, of the press-frame.

I do not, therefore, confine this application to the refitting of old and valuable machines, but intend to embrace and cover by it new machines, employing some or all of its new and useful features for the purpose of making combination embossing and printing machines adapted for either operation distinctly or for both conjointly.

What I claim is—

1. In an embossing and printing press, the combination of the cam on disk of main wheel M, having the eccentric parts Q Q′ and the central concentric part, M^2, with the adjustably-equipped rock-shaft S^4 R L′ L^3, in communication with said cam by wrist $g\,g'$, and with the inking-rollers H H′ by links K K′, pivoted to slides m, supporting them, all co-operating to impart to said rollers extensive reciprocatory movements to traverse the stationary form N′ and to cause them to pause intermittingly while on the constantly-rotating cylinder G, substantially as and for the purposes set forth.

2. The rock-shaft S^4, provided with crank E and wrist $g\,g'$, and mounted in bearings on supports S T, and presented thereby to gear with an actuating-cam on the face of the wheel M, in combination with a sleeve, R, secured on said shaft by a set-screw, by adjusting which said rock-shaft may be shifted and disgeared with said wheel and its cam, substantially as and for the purposes set forth.

3. The combination of the actuating-cam Q Q′ on wheel M, the rock-shaft S^4, provided with means E g g', for connecting with said cam, the adjustable sleeve R on the said shaft for disgearing it with said cam and supporting it when geared therewith, the arms L′ L^2 on said shaft, the links K K′, guides k, slides m, and inking-rollers H H′, all co-operating to cause the latter to travel over the form under the press-head and to return to pause while over and in communication with the ink-distributing cylinder G, substantially as set forth.

HARMAN K. DRAWBAUGH.

Witnesses:
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THEOPHILUS WEAVER.