

(No Model.)

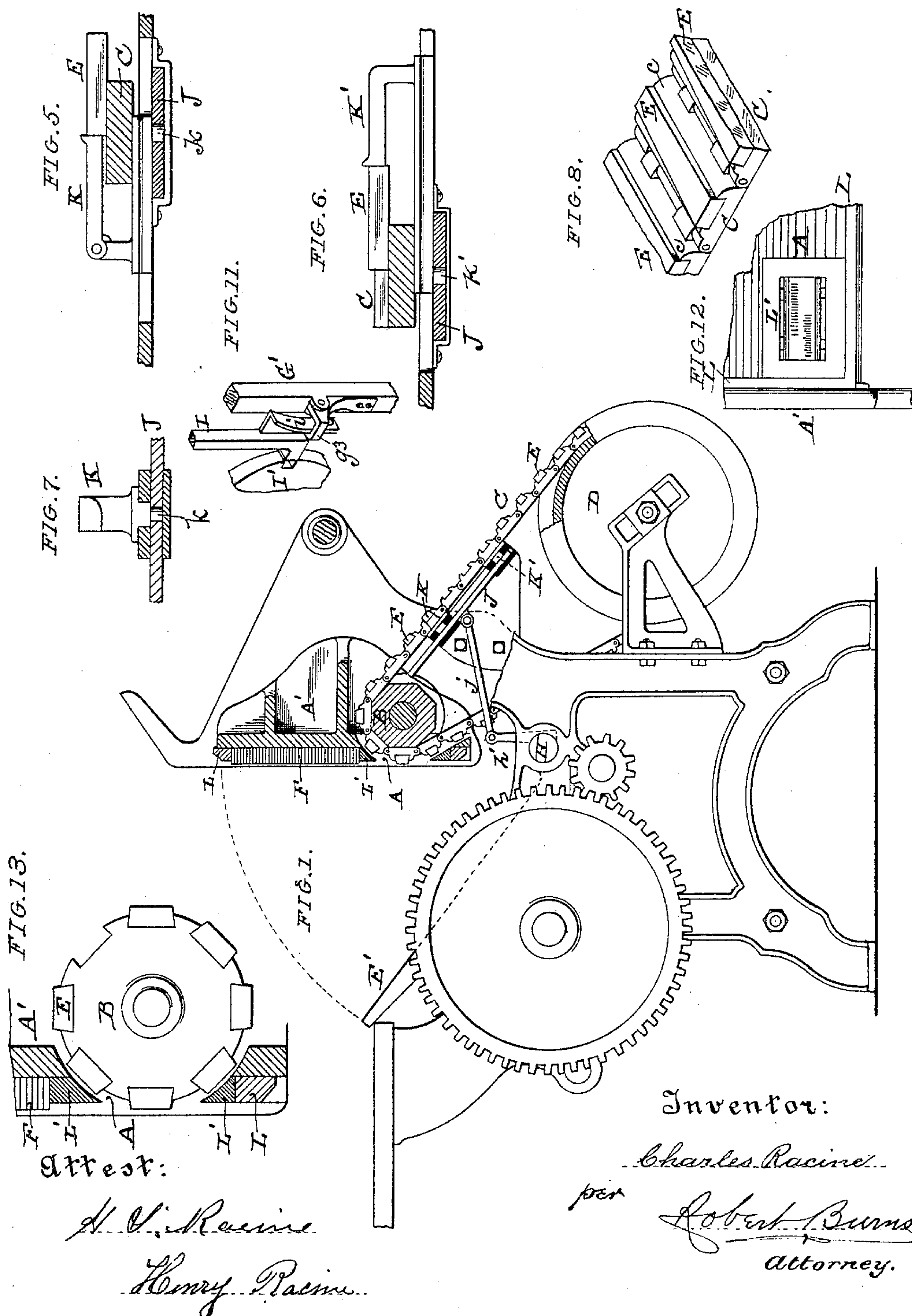
2 Sheets—Sheet 1.

C. RACINE.

CONSECUTIVE PRINTING ATTACHMENT FOR PRINTING PRESSES.

No. 327,591.

Patented Oct. 6, 1885.

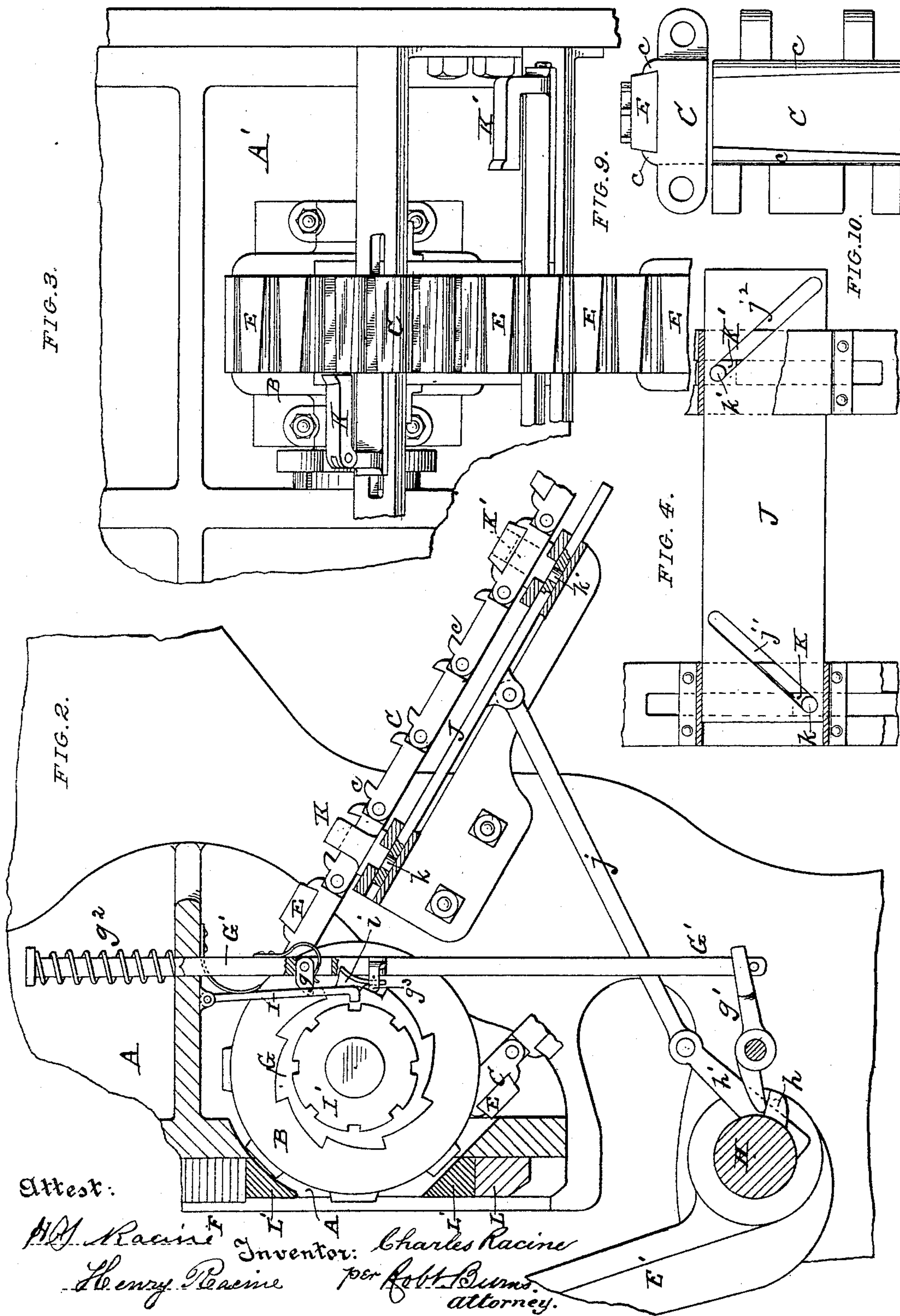


C. RACINE.

CONSECUTIVE PRINTING ATTACHMENT FOR PRINTING PRESSES.

No. 327,591.

Patented Oct. 6, 1885.



UNITED STATES PATENT OFFICE.

CHARLES RACINE, OF CHICAGO, ILLINOIS.

CONSECUTIVE PRINTING ATTACHMENT FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 327,591, dated October 6, 1885.

Application filed August 11, 1883. Serial No. 103,519. (No model.)

To all whom it may concern:

Be it known that I, CHARLES RACINE, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Consecutive Printing Attachments for Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to certain improvements in that class of consecutive printing mechanisms in which a new or fresh form is presented in printing position after each stroke of the press; and the present invention has for its object to provide a new and useful arrangement of mechanism for attachment to a printing-press, as hereinafter more fully set forth, for the attainment of such purpose.

In the accompanying drawings, Figure 1 is a side elevation, with the rear portion partly in section, of an ordinary job printing-press with my improvement attached. Fig. 2 is a detail vertical section illustrating the mechanism for intermittently moving the form-carrying drum and locking it in position, as well as the connection for intermittently operating the form feeding and discharging mechanism. Fig. 3 is a detail rear elevation of the same. Fig. 4 is an under view of the cam-plate for operating the form feeding and discharging mechanism. Fig. 5 is a detail transverse section showing the form-discharging head and its connections. Fig. 6 is a similar view of the form-feeding head and its connections. Fig. 7 is a transverse section of Fig. 5 with the discharging-head in elevation. Fig. 8 is an isometric view of a portion of the endless form-carrying belt. Fig. 9 is an end view of a single link of the endless form-carrying belt. Fig. 10 is a top view of the same. Fig. 11 is a detail perspective view of the mechanism for releasing the lock-pawl of the form-carrying drum. Fig. 12 is a detail front elevation of the press-bed and chases. Fig. 13 is a detail vertical section of a modified form of my invention, in which the form-carrying drum is adapted to receive the forms direct without the interposition of an endless chain, as in Figs. 1 and 2.

Similar letters of reference indicate like parts in the several views.

In its general construction my invention consists as follows:

A is an opening formed in the bed A' of the press, at the back of which is arranged in suitable bearings a type or form carrying wheel or drum, B, having its circumference formed into a series of flat surfaces, as shown.

In my preferred manner of carrying out my invention I employ an endless belt, C, passing over the drum B, and a flanged idler-drum, D, that is made adjustable in its bearings, so as to take up the slack of said belt, and also to permit of the ready handling and repair of the same. The belt C consists of a series of flat links suitably hinged together, as shown, and provided on their upper faces with dovetail cleats *c*, inclined toward each other, so as to receive and hold the electrotpe or removable form E firmly in place during the printing operation, the edges of said removable form E being correspondingly dovetailed and inclined so as to fit the dovetailed cleats of the links C. The endless belt, as so arranged, will have the face of one of its links parallel with the face of the bed of the press, and present its type or form E on a plane with the main form F of the press. (See Fig. 2.) The intermittent motion required to be imparted to the type or form carrying wheel or drum and the endless belt to bring each electrotpe or form E consecutively into printing position, is accomplished by the following means:

G is a ratchet-wheel secured upon the shaft of the drum B, and having ratchet-teeth equal in number to the faces upon the said drum. G' is a sliding bar provided with a spring dent or pawl, *g*, to operate the ratchet-wheel G. The required reciprocating motion is imparted to this bar by a lug or tappet, *h*, upon the rock-shaft H, which acts through the rock-bar *g'* to impart a downward motion to such sliding bar, its upward movement being accomplished by means of a spring, *g*², as clearly indicated in Fig. 2. The use of the rock-bar *g'*, in the construction illustrated in the drawings, is for the purpose of imparting a movement to the sliding bar G' in a reverse direction to that of the printing-press rock-shaft H, so that the rotation of the drum B and the

consecutive change of the type-forms E will be effected during the retrograde movement of the press-platen E'. The drum B is locked in position, while the impression is being taken, by means of a spring-pawl, I, which engages in one of a series of notches in the wheel I', upon the shaft of the drum B. To disengage this locking mechanism and allow the rotation of the drum B to be effected, I employ the following automatic mechanism:

g^3 is a hook projection upon the sliding bar G', which, in the downward movement of said bar, acts within the inclined groove of the lug i on the spring-pawl I, so as to force it out of engagement with the notched wheel I', and permit of the rotation of the drum B by the further downward movement of the sliding bar G'. The hook projection g^3 is made in the form of a spring-bar, as shown in Fig. 11, so that it can move up past the back of the lug i into operative position to engage the incline groove in the said lug in the next downward movement of the bar G'. The electro-types or movable forms E may be placed in position on the links of the chain C and removed therefrom by hand, if desired; but in most cases it will be preferable to make use of an inclined chute, (not shown,) from which they are forced into position on the chain-links by the following automatic mechanism:

J is a sliding cross-head receiving a reciprocating motion through link j from the rock-arm h' upon the rock-shaft H of the press. (See Figs. 1 and 2.) This reciprocating motion is imparted to a set of sliding heads, K K', (supported in suitable slides secured to the frame of the press, as shown,) by means of inclined slots $j' j^2$ in said cross-head, which receive pins $k k'$ on the under side of the sliding heads K K', as shown.

The arrangement of the cam-slots $j' j^2$ are in a direction reverse to each other, so that the movement of the sliding heads will also be in opposite directions, in order that their action will be to force one of the movable forms E into position in the belt C, (see Fig. 6,) and at the same time force one of said movable forms out of the belt after it has performed its work. (See Fig. 5.)

In order to form the opening A through the main or stationary form L, which contains the type that is set up permanently, so as to print at each impression, I employ a small frame or supplementary chase, L', having its back cut away, as shown, to receive the form-carrying drum B and belt C, (as indicated in Figs. 1, 2, and 13,) and enable the type upon the same to project through so as to be in line with the other type in the form L and print simultaneously therewith. This supplementary chase or frame is locked in with the main form in the bed of the press to stand directly in front of the opening A, as indicated in Figs. 1 and 12.

In the practical application of my improvement to different forms of presses, and also to different uses, the construction shown in the

drawings will require to be modified and departed from in a greater or less degree. In some cases, for instance, the endless chain C may be dispensed with and the drum or wheel B, fitted with dovetail cleats, to receive the removable forms E, as indicated in Fig. 13, which may be inserted and removed by hand or by suitable automatic mechanism, as found most desirable or convenient.

In use the drum B may be arranged in a horizontal, vertical, or inclined position, as desired or found most convenient, without departing from the spirit of my invention.

The automatic mechanism for rotating the drum B and the mechanism for inserting and removing the removable forms E are so timed that while the one is in operation the other will be returning into position to effect a succeeding operation.

In the arrangement illustrated in the drawings I hinge the discharging-head K and round its under side, as indicated in Figs. 5 and 7, so that it lifts up to permit a movement of the belt C underneath it during its receding movement.

While I have shown in the drawings the sliding heads K K' operated by means of cam-slots in the cross-head J, yet I do not limit myself to such mechanism, for the reason that other mechanism can be readily applied to obtain a like movement, such, for instance, as providing the cross-head J with a toothed rack meshing with and driving idler-pinions, which in turn mesh with and drive racks formed upon the sliding heads K K'.

Having thus fully described my said invention, what I claim and desire to secure by Letters Patent, is—

1. In a printing-press, the combination of the type-bed and rotatable drum B, arranged to project through the said bed, and adapted to present consecutively a series of type-forms to print simultaneously with the main form of the press, substantially as set forth.

2. In a printing-press, the combination of the type-bed and rotatable drum B, arranged to project through the said bed, and adapted to present consecutively a series of type-forms that are carried by an endless carrying-belt to print simultaneously with the main form of the press, substantially as set forth.

3. In a printing-press, the combination of a rotatable drum, B, arranged to project through the bed of the press, and adapted to present consecutively a series of type-forms to print simultaneously with the main forms, and connections with the press-platen, essentially as set forth, for intermittently rotating said drum, substantially as set forth.

4. In a printing-press, the combination of the type-bed and rotatable drum B arranged to project through the said bed, and adapted to present consecutively a series of type-forms to print simultaneously with the main form, with the endless carrying-belt C, and form feeding and discharging heads K K', and con-

nections with the press-platen, essentially as herein described, for intermittently rotating said drum B and operating said form feeding and discharging heads K K', substantially as set forth.

5 5. In a consecutive printing attachment for printing - presses, essentially as herein described, the combination of the platen rock-shaft H, provided with lug or tappet *h*, rock-arm *g'*, and sliding bar G', provided with spring-pawl *g*, with the type-bed and drum B, provided with ratchet-wheel G, as set forth.

10 6. In a consecutive printing attachment for printing-presses, the combination of the locking-spring I, having inclined grooved lug *i*, with the sliding bar G', receiving motion from the press-platen, substantially as described, and for the purpose set forth.

15 7. In a consecutive printing attachment for printing - presses, essentially as herein described, the combination of the form-carrying belt C, with the feeding and discharging

heads K K', having simultaneous movement in opposite directions, for the purpose set forth.

25 8. In a consecutive printing attachment for printing-presses, the combination of the drum and form carrying belt C, with the feeding and discharging slides K K', cam-plate J, link *j*, and the platen rock-shaft H, for the purpose set forth.

9. In a consecutive printing attachment for printing-presses, an endless form-carrying belt formed of links having dovetailed cleats inclined toward each other for receiving and holding movable forms E, essentially as described, and for the purpose set forth.

35 In testimony whereof witness my hand this 8th day of August, 1883.

CHARLES RACINE.

In presence of—

ROBERT BURNS,
H. D. SMALLEY.