

No. 688,097.

Patented Dec. 3, 1901.

G. & R. KENNEDY.
PERFORATOR FOR PRINTING PRESSES.

(Application filed Nov. 30, 1900.)

(No Model.)

2 Sheets—Sheet I.

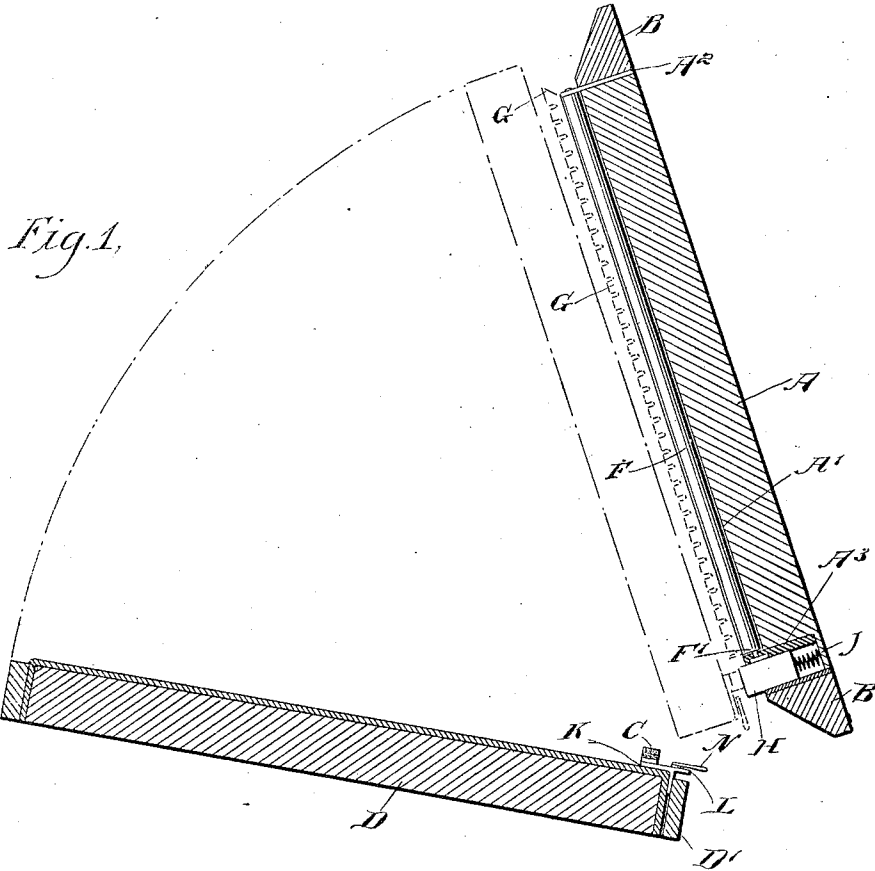


Fig. 2.

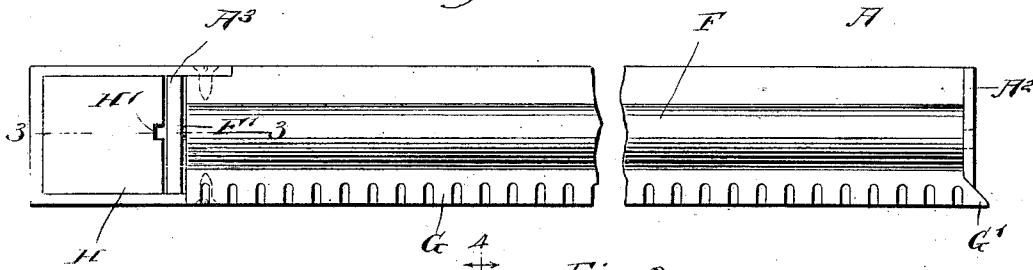
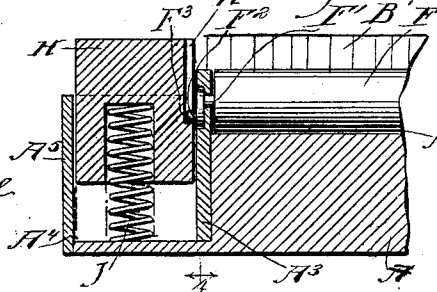


Fig. 3.



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2 Sheets—Sheet 2.

Fig. 4,

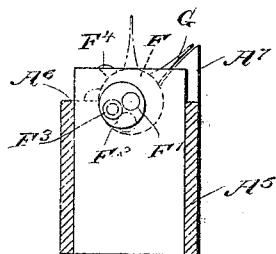


Fig. 5,

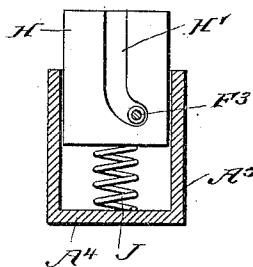


Fig. 6,

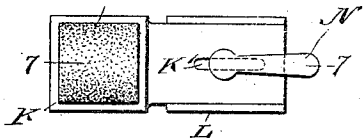


Fig. 7,

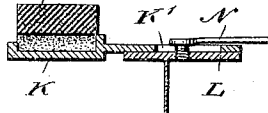


Fig. 8,

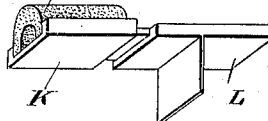


Fig. 9,

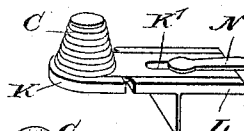
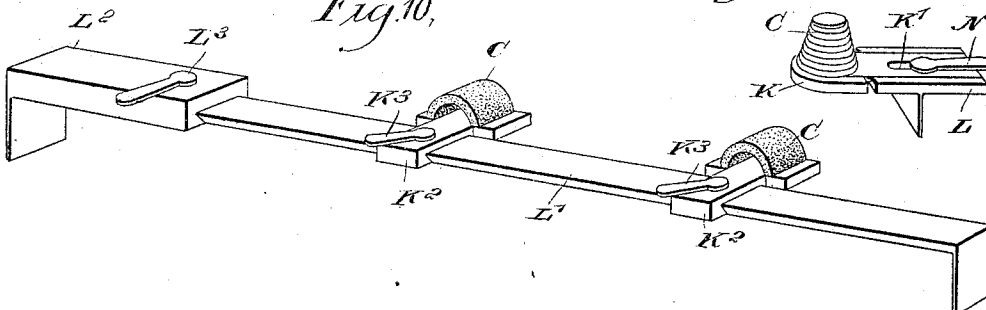


Fig. 10,



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GEORGE KENNEDY AND ROBERT KENNEDY, OF NEW WESTMINSTER,
CANADA.

PERFORATOR FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 688,097, dated December 3, 1901.

Application filed November 30, 1900. Serial No. 38,177. (No model.)

To all whom it may concern:

Be it known that we, GEORGE KENNEDY and ROBERT KENNEDY, subjects of the Queen of Great Britain, and residents of New Westminster, in the Province of British Columbia and Dominion of Canada, have invented a new and Improved Perforator for Printing-Presses, of which the following is a full, clear, and exact description.

10 The invention relates to printing-presses such as shown and described in the Letters Patent of the United States, No. 380,578, granted to us on April 3, 1888.

The object of the present invention is to provide a new and improved perforator which is simple and durable in construction, very effective in operation, and arranged to permit parallel as well as lengthwise and crosswise perforating simultaneously with printing and to make connection with a line of perforations running at a right angle.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement as applied to a printing-press. Fig. 2 is an enlarged face view of the improvement. Fig. 3 is an enlarged longitudinal section of the same on the line 3 3 in Fig. 2. Figs. 4 and 5 are transverse sections of the the same on the line 4 4 in Fig. 3. Fig. 6 is a plan view of the device for actuating the driver. Fig. 7 is a sectional side elevation of the same on the line 7 7 in Fig. 6. Fig. 8 is a perspective view of the same. Fig. 9 is a perspective view of an alternative form of spring actuating device, and Fig. 10 is a perspective view of a modified form of the support for a plurality of spring actuating devices.

The perforator is mounted on a bar A, adapted to be locked up in a form or chase B with the type, and the perforator is actuated by a spring actuating device C, carried on a platen

D (see Fig. 1) of a printing-press. The bar A is formed with a longitudinally-extending recess A', in which fits a shaft F, carrying a perforating device G, in the form of serrated blades, punches, or the like, and the outer end of said shaft F is journaled in a thin plate A², secured to the outer end of the bar A, the inner end of said shaft also being provided with a journal F', Fig. 3, extending through an aperture in the thicker plate A³, secured to the inner end of the bar A, this journal carrying a crank and crank-pin F².

On the crank-pin F² is held an antifriction-roller F³, engaging a cam-groove H', formed in one side of a driver H, mounted to slide vertically in a quadrangular casing formed by a U-shaped plate A⁵, secured to one end of the bar A and normally held in an outermost position by a spring J, set in the bottom A⁴ of the casing integral with the bar A and projecting upward by means of a cylindrical opening into the center of the driver H, which completely incloses the spring and rests upon the bottom of the casing when its downward vertical motion is finished. The guide-casing for the driver H is completed by the plate A³, secured to the inner end of the bar A.

The driver H when in an outermost position, with the perforating device inactive, is designedly made just a shade below the height of type B' in the form, as shown in Fig. 3, and being thus slightly inked on its upper surface by the passage of the rollers; leaves a sufficient impresston on the paper packing of the platen to indicate exactly where to set the actuating spring device on the platen, one impression of the form in which the perforator is locked up with the type being taken for this purpose before the actuating device is placed upon the platen.

The cam-groove H' in one side of the driver H is so designed with a partly-straight and a partly-curved course as to admit of a subsequent downward movement of the driver after the perforating device has been brought into an active position, thus, with the actuating spring device, hereinafter more fully described, enabling the perforating device to be brought into the active or upright position well in advance of the impression and retain-

ing the said perforating device in that position until the paper undergoing perforation and printing has become disengaged. The cam-groove also by its close-working engagement with the crank-pin holds the driver from coming out of the casing in which it describes its vertical reciprocating movement, and at the same time and by the same means accurately controls and holds the oscillating shaft, bearing the perforating device, at all points of its one-eighth of a revolution, and when at rest in the upright or active position holding the oscillating shaft in this position firmly against the rest of the lugs F⁴ on the side A⁶ of the bar A, hereinafter described.

The driver H is adapted to be pressed on by the actuating spring device C, previously mentioned, made of an arched rubber or metal and rubber spring or spiral form of metal spring with rubber tip and held in a carrier K, adjustable on a right-angle plate L, secured to the platen D, between one edge thereof and its clamp D', as is plainly shown in Fig. 1. A clamping-screw N, carried by the plate L, engages an elongated slot K' in the carrier K, so as to permit of adjusting the carrier and bringing the actuating device C in proper position relatively to the driver H, so that when an impression is made the actuating device C imparts a sliding motion to the driver H and moves the latter against the tension of its spring and imparts a rocking motion by its cam-groove H' and crank-pin F² to the shaft F to bring the perforating device G into perforating position, as shown in dotted lines in Figs. 1 and 4, and perforate the paper at the time an impression is made thereon. When the actuating device C moves out of engagement with the driver H, the spring J immediately returns the driver to its former position, so that a return rocking motion is given to the shaft F to swing the perforating device G out of an active position into an inactive position and out of the way of the inking-rollers of the printing-press. (See Fig. 4.)

In order to limit the turning motion of the shaft at the time the perforating device G moves into an active position, we provide lugs F⁴, which project from the shaft F at right angles to the perforating device and rest against one side A⁶ of the bar A, and in order to limit the return rocking movement of the shaft F at the time the perforating device G moves into an inactive position we provide a rest A⁷ on the face of the bar A opposite the side A⁶, and this rest A⁷ is inclined, as is plainly indicated in Fig. 4, and is so located that the perforating device G is out of the path of the inking-rollers, so that the latter are not injured and the perforating device is not inked. The perforating device G is extended at the outer end of the shaft beyond the said end, as is plainly indicated at G' in Figs. 1 and 2, so that this extension reaches

to and connects with a row of perforations made at a right angle when it is found desirable to use two or more perforators in the form at the same time in this way.

It will be obvious that two or more of our perforators may be used crosswise in the form at the same time parallel to one another. To provide for the working of one or more perforators lengthwise in the form at a right angle to a crosswise perforation, as described, a modified form of support for a plurality of spring-actuating devices has been provided, which consists of an elongated plate L', (see Fig. 10,) formed at one end with a fixed foot and at the other end with an adjustable foot L², secured in place on the plate L' by a clamping-screw L³. The plate L' extends across the platen D, the feet of said plate being secured in position on the platen by the clamp D'. On the plate L' are mounted to slide carriers K², supporting actuating devices C, and the carriers K² are dovetailed on the correspondingly-shaped plate L'. The carriers K² are adjustable on said plate L' according to the position of the drivers H on the perforating devices, and said carriers K² are held in place on the said plate L' by small clamping-screws K³ to prevent the carriers from moving while in use on the printing-press.

We do not limit ourselves to the particular construction of the perforating device G arranged on the shaft F, as the same may be varied without deviating from our invention, it being understood that the said perforating device may be in the form of a serrated blade, as previously mentioned, or in the form of a row of dies, punches, or the like.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A perforator for printing-presses, provided with an oscillating shaft having a perforating device, a crank-pin attached by a crank or arm to the end of the journal on one end of the oscillating shaft, and a driver having reciprocating movement and provided with a cam-groove engaging said crank-pin, to impart a rocking motion to the shaft, as set forth.

2. A perforator for printing-presses, provided with an oscillating shaft having a perforating device, a crank-pin attached to one end of the oscillating shaft, a driver having reciprocating movement and provided with a cam-groove engaging said crank-pin, to impart a rocking motion to the shaft, and a spring pressing said driver, to normally hold the latter in a raised position and the oscillating shaft and its perforating device in an inactive position, as set forth.

3. A perforator for printing-presses, comprising a bar having a longitudinally-extending recess, an oscillating shaft mounted in said recess, and a perforating device carried by said shaft and having an extension at one end projecting beyond the outer end of the

bar carrying the shaft to connect with a line of perforations running at right angles thereto, as set forth.

4. A perforator for printing-presses provided with a bar having an inclined raised top portion at one side thereof, a shaft mounted to oscillate on said bar and having a perforating device extending lengthwise of the shaft and adapted to rest on said inclined raised top portion of the bar, and stops on said shaft and adapted to abut on the opposite side of said bar to limit the rocking motion of the shaft, the said stops extending approximately at right angles to the perforating device.

5. A perforator for printing-presses, comprising a bar arranged to be locked up with the type in the form or chase, a shaft mounted to turn on said bar and having perforating devices thereon, a crank-pin attached to the journal on one end of said shaft, a driver mounted to slide in a casing at one end of said bar, and having a cam-groove provided with a partly-straight and a partly-curved course and engaged by said crank-pin, so designed as to bring the perforating device into active position in advance of the impression, a spring pressing said driver, and a spring device carried by the platen for pressing said driver against the tension of its spring, as set forth.

6. The combination with a perforator for printing-presses, of an actuating spring device, a carrier for the same, and a plate carried by the platen of the press and on which the carrier is adjustably held, as set forth.

7. A perforator for printing-presses, provided with an actuating spring device, a carrier for the same, a plate on which the carrier is adjustably held, and means for adjustably holding the carrier on said plate, as set forth.

8. A perforator for printing-presses, provided with an actuating spring device, a carrier for said device, a plate for said carrier, and means on said carrier for holding the latter from movement on said plate, as set forth.

9. A perforator for printing-presses, provided with a plurality of actuating spring devices, for working one or more perforators lengthwise of the form, at a right angle to a perforator running crosswise of the form, carriers for said devices, an elongated plate on which said carriers slide, clamping-screws on the carriers for holding the latter, when in position, from movement on the plate, and a fixed and an adjustable foot at opposite ends of the elongated plate for holding the plate in position across the platen, as set forth.

10. A perforator for printing-presses provided with an oscillating shaft carrying a perforating device, and a driver for operating the same, the upper face of the said driver when the latter is in the outermost position with the perforating device inactive, being slightly below the height of the type in the form, and adapted to receive a slight inking from the rollers thereby leaving an impression on the platen to accurately indicate where

to affix the actuating device for the driver, as set forth.

11. A perforator for printing-presses, provided with an oscillating shaft, carrying a perforating device, and a driver for operating same, said driver having a cam-groove, adapted incidentally to keep the driver within its working casing and also to firmly control and hold the oscillating shaft at all stages of its operation, as set forth.

12. A perforator for printing-presses, provided with a bar having a longitudinal recess, a shaft fitted in said recess and having a crank-pin attached to the journal at one end, plates on the ends of the bar, one of the plates having an aperture for the crank and crank-pin attached to the end of the journal, and the other plate forming a bearing for the outer end of the shaft, a casing attached to said bar at the end inclosed by the apertured plate, and a driver mounted to slide in said casing and pressed on by a spring set in said casing, the said driver being provided with a cam-groove having a close working engagement with the crank-pin and serving to hold the driver within its working casing and to control the movement of the oscillating shaft, as set forth.

13. A perforator for printing-presses, provided with a bar having a longitudinal recess, a shaft fitted in said recess, and having a crank-pin attached to the journal at one end, plates on the ends of the bar, one of the plates having an aperture for the crank and crank-pin attached to the end of the journal, and the other plate forming a bearing for the outer end of the shaft, a casing attached to said bar at the end inclosed by the apertured plate, a spring-pressed driver mounted to slide in said casing and having a cam-groove in one side formed with a partly-straight and a partly-curved course and engaging the crank-pin, as set forth.

14. In a perforator for printing-presses, comprising an oscillating shaft carrying a perforating device and a solid bar in which said shaft is supported and forming the body of the perforator and adapted to be locked up in the form with the type, the combination of a driver for operating the oscillating shaft, a casing or well formed in one end of the perforator-body and in which the said driver has vertical movement, a spring set beneath and within the bottom of the driver for returning it to its normal or inactive position, the said driver being provided at one side with a cam-groove, an eccentric crank or arm carried by the journal on one end of the oscillating shaft, a crank-pin projecting from said crank or arm, the said cam-groove having a partly-straight and a partly-curved course, and engaging and controlling the said crank-pin at all stages of the driver's action, the groove being constructed to hold the driver within its working casing and to give the desired turning movement to the oscillating shaft, and also to allow of a subsequent downward mo-

tion of the driver so as to bring the perforating device into active position in advance of the impression of the press, and to retain it in that position after the impression until the paper undergoing perforation has become disengaged, the said driver when in the outermost or inactive position being nearly the height of the type so as to receive on its upper edge a slight inking from the rollers of the press and thus leave an impression on the paper packing of the platen, for the purpose set forth.

15. In a perforator for printing-presses, the combination of an actuating spring device, comprising a spring proper, a carrier for the same, a supporting-plate for the carrier, a clamping-screw for adjustably holding the carrier on the plate, the said plate being provided with a right-angled blade adapted to be inserted between the platen and the clamp surrounding it to hold the actuating device in position, a driver adapted to be engaged and moved by the actuating spring device when the impression is produced, an oscillating shaft carrying a perforating device, and a connection between the said driver and the oscillating shaft for imparting motion thereto.

16. In a perforator for printing-presses, a bar forming the body of the perforator, a shaft mounted to oscillate on said bar and provided with a perforating device, extending beyond one end of the oscillating shaft and the body of the perforator, the said bar being provided with a longitudinal inclined rest on one side of its upper edge and a horizontal rest on the other side, the inclined rest engaging and supporting the perforating device in the oscillating shaft when the said perforating device is in an inactive position, stops or lugs arranged at intervals on the oscillating shaft and at right angles to the perforating device, and adapted to engage the horizontal rest on the bar to support the oscillating shaft when the perforating device is in the erect or active position thus limiting and controlling the turning movement of the shaft, the said rests and stops being so arranged that the movement of the shaft is limited to approximately one-eighth of a revolution at each oscillation, as set forth.

17. In a perforator for printing-presses, the combination of an elongated plate, a plurality of actuating spring devices having carriers arranged to slide on the plate, clamping-screws on the carriers for holding the latter when in position from movement on the plate, a fixed and an adjustable foot at opposite ends of the elongated plate for holding the plate in position across the platen, and a clamping-screw for holding the adjustable foot in position, as set forth.

18. A perforator for printing-presses, comprising a bar forming the body of the perforator and adapted to be locked up in the form with the type, a shaft mounted to oscillate on said bar, and a perforating device carried by said shaft and extending beyond one end of the said shaft and the bar carrying the same, and arranged to connect with a line of perforations running at right angles thereto, as set forth.

19. A perforator for printing-presses provided with an oscillating shaft, a perforating device thereon extending beyond one end of the shaft, a crank-pin attached to one end of the oscillating shaft, and a driver having reciprocating movement and provided with a cam-groove engaging said pin to impart a rocking motion to the shaft, as set forth.

20. A perforator for printing-presses provided with an oscillating shaft having a perforating device, a crank-pin at one end of the oscillating shaft, and a driver having reciprocating movement and provided with a cam-groove engaging said crank-pin to impart a rocking motion to the shaft, the said driver being arranged to receive a slight inking from the rollers to leave an impression on the platen accurately indicating where to affix the actuating device for the driver, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE KENNEDY.
ROBERT KENNEDY.

Witnesses:

A. G. MATHEWS,
E. A. GREAME.