

F. H. BEROLD, JR.
 PRINTER'S REGISTER HOOK.
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1,030,864.

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Fig. 1

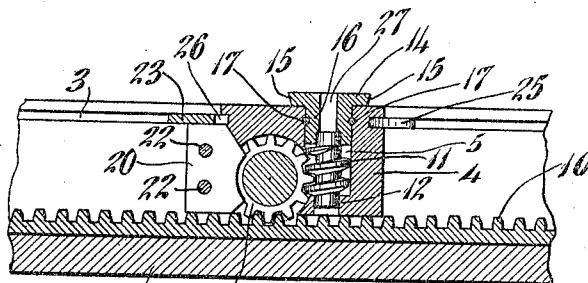


Fig. 2

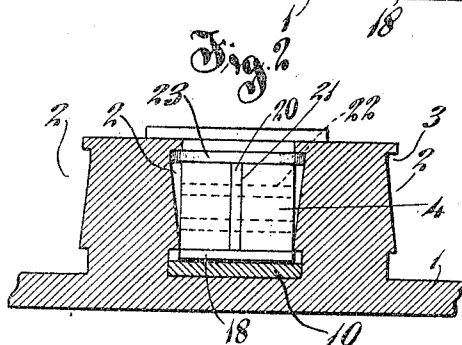


Fig. 3

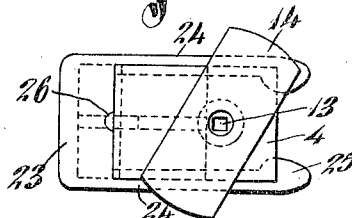


Fig. 4

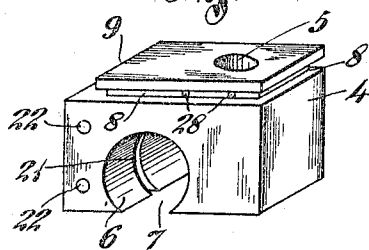


Fig. 5

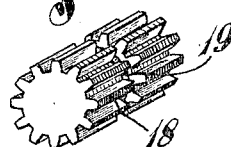


Fig. 6

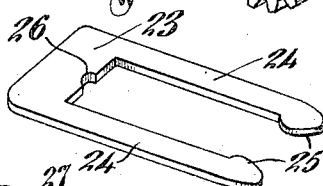
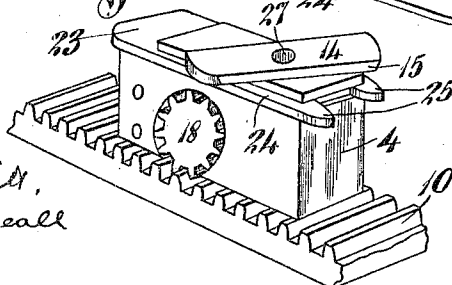


Fig. 7



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PRINTER'S REGISTER-HOOK.

1,030,864.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK H. BEROLD, Jr., a citizen of the United States, residing in Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Printers' Register-Hooks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to register hook devices for printers' use in holding and registering printing plates, and it has for its object the improvement of that class of printers' hooks known as drop-in-hooks, which are adapted to be dropped in at any point in suitable grooves in the plate foundation, and in which the clamp holding jaw is adjustable after the hook has been dropped in place, while at the same time the clamp adjusting means follows the jaw in its movement.

Heretofore in structures of this kind, when a rack element or a screw element has been provided for the grooves in the plate foundation, it has been found impracticable to provide a rack or screw element the full width of the groove, and as a result it has been found necessary to provide a pair of racks for each side of the groove, or a single screw element for the middle portion of the groove, in either of which events the racks or screw are necessarily narrow, and the corresponding pinions or worm gears have also provided only a narrow engaging surface. The strain on the entire hook in order to properly hold and maintain in exact registration the printers' plate, is very great and as a result the teeth of the narrow pinions or of the screw element, are frequently broken or stripped off. In order to hold the unitary hook structure in the groove, it has also been usual to provide a spring element to engage under some overhanging or undercut portion of the groove to prevent vertical displacement. As the vertical strain is also very great, there is a tendency for any spring element to give way. It is to overcome these two objections of such structures as have heretofore been in use that my invention is particularly directed.

In the drawings Figure 1 is a central longitudinal section of my improved hook in place in its groove in the plate foundation. Fig. 2 is a transverse section of same. Fig.

3 is a plan view of the hook construction. Fig. 4 is a perspective view of the block member of the hook with the actuating mechanism and clamping jaw removed. Fig. 5 is a perspective view of the gear or pinion element of the hook. Fig. 6 is a perspective view of the plate for retaining the hook against vertical displacement. Fig. 7 is a perspective view of my improved hook complete.

1 represents a portion of the plate foundation, and 2, 2 the longitudinal grooves formed therein for the reception of the printer's hook device. Each groove is provided near the upper surface of the plate with a groove or undercut portion 3, on each side running lengthwise of the groove.

4 is the block for holding the clamping jaw and adjusting devices, provided with a vertical recess 5 extending nearly to the bottom of the block, and a transverse recess 6 extending through the block transversely with an opening 7 through the base of the block. The vertical recess 5 also opens into the transverse recess 6. A short distance below the top surface of the block a circumferential groove 8 is provided, and a portion of the upper surface of the block is cut away at 9 so that the main body of the block is somewhat longer than the top surface.

Located in the bottom of the groove of the plate foundation, and extending the entire width of the groove, is a rack 10. This rack is a permanent part of the plate foundation, and with this rack the gear element of the hook structure engages for the adjustment of the hook lengthwise in the groove. The rack may be either cast in the groove and an integral part of the plate foundation, or as illustrated the rack may be pushed in from either end of the groove and held by the side slots at the base of the groove. The width of the block 4 is substantially that of the grooves in the plate foundation, so as to give a sliding fit therein.

11 is a screw which is dropped into the vertical opening 5, and supported at its lower end in the socket 12 at the base of the vertical opening. And a square hole 13 is provided in the upper end of the screw to provide for connection for a key for rotating the screw.

14 is a clamping jaw preferably provided with a beveled front and rear surface 15, for engagement with the printing plates. This adjustment jaw rests on top of the

block 4 and extends across the groove in the plate foundation, with its ends just above the top surface of the plate foundation. The clamping jaw is provided with a depending hub or collar 16, and with a central recess 27, and the lower end of the collar fits over the shank of the screw 11. To hold the jaw in place in the block, and at the same time permit the rotation of the jaw to provide for angular adjustment of the printing plates, a circumferential groove is cut in the collar 16, and the pins 17, 17 are secured in transverse openings 28, 28 on each side of the vertical recess 5.

18 is the gear wheel or pinion of the full width of the block, and this gear is inserted through the side of the block so as to be brought into engagement with the screw 11. In order to hold the gear in place, and at the same time permit its rotation, I provide a circumferential groove 19, and secure the plate 20, the inner end of which engages in this groove by inserting same in the slot 21, in the block, the plate being held in place by the transverse pins 22, 22.

In order to hold the hook structure in the groove in the plate foundation, I provide the holding plate 23, the bifurcated arms 24, 24 of which engage in the side grooves 8, of the block, and the undercut portions 3, 3, in the main groove of the plate foundation. The outer ends of these bifurcations 24, 24 are provided with rounded heads 25, to engage around the edge of the groove 8 in the front to hold the plate in place. There is sufficient looseness of fit of the side edges of the arms 24 in the undercut portions 3, 3, of the grooves to permit the heads 25 to engage around the block 4 in the groove 8 and to permit the arms to spring out laterally when the plate 23 is withdrawn, or the side edges of the arms 24 may be cut away slightly toward their outer ends to permit this lateral movement thereof, in removing and pushing the plate into place. In order that the holding plate may be removed to release the hook, I provide a groove 26 for the insertion of a tool to dislodge the plate from the block.

The operation of my hook will be obvious from the foregoing description. The rack 10 being a permanent part of the plate foundation, the hooks are dropped into the grooves at any desired point with the clamping jaws in close proximity to the plate to be secured, the holding plate 23 is then canted and passed into the undercut portion 3, 3 of the groove and pushed to place on the block so that the hook structure is securely held from vertical displacement. The screw 11 is then rotated by the insertion of a proper tool through the opening 27, and the pinion 18 is caused to travel along the rack 10 bringing the clamping jaw into rigid engagement with the plate to be secured, the

jaw by reason of its pivotal connection, taking the necessary angular engagement desired. Any hook may be readily released by drawing out the holding plate 23, and as many of the hooks desired can be employed for the set of grooves of the plate foundation. The holding plate with its bifurcated arms 24, 24 being rigid against vertical thrust, the hook can not be displaced vertically, and the rack and pinion being of the entire width of the groove, all danger of stripping off the teeth under the strain is obviated.

While I have illustrated my invention with reference to a flat bed or foundation, it will, of course, be understood that the invention is equally applicable to the spiral grooves in cylinders such as are used in cylinder printing presses.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:

1. The combination, with a grooved foundation or bed, of a printing plate holder, including a base adapted to slide in a groove in said bed, means carried by the base to hold the base in position in the groove, and removable therefrom to release the base from the groove, a traveling jaw coming above the foundation, a single rack of substantial width and held in the groove and means for propelling the plate holder, said means including a pinion the width of the rack and carried by the base and in engagement with the rack.

2. The combination, with a grooved foundation or bed, of a printing plate holder, including a base adapted to slide in a groove in said bed, means carried by the base to hold the base in position in the groove, and removable therefrom to release the base from the groove, a traveling jaw mounted on the base coming above the foundation, a single rack of substantial width and held in the groove, and means for propelling the jaw traveling with the base, said means including a pinion the width of the rack and carried by the base and in engagement with the rack.

3. The combination, with a grooved foundation or bed, of a printing plate holder, including a base adapted to slide in a groove in said bed, means carried by the base to hold the base in position in the groove, and removable therefrom to release the base from the groove, a traveling jaw coming above the foundation, a single rack of substantial width and a permanent part of the plate foundation, and means for propelling the plate holder, said means including a pinion the width of the rack and carried by the base and in engagement with the rack.

4. The combination, with a grooved foundation or bed, of a printing plate holder, including a base adapted to slide in a groove

in said bed, means carried by the base to hold the base in position in the groove, and removable therefrom to release the base from the groove, a traveling jaw mounted on the base coming above the foundation, a single rack of substantial width, and a permanent part of the plate foundation and means for propelling the jaw traveling with the base, said means including a pinion the width of the rack and carried by the base and in engagement with the rack.

5. The combination, with a grooved foundation or bed, of a printing plate holder, including a base adapted to slide in a groove in said bed, means carried by the base to hold the base in position in the groove, and removable therefrom to release the base from the groove, a traveling jaw coming above the foundation, a single rack of substantial width and held in the groove, and means for propelling the plate holder, said means including a pinion the width of the rack and carried by the base and in engagement with the rack.

6. The combination, with a grooved foundation or bed, of a printing plate holder, including a base adapted to slide in a groove in said bed, means carried by the base to hold the base in position in the groove, and removable therefrom to release the base from the groove, a traveling jaw mounted on the base coming above the foundation, a single rack of substantial width and held in the groove, and means for propelling the jaw traveling with the jaw, said means including a pinion the width of the rack and carried by the base and in engagement with the rack.

7. The combination, with a grooved foundation or bed, of a printing plate holder, including a base adapted to slide in a groove in said bed, a traveling jaw coming above the foundation, a single rack of substantial width, and a permanent part of the plate foundation, and means for propelling the plate holder, said means including a pinion the width of the rack and carried by the base and in engagement with the rack, and means carried by the base to hold the base in position in the groove, and removable therefrom to release the base from the groove.

8. The combination, with a grooved foundation or bed, of a printing plate holder, including a base adapted to slide in a groove in said bed, a traveling jaw mounted on the base coming above the foundation, a single

rack of substantial width, and a permanent part of the plate foundation, and means for propelling the jaw traveling with the jaw, said means including a pinion the width of the rack and carried by the base and in engagement with the rack, and means carried by the base to hold the base in position in the groove, and removable therefrom to release the base from the groove.

9. A register hook device comprising a block having a transverse aperture there-through opening through the bottom of the block, and a central recess in the upper surface of the block opening into said transverse aperture, a pinion substantially the width of the block mounted in said transverse aperture, with a screw mounted in the central recess engaging said pinion and a clamping jaw mounted on the block and extending above the surface thereof, with means carried by said block to form side extensions beyond the side walls of the block to hold the block in position and removable therefrom to release the block.

10. A register hook device comprising a block having a transverse aperture there-through opening through the bottom of the block, and a central recess in the upper surface of the block opening into said transverse aperture, a pinion substantially the width of the block mounted in said transverse aperture, with a screw mounted in the central recess engaging said pinion and a clamping jaw mounted on said block, the block having grooved sides, with a separable retaining plate held in said grooves with its edges extending beyond the side walls of the block to hold the block in position and removable therefrom to release the block.

11. A register hook device comprising a block having a transverse aperture there-through opening through the bottom of the block, and a central recess in the upper surface of the block opening into said transverse aperture, a pinion substantially the width of the block mounted in said transverse aperture, with an annular groove in said pinion and a plate carried by the block engaging said groove to hold the pinion in place, with a screw mounted in the central recess engaging said pinion, and a clamping jaw mounted on the block and extending above the surface thereof.

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Witnesses:

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