

W. F. BRÜGMANN.
 PRINTER'S REGISTER HOOK.
 APPLICATION FILED APR. 18, 1910.

983,675.

Patented Feb. 7, 1911.

Fig. 1.

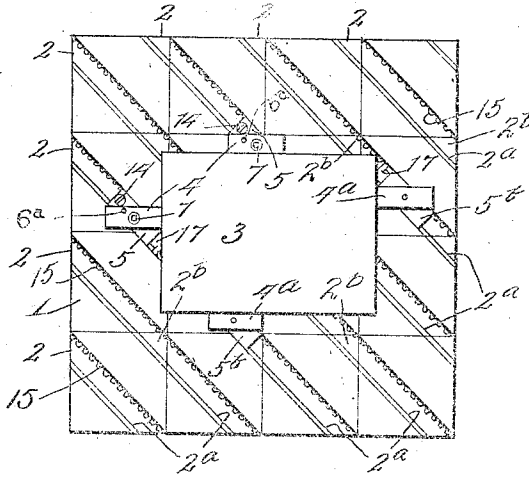


Fig. 2.

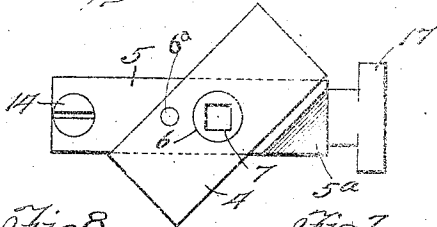


Fig. 5.

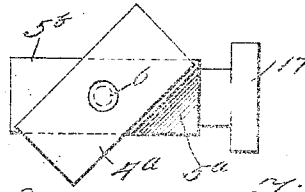


Fig. 8.



Fig. 7.

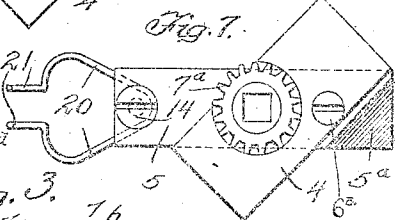


Fig. 9.

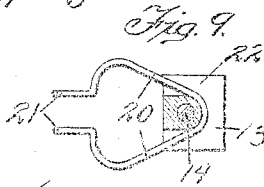


Fig. 3.

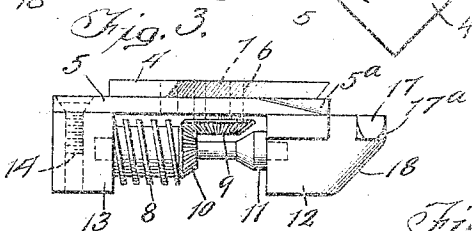


Fig. 6.

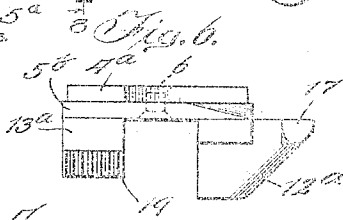
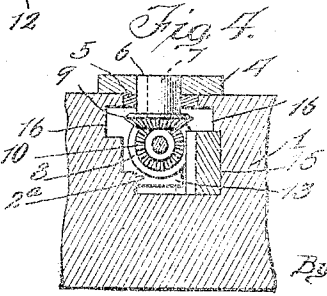


Fig. 4.



Witnesses:

W. F. Brüggmann
J. G. Gochum

Inventor:

W. F. Brüggmann
B. Brown & Sons
Atty's.

UNITED STATES PATENT OFFICE.

WILLIAM F. BRÜGMANN, OF CHICAGO, ILLINOIS.

PRINTER'S REGISTER-HOOK.

983,675.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM F. BRÜGMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Printers' Register-Hooks, of which the following is a full, clear, and exact specification.

My invention relates to printers' register hooks designed for holding printing plates in position on a base and adjusting the same, to cause one impression made by one plate to accurately register with another impression made by another plate or even by the same plate when printing work composed of a plurality of colors or requiring a plurality of impressions disposed on the paper in a certain relation to one another and the invention has for its primary object to provide an improved and simple form of printer's hook having means whereby it may be readily positioned for holding the plate on the base.

The invention will first be described with reference to the accompanying drawings showing an example of an embodiment thereof and the essentials of the invention will then be particularly pointed out in the claims.

In the said drawings, Figure 1 is a plan view of a base showing a printing plate held in position thereon by means of a plurality of printers' hooks embodying this invention. Fig. 2 is an enlarged plan view of one of the hooks. Fig. 3 is a side elevation thereof. Fig. 4 is a cross section of the hook and the base, Figs. 5 and 6 are respectively a plan view and a side elevation of modified forms of hooks. Fig. 7 is a view similar to Fig. 2 of another form of the invention. Fig. 8 is a sectional view on line 8-8 of Fig. 7. Fig. 9 is a detail view of the fastening means for the free end of the block.

In the present exemplification of the invention, the numeral 1 designates a base preferably in the form of an integral member provided with a plurality of channels 2 which preferably run diagonally with respect to the sides of the block, and with one wall extending from one corner to the corner diagonally opposite, so that the other wall of the channel will be located to one side of the diagonal line. A portion of another corner of the blocks forming the base and between the ends of the adjacent wall of the channel is cut away as at 2^a to a suf-

ficient distance, to form a shoulder so that its upper face will be flush with the face of the bottom of the groove in the next adjacent blocks when a plurality of blocks are assembled to form the base. When using the hook which embodies this invention in connection with sectional bases, each hook may, if desired, be provided with its own block and the block may be placed at any position in the form most advantageous for holding and registering the plate which is shown at 3 as being engaged on each of its four sides by a hook embodying more or less of the features of this invention. For some purposes it is not necessary to change the position of the plate or to adjust it with great nicety, and where such is the case the plate may be engaged at two of its sides by hooks which are removably fixed to the base but have no means of adjusting the plate after being so fixed, while the other two sides may be engaged by hooks that are not only fixed to the base, but have means of adjustment with relation to the means whereby they are affixed to the base so as to firmly clamp the plate against the other hooks and thus hold it in place during printing. The invention is shown as being embodied in both forms of the hook, but will be described first with reference to the adjustable form last referred to.

Referring to Figs. 2, 3 and 4, the numeral 4 indicates a jaw which is adapted to engage the edge of the plate 3, the edge of the jaw being usually beveled like the edge of the plate to engage thereover, and this jaw is desirably pivoted on the arbor 6 so as to adapt itself to the position of the plate regardless of the position of the body 5 of the hook and may be held from movement about the arbor by suitable fastening devices 6^a, but these details are not important, as it is also common in the art to make the jaw 4 integral with the body. In either case, there is journaled in the body 5 an arbor 6, which projects through the face of the jaw 4 and is provided with means whereby it may be rotated, such means in this example being a square or angular socket 7, or a toothed wheel 7^a may be provided on the shaft, the teeth of which project beyond one edge of the jaw, and is adapted to be engaged by a rack bar or tool, or a finger of the operator. Arranged under the body portion 5 and lengthwise of the longitudinal axis thereof is a worm 8, and the worm and arbor are

provided with means whereby the worm will be rotated when the arbor is rotated, the means in this example being a pair of beveled gears 9, 10, on the arbor and worm respectively. The worm is formed on or secured to a shaft 11, one end of which is journaled in a depending portion 12, formed on one end of the body 5 or constituting a part of the body, while the other end is journaled in a block 13 detachably secured by screw 14 to the under side of the body for convenience in assembling the parts. The members 12, 13 are disposed in one of the channels 2, with the jaw 4 resting upon the face of the base 1, if desired, and the threads of the worm engaging with the teeth of a rack bar 15 which is preferably provided on the wall of the channel 2 which extends throughout the entire length thereof on one side in such a way that the hook may be readily lifted out of the channel by raising one end, which will cause the worm to disengage the rack and as readily inserted again at any position in the length of the channel by lowering the end of the hook which will cause the threads of the worm 8 reengage the teeth of the rack bar 15. The rack 15 and the worm 8 thus serve in the capacity of detachable interengaging means for holding the body against free longitudinal movement in the channel. The gear 10, however, is of such smaller diameter than the worm 8 that it will be free to move back and forth in the channel 2 without engaging the rack bar as the arbor 6 is rotated for advancing or withdrawing the jaw 4 as a result of the cooperation of the worm with the rack. The channel 2 is provided on each side with a lateral groove 16 and the projection 12 or some other fixed part of the body 5 is provided with ears 17 projecting laterally from the body and engaging in these grooves for the purpose of holding that end of the sliding body down into place when the jaw engages the edge of the plate under the pressure of the screw or worm. In order that the ears 17 may be readily inserted into the groove 16, the projection 12 is rounded off or beveled at the end and the lower portions of the sides are reduced, as shown at 18, Fig. 3, so that the projection may be inserted by turning the ears 17 lengthwise of the channel 2 while holding the body in an upright position and then rotating the body on its vertical axis until the ears 17 stand across the channel in engagement with the groove 16, whereupon the upper end of the body may be lowered into place, allowing the worm 8 to come down into engagement with rack bar 15, the ears 17 making a rotary movement on their common axis while the upper end of the body is thus descending, and in order that the ears may not bind in the groove 16 during this rotary movement,

the lower sides of the ears are rounded off or beveled, as shown at 17^a, so that when the body is horizontal, the upper faces of the ears 17 will be in engagement with the upper edges of the groove 16, or substantially so.

The method of using the hook is to insert the ears 17 crosswise of the channel 2 and into engagement with the grooves 16, as before described, and then advance the hook along the groove to a position as close to the plate 3 as feasible before the body of the hook is allowed to drop into place with the worm 8 in engagement with the rack. Any further tightening of the jaw against the plate may then be accomplished by the rotation of the arbor 6, which, as before mentioned, may, if desired, constitute the pivotal center of the jaw. It will, of course, also be understood that when the device is to be used for correcting the registration of the plate, the desired movement of the latter may be accomplished by merely rotating the arbor of the jaws on one side in one direction and those on the other side in a direction which will cause the jaws on that side to advance. In order that the body of the hook may be inserted under the edge of the plate when using the hook in the manner described during close work, the corner of the body on the upper face may be beveled off, as shown at 5^a.

In order that the pressure of the worm against the rack may not force the opposite side of the worm against the opposite wall of the channel 2, it is desirable to provide such opposite wall with a flange or bearing 2^a so arranged that the lower ends of the projections 12, 13 will engage therewith and thus protect the worm while holding the body and its associated parts central with respect to the channel. If desired, the ears or laterally projecting portions 17^b may be adjustable laterally with respect to the body 5 and may be held separated so that their extremities will project beyond the sides of the block, so as to be projected into the grooves 16 by means of an elastic member or spring 17^c. The lower edges of the projecting extremities of these ears 17^b are beveled, as at 17^d, so that they will yield when they engage the edges of the grooves 16, and pressure is exerted thereon to permit the ears to enter the grooves without twisting the body portion of the jaw. A fastening device may also be provided for holding the rear end of the hook against displacement or a tendency to rise caused by the action of the worm 8, and this fastening device preferably comprises one or more elastic arms or members 20 so shaped that a portion thereof will project beyond one or both sides of the hook a distance sufficient to project into the grooves 16. The extremities 21 of the members 20 are

arranged substantially parallel with each other and preferably project beyond the extremity of the hook to form handles to be gripped to compress the members so as to move the projecting portions thereof out of the grooves and thereby release the end of the hook for removal purposes. These elastic members or arms may be secured to the hook in any appropriate manner, preferably by means of a screw 14, and a portion of the hook or extension 13 may be cut away, as at 22, to accommodate the elastic members.

The device shown in Figs. 5 and 6 being merely for the purpose of gripping one or more edges of the plate while the adjustable hooks are advanced against the opposite edges, is not provided with the worm and adjusting mechanism. The jaw member 4^a may be pivoted or rigid, as desired, on a body portion 5^b which is provided at one end with a projection or enlargement 12^a carrying the ears 17 before described, and the lower portions of the sides of this projection are also reduced, the same as the portion 12 to permit easy insertion and removal of the projections 17. The opposite end of the body 5^b is provided with an enlargement 13^a which may be formed integral therewith, if desired, and it is provided preferably on both sides with teeth or a rack 19 adapted to engage with the teeth of rack bar 15 for holding the jaw 4^a from receding with relation to the plate.

By the provision of a groove in the blocks having one wall extending from one corner to the diagonally opposite corner, it will be apparent that when the corner of one block is placed against the corner of the adjacent block in assembling several blocks to form a base, one wall of the groove will be substantially continuous throughout the length of the groove, and as the rack 15 is provided on this wall, the rack will be substantially continuous and the necessity of inserting a short portion of rack between adjacent ends of the racks of two blocks will be avoided. When thus assembled, the other wall of the groove of two adjacent blocks will terminate short of each other at the angle formed between two adjacent blocks, so that when another block is placed in the angle, the cut-away portion 2^a on the inserted block will project into the angle formed by the first two blocks. The wall of the cut away portion will fill the space between the walls of the two blocks which terminate short of each other to coincide therewith and form a continuous wall, while the upper surface of the cut away portion 2^b will coincide with the face of the bottom of the groove in the blocks, thereby obviating the necessity of a number of parts.

What I claim is:

1. In a device for the purpose described,

the combination of a base provided with a channel, a body arranged to move longitudinally of said channel, and provided with means for engaging the edge of the plate, said channel and body having lateral interengaging means for holding one end of the body against upward motion, the opposite end of the body being adapted to be raised with relation to the base to swing about the last recited means and without detaching the latter, the body and base being also provided with detachable interengaging means for holding the body against longitudinal movement in the channel.

2. In a device for the purpose described, the combination of a base provided with a channel, a body arranged to move longitudinally of said channel and provided with means for engaging the edge of the plate, said channel and body having lateral interengaging means for holding one end of the body against upward motion, the opposite end of the body being adapted when released to be raised with relation to the base to swing about the last recited means, the body and base being also provided with detachable interengaging means for holding the body against longitudinal movement in the channel, and means for securing the said opposite end of the body against such rising movement.

3. In a device for the purpose described, the combination of a base provided with a channel, a body arranged to move longitudinally of said channel and provided with means for engaging the edge of the plate, said channel and body having lateral interengaging means for holding one end of the body against upward motion, the opposite end of the body being adapted when released to be raised with relation to the base to swing about the last recited means, the body and base being also provided with detachable interengaging means for holding the body against longitudinal movement in the channel, and interengaging means on the base and the said body for securing the free end of the latter against upward movement.

4. In a device for the purpose described, the combination of a base having a channel, a body arranged to move longitudinally of the channel and having means for engaging the plate, one end of the body and the channel having lateral interengaging means for holding that end against upward movement, the opposite end of the body being free to move upwardly during the engagement of said interengaging means and about the latter as a pivot, and means provided on the body and the base for advancing the body lengthwise of the channel.

5. In a device for the purpose described, the combination of a base having a channel and a body movable lengthwise of said channel and having means for engagement with

the plate, said channel having a lateral groove in the side thereof and the body having lateral projecting means at one end engaging in said groove for holding that end against upward movement, the opposite end of the body being adapted for movement upwardly away from the base and about the said holding means as a pivot, and means for holding the body against longitudinal movement in the channel.

6. In a device for the purpose described, the combination of a base having a channel and a body movable lengthwise of said channel and having means for engagement with the plate, said channel having a lateral groove in the side thereof and the body having lateral projecting means at one end engaging in said groove for holding that end against upward movement, the opposite end of the body being adapted for movement upwardly away from the base and about the said holding means as a pivot, means for holding the body against longitudinal movement in the channel, and means on the body adapted to extend into the grooves to hold the said opposite end of the body against such upward movement.

7. In a device for the purpose described, the combination of a base having a channel and a body movable lengthwise of said channel and having means for engagement with the plate, said channel having a lateral groove in the side thereof and the body having lateral projecting means at one end engaging in said groove for holding that end against upward movement, the opposite end of the body being adapted for movement upwardly away from the base, and about the said holding means as a pivot, means for holding the body against longitudinal movement in the channel, and elastic means projecting laterally beyond the side of the body and adapted to enter the groove to hold the said opposite end of the body against such upward movement.

8. In a device for the purpose described, the combination of a base having a channel and a body movable lengthwise of the channel, the sides of the channel having lateral grooves, one end of the body having laterally projecting ears arranged to engage in said grooves, the said end of the body and ears being rotatable in the channel when the body is held in an upright position at an angle to the face of the base, and means for holding the body against longitudinal movement in the channel.

9. In a device for the purpose described, the combination of a base having a channel, a body movable longitudinally of the channel and having means for engaging the plate, a rack bar arranged lengthwise of the channel, a worm journaled in the body on an axis lengthwise of the channel and adapted to be moved into and out of engagement with

said bar at any position of the body with respect to the length of the channel, an arbor projecting through the upper face of the body and adapted to be rotated, beveled gears connecting said arbor and worm together, and means in the channel opposite the rack bar for engagement with portions of the body for holding the worm up to its work against the rack bar.

10. In a device for the purpose described, the combination of a base provided with a channel, a body movable longitudinally of said channel and provided with means for engaging the edge of the plate, said channel and body having yielding lateral interengaging means for holding one end of the body against upward motion, the opposite end of the body being adapted to be raised with relation to the base, the body and base being also provided with detachable interengaging means for holding the body against longitudinal movement in the channel.

11. In a device for the purpose described, the combination of a base having a channel and a body movable lengthwise of said channel and having means for engagement with the plate, said channel having a lateral groove in the side thereof and the body having yielding lateral projecting means at one end engaging in said groove for holding that end against upward movement, the opposite end of the body being adapted for movement upwardly away from the base, and means for holding the body against longitudinal movement in the channel.

12. In a device for the purpose described, the combination of a base having a channel, a body movable longitudinally of the channel and having means for engaging the plate, a rack bar arranged lengthwise of the channel, a worm journaled in the body on an axis lengthwise of the channel and adapted to engage said rack bar, an arbor projecting through the upper face of the body and adapted to be rotated, beveled gears connecting said arbor and worm together, and an operating wheel also connected with the arbor and having its periphery accessible whereby the arbor may be rotated at will.

13. In a device for the purpose described, the combination of a base having a channel, a body movable longitudinally of the channel and having means for engaging the plate, a rack bar arranged lengthwise of the channel, a worm journaled in the body on an axis lengthwise of the channel and adapted to engage said rack bar, an arbor projecting through the upper face of the body and adapted to be rotated, beveled gears connecting said arbor and worm together, and an operating wheel connected with the arbor, the periphery of the wheel being provided with teeth accessible from the top of the body for operating the wheel.

14. In a device for the purpose described,

the combination of a base angular in configuration and having a channel, one wall of the channel extending from one corner to the diagonally opposite corner, the other wall of the channel being disposed to one side of the diagonal line, another corner of the base adjacent the first said wall and between the ends of the wall being cut away to form a shoulder, the top of the shoulder being in the same plane as the plane of the base of the groove, a rack supported by the first said wall, a body movable longitudinally of the channel and having means for engagement with the plate, means journaled on the body, and adapted to engage directly with the rack for adjusting the body, and means for operating the last said means.

15. In a device for the purpose described, the combination of a base comprising a plurality of blocks angular in configuration and each block having a channel, one wall of the channel extending from one corner to the diagonally opposite corner, the other wall of the channel being disposed to one side of the diagonal line, another corner of each block adjacent the first said wall and between the ends of the wall being cut away to form a shoulder, the top of the shoulder being in the same plane as the plane of the base of the groove, the walls of the channel and the wall formed by the said cut away portion being provided with lateral grooves, a rack supported by the first said wall, the ends of the racks of the two blocks abutting when the corners of the blocks at the ends of the wall are placed in engagement, the adjacent extremities of the other wall of the

grooves of the blocks terminating short of each other, the said cut away portion of another block being adapted to be inserted into the space between the ends of the walls and into the angle formed by the first two blocks to fill the space so that its wall will coincide with the wall of the other blocks and with the top of the cut away portion coinciding with the bottom of the groove, a rack supported by the first said wall, a body movable longitudinally of the channel and having means for engagement with the plate, said body having a lateral projection extending into the groove in the wall, and means supported by the body and cooperating with the rack to move the body and means for operating the last said means.

16. A base for printers' register hooks angular in configuration and having a channel, one wall of the channel extending from one corner to the diagonally opposite corner, the other wall of the channel being disposed to one side of the diagonal line, another corner of the base adjacent the first said wall and between the ends of the wall being cut away to form a shoulder, the top of the shoulder being in the same plane as the plane of the base of the groove, and a rack supported by the first said wall.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 12th day of April A. D. 1910.

WILLIAM F. BRÜGMANN.

Witnesses:

J. H. JOCHUM, Jr.,

M. W. CANTWELL.