W. S. WARNOCK.

PRINTER'S REGISTERING DEVICE.

APPLICATION FILED OCT. 20, 1905.

1,007,163.

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Fig 1.

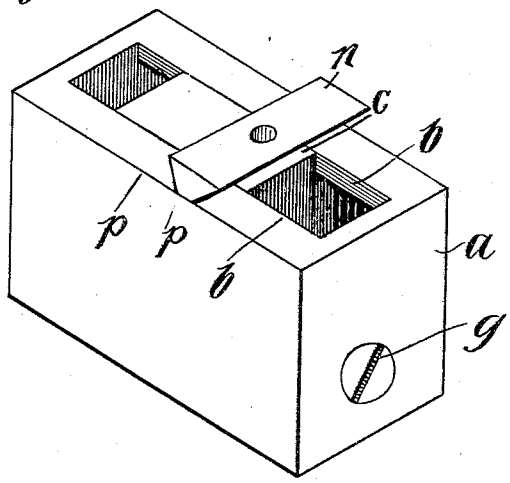


Fig. 2.

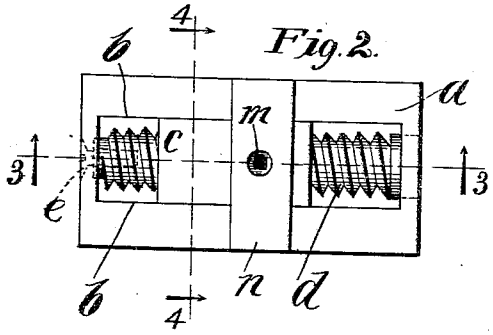


Fig. 3.

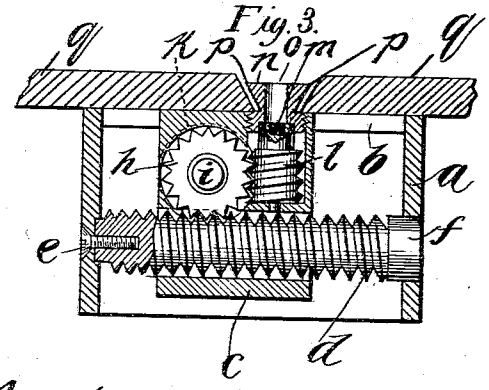
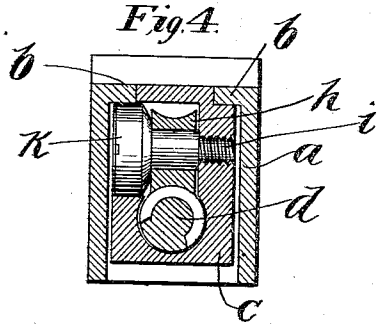


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PRINTER'S REGISTERING DEVICE.

1,007,163. Specification of Letters Patent. Patented Oct. 31, 1911.

Application filed October 20, 1905. Serial No. 283,651.

To all whom it may concern:

Be it known that I, WALLACE S. WARNOCK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Printers' Registering Devices, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to registering devices for printers' use and has several objects.

Hitherto the market has been supplied with printers' registering devices each provided with adjusting means engaging the back of the hook base by a follower or adjuster; or some other construction has been employed extraneous to the traveling hook element that would force the travel of said element to secure its clamping action upon the plate to be held. It has hitherto been the practice also to provide each hook element with but one surface to engage a plate, so that the hook element in order to effect its clamping action was limited to a single direction of movement. If the registering devices were not so disposed as to engage the plates they were to clamp, the entire registering devices would have to be taken out and reversed in position.

In practicing my invention, I have constructed a registering device wherein the adjustment effecting means is not extraneous to the traveling element of the device but is carried thereby, so that the registering devices may be made small and compact, and which will permit of a very close approach of the plates that are to be held in position.

The device of the preferred form of my invention also includes as the engaging element of the traveling hook structure, double jaws, so that said hook element, when moved in one direction, may engage one plate, and, when moved in another direction, may engage another plate, whereby a printer's form equipped with the devices of my invention may be quickly assembled without the removal and repositioning of the registering devices.

In the preferred embodiment of my invention, I employ a rack, desirably in the form of a threaded screw normally stationary and mounted at its ends in the walls of a suitable block, the base of the register hook carrying train gear elements that cooperate with said rack, one of said elements being accessible desirably through the body of the hook, whereby the entire traveling hook structure may be moved. The train gear elements carried by the traveling hook structure are desirably a worm wheel in engagement with the rack and a worm shaft, which is the element that is made accessible to a suitable operating tool.

I will explain my invention more fully by reference to the accompanying drawing, showing the preferred embodiment of the invention, in which—

Figure 1 is an isometric view of a structure embodying the preferred embodiment of the invention. Fig. 2 is a plan view thereof. Fig. 3 is a longitudinal sectional view on line 3—3 of Fig. 2. Fig. 4 is a cross-sectional view on line 4—4 of Fig. 2.

Like parts are indicated by similar characters of reference throughout the different figures.

The block *a* is made hollow and forms a separable part of a plate foundation, being provided with four vertical walls between which there is a vertical space clear through the block for cheapness of construction and to afford the desired operability of the traveling hook element. The lateral vertical walls are provided with lips *b* at the upper margins thereof, between which the reduced top portion of the base *c* of the hook is disposed, the lips *b* being the only portions of the block that desirably engage the base of the hook, clearance being afforded between the balance of the base of the hook and the block so as to eliminate as much friction and binding action as possible. The rack *d* is preferably in the form of a screw that is held into place by the screw *e* (Fig. 3), and which has a cylindrical enlargement *f* resting in a wall of the block, this head being screw slotted at *g*, so that if the surface of the horizontal rack *d* engaging the worm wheel *h* to be hereinafter described, should become worn, the screw *d* may be turned sufficiently to present a new working rack surface to the wheel *h*.

The base *c* of the register hook is longitu-

dinally channeled to permit the screw *d* to pass therethrough, the outer diameter of the screw closely fitting the channel, so that said screw and the lips *b* may coöperate to define the travel of the element *c*.

The worm wheel *h* is provided with a shaft, upon and with respect to which the worm wheel *h* rotates. This shaft has a reduced portion *i* that it screwed into the base *c* and an enlarged screw-driver-headed end *k* desirably having a journal in the element *c*, so that said shaft may be maintained in suitable alinement. This shaft, while remaining stationary, permits the wheel *h* to rotate freely thereupon, this wheel having an axis of rotation transverse to the direction of travel of the register hook. A vertical worm shaft *l* engages the wheel *h* and is provided with a square recess *m*, as indicated most clearly in Figs. 2 and 3, into which a suitable square ended tool may be inserted for effecting the rotation of the shaft *l*. The hook element *n* is provided with an aperture through which the operating tool may find access to the recess *m*. The hook *n* is desirably, though not necessarily, separably secured to the base *c*, and, if it is separably secured to said base, such separable connection is desirably a threaded connection, whereby the base and hoop may be readily connected together, while at the same time suitable motion of the hook is permitted.

It will be seen that the horizontal depth of the hook, that is, that depth transverse to the plate engaged by the hook, may be made very shallow whether the hook is provided with one or two jaw portions *p*—*p*. I prefer to employ two jaw portions for the hook, for this construction will readily enable me to engage a plate lying on either side of the hook, without the necessity of withdrawing the registering device from the form and reversing its position. The advantage of this construction is illustrated in Fig. 3, where two plates *q* are disposed upon opposite sides of the hook.

It will readily be seen that by rotating the shaft *l* in one direction, one plate *q* may be engaged by the hook, and that when the direction of rotation of said shaft *l* is reversed the other plate *q* will be engaged by the hook—all without removing the registering device from the form.

It will be seen that the shaft *l* has a vertical axis of rotation and the wheel *i* a horizontal axis of rotation transverse to the axis of rotation.

An important advantage gained by the structure herein disclosed resides in the locking action that I secure, for it will be seen that the wheel *h* can only be rotated by the shaft *l* and that this shaft *l* locks the wheel *h* to prevent said wheel from moving and advancing the register hook in either direction. This lock is a positive one that will serve to prevent the hook from receding from any position irrespective of the direction in which said hook has been moved.

It will be seen that I have provided a clamp device for holding printing plates to a grooved bed or foundation, comprising a body portion apertured in different directions and provided with a recess in one side, a rack bar passing through the body in one aperture and along which said body is movable in oposite directions, a worm shaft in the other aperature and a worm wheel in the side recess meshing with both the worm shaft and rack bar.

I do not wish to be limited to the precise construction shown, but,

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

1. A registering device including a block for forming a separable part of a plate foundation, a register hook structure moving upon the block, gearing accessible through the traveling hook structure, an element of said gearing having an axis of rotation transverse to the line of travel of the hook, which gear element travels with the hook, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate.

2. A registering device including a block for forming a separable part of a plate foundation, a register hook structure moving upon the block, gearing accessible through the traveling hook structure, an element of said gearing having an axis of rotation transverse to the line of travel of the hook, which gear element travels with the hook, said gearing also including a gear element that is carried by the block with which the aforesaid gear element coöperates in effecting the travel of the hook, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate.

3. A registering device including a block for forming a separable part of a plate foundation, a register hook structure movable upon the block, gearing accessible through the traveling hook structure, said gearing including two interlocking gear elements moving with the hook structure, one of which may operate the other but the other one of which is prevented from operating the first, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate.

4. A registering device including a block for forming a separable part of a plate foundation, a register hook structure movable upon the block, gearing including two elements carried by the hook structure, one of said elements being a threaded shaft accessible through the hook structure, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate.

5. A registering device including a block for forming a separable part of a plate foundation, a register hook structure movable upon the block, gearing including two elements carried by the hook structure, one of said elements being a threaded shaft accessible through the hook structure, said gearing also including a coöperating gear element carried by the block, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate.

6. A registering device including a block for forming a separable part of a plate foundation, a register hook structure movable upon the block, gearing accessible through the traveling hook structure, said gearing including two interlocking gear elements, one of which may operate the other but the other one of which is prevented from operating the first, and a gear element carried by the block and engaging the aforesaid operated gear element, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate.

7. A registering device including a block for forming a separable part of a plate foundation, a register hook structure moving upon the block, gearing accessible through the traveling hook structure, an element of said gearing having an axis of rotation transverse to the line of travel of the hook, which gear element travels with the hook, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate, said hook portion proper being pivotally or rotatably mounted.

8. A registering device including a block for forming a separable part of a plate foundation, a register hook structure moving upon the block, gearing accessible through the traveling hook structure, an element of said gearing having an axis of rotation transverse to the line of travel of the hook, which gear element travels with the hook, said gearing also including a gear element that is carried by the block with which the aforesaid gear element coöperates in effecting the travel of the hook, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate, said hook portion proper being pivotally or rotatably mounted.

9. A registering device including a block for forming a separable part of a plate foundation, a register hook structure movable upon the block, gearing accessible through the traveling hook structure, said gearing including two interlocking gear elements moving with the hook structure, one of which may operate the other but the other one of which is prevented from operating the first, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate, said hook portion proper being pivotally or rotatably mounted.

10. A registering device including a block for forming a separable part of a plate foundation, a register hook structure movable upon the block, gearing including two elements carried by the hook structure, one of said elements being a threaded shaft accessible through the hook structure, the other of said elements being a wheel operated by said shaft, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate, said hook portion proper being pivotally or rotatably mounted.

11. A registering device including a block for forming a separable part of a plate foundation, a register hook structure movable upon the block, gearing including two elements carried by the hook structure, one of said elements being a threaded shaft accessible through the hook structure, said gearing also including a coöperating gear element carried by the block, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted to engage a plate, said hook portion proper being pivotally or rotatably mounted.

12. A registering device including a block for forming a separable part of a plate foundation, a register hook structure movable upon the block, and gearing, a portion of which is carried by the register hook structure, said gearing including two interlocking elements that permit the actuation of one of said elements and lockingly hold the latter element when relieved of actuating influence, whereby the register hook is securely held in the position to which it has been adjusted, the hook portion proper of the registering device having two jaw portions whereby the structure in being advanced in either direction, may be adapted

to engage a plate, said hook portion proper being pivotally or rotatably mounted.

13. A clamp device for holding printing plates to a grooved bed or foundation, comprising a body portion apertured in different directions and provided with a recess in one side, a rack bar passing through the body in one aperture and along which said body is movable in opposite directions, a worm shaft in the other aperture and a worm wheel in the side recess meshing with both the worm shaft and rack bar.

In witness whereof, I hereunto subscribe my name this 14th day of October A. D., 1905.

WALLACE S. WARNOCK.

Witnesses:
G. L. CRAGG,
W. E. CLARK.