

No. 819,101.

PATENTED MAY 1, 1906.

W. S. WARNOCK.
PRINTER'S REGISTERING DEVICE.

APPLICATION FILED MAR. 3, 1905.

Fig. 1.

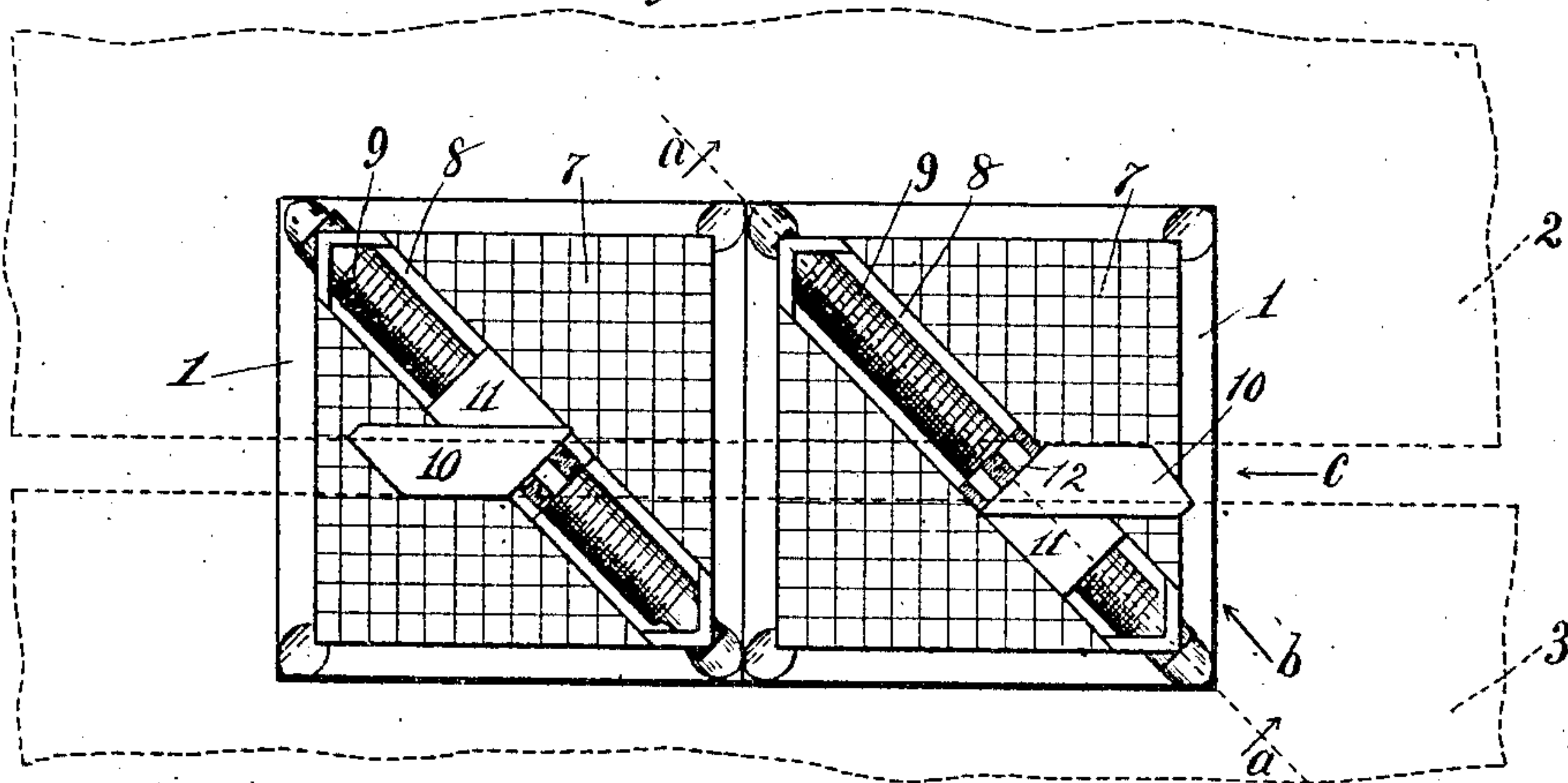


Fig. 2.

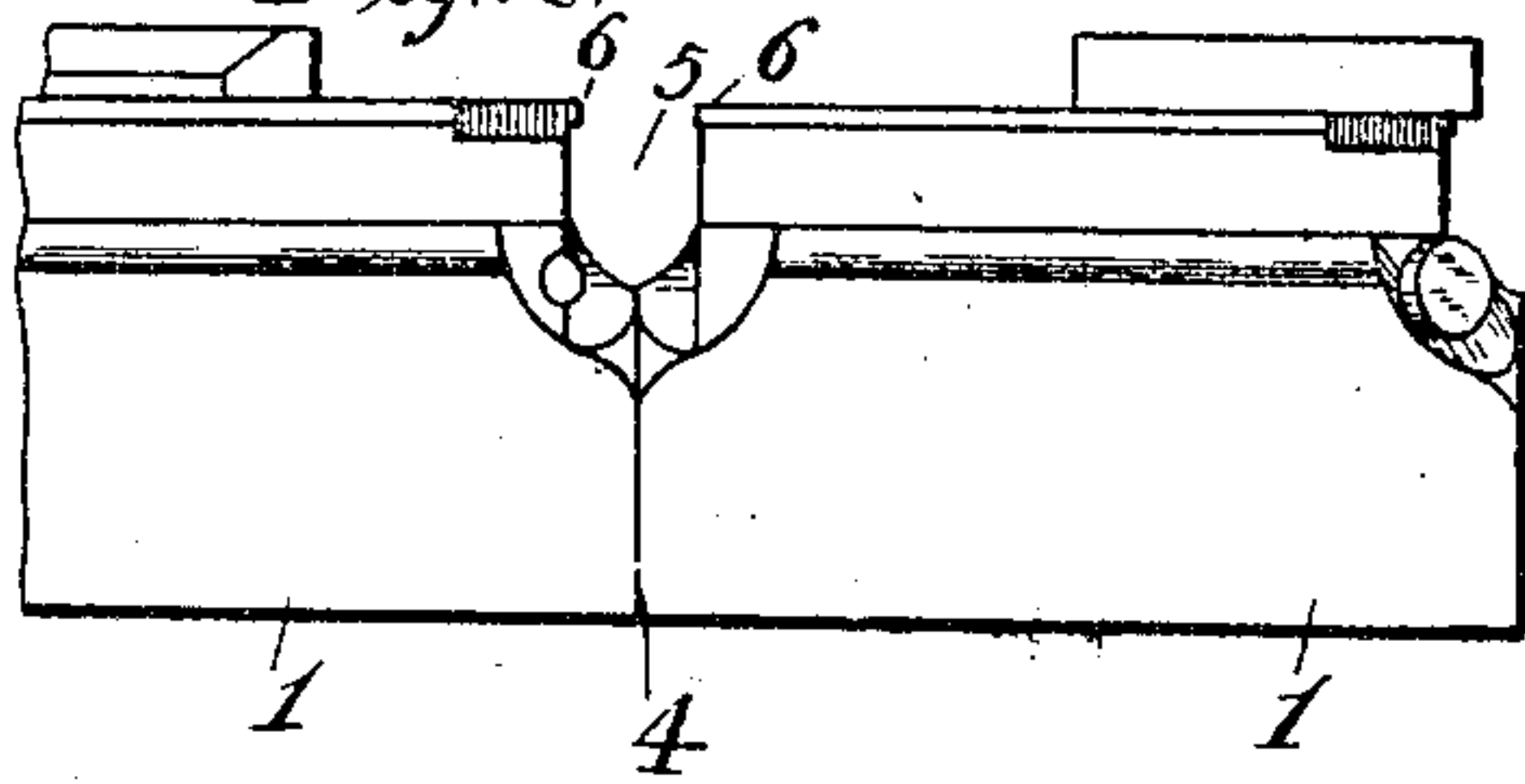


Fig. 3.

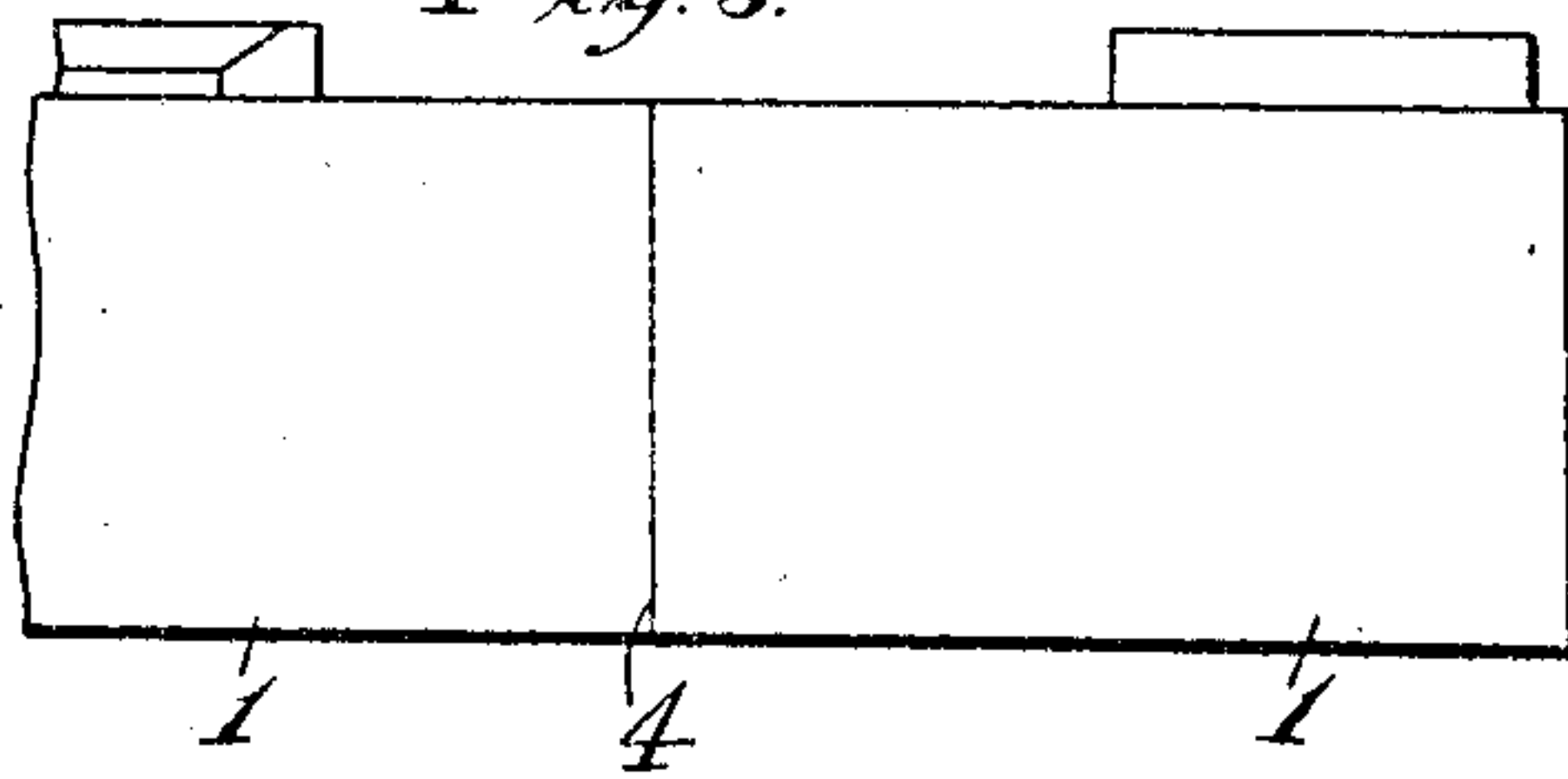


Fig. 4.

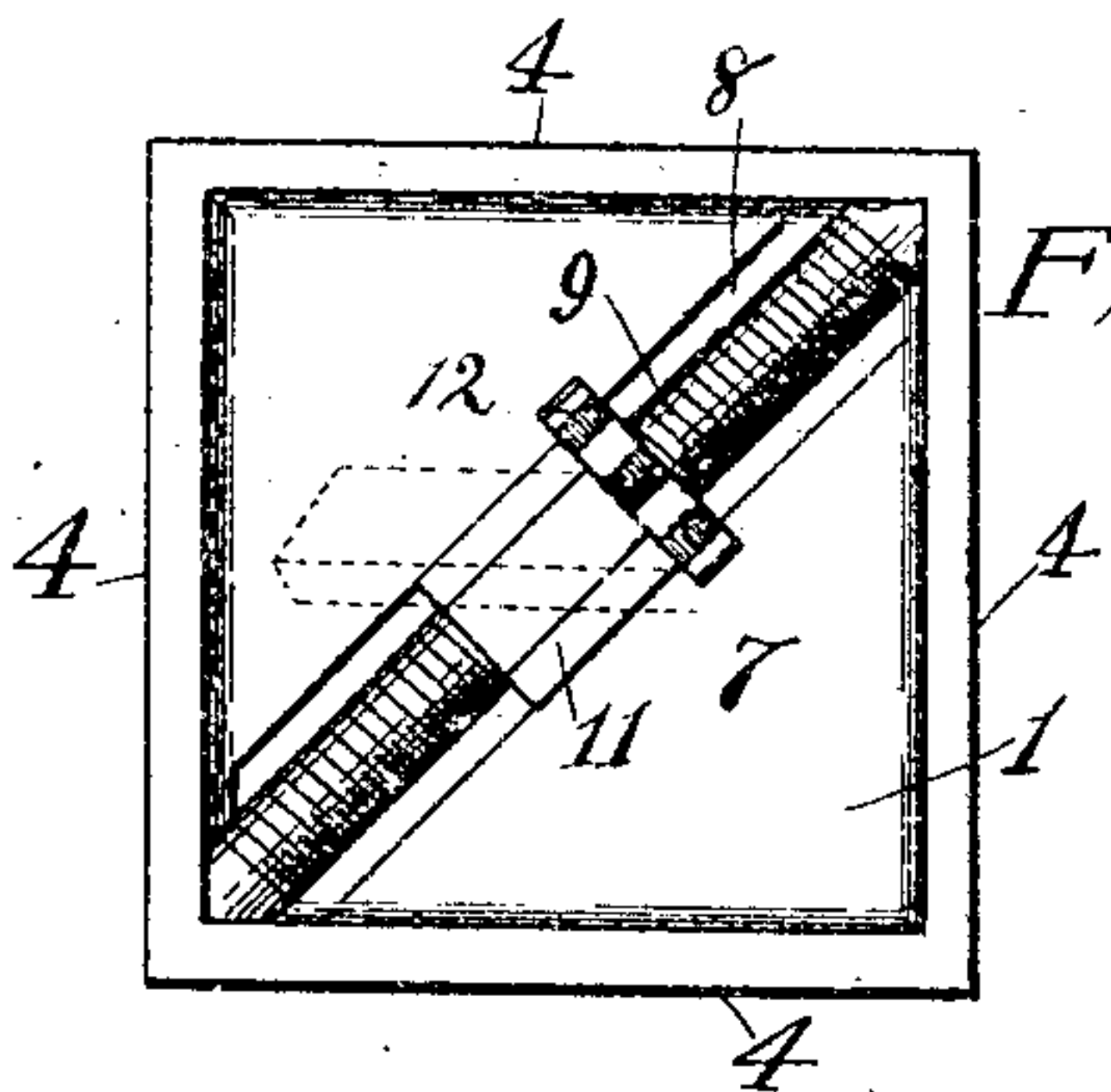


Fig. 5.

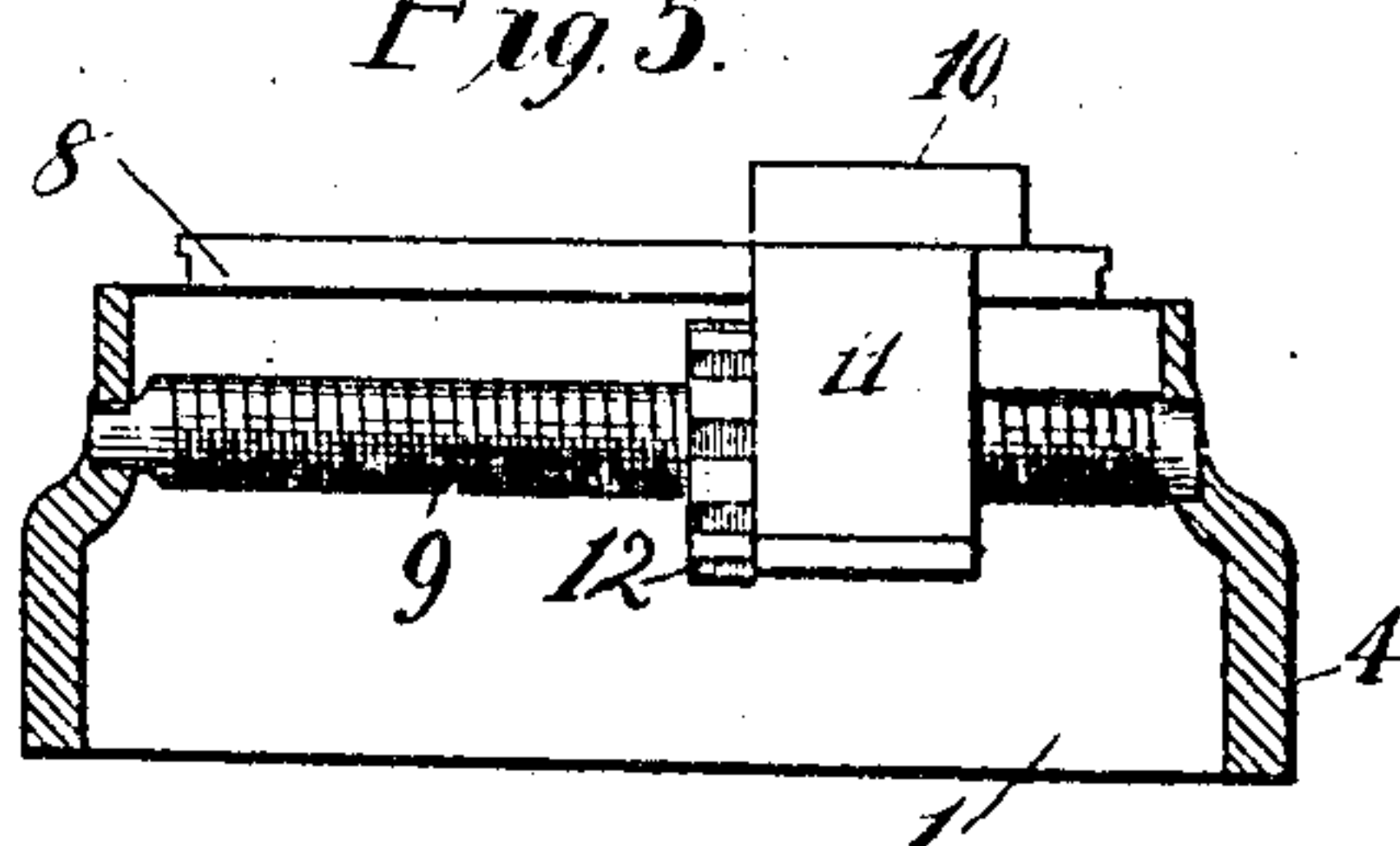


Fig. 8.

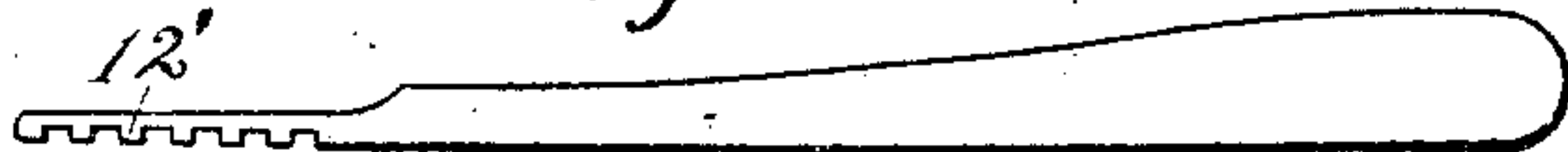


Fig. 6.

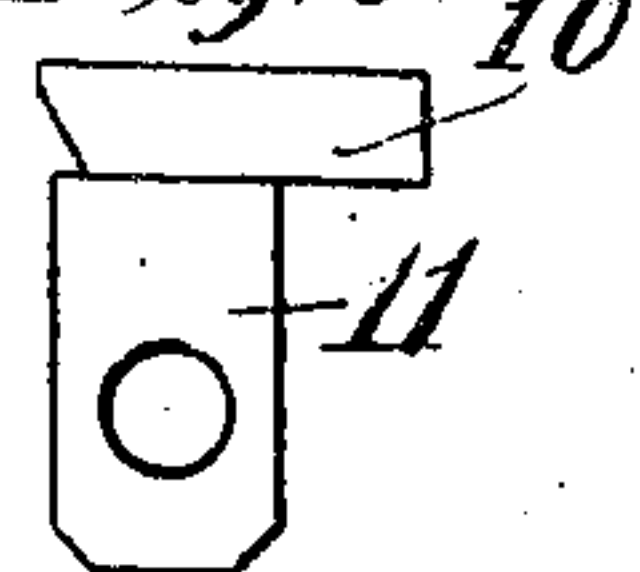


Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

WALLACE S. WARNOCK, OF CHICAGO, ILLINOIS.

PRINTER'S REGISTERING DEVICE.

No. 819,401.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed March 3, 1905. Serial No. 248,257.

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 for its object the provision of improved devices of this character whereby the plates that they are employed to hold in position may be very closely approached. Hitherto it has been proposed to form these devices each with adjusting means engaging the back of the hook-base by a follower or adjuster, the surface of the back engaged thereby being parallel with the surface that engages the plate whose position is to be defined. In other forms of hook it has been proposed to employ rotating shafts terminating in slotted or recessed heads for adjusting purposes. Obviously adjacent plates have to be separated far enough apart to permit of the insertion of an operating-tool between the plates and the backs of adjacent hooks for the purpose of securing the adjustment of the hooks. It has also been proposed to form plate foundations in one integral casting slotted in both diagonal directions to receive plate-clamps. It was practically impossible to secure accurate registration with this device, particularly after this mechanism had seen considerable service.

The registering devices of my invention include small blocks that form separable component parts of the plate foundation, so that only that portion of the plate foundation where the registration is to be effected need be constructed to suit such registration.

In practicing my invention I may employ an adjusting-follower, which is preferably a nut working on a screw-shaft, placed in engagement with a lateral face of the hook instead of the back thereof, so that the operating-tool may be passed directly between adjacent plates, which now need only be separated a distance corresponding to the distance between the back and engaging face of the hook element of each registering device, which thickness is to be chosen to suit the strength that is required in each hook element.

In order that the object of my invention may most effectively be realized, the hook element thereof is caused to travel obliquely upon the block, to which end the threaded shaft is mounted obliquely upon the block, so that the follower-nut moving upon the shaft will obliquely move the hook element against the plate it is to clamp in position. The screw-shaft is thus preferably stationary, and the hook element is preferably provided with an extension having a smooth bore through which the shaft is extended; but I do not wish to be limited to a non-rotating shaft or the other precise features mentioned. The mounting for the shaft is preferably a block, square in contour, having an upper face diagonally slotted to receive the downward extension or base portion of the hook element, which thus is caused to have diagonal travel, together with the hook element itself, in the block. The follower, which should be employed where a non-rotating shaft is used, is desirably in the form of a pinion, and the tool designed to operate the follower preferably includes a narrow thin rack that may be passed through the crack between the plates that are to be registered or clamped into engagement with the follower to move the hook element.

I will explain my invention more fully by reference to the accompanying drawings, in which—

Figure 1 illustrates in plan view two registering devices, each constructed in accordance with my invention and acting to clamp adjacent plates in position. Fig. 2 is a side elevation of the structures shown in Fig. 1. Fig. 3 is a side elevation showing one of many modifications of the structures. Fig. 4 is a bottom view of the structure. Fig. 5 is a sectional view on line *a a* of Fig. 1. Fig. 6 is a view of the hook element in the direction of arrow *b* of Fig. 1. Fig. 7 is a view of the hook element in the direction of arrow *c* of Fig. 1. Fig. 8 illustrates the tool for adjusting the hook.

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

Each registering device desirably includes rectangular blocks 1, preferably square, that are ruled with ordinate and coördinate lines to aid in the registry of the plates 2 3, disposed upon the foundation formed in part of the blocks 1 in a manner well understood.

These blocks may be of the form illustrated in Figs. 1, 2, and 5; where they are provided at their lower portions with faces 4, that constitute meeting or clamping faces, whereby the said blocks may be readily assembled as component parts of a foundation to support the plates 2 3, while the upper portions of said sides are channeled or cut away, so that when the blocks are assembled there are provided longitudinally of the plate foundation and transversely of the plate foundation a series of grooves 5, that are desirably margined at their upper portions by shoulders or lips 6, so that the recesses 5 may receive the register-hooks disclosed in my application, Serial No. 231,362, filed November 4, 1904. Where it is not desired to provide the grooves 5, the meeting faces 4 may be continued in their same planes to the tops of the blocks, as indicated in Fig. 3. The blocks are preferably hollow, desirably having no bottom plates, but preferably having top plates 7, having diagonal or oblique slots or grooves 8 therein to make the obliquely-disposed screw shafts 9 accessible and to provide guides for the travel of the hook elements 10. As the shafts 9 are preferably stationary, they are rigidly anchored at their ends in the corners of the blocks to occupy directions parallel with the slots 8. The hook elements 10 may be of any well-known construction, and inasmuch as the shafts 9 in the particular embodiment of the invention illustrated do not rotate the bores in the base portions 11 (which are oblique with respect to the hooks 10 proper) of the hooks are smooth, so that they may be freely moved along the shafts 9, adjusting-nuts 12 having threaded engagement with these shafts preferably engaging the bases 11 to move the same against the plates 2 3. The portions 10 and 11 are preferably fixed with respect to each other. Now the faces of the bases 11 that are engaged by the nuts 12 are continuous or parts of the sides of the hook elements 10, these side portions being angularly disposed with reference to both the fronts and backs of the hooks proper. The faces of the hooks thus engaged by the adjusting devices 12 are oblique with respect to the front and rear faces of the hooks and are preferably at right angles with respect to the axes of the shafts 9, so that the bases of the hooks may be moved longitudinally of the shafts to effect movement of the engaging faces of the hooks in directions oblique with respect to the plates 2 3.

The two devices illustrated in Fig. 1 are placed side by side, and the register-hook of one exerts clamping action upon one plate in one direction and the register-hook of another in an opposite direction. The plates 2 3 upon which clamping action is thus exerted are very closely approached, being only separated a distance equal to the thickness be-

tween the front and rear engaging faces of a hook, which thickness may be chosen to suit the structural design of the device. A very small space is thus left between the adjacent plates 2 3, between which the rack end 12' of the tool shown in Fig. 8 may be passed through the slot 8 into engagement with the teeth upon the nut 12 to screw the nut upon the shaft 9 and to force the advance of the hook 10 against the plate that is to be clamped.

In the claims I have spoken of the shaft as having a stationary mounting, by which I mean a structure wherein the shaft does not bodily travel, the mounting or support for the ends of the shaft being stationary with respect to and in the form shown forming a part of the block.

In the preferred embodiment of my invention, as indicated, I preferably employ a threaded shaft, which shaft desirably does not rotate in its stationary mounting, which stationary mounting preferably resides in the diagonally opposite corner portions of the block.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to be limited to the precise construction shown, as modifications may readily be made; but,

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

1. A registering device including a block forming a separable part of a plate foundation, a register-hook, a threaded shaft carried by the block for effecting adjustment of the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, and a nut working upon the shaft and engaging the register-hook, the register-hook being provided with a base in unthreaded engagement with the shaft, the aforesaid block being provided with an obliquely-slotted or cut-away top, within the slot of which top the said register-hook moves.

2. A registering device including a block forming a separable part of a plate foundation, a register-hook, a threaded shaft carried by the block for effecting adjustment of the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, and a nut working upon the shaft and engaging a side of the register-hook, the register-hook being provided with a base in unthreaded engagement with the shaft, the aforesaid block being provided with an obliquely-slotted or cut-away top, within the slot of which top the said register-hook moves.

3. A registering device including a block forming a separable part of a plate foundation, a register-hook, a threaded shaft carried by the block for effecting adjustment of

the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, and a nut working upon the shaft and engaging a side of the register-hook, the aforesaid block being provided with an obliquely-slotted or cut-away top, within the slot of which top the said register-hook moves.

4. A registering device including a block forming a separable part of a plate foundation, a register-hook, a threaded shaft carried by the block for effecting adjustment of the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, and a nut working upon the shaft and engaging the register-hook, the aforesaid block being provided with an obliquely-slotted or cut-away top, within the slot of which top the said register-hook moves.

5. A registering device including a block forming a separable part of a plate foundation, a register-hook, and a threaded shaft carried by the block for effecting adjustment of the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, the aforesaid block being provided with an obliquely-slotted or cut-away top, within the slot of which top the said register-hook moves.

6. A registering device including a block forming a separable part of a plate foundation, a register-hook, and an adjusting device therefor engaging a side of the register-hook, the aforesaid block being provided with an obliquely-slotted or cut-away top, within the slot of which top the said register-hook moves.

7. A registering device including a block forming a separable part of a plate foundation, a register-hook, a threaded shaft carried by the block for effecting adjustment of the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, and a nut working upon the shaft and engaging a side of the register-hook, the register-hook being provided with a base in unthreaded engagement with the shaft.

8. A registering device including a block forming a separable part of a plate foundation, a register-hook, a threaded shaft carried by the block for effecting adjustment of the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, and a nut working upon the shaft and engaging the register-hook, the register-hook being provided with a base in unthreaded engagement with the shaft.

9. A registering device including a block forming a separable part of a plate foundation, a register-hook, a threaded shaft carried by the block for effecting adjustment of

the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, and a nut working upon the shaft and engaging a side of the register-hook.

10. A registering device including a block forming a separable part of a plate foundation, a register-hook, a threaded shaft carried by the block for effecting adjustment of the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block, and a nut working upon the shaft and engaging the register-hook.

11. A register-hook including a block forming a separable part of a plate foundation, a register-hook, and a threaded shaft carried by the block for effecting adjustment of the register-hook and placed obliquely with reference to the block and substantially parallel to the top of the block.

12. A registering device including a block forming a separable part of a plate foundation, a register-hook movable obliquely upon the block, and a shaft cooperating with said hook and having stationary mounting.

13. A registering device including a registering hook provided with a base portion oblique with respect to the hook proper, the said base portion and hook proper being substantially fixed with respect to each other, and a threaded shaft cooperating with the base portion for effecting adjustment of the hook and having stationary mounting.

14. A registering device including an obliquely-slotted or cut-away block forming a separable part of a plate foundation, a register-hook working within the slotted or cut-away portion of the block, and a shaft cooperating with said hook and having stationary mounting.

15. A registering device including a block forming a separable part of a plate foundation, a register-hook movable obliquely upon the block, and a shaft diagonally disposed with respect to the block, which shaft cooperates with said hook and has a stationary mounting.

16. A registering device including a block forming a separable part of a plate foundation, a register-hook movable obliquely upon the block, and a threaded shaft diagonally disposed with respect to the block, which shaft cooperates with said hook and has a stationary mounting.

17. A registering device including a block forming a separable part of a plate foundation, a register-hook movable obliquely upon the block, and a threaded shaft diagonally disposed with respect to the block, which shaft cooperates with said hook.

18. A registering device including a block forming a separable part of a plate foundation, a register-hook movable obliquely upon

the block, and a threaded shaft cooperating with said hook and having stationary mounting.

- 5 19. A registering device including a block forming a separable part of a plate foundation, a register-hook movable obliquely upon the block, and a shaft cooperating with said hook and having stationary mounting.

In witness whereof I hereunto subscribe my name this 28th day of February, A. D. 1905.

WALLACE S. WARNOCK.

Witnesses:

LEON STROH,

CHAS. F. BASSETT.