July 19, 1932. W. F. BRÜGMANN 1,867,805

PRINTER'S REGISTER HOOK

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Fig. 1

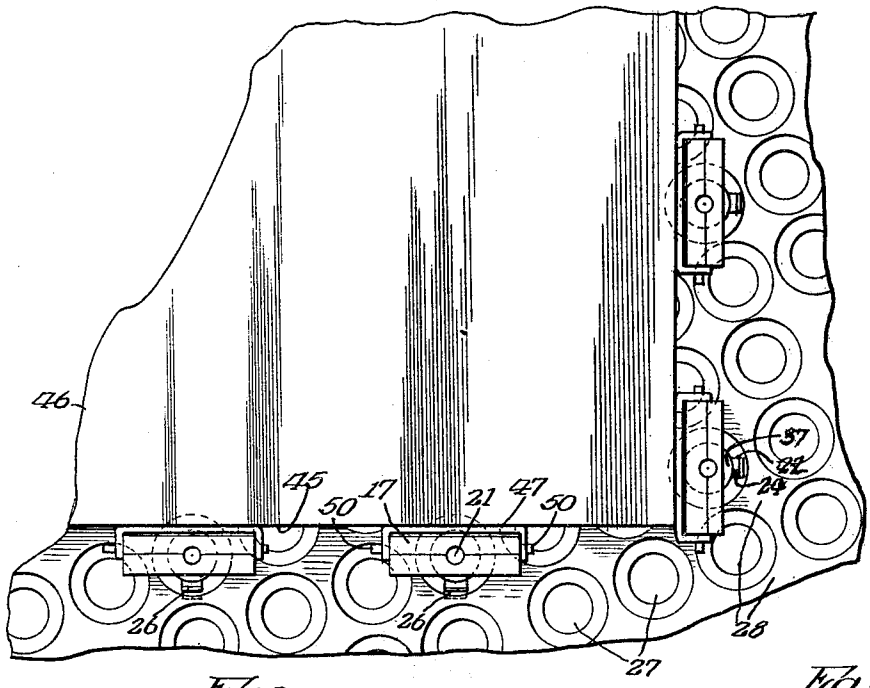


Fig. 2

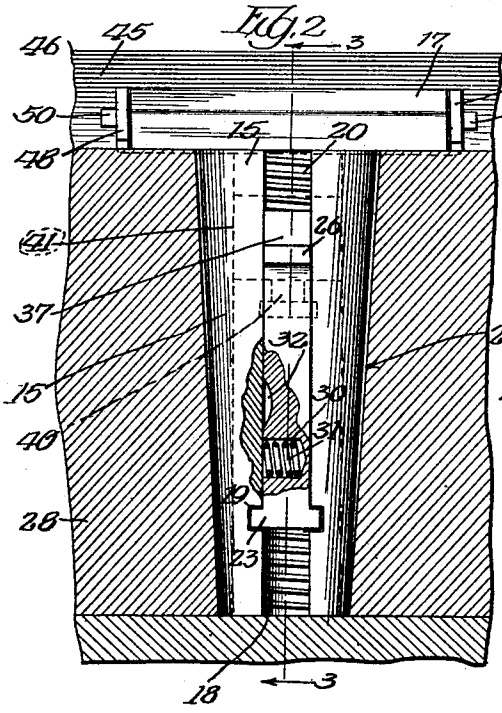
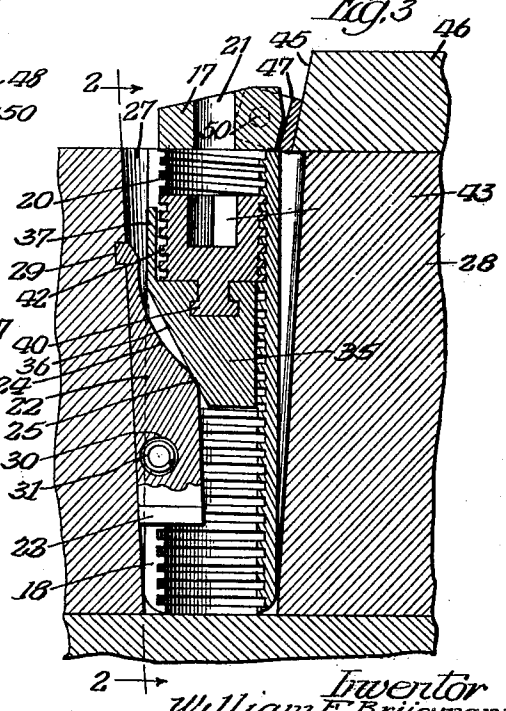


Fig. 3



Inventor
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By [illegible] Atty.

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Fig. 4

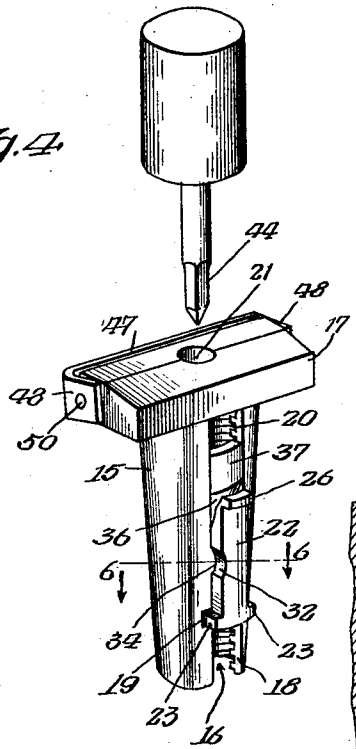


Fig. 6

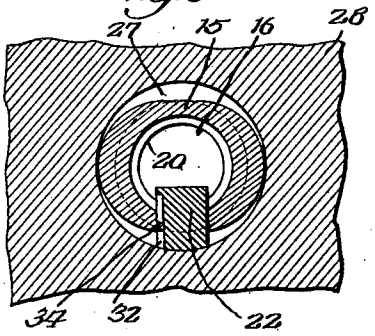


Fig. 5

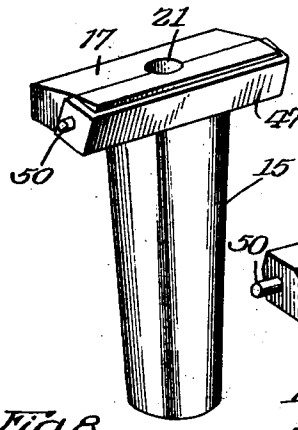
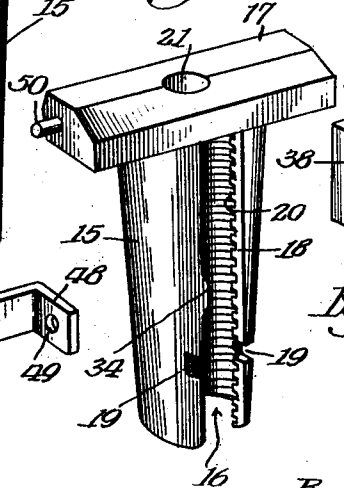


Fig. 7



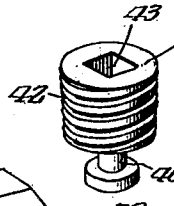


Fig. 9

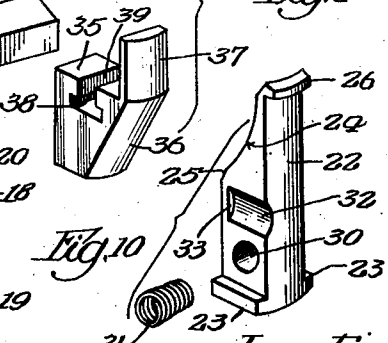


Fig. 8

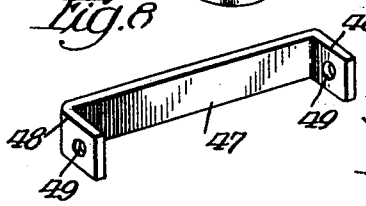


Fig. 10

Inventor:
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By

Patented July 19, 1932 1,867,805

UNITED STATES PATENT OFFICE

WILLIAM F. BRÜGMANN, OF EVANSTON, ILLINOIS

PRINTER'S REGISTER HOOK

Application filed July 14, 1928. Serial No. 292,856.

This invention relates to improvements in devices for retaining printing plates in place by means of clamping jaws, adjustable in their mounting to impinge against the plate and hold it in place.

Heretofore with some devices of this character operating in round holes, considerable difficulty and inconvenience has been experienced in that the engaging edge of the jaw contacts with the beveled edge of the printing plate at different angles, the body or lower portion of the catch or device remaining in practically a stationary position, with the result that only in the exact central position does the former beveled jaw contact squarely with the bevel of the printing plate, and which objection has only in a measure been overcome by the use of round edge jaws.

It is one of the objects of the present invention to overcome these difficulties and objections and to provide in a device of this character a plate contacting member or element which is connected with the jaw for a free swinging or pivotal movement on an axis transverse to the longitudinal axis of the body portion of the device whereby the said contacting member will compensate the different angles of printing plates or varying angles of adjustment of the jaw and body of the hook so as to have a continuous contact with the beveled edge of the plate through the length of the contacting member, thereby insuring proper positioning and locking of the printing plate and preventing the plate contacting member from cutting into the beveled edge of the printing plate.

This invention is particularly adapted, though not necessarily limited in its use, in the type of printing plate mounting element having a series of closely related round holes into which the body of the hook is adapted to be dropped and the parts of the hook relatively adjusted to cause them to separate with respect to each other, one portion of the hook contacting with the wall of the hole in the base and another portion contacting with the edge of the printing plate.

In devices of this character it has usually been the practice to employ a body portion and a thrust plate, and when the hook or fastening device is in use there has been considerable weakness in structures of this character in that when straining under tension, their construction is such that there is a tendency to spring back somewhat from the work. This tendency to spring in operation is very objectionable and in fact dangerous, not only because the catch will spring back when operated, but also in that they have a tendency to give or yield under the influence of an overpacked or underpacked cylinder, thereby allowing the printing plate to slip out of register.

It is another object of the present invention to provide a catch of this character embodying a body portion and a thrust plate and means whereby through a mechanical action the parts of the hook are adjusted to give a firm and positive motion, practically free of all tendency to spring. This is especially true in the present construction in which the body portion of the catch and the thrust plate will slide bodily one with respect to the other, a result which could not be obtained where the thrust plate is pivotally connected to the body portion of the hook or catch.

A further object is to provide improved means for adjusting the thrust plate and body, the adjusting means operating on a single point contact with the thrust plate.

A further object is to provide improved means, such as a coil spring, as exemplified in the present invention for the purpose of creating a certain amount of friction between the thrust plate and the body portion of the hook, thereby allowing the hook to be readily removed from the hole in the base and also operating to hold the thrust plate in position when the catch is not in use.

A further object is to provide improved means for preventing the thrust plate from becoming disassembled from the body portion.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts, hereinafter more fully described and claimed and shown in the ac-

companying drawings illustrating this invention, and in which

Figure 1 is a plan view of a portion of the base having a plate mounted thereupon by hooks constructed in accordance with the principles of this invention.

Figure 2 is a detail vertical, sectional view taken on line 2—2, Figure 3.

Figure 3 is a vertical sectional view taken on line 3—3, Figure 2.

Figure 4 is a perspective view of the hook taken from one side thereof and showing the tool by means of which the jaw may be advanced or retracted.

Figure 5 is a perspective view of the hook taken from the other side thereof.

Figure 6 is a detail sectional view taken on line 6—6, Figure 4, and showing the hook inserted in one of the holes in the base.

Figure 7 is a detail perspective view of the body portion and jaw of the hook taken from the opposite side of Figure 5.

Figure 8 is a detail perspective view of the pivotally mounted plate contacting member.

Figure 9 is a perspective view of the separate elements for the body members.

Figure 10 is a perspective view of the thrust plate or member.

The hook consists essentially of a main body portion 15, of any desired size and configuration, and is provided with a recess 16 extending lengthwise therethrough and opening through one side thereof for the entire length of the body beneath a jaw 17. The jaw may be part of the body portion or connected thereto in any desired manner. The recess where it opens through the side of the body is reduced as at 18, and provided in the body, preferably adjacent the base thereof and opening through the walls of the reduced portion 18, are recesses 19 arranged at right angles to the longitudinal axis of the recess 16.

The wall of the recess 16 is provided with threads 20 which extend for the length of the recess and of the body portion 15 and opening through the jaw 17 of the hook is an aperture 21 which is arranged in alinement with the recess 16, but is preferably of a diameter considerably smaller than the diameter of the recess.

A thrust member 22 is provided with laterally projecting flanges 23 at the base thereof. This thrust member is of considerable length and is of a size to pass through the opening 18 in the body portion 15, the flanges 23 entering the recesses 19, and the flanges 23 are of a size to permit of a slight clearance between the periphery of the flanges and the walls of the respective recesses.

The upper end of the thrust member 22 is beveled or cut away as at 24 to form a one point contact 25, for a purpose to be hereinafter set forth. The thrust member 22 may be of any desired length and arranged at the top thereof is a lateral projection or lip 26 which is adapted, when the hook is inserted in an aperture 27 in the base or mounting 28 to engage in a recess 29 in the wall of the aperture 27. The apertures 27 are generally of a slightly tapered construction, although they may be of any desired configuration throughout their length.

Arranged within the thrust member 22 and opening through one of the side walls thereof, at any suitable point with respect to the length of the member is a recess 30 which receives a friction creating member, here shown as a coil spring 31. One end of this coil spring engages the bottom of the recess 30 and the other end of the spring engages the wall of the reduced portion 18. The purpose of this spring 31 is to create a certain amount of friction between the thrust plate and the body portion of the hook, thereby allowing the hook to be readily removed from the hole or cavity 27, and also operating to hold the thrust plate in position with respect to the body portion when the catch is not in use.

In order to prevent the thrust plate 22 from becoming disassembled from the body portion 15 there is provided a groove or cut away portion 32 in one side thereof and which groove is formed with a base 33. When the thrust plate 22 is placed in position in the body portion 15 through the opening 18 a portion of the body 15 is upset or deflected as at 34 to enter the groove or cut away portion 32 in the thrust plate 22 so as to limit the movement of these two parts with respect to each other and for preventing them from becoming separated.

An element 35 having a beveled surface 36 is provided for operating on the thrust member 22. The member or element 35 is provided with an upright portion 37 above the beveled or inclined portion 36 and this upright portion is of a width to move within the opening or reduced portion 18 for guiding the member 35 as the latter moves lengthwise of the body portion 15. A recess 38 having a reduced portion 39 opens through the top of the member 35 and is adapted to receive a headed projection 40 on one end of an adjusting member 41, the latter being provided with peripheral screw threads 42.

The elements 41 and 35 are connected together by inserting the headed lug or portion 40 into the groove 38—39 from the side of the member 35 and both of these members when assembled are inserted into the body portion 15 of the hook through the open bottom thereof, the diameter of the member 41 being such that it will fit snugly within the recess 16. The peripheral threads 42 on the member 41 engage the threads 20 on the wall of the recess 16 of the body 15.

The member 41 is provided with a recess

43, preferably angular in cross section which is arranged in alinement with the opening 21 through the jaws 17 so that when the parts are assembled an operating tool 44 may be inserted through the opening 21 in the jaw 17 and into the recess 43 of the member 41 to rotate the latter and thereby cause the elements 41 and 35 to move lengthwise of the body portion 15 of the hook.

After the elements 41 and 35 have been assembled and then inserted into the body portion 15, the thrust member 22 is placed in position and the portion 34 of the body deflected or upset so as to enter the groove 32 of the thrust member. Thus the parts will be assembled and will be held against separation from each other.

In use the thrust member 22 is permitted to be retracted by properly positioning the member 35 with respect to the body 15. The hook is then dropped into one of the apertures 27 in the base 28 adjacent the beveled edge 45 of the printing plate 46. The tool 44 is then inserted through the opening 21 into the jaw and into the recess 43 of the member 41 and rotated, causing the member 35, the beveled face 36 of which impinges the one point contact 25 of the thrust member 22, to move towards the bottom of the body portion 15 and thereby cause the body portion 15 and thrust member 22 to be separated. The deflected extremity 26 of the thrust plate 22 will enter the recess 29 in the wall of the cavity or opening 27 and the jaw 17 of the hook will impinge the beveled edge 45 of the printing plate 46.

During this operation it will be manifest that the thrust member 22 will be moved bodily so as to project laterally beyond the side of the body portion 15, thereby causing the printing plate to be firmly locked in position.

With this construction it will be manifest that when the hook is operating under a strain to lock the plate, any tendency of the hook to spring backward in operation will be overcome.

This is accomplished by reason of the fact that the thrust plate rests flat against the wall of the aperture or cavity 27 and the body of the catch will slide away from the thrust plate, the particular mounting of the thrust plate upon the body permitting of such action.

Heretofore with catches of this character there has been no uniform action, but in the present invention and by the particular construction of the operating wedge or member 35 contacting with the single point 25 of the thrust plate 22, a part or full turn of the operating tool or key 44 will give or produce uniform results, thereby enabling the operator to exactly determine the extent of movement imparted to the plate at each registering operation, and furthermore the hooks will not spring back from the work.

Heretofore with hooks of this character the jaw thereof contacts directly with the beveled edge 45 of the printing plate 46, with the result that the jaw, as the hook is adjusted, will be rocked or deflected with respect to the beveled edge of the printing plate and as the jaw is rigid with respect to the body portion of the hook, the jaw will cut into the beveled edge 45 of the plate. This objection is not entirely overcome by the use of a rounded contacting edge on the jaw.

In the present invention these is provided a plate contacting member 47 preferably of a U shaped formation, the body portion of the member or element 47 being co-extensive with the length of the plate contacting portion of the jaw 17. The extremities 48 of the element 47 are deflected laterally with respect to the body portion and are provided with apertures 49 therethrough to receive pins or projections 50 on the ends of the jaw member 17, so that the element 47 will have a free swinging movement with respect to the jaw 17. The member 47 may be of a slightly resilient nature so as to permit the same to be sprung into position to permit the lugs or pins 50 to enter the recesses.

When the hook is in use this plate contacting member 47 will engage the beveled edge 45 of the plate 46 and it will be manifest that no matter to what extent the body portion of the hook may be tilted during its adjustment, with respect to the plate 46, the element 47 will have a flat contact against the beveled edge 47 of the plate through the entire length of the element or member 47. It will therefore be manifest that the plate engaging or contacting member 47 of the jaw engages the beveled edge of the printing plate at different angles so as to compensate the angle of inclination of the edge of the plate.

Obviously the element 47 may be secured in position in any desired or suitable manner so as to permit the same to swing freely with respect to the jaw during the adjustment of the hook.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. A printer's register hook embodying a body portion, a thrust member carried thereby, a member movable lengthwise of said body portion for engaging the said thrust member to bodily separate the said body portion and thrust member, and means for positively moving said member in both directions, the said thrust member having a single point contact with the second recited member.

2. A printer's register hook embodying a

body portion, a thrust member carried thereby, a member movable lengthwise of said body portion for engaging said thrust member for bodily and laterally separating the body portion and thrust member, the said thrust member having a single point contact with the second recited member, and means for creating a friction between the said body and thrust plate for maintaining the parts in position.

3. A printer's register hook embodying a body portion, a thrust member carried thereby, a member movable lengthwise of said body portion for engaging the said thrust member for bodily and laterally separating the body portion and thrust member, the said thrust member having a single point contact with the second recited member, and means for creating a friction between the said body and thrust plate, the said means embodying a bottomed recess in one of the parts and a resilient element seated in said recess and contacting with the proximate face of the adjacent part.

4. A printer's register hook embodying a body portion, a thrust member carried thereby, a member movable lengthwise of said body portion for engaging the said thrust member to bodily and laterally separate the thrust member and body portion, the said thrust member having a single point contact with the second recited member, a tongue carried by one of the parts, and a recess in the other part loosely receiving said tongue whereby such bodily movement will be permitted.

5. A printer's register hook embodying a body portion, a thrust member carried thereby, a member movable lengthwise of said body portion for engaging the said thrust member to bodily and laterally separate the thrust member and body portion, the said thrust member having a single point contact with the second recited member, and a projection on said thrust member adapted to enter a recess in the wall of an opening into which the said body portion of the hook is inserted, for holding the hook against raising.

6. A printer's register hook embodying a body portion, a thrust member carried thereby, a member movable lengthwise of said body portion for engaging the said thrust member to bodily and laterally separate the body portion and thrust member, the said thrust member having a single point contact with the second recited member, a groove in the face of one of the parts, and a projection on the other part adapted to enter said groove to maintain the parts against separation.

7. A printer's register hook embodying a body portion, a thrust member carried thereby, a member movable lengthwise of said body portion for engaging the said thrust member to bodily and laterally separate the body portion and thrust member, the said thrust member having a single point contact with the second recited member, a groove in the face of one of the parts, and a formation on the other part projecting into said groove for maintaining the parts against separation but permitting said bodily movement of the thrust member with respect to the said body portion.

8. A printer's register hook embodying a body portion, a thrust member carried thereby, a wedge member carried by said body and movable lengthwise thereof, means for positively moving said wedge member in opposite directions, means maintaining said member against rotation, and a single point contact between said wedge member and said thrust member.

9. A printer's register hook embodying a body portion, a thrust member carried thereby, a wedge member carried by said body and movable lengthwise thereof, a single point contact between said wedge member and said thrust member, and means movable with and with respect to said wedge member, for moving the said wedge member in directions lengthwise of said body portion.

10. A printer's register hook embodying a body portion, a thrust member carried thereby, a wedge member carried by said body and movable lengthwise thereof, a single point contact between said wedge member and said thrust member, means for moving the said wedge member in directions lengthwise of said body portion, the said means embodying a member movable with and with respect to the wedge member, and a threaded connection between the third recited member and said body portion.

11. A printer's register hook embodying a body portion, a thrust member carried thereby, a wedge member carried by said body and movable lengthwise thereof, a single point contact between said wedge member and said thrust member, means for moving the said wedge member in directions lengthwise of said body portion, the said means embodying a member movable with and with respect to the wedge member, a threaded connection between the third recited member and said body portion, and means whereby the third recited member may be actuated through the end of said body portion.

12. A printer's register hook embodying a body portion, a thrust member carried thereby, a wedge member carried by said body and movable lengthwise thereof, a single point contact between said wedge member and said thrust member, means for moving the said wedge member in directions lengthwise of said body portion, the said means embodying a member movable with with respect to the wedge member, a threaded connection between the third recited member and said body portion, and means for

guiding said wedge member in its movement.

13. A printer's register hook embodying a body portion, a thrust member carried thereby, means for laterally and bodily projecting said thrust member with respect to the body portion, in combination with a base provided with a plurality of vertically arranged circular openings therein into one of which openings the hook is adapted to be inserted, and a projection on said thrust member adapted to enter a recess in the vertical wall of said opening.

14. A printer's register hook embodying a body portion, a thrust member carried thereby, means for laterally and bodily projecting said thrust member with respect to the body portion, in combination with a base provided with a plurality of vertically arranged circular openings therein into one of which openings the hook is adapted to be inserted, and a shoulder formed in the vertical wall of said recess beneath which shoulder a portion of said thrust member is adapted to be positioned.

In testimony whereof I have signed my name to this specification, on this 11th day of July, A. D. 1928.

WILLIAM F. BRÜGMANN.