(No Model.) 2 Sheets—Sheet 1.

J. T. HAWKINS.

PLATE HOLDER FOR PRINTING MACHINES.

No. 453,862. Patented June 9, 1891.

Fig. 1.

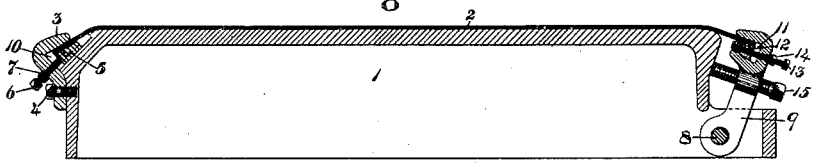


Fig. 2.

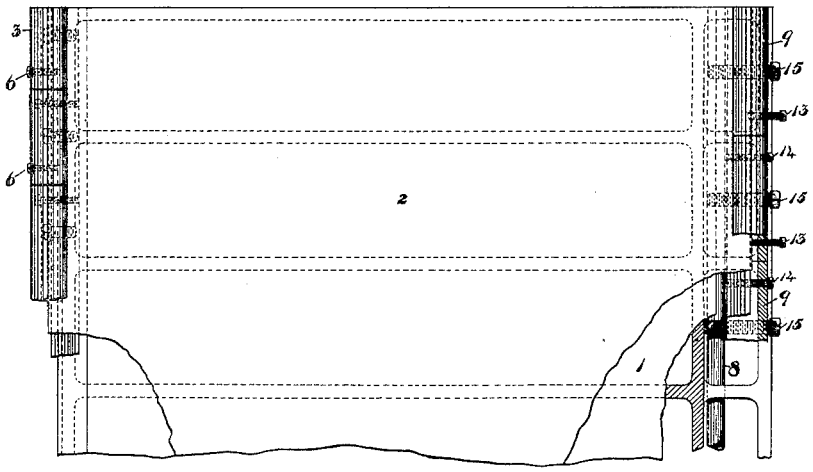


Fig. 3.

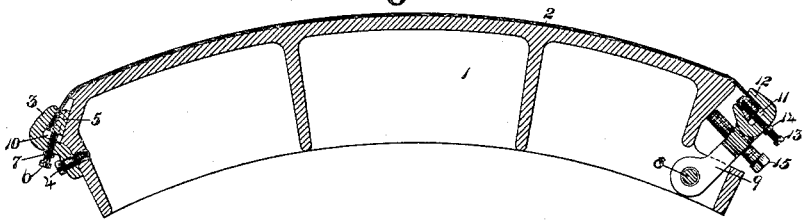
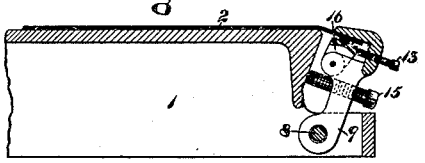


Fig. 12.



Witnesses.
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John T. Hawkins
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Attorney.

(No Model.) 2 Sheets—Sheet 2.

J. T. HAWKINS.

PLATE HOLDER FOR PRINTING MACHINES.

No. 453,862. Patented June 9, 1891.

Fig. 4.

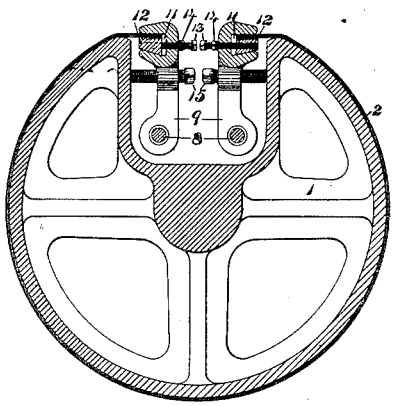


Fig. 5.

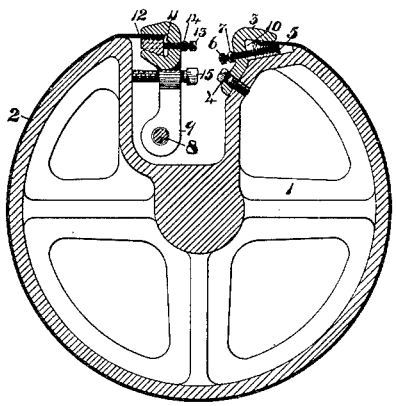


Fig. 6.

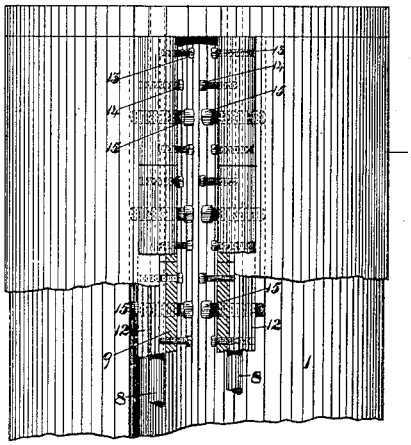


Fig. 7.

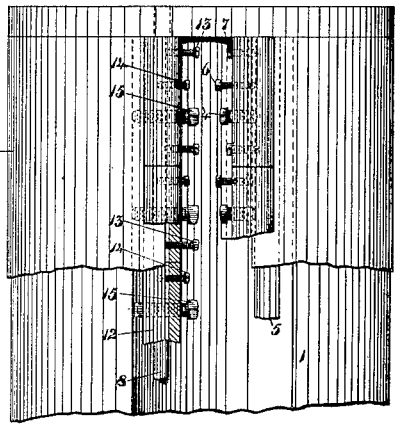


Fig. 8.

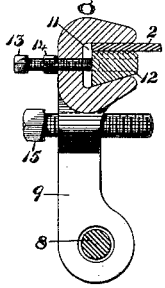


Fig. 9.

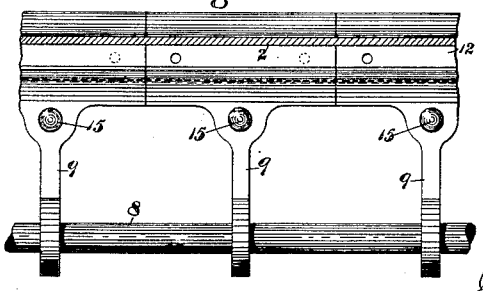


Fig. 10.

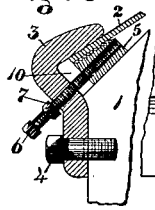
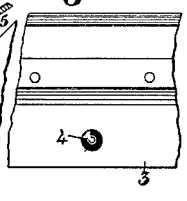


Fig. 11.



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UNITED STATES PATENT OFFICE.

JOHN T. HAWKINS, OF TAUNTON, MASSACHUSETTS.

PLATE-HOLDER FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 453,862, dated June 9, 1891.

Application filed July 18, 1888. Serial No. 280,284. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. HAWKINS, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Plate-Holders for Printing-Machines, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

The objects of this invention are to provide means for holding comparatively thin plates upon the flat beds of reciprocating or upon the cylindrical surfaces of cylinders or turtles in rotary printing-machines without having recourse to first bending or preparing the edges of the plates, to strain the plates into close contact with the surfaces upon which they are to lie, and to provide for small adjustments of the plates upon such beds, cylinders, or turtles.

The invention will first be described in detail, and then particularly set forth in the claims.

In the accompanying drawings, Figure 1 is a longitudinal vertical section, and Fig. 2 a view in plan, broken, of a flat bed or holder with the plate attached. Fig. 3 is a longitudinal vertical section of a cylindrically-surfaced turtle. Figs. 4 and 5 are transverse sections of printing-cylinders, showing the plates secured thereto by the means forming the subject of this invention. Figs. 6 and 7 are broken views in plan of Figs. 4 and 5. Figs. 8, 9, 10, and 11 are enlarged views of the clamping and straining devices shown in transverse section and front elevation. Fig. 12 is a sectional view of a modified form of clamping device.

In said figures the several parts are indicated by numbers, as follows:

The number 1 indicates the bed, cylinder, or turtle, and 2 the plate to be held. The clamp 3 is secured at one end of the printing-surface of the bed, cylinder, or turtle by bolts 4, its upper extremity forming, with the metal of the bed, cylinder, or turtle, a wedge-shaped opening 10. Sliding in this wedge-shaped opening is a continuous corresponding wedge-shaped bar 5, or a series of short blocks of similar form, having their upper sides or that side coming in contact with the plate serrated or roughened, so as to engage and hold the plate firmly. A series of bolts 6 are threaded in the clamp 3 and impinge against the bars 5, and a similar series of bolts 7 pass freely through the clamp 3 and are threaded in the bars 5. The bolts 6 are for the purpose of forcing the bars 5 into the wedge-shaped opening 10 until they bite or take hold of the plate, after which the straining of the plate makes them self-clamping, and the bolts 7 are for the purpose of withdrawing the bars 5 when the plate is to be released. A rod or rods 8 are secured in the bed, cylinder, or turtle, upon which is loosely fulcrumed a series of levers 9. The free ends of the levers 9 are formed into jaws having wedge-shaped openings 11, corresponding to openings 10, above described, into which openings slide a series of wedges 12, also having their upper faces serrated or roughened and operating to clamp the plate in a self-acting manner, similar to the clamp 3 and bars 5. The bolts 13, which are threaded in the lever 9, impinge against the wedge-bars 12, and the bolts 14, threaded in the bars 12, pass freely through the lever 9 and operate in the manner explained for the bolts 6 and 7. Threaded in the levers 9 are set-screws 15, impinging against the bed, cylinder, or turtle and operating to strain the plate tightly at all points. The levers 9 are fulcrumed in such position as to draw the plate at a slight angle below the level of the bed when straight or below the cylindrical surface when a cylinder or turtle, this angle being only sufficient, however, to allow the upper jaws of the clamp and levers to be kept below the printing-surface of the plate.

It is obvious now that it will not be necessary to bend the ends of the plate before placing it on the apparatus, the straining action of the levers 9 sufficing to spring the plate near its ends to the necessary angle, and the operations of the wedge-shaped bars 5 and 12 will obviously be to hold the plate tighter as the tensile strain upon it becomes greater, the heads of the bolts 7 and 14 being kept free from the clamp 3 and lever 9 to permit of this self-acting clamping of the plate. It is also obvious that this construction may be modified so that on flat beds or curved turtles the levers 9 may be used at both ends of the plate, as is shown in the case of the

cylinder, Figs. 4 and 6, and that in either of these cases the plate may not only be strained closely in contact with the surface upon which it rests, but may also be adjusted within small limits on the bed, turtle, or cylinder by varying the position or angle of the levers 9 by means of the set-screws 15.

Fig. 12 shows a modification of the self-clamping device above described, in which, in place of sliding wedge-shaped bars such as 5 and 12, an oscillating toggle 16 is used serrated or roughened upon its upper curved surface and fulcrumed in the levers 9, its serrated surface being eccentric to its fulcrum. This construction is considered equivalent to the sliding wedge-shaped bars, and may be used in lieu of them, if desired. Preferably, however, the sliding bar is used, for the reason that with it greater surface is utilized in contact with the plate, and thus less liability is incurred of cutting the plate under great strain.

Having thus fully described my said improvement as of my invention, I claim—

1. Means for securing plates to the beds, cylinders, or turtles of printing-machines, consisting of the following-named elements in combination: a straining clamp or clamps at one end of such bed, cylinder, or turtle, forming wedge-shaped openings for blocks or bars corresponding in form to enter said wedge-shaped openings, and a straining clamp or clamps fulcrumed at the opposite end of such bed, cylinder, or turtle, carrying in their free ends wedge-shaped clamping bars or blocks and set-screws, as 15, for operating the same, whereby said combination of elements is adapted to securely clamp such plate at its two opposite edges and strain the same into close contact at all points with the surface of such bed, cylinder, or turtle without previous preparation or bending of the edges of said plate, substantially as set forth.

2. Means for securing plates to the beds, cylinders, or turtles of printing-machines, consisting of the combination of straining-levers, as 9, fulcrumed at opposite ends of such bed, cylinder, or turtle, carrying in their free ends self-clamping bars, as 12, and operated to strain into close contact and adjust into position the plate upon said bed, cylinder, or turtle by set-screws, as 15, whereby said plate may be strained at all points into close contact with and adjusted on said bed, cylinder, or turtle without previous preparation or bending of the edges of said plate, substantially as set forth.

JOHN T. HAWKINS.

Witnesses:
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ALBERT J. PARK.