

No. 736,627.

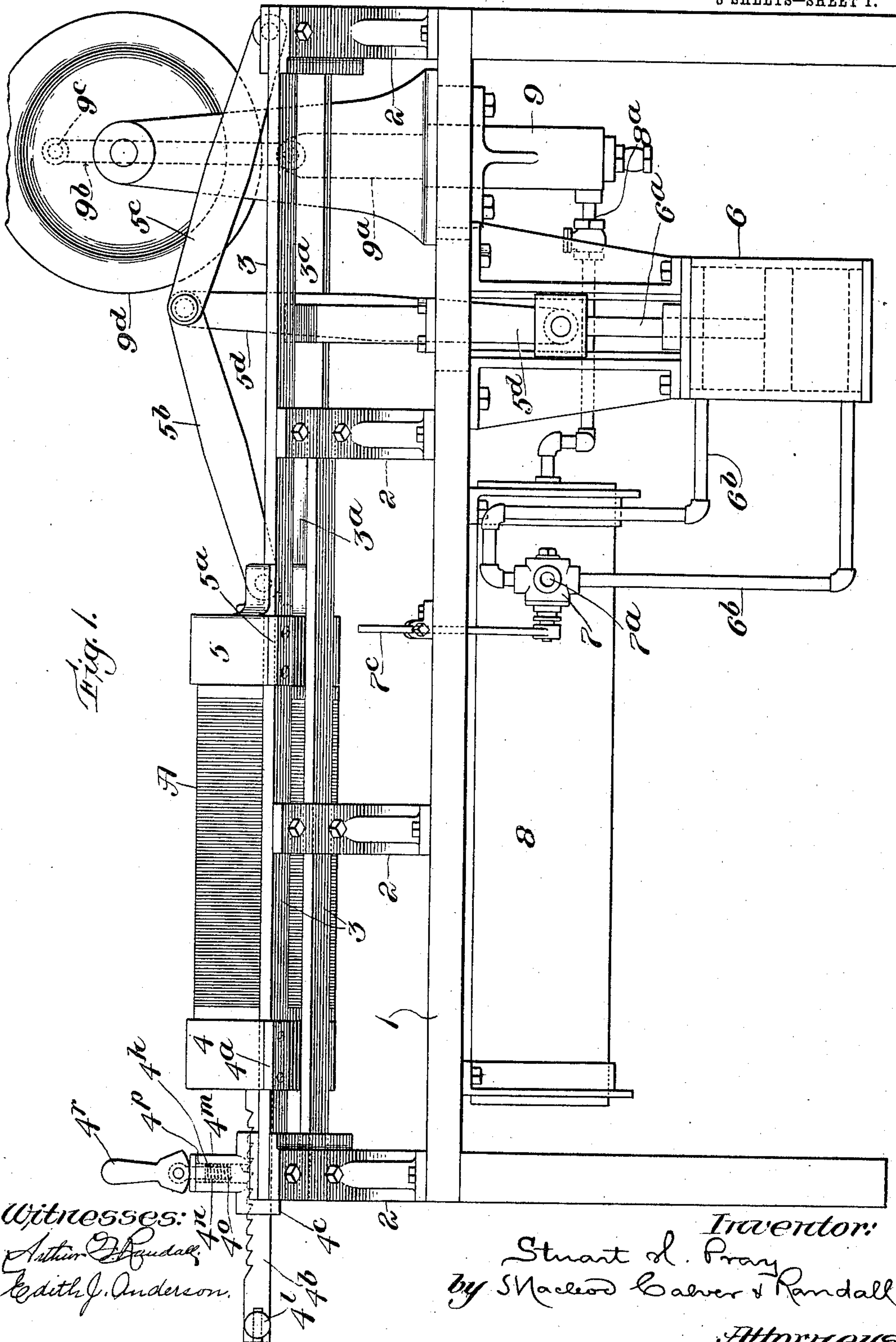
PATENTED AUG. 18, 1903.

S. H. PRAY.  
SIGNATURE BUNDLING MACHINE.

APPLICATION FILED MAY 1, 1901.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:  
Arthur D. Randall,  
Edith J. Anderson.

Inventor:  
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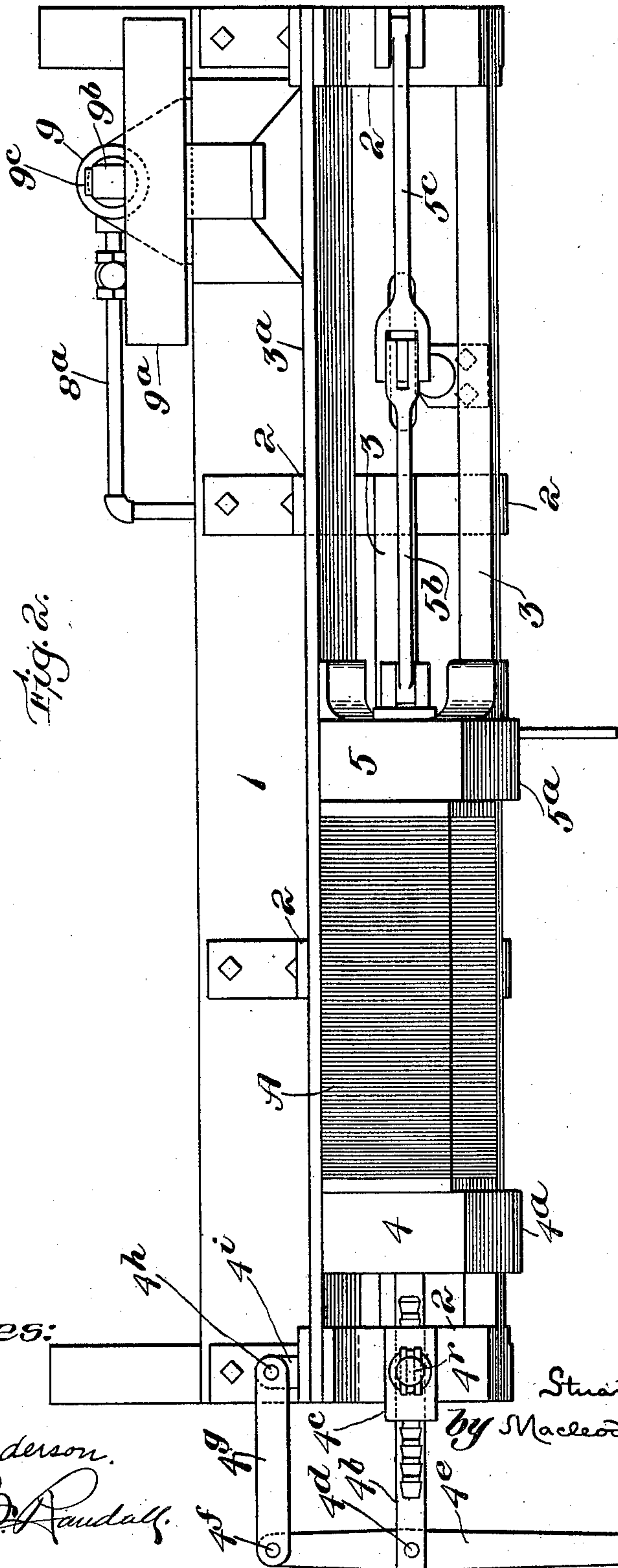
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

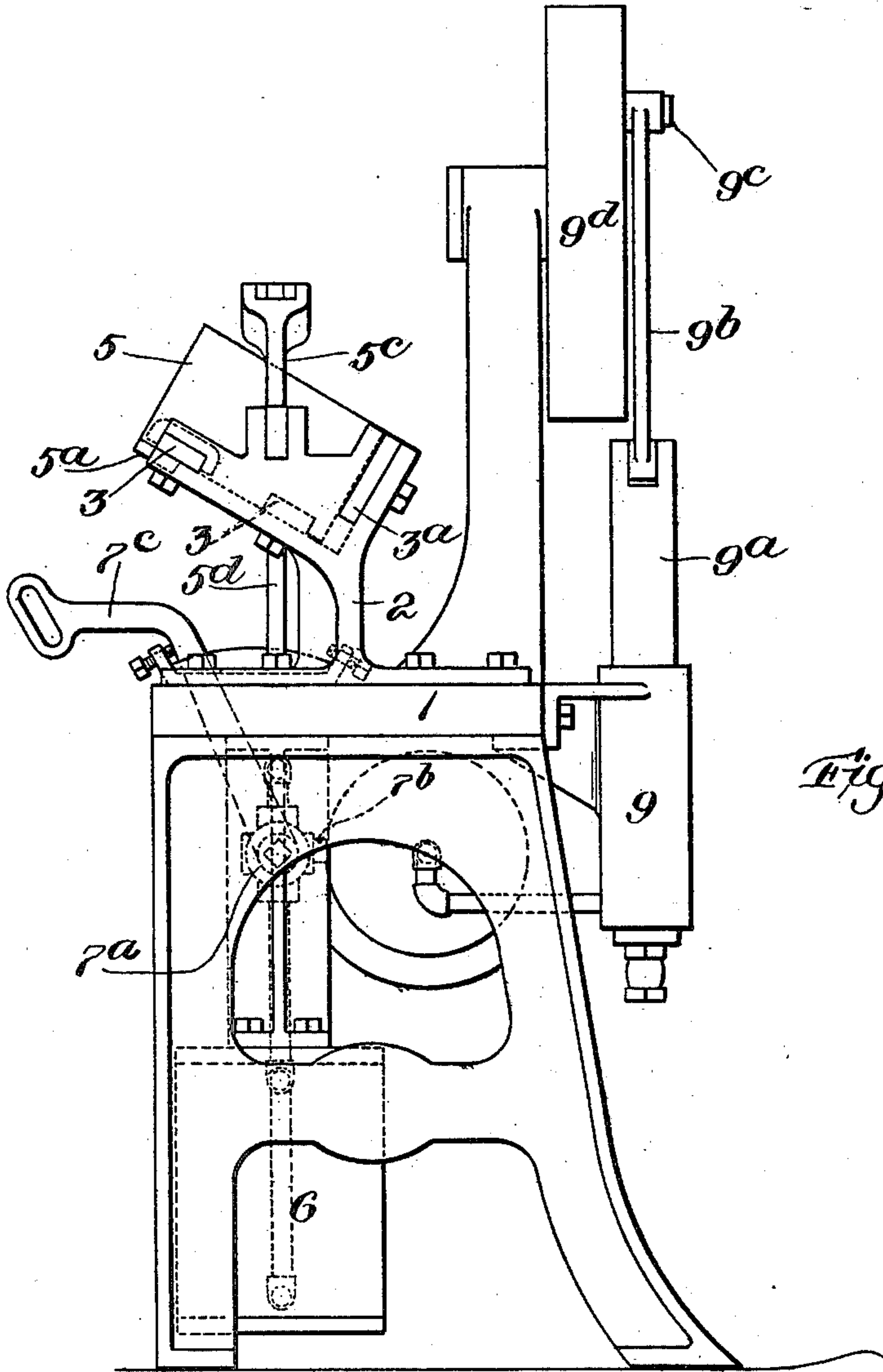


Fig. 3.

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# UNITED STATES PATENT OFFICE.

STUART H. PRAY, OF NORWOOD, MASSACHUSETTS.

## SIGNATURE-BUNDLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 736,627, dated August 18, 1903.

Application filed May 1, 1901. Serial No. 58,261. (No model.)

*To all whom it may concern:*

Be it known that I, STUART H. PRAY, a citizen of the United States, residing at Norwood, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Signature-Bundling Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in a press of improved character and construction which has been designed more especially for use in bundling signatures preparatory to sewing the same. It is, however, especially adapted also for general use in bookbinding-work—as, for instance, in magazine-work—and in taking the impression out of newly-printed and folded paper.

In the drawings, Figure 1 shows in side elevation a press embodying my invention. Fig. 2 shows the same in plan. Fig. 3 shows the same in end elevation.

Having reference to the drawings, 1 designates the fixed top plate forming part of the framework of the press, and 2, 2, &c., are uprights or standards rising from the said top plate at intervals apart. In the present instance the said uprights or standards are Y-shaped. The bars 3 3 3<sup>a</sup>, extending longitudinally of the press and forming the bed thereof, are secured to the upper diverging arms of the said uprights or standards with their upturned surfaces disposed in planes converging at an angle of ninety degrees. Two of the said bars 3 3 constitute one side of the bed, the remaining bar 3<sup>a</sup> constituting the other side thereof. In practice the signatures A or other sheets to be compressed are stood upon edge in the angle of the bed, one angle of the bundle of paper occupying the angle of the bed and one side thereof resting upon the two bars 3 3, while the lower end rests upon the bar 3<sup>a</sup>.

The heads 4 5 are both movable. They are fitted and guided in suitable and convenient manner in connection with the bed. Herein the said heads are held to the bars 3 3 by means of gibs 4<sup>a</sup> 5<sup>a</sup>, whereby they are retained in proper place relatively to the bed, while free to be moved longitudinally thereof. The head 5 is power-operated. The devices which are employed in connection therewith are of

a character enabling them to actuate the head 5 with the degree of force which is required for the attainment of the required degree of compression. Preferably the said head 5 is actuated by means of the improved devices embodying one portion of my invention, which I presently will proceed to explain. The head 4 has connected therewith devices by means of which the same may be moved quickly and conveniently under the control of the operator to take up the looseness or slack in the bundle of signatures or other sheets before the real compression is effected through the action of the power-head 5. Usually I connect with the said head 4 devices whereby the same may be manually operated. Herein it has attached thereto the rack-bar 4<sup>b</sup>, the latter being fitted to a suitable guide at 4<sup>c</sup> and being connected pivotally at 4<sup>d</sup> with the horizontally-movable hand-lever 4<sup>e</sup>, which last is pivoted at 4<sup>f</sup> to a link 4<sup>g</sup>, which in turn is pivoted at 4<sup>h</sup> to a bracket 4<sup>i</sup>, projecting from the upright or stand 2 at the corresponding end of the press. For the purpose of holding the head 4 after it has been advanced to take up the slack or looseness against rearward movement until it is released by the operator it has combined therewith a bolt 4<sup>k</sup>, mounted in a housing 4<sup>m</sup> and acted upon by a spring 4<sup>n</sup>, which depresses the same into engagement with the rack-bar 4<sup>b</sup>. The said spring is compressed between a shoulder 4<sup>o</sup> on said bolt and the lower end of a bushing 4<sup>p</sup> within said housing. Above the housing the upper end of bolt 4<sup>k</sup> has pivoted thereto a handle 4<sup>r</sup>, having its lower part of symmetrical shape, the base of said lower part being constituted by a surface which approaches nearer to the pivotal point than the surfaces forming the two sides. When the handle is in its intermediate position, with the said base resting on the top of the housing, the bolt is held by the spring forced into engagement with one of the teeth of the rack-bar, and head 4 thereby is locked. When the handle is swung to either side, so as to turn either side of the lower part of the handle into contact with the top of the housing, the bolt is held retracted from the teeth of the rack-bar, and head 4 thereby is unlocked.

The power-head 5 has pivotally connected



therewith the outer extremity of one link 5<sup>b</sup> of a toggle, the outer extremity of the other link 5<sup>c</sup> thereof being pivoted to a suitable fixed part of the framing. The middle of the toggle is connected by a rod 5<sup>d</sup> with the piston-rod 6<sup>a</sup> of the piston working inside the cylinder 6. Through the connections described the movements of the piston within the cylinder, superinduced at the will of the operator, are transmitted to the toggle, and thereby the head 5 is actuated with great force or power. For the purpose of occasioning the desired movements of the piston the interior of the cylinder is connected with a supply of fluid-pressure, and a suitable valve arrangement controlled by the operator is provided. In the illustrated embodiment of the invention, 6<sup>b</sup> 6<sup>b</sup> are pipes communicating with the interior of the cylinder 6 at opposite sides of the piston. 7 is a four-way valve with which said pipes are connected, the said valve having an exhaust-passage 7<sup>a</sup> and also a connection 7<sup>b</sup> with a source of fluid-pressure, herein constituted by a compressed-air chamber 8. The valve 7 has connected with the movable part or plug thereof a handle 7<sup>c</sup>, by means of which the operator is enabled to cause compressed air to flow into the cylinder at either side of the piston, as required.

It will be seen that the power-actuated compression-head 5 may normally be held stationary by means of the fluid-controlled piston in the cylinder 6, so that it will serve as an abutment for the signatures during the initial compression by the manually-operated head 4. After this initial compression has been made and head 4 has been locked by means of the device described the operator may then apply power to the head 5 and the

final compression will take place, the locked head 4, now serving as an abutment for the signatures.

9 is the cylinder of an air-pump, the air passing from said cylinder through a pipe 8<sup>a</sup> to the compressed-air chamber 8. The piston 9<sup>a</sup> of the said air-pump is operated by means of the connecting-rod 9<sup>b</sup> and the crank 9<sup>c</sup>, connected with the heavy band-wheel 9<sup>d</sup>.

The position of the signatures or other sheets preliminary to and during compression—namely, resting on edge in a vertical position upon the surfaces of the bars 3 3<sup>a</sup> and in the angle between the said bars—facilitates the positioning or placing of the signatures or other sheets prior to compressing the same and, coupled with the compression in a horizontal direction, obviates tendency to relative displacement of the signatures or other sheets during compression.

I claim as my invention—

In a signature-bundling press, in combination, the bed, the head 4, the rack-bar 4<sup>b</sup> and the hand-lever 4<sup>c</sup> connected with the said head, the guide 4<sup>e</sup> for the said rack-bar, latching devices engaging with the said rack-bar to hold the head 4 in adjusted position, the power-head 5, the toggle connected with the said power-head, the piston connected with the said toggle, the cylinder, and the valve controlled by the operator whereby the actions of the piston and toggle are determined, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

STUART H. PRAY.

Witnesses:

CHAS. F. RANDALL,  
ARTHUR F. RANDALL.