

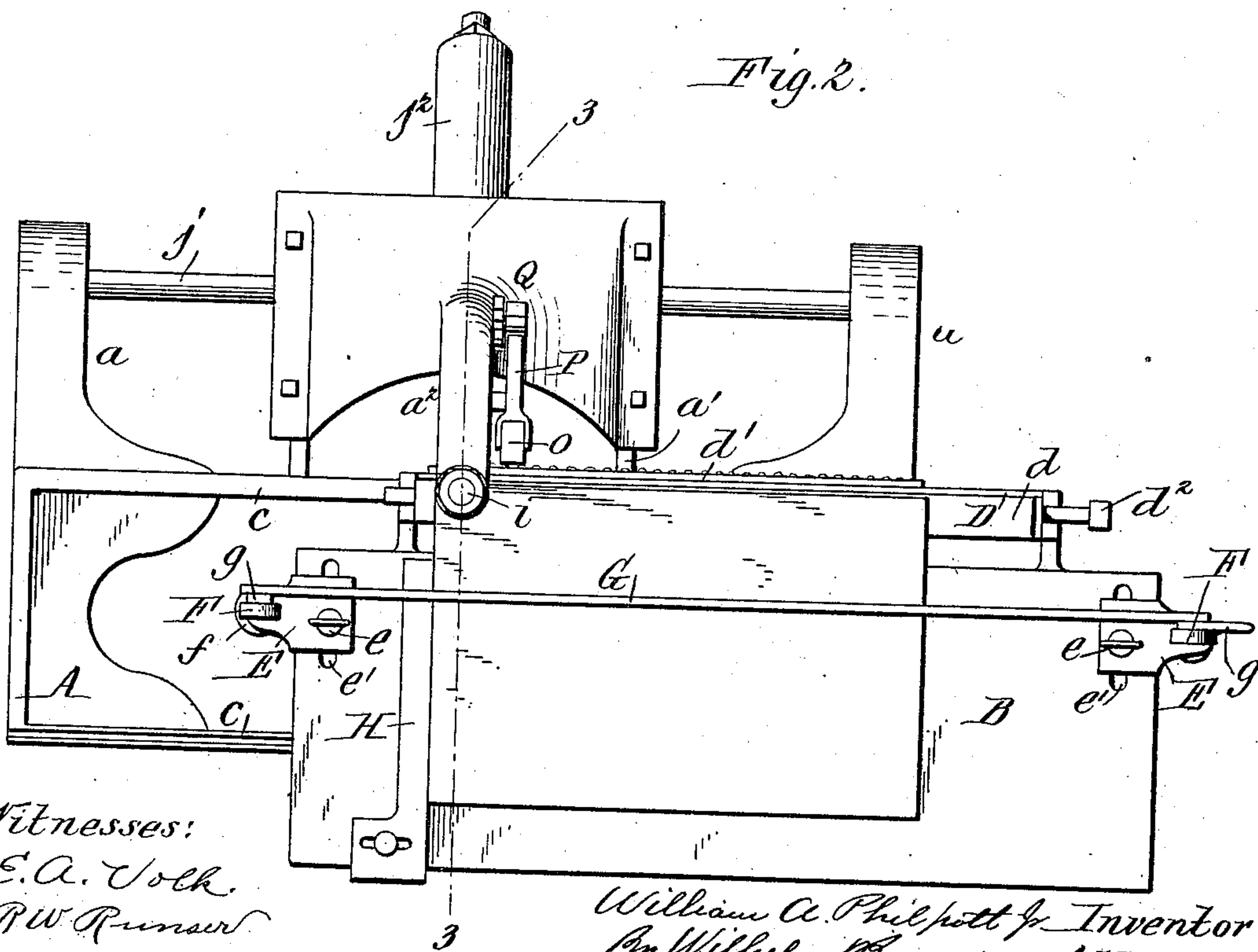
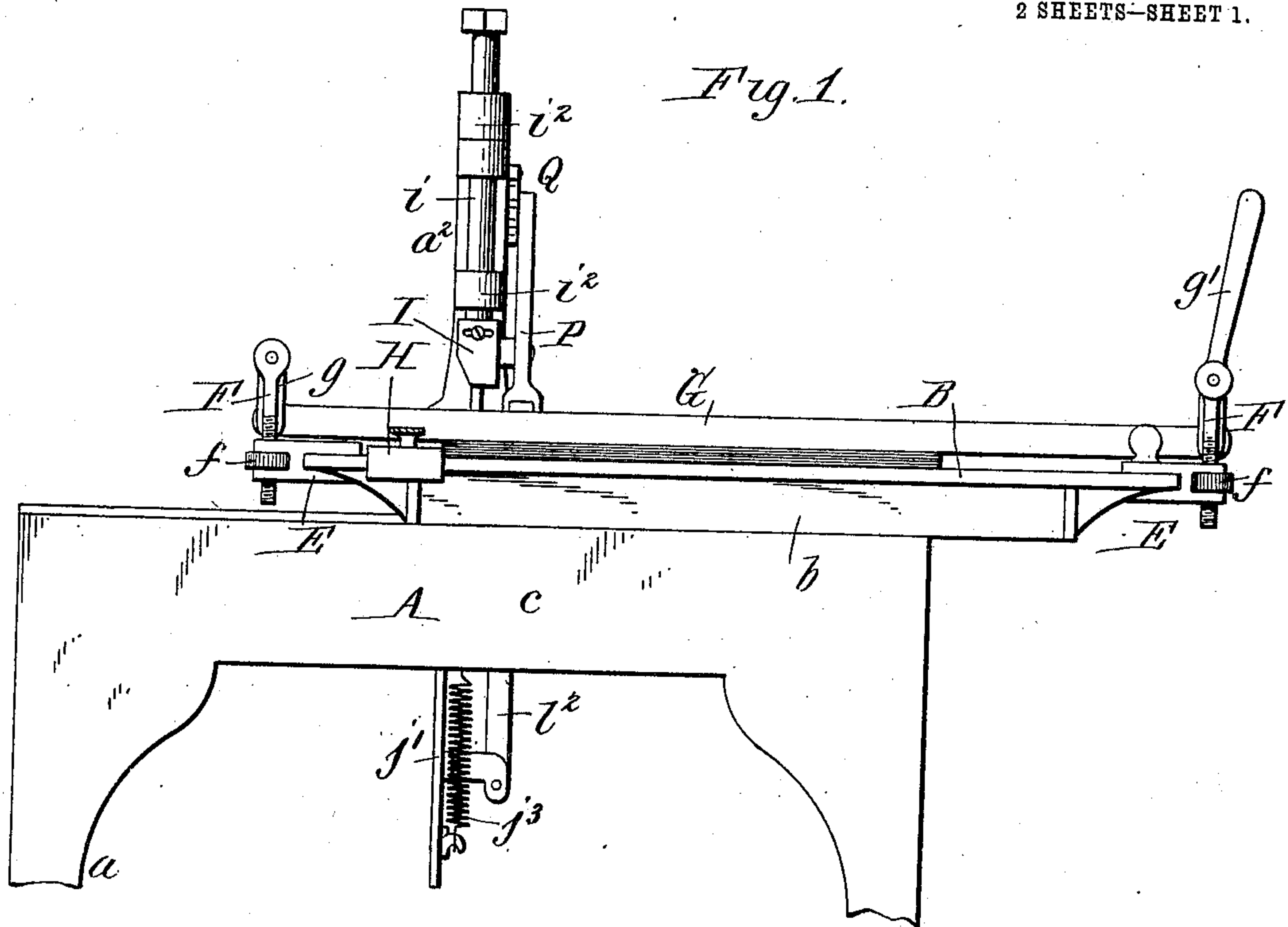
No. 828,568.

PATENTED AUG. 14, 1906.

W. A. PHILPOTT, JR.
INDEX CUTTING AND PRINTING MACHINE.

APPLICATION FILED AUG. 17, 1903.

2 SHEETS—SHEET 1.



Witnesses:
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R. W. Runner.

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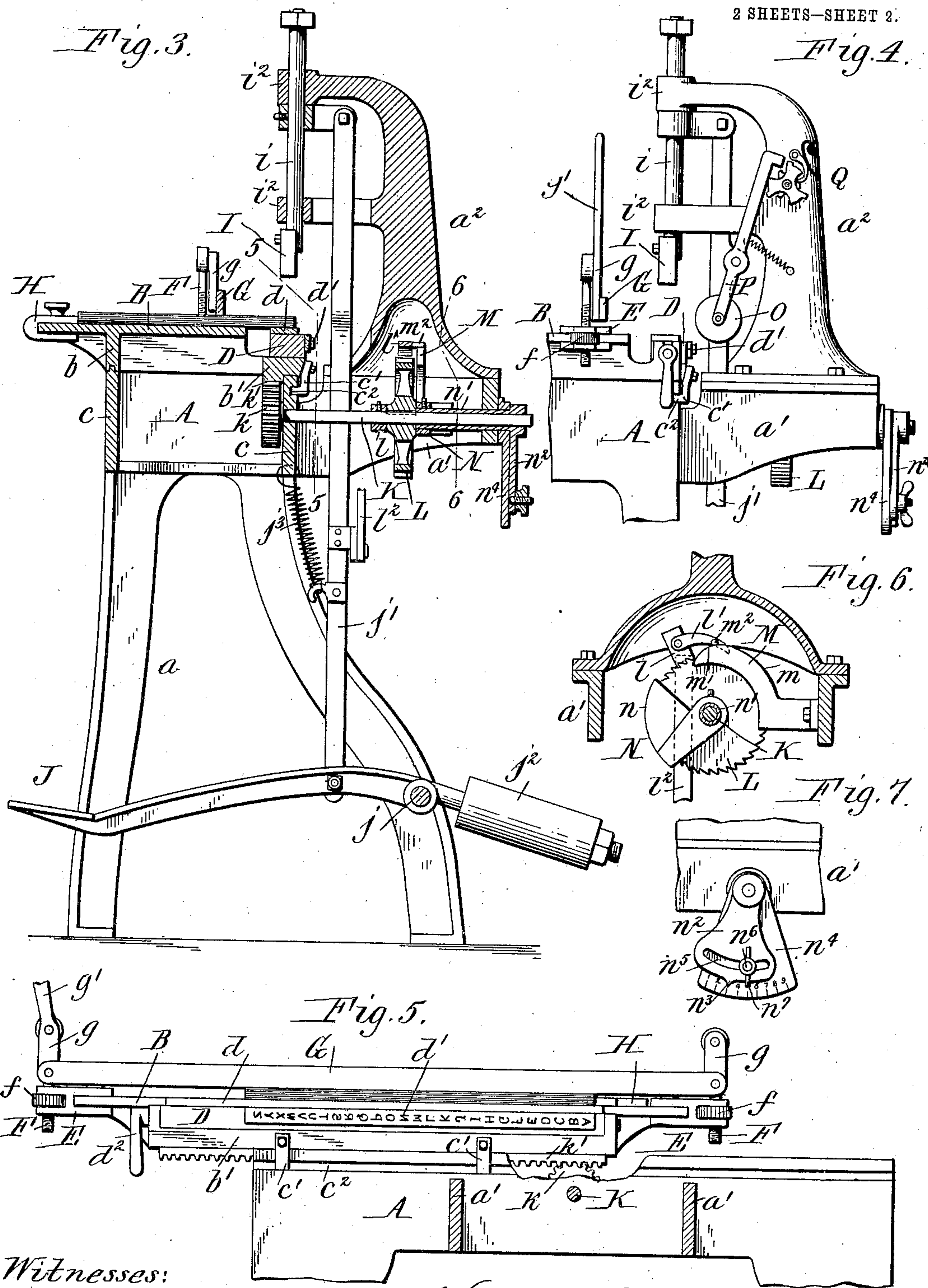
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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INDEX CUTTING AND PRINTING MACHINE.

No. 828,568.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed August 17, 1903. Serial No. 169,729.

To all whom it may concern:

Be it known that I, WILLIAM A. PHILPOTT, Jr., a citizen of the United States, residing at Niagara Falls, in the county of Niagara and State of New York, have invented new and useful Improvements in Index Cutting and Printing Machines, of which the following is a specification.

This invention relates to a machine for cutting and printing index books or sheets of that kind in which the marginal portion of each sheet below its index character is cut away to expose the index characters of the under sheets.

The machine is of that type having a horizontally-moving feed-table on which the sheets are clamped and which is fed intermittently beneath a vertically-reciprocating index-cutter to properly position the successive marginal portions of the sheets which bear the index characters.

In the accompanying drawings, consisting of two sheets, Figure 1 is a front elevation of the upper portion of an index cutting and printing machine embodying the invention. Fig. 2 is a plan view thereof. Fig. 3 is a vertical transverse section thereof in line 3 3, Fig. 2. Fig. 4 is a fragmentary end elevation thereof. Fig. 5 is a fragmentary rear sectional elevation in line 5 5, Fig. 3. Fig. 6 is a sectional elevation in line 6 6, Fig. 3, showing the ratchet mechanism. Fig. 7 is a rear elevation of the feed-adjusting device.

Like letters of reference refer to like parts in the several figures.

The main frame may be of any suitable construction, that shown in the drawings comprising a horizontal bed A, supported by legs *a*, a rearwardly-projecting frame extension *a'*, and a cutter-standard *a''*, rising from the frame extension.

B represents the feed-table or work-support, which is provided with front and rear bars or portions *b b'*, which rest and slide upon the tops of the front and rear vertical walls *c* of the bed. The front wall of the bed is provided with a track which projects up into a corresponding groove in the front bar of the feed-table, and the latter is provided at its rear side with depending hooks *c'*, which engage in a horizontal groove *c''* in the rear wall of the bed to hold the feed-table on the latter.

The feed-table is provided at its rear side

with a longitudinal cutting-block D, which is provided at its ends with journals seated in suitable bearings at the ends of the table. The cutting-block is rectangular in cross-section and is provided on one face with a cutting strip or plate *d*, of suitable relatively soft material—such, for instance, as copper—for the knife to strike against in cutting the index-leaves and on the adjacent face with type *d'* for printing the index characters. When cutting, the block is supported, as shown in Fig. 3, with the cutting-plate uppermost beneath the edges of the index-leaves, and when the characters are to be printed the block is turned a quarter-revolution to bring the type uppermost. The cutting-block is provided with a handle *d''* for turning the same. The index-leaves are placed on the feed-table with their rear edges, which are to be cut, over the cutting-block and are securely held on the table by a suitable clamp. The clamp shown in the drawings is constructed as follows: E represents brackets arranged at the opposite ends of the feed-table and each of which is provided with a bifurcated inner end which straddles the end of the table. A clamping-screw *e* passes through a smooth hole in the upper portion of the bracket and an elongated slot *e'* in the table, having its lower threaded end engaging in a threaded hole in the lower portion of the bracket. When the clamping-screws are loosened, the brackets can be adjusted forwardly or rearwardly on the table to the desired position, and they are held by tightening the clamping-screws which draw the bifurcated ends of the brackets together to tightly grip the table. F represents upright posts provided with screw-threaded shanks which pass through vertical holes in the outer portions of the clamp-brackets and work in the threaded holes of adjusting-nuts *f*, confined in recesses or pockets in the outer ends of the brackets. G represents a horizontal clamping-bar which is pivoted at its opposite ends to the lower ends of parallel links *g*, pivoted at their upper ends to the upper ends of the upright posts F. One of the links is extended above its fulcrum on the post to form an operating handle or lever *g'* for the clamp. By swinging this lever the clamping-bar is raised and lowered to release and clamp the index-leaves between itself and the feed-table. When the clamping-bar is swung

downwardly into clamping position, the links are substantially vertical, and thus lock the clamping-bar in clamping position. The clamping-bar is readily adjusted vertically to the proper position to clamp a greater or less number of sheets by turning the adjusting-nuts f for the pivot-posts, thereby raising or lowering the latter. The table is provided with the usual adjustable end gage H for the index-sheets.

I represents the index-cutter, which is of known form and is secured to the lower end of an upright shank or slide-head i , mounted to reciprocate vertically in suitable guide-bearings in arms i^2 , projecting forwardly from the cutter-standard. The cutter is reciprocated by a treadle J , which is pivoted on a rod or shaft j at the rear lower portion of the main frame and extends forwardly to a point within reach of the operator's foot. The treadle is connected to the cutter-head by a link j' , pivoted at its lower end to the treadle and at its upper end to a lug or arm projecting from the cutter-head.

j^2 j^3 represent, respectively, a counterbalancing-weight on the rear end of the treadle and a spring connected to the link j' and to the machine-bed for raising or returning the cutter and treadle to their normal raised position after the treadle-bar has been depressed to lower the cutter.

The feed mechanism for moving the feed-table intermittently or step by step past the cutter to bring the successive parts of the index-sheets into proper position to be cut is constructed as follows, (see Figs. 3, 6, and 7:) K represents a horizontal transverse feed-shaft, which is journaled in suitable bearings in the rear wall of the bed and frame extension. The shaft is provided at its front end in front of the rear wall of the bed with a gear-wheel k , which meshes with a toothed rack k' on the bottom of the rear bar of the feed-table. L is a ratchet-wheel, which is secured to the feed-shaft intermediate of its ends, and l is a pawl-lever, which is mounted to swing loosely on the feed-shaft and is provided at its outer end with a pawl l' , which engages with the teeth of the ratchet-wheel. The pawl-lever is connected by a link l^2 to the link j' , which connects the cutter with its operating-treadle, so that the pawl-lever is operated simultaneously with the cutter. M represents a stationary cam, which is arranged beside the ratchet-wheel and is secured in any suitable manner to the frame extension. The stationary cam is provided with a face m , which is concentric with the ratchet-wheel, and with a cam-face m' at its end. The pawl is provided with a lateral projection or pin m^2 , adapted to engage and ride on the faces m m' of the stationary cam. N represents an adjustable shield, which is provided with a curved face n , concentric with the ratchet-wheel, upon which the lateral pin carried by

the pawl is adapted to ride. The adjustable shield is secured to a hollow shaft or sleeve n' , which loosely surrounds the feed-shaft and extends rearwardly through the rear bearing for said shaft. The sleeve has secured to or formed on its outer end an arm or plate n^2 , which is provided with a pointer or index n^3 and stands beside a stationary graduated plate n^4 , secured to the rear end of the frame extension. The index arm or plate is provided with a slot n^5 , curved concentric with the ratchet-wheel shaft, and a screw n^6 , secured to the dial-plate, passes through said slot and is provided at its outer end with a thumb-nut n^7 , which when tightened clamps the index arm or plate against the graduated plate to hold the index-arm and the adjustable shield stationary in the desired position. When the treadle is depressed, the pawl-lever is moved downwardly, and the lateral pin on the pawl rides on the curved face of the adjustable shield, thereby holding the pawl out of engagement with the teeth of the ratchet-wheel. When the treadle is released, it is raised by the spring and weight and the pawl-lever is moved upwardly. When the lateral pin on the pawl passes off of the adjustable shield, the pawl drops into engagement with the teeth of the ratchet-wheel, and the latter is carried with the pawl until the lateral pin on the pawl engages the cam-face of the stationary shield M , which lifts the pawl out of engagement with the teeth of the ratchet-wheel, and thus prevents further movement of the ratchet-wheel and feed-shaft. By properly setting the adjustable shield by means of the index-arm the pawl can be caused to engage with the ratchet-wheel sooner or later in the upward movement of the pawl-lever, thus increasing or decreasing the effective movement of the pawl, and consequently lengthening or shortening the movement of the feed-table. The stationary shield holds the pawl out of engagement with the teeth of the ratchet-wheel when the parts are at rest or in their normal position with the treadle and cutter-head raised. The feed-shaft is thus free to rotate in either direction, and the feed-table can be moved by hand on its way to properly position the index-sheets to make a cut at any desired point. The shield can be quickly and easily adjusted, and the position of the index on the graduated plate indicates the length of movement of the feed-table in different positions of the shield.

O represents an inking roller or wheel for applying ink to the type on the cutter-block. This inking-roller is journaled on a lever P , pivoted on the link connecting the cutter-head with the operating-treadle, and when the cutter-head is reciprocated the roller is moved across the face of the type, applying ink thereto. The roller may be provided with inks of different colors, and suitable means Q is provided for holding the inking-

roller out of contact with the type at alternate downward movements of the treadle for the purpose of applying the different colors of ink to the alternate type. As this means is known and forms no part of the present invention, it is not described in detail herein.

The operation of the machine is as follows: The index-sheets are clamped on the feed-table face downward with the edges to be cut over the cutting-block and the bottom ends of the sheets—that is, the ends on which the last index character will appear—at the left beneath the cutter, as indicated in Figs. 1 and 2. The operator turns the end of the sheet or sheets which will bear the last index character—for instance, "Z"—back out of the path of the knife, and the latter is lowered by depressing the treadle J and cuts the remaining sheets. The treadle is released and it and the cutter are raised and the feed-table moved forward one step by the feed mechanism in the manner explained, and the sheet or sheets for the next to the last character are turned back out of the path of the cutter and the latter again lowered to make the second cut. This operation is repeated until all of the index-spaces are cut. After the cutting operation is completed the index characters are printed in the usual manner by lifting the cut edges of the sheets and turning the cutting-block to bring the type thereon uppermost and then pressing the edges of the sheets down against the inked type.

I claim as my invention—

1. In a machine of the class described and in combination a main frame, a horizontally-movable supporting-table slidably mounted thereupon, an open frame extension projecting rearwardly from the main frame, a standard having a hollowed-out base supported upon the extension-frame and providing an inclosing wall for the upper side thereof, a plunger guided in the standard, an operating-lever, a link connecting the same to the plunger and means for feeding the table step by step including ratchet mechanism located within the housing provided by the frame ex-

tension and the base of the standard, substantially as described.

2. In a machine of the class described, a main frame, a horizontally-movable supporting-table slidably mounted thereon, an extension-frame projecting rearwardly from the central portion of the main frame, a shaft extending from front to rear of the frame extension with its front end projecting through the rear wall of the main frame, a gear mounted on the latter end, a rack on the lower side of the table intermeshing with the gear, means for rotating the gear to feed the table step by step including a ratchet-wheel fixed to the shaft and a pawl-carrier revoluble about the shaft having a pawl associated therewith, a standard rising from the frame extension and covering the said feed mechanism, a plunger mounted in the standard, an operating-lever, a vertically-arranged link extending through the frame extension and standard and connecting the lever to the plunger and a second link secured at one end to the first-named link and at its opposite end to the pawl-carrier, substantially as described.

3. In a machine of the class described and in combination a frame, a supporting-table horizontally movable thereon, a means for advancing the table step by step while normally permitting the reciprocation of the table back and forth including, a rack on the table, a gear or pinion intermeshing therewith, a pinion-shaft, a ratchet-wheel fixed thereon, a pawl-carrier, means for oscillating the latter, a pawl associated with the carrier, and means for throwing the pawl out of engagement with the ratchet at the termination of each step of the table and for maintaining the same out of engagement, substantially as described.

Witness my hand this 22d day of July, 1903.

WILLIAM A. PHILPOTT, JR.

Witnesses:

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CHAS. W. PARKER.