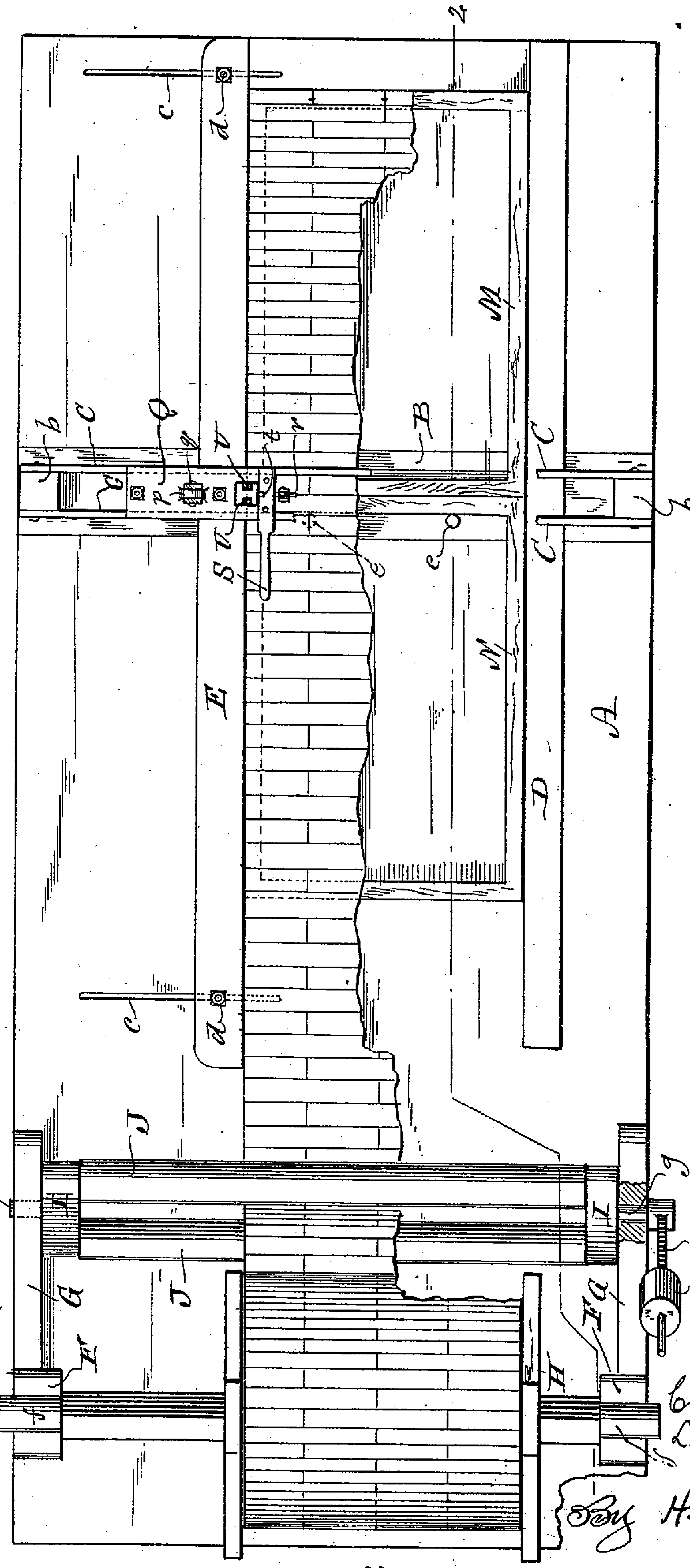
(No Model.) 4 Sheets—Sheet 1.

C. E. PARKS & L. MOLLART.

STAPLING AND CUTTING MACHINE.

No. 517,587. Patented Apr. 3, 1894.

Fig. 1.



Witnesses
Geo. W. Young
N. E. Oliphant

Inventors
Chas. E. Parks
Lovegott Mollart
By H. G. Underwood
Attorney

THE NATIONAL LITHOGRAPHING COMPANY, WASHINGTON, D. C.

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C. E. PARKS & L. MOLLART.

STAPLING AND CUTTING MACHINE.

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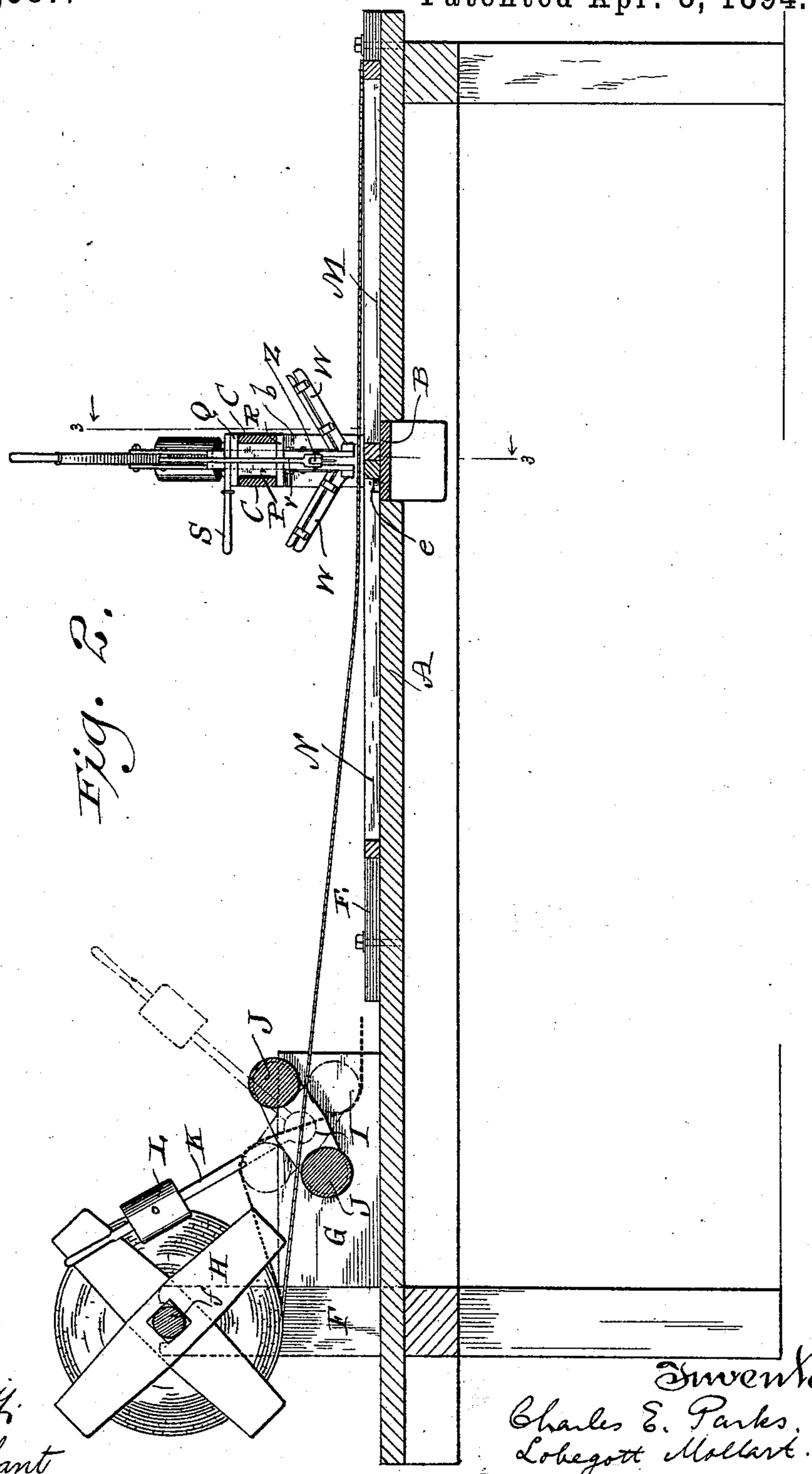

Fig. 2.

Witnesses
Geo. W. Young.
N. E. Oliphant

Inventors
Charles E. Parks.
Lobegott Mollart.
By H. G. Underwood
Attorneys

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

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C. E. PARKS & L. MOLLART.

STAPLING AND CUTTING MACHINE.

No. 517,587. Patented Apr. 3, 1894.

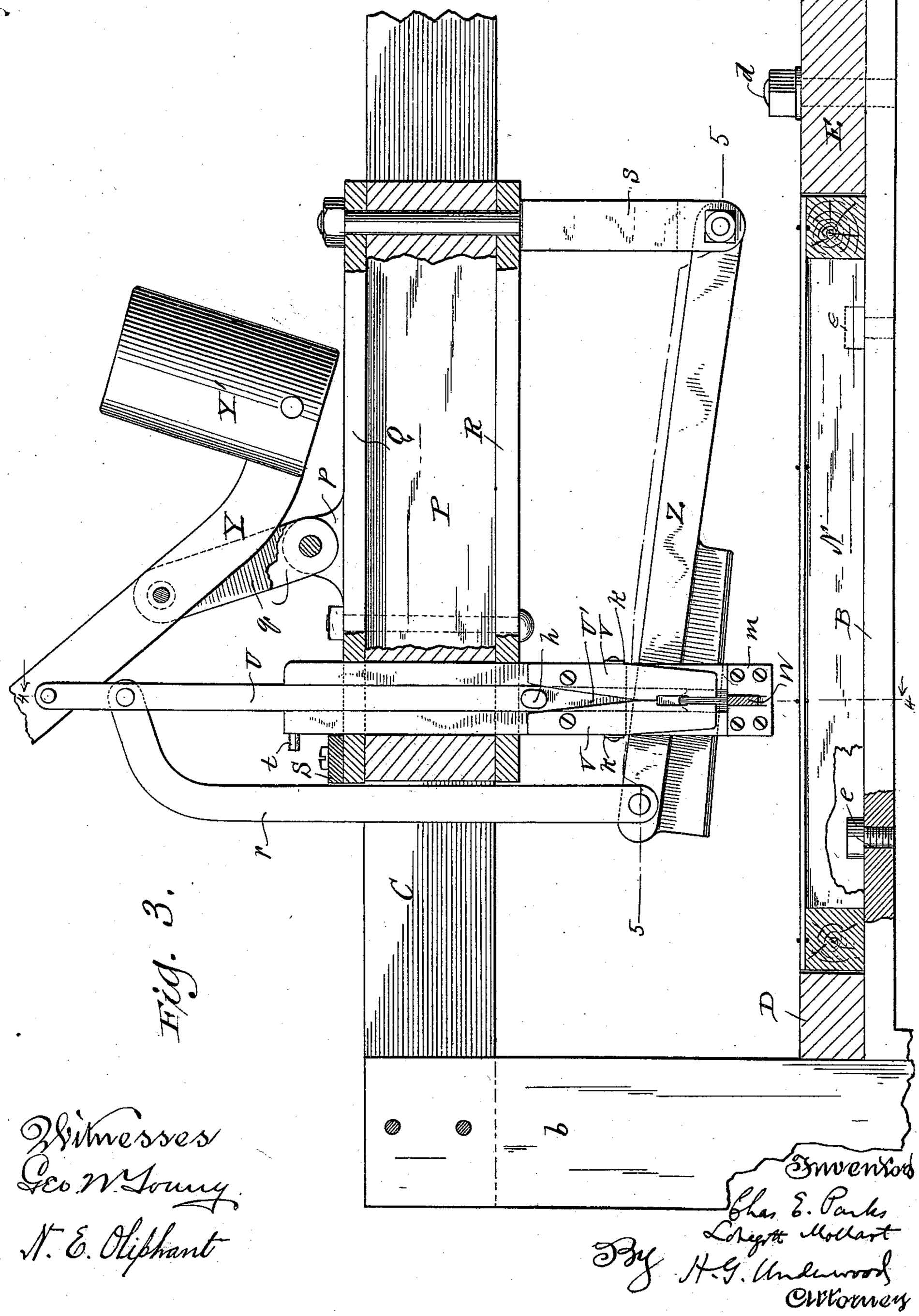

Fig. 3.

Witnesses
Geo. W. Young.
N. E. Oliphant

Inventors
Chas. E. Parks
Lafayette Mollart
By H. G. Underwood
Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

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C. E. PARKS & L. MOLLART.

STAPLING AND CUTTING MACHINE.

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Fig. 7.

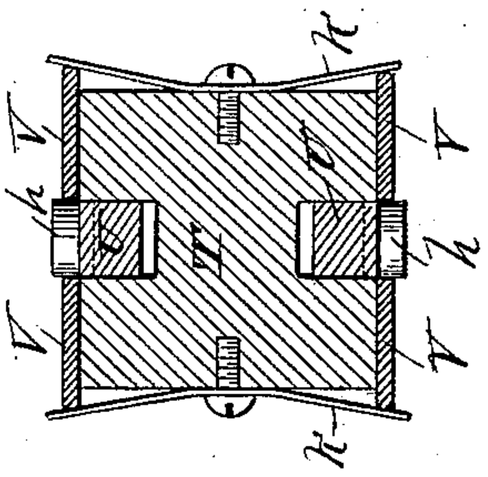


Fig. 8.

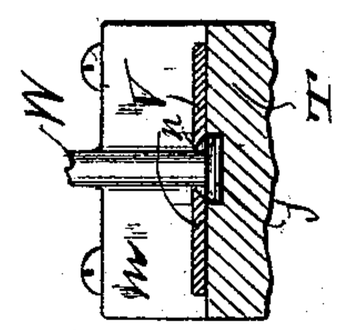


Fig. 9.

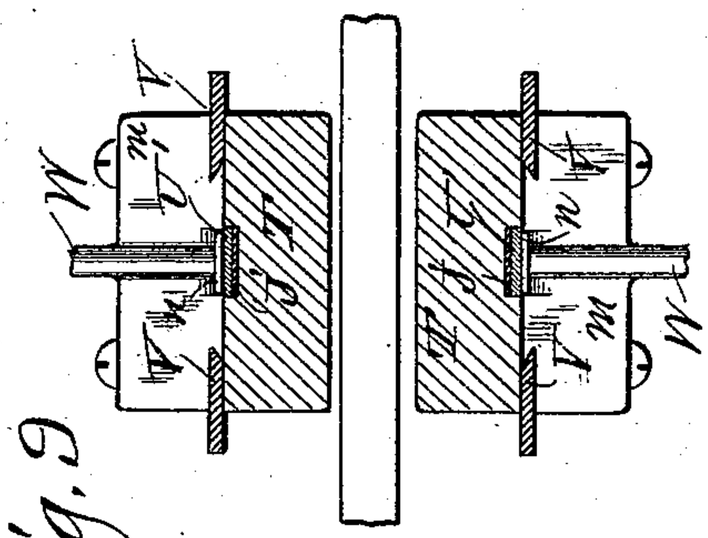


Fig. 5.

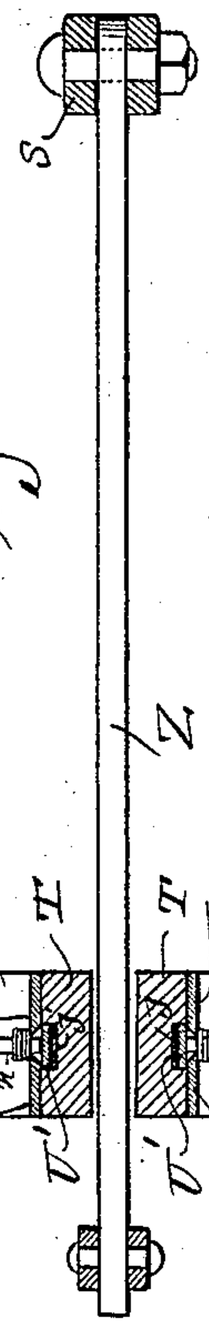


Fig. 6.

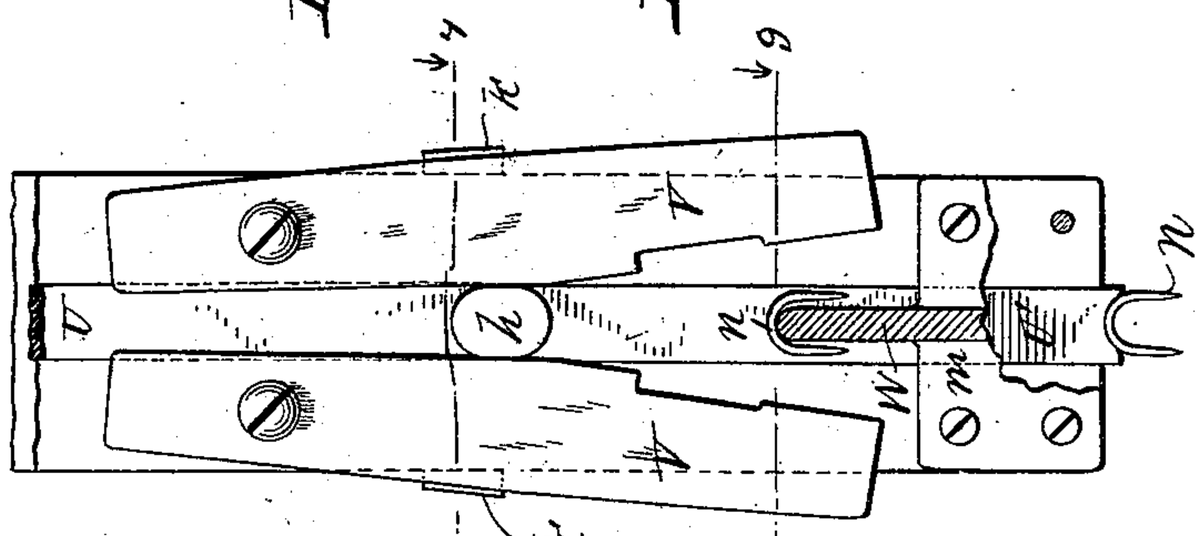
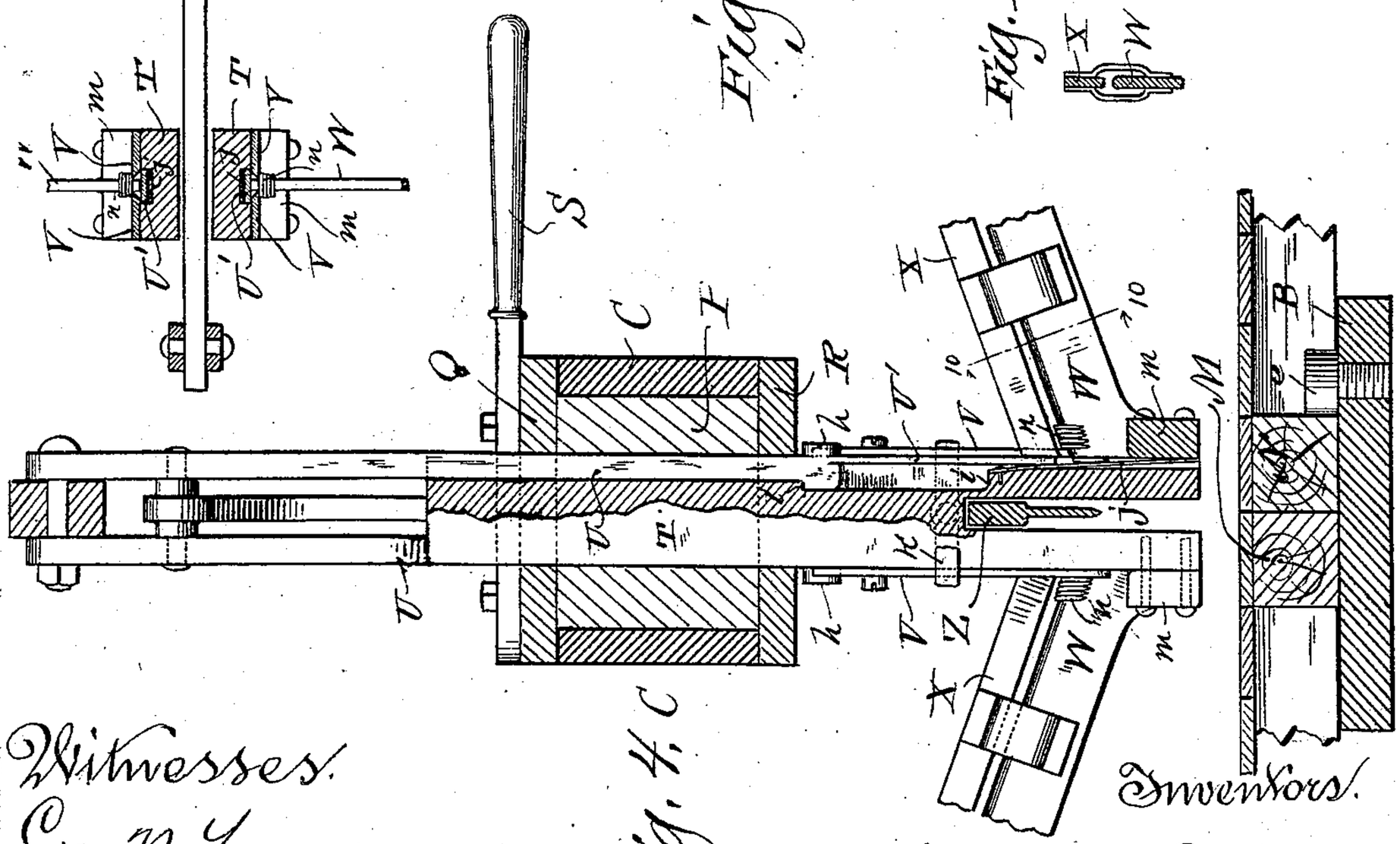


Fig. 10.



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Geo. N. Young.
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Charles E. Parks
Lovegott Mollart.
By H. G. Underwood
Attorneys.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES E. PARKS AND LOBEGOTT MOLLART, OF WATERTOWN, WISCONSIN;
SAID MOLLART ASSIGNOR TO SAID PARKS.

STAPLING AND CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 517,587, dated April 3, 1894.

Application filed February 28, 1893. Serial No. 464,101. (No model.)

To all whom it may concern:

Be it known that we, CHARLES E. PARKS and LOBEGOTT MOLLART, citizens of the United States, and residents of Watertown, in the county of Jefferson, and in the State of Wisconsin, have invented certain new and useful Improvements in Stapling and Cutting Machines; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to the manufacture of panels comprising wooden-frames and slat-and-wire fabric made fast thereon; its object being to facilitate the production and economize in the manufacture of such panels.

To this end our invention consists in certain peculiarities of construction and combination of parts, as well as in a method of panel production hereinafter specified with reference to the accompanying drawings and subsequently claimed.

In the drawings:—Figure 1 represents a plan view, partly in horizontal section, of a staple driving and fabric cutting machine constructed according to our invention; Fig. 2, a vertical longitudinal section of said machine taken on line 2—2 of the former figure illustrating certain of the parts in elevation; Fig. 3, a vertical transverse section taken on line 3—3 of the preceding figure. Figs. 4 and 5 are also sections respectively taken on lines 4—4 and 5—5 of Fig. 3; Fig. 6, a detail elevation partly in section illustrating a guide-stock and certain other relative parts embodied in our machine; Fig. 7, a horizontal section taken on line 7—7 of the preceding figure; Figs. 8 and 9, similar views taken on line 9—9 of Fig. 7 and illustrating two positions of pivotal staple-stops on the guide-stock, and Fig. 10 a section on line 10—10 of Fig. 4, illustrating a staple guide and guard.

Referring by letter to the drawings A represents the table portion of our machine mounted upon a suitable frame-work. Set in the table and forming part of the same is a transverse metal slab B and secured to standards *b* at the ends of this slab are parallel guide-rails C for a staple-driving and fabric-cutting mechanism hereinafter described.

Arranged on the table A is a stationary longitudinal gage D and said bed is provided with transverse slots *c* with which the set-bolts *d* of a movable gage E are engaged, the latter gage being arranged parallel to the one first specified. Suitable stops *e* are positioned on the slab B, and rising above the table A at one end thereof are standards F of the frame-work. Joined to said standards and the upper side of the table are side-bars G and it is possible to make each standard and relative side-bar in one piece.

The aforesaid standards are provided with bearings for the journals *f* of a reel H on which a web of slat-and-wire fabric is wound, and journaled in the side-bars G is a tightener for the fabric. The tightener is shown as preferably consisting of end-blocks I having journals *g* engaging said side-bars, and a pair of round bars J secured to the extremities of the end-blocks. To one of the tightener journals *g* is rigidly secured a hand-lever K, and this lever is provided with a weight L, designed to hold the tightener in the position to which it may be adjusted.

In the employment of the machine, a rectangular frame M is positioned on the table A at that end of the latter farthest from the reel G, the gage E having been adjusted to a distance from the one D equal to the width of said frame. Another frame N, of corresponding width to the one M, is positioned between the gages D, E, so as to inclose the stops *e*, on the slab B, and have its transverse member farthest from the reel H in contact with said stops. The fabric is drawn from the reel and carried along between the members J of the lever-controlled tightener to be fastened to that end of the frame M farthest from said reel. This operation being completed the lever K is actuated to change the normal angle of the tightener as shown by full lines in Fig. 1 and dotted lines in Fig. 2, thereby exerting a draw of the fabric toward the rear. This draw brings the frame M snug against the one N and the latter is held against rear movement by the stops *e* opposed thereto as above specified. The fabric being drawn taut, the mechanism on the guides C, and hereinafter set forth in detail, is operated to staple the wires to the slats and the fabric to the abutting frames simultaneous with a severing from the web of a length of said

fabric equal in length to the frame farthest from the reel. Owing to the metal slab B there is a good impact of the staple-drivers and less jar of the machine than would otherwise be the case incidental to the staple-driving and fabric-cutting operation. As a result of this operation the first frame, and the section of fabric cut from the web form a panel that is removed from the machine, after which the second frame is advanced beyond the stops *e* and another frame arranged to inclose and impinge against said stops. The operation of tightening the fabric, and of stapling and cutting the same is now repeated, and this method of procedure carried on indefinitely, it being particularly observed that the fabric is made fast to opposing front and rear ends of two panel frames at each operation of the staple-driving mechanism.

The staple-driving and fabric-cutting mechanism herein shown involves a carriage consisting of a block P loosely arranged between the guides C, above specified, and held in place by upper and lower plates Q R joined thereto by bolts or other suitable means and having a width sufficient to overlap said guides and work thereon. Bolted or otherwise rigidly secured to the upper plate Q is a handle S, by means of which the carriage may be moved along its guide in either direction. Adjacent to the handle S is a vertical opening in the carriage, and movable in this opening is a guide-stock T for plungers U, each of which latter is provided with a lug *h* that operates against the inclined inner edges of fingers V pivoted in pairs to the front and rear sides of said guide-stock. Shoulders *i* in the guide-stock limit vertical movement of the plungers U, and forming an offset lower terminal of each plunger is a blade U′ that is shown concave at its lower end. Each blade works against a flat spring *j* fast in the guide-stock for the purpose hereinafter specified. The pivoted fingers V are opposed by springs *k*, secured to the guide-stock, and retracted against the power of these springs by the action of the lugs *h* on the plungers incidental to a descent of the latter, the inner lower portions of said fingers being beveled for the purpose hereinafter set forth. Bolted or otherwise rigidly secured to the lower extremity of the guide-stock on the plunger sides of the same are vertical foot-pieces *m* of inclined guides W for series of staples *n* and supported on each of these guides is a guard X that prevents the staples from jarring out of place. Pivotally connected to a lug *p* on the sliding carriage are links *q* likewise connected to a weighted lever Y that is also pivotally connected to the plungers U, and the latter are in turn similarly united to a hanger *r* for one end of a knife Z, the other end of this knife being pivoted in another hanger *s* that depends from said carriage, as shown in Figs. 3 and 5. In order to permit the necessary play of the knife, the lower end of the guide-stock is centrally recessed, as shown in Figs. 4 and 5.

In practice, the carriage is moved along on its guides to bring the guide-stock in line with a wire of the fabric when the latter is drawn taut on the panel-frames positioned on the machine table, as above specified. Now if the lever Y be actuated, the guide-stock T and plungers U will descend together until said guide-stock is stopped by its pressure upon the fabric and frames, but said plungers will continue their descent until stopped by the lower ones of the shoulders *i* in the aforesaid guide-stock. By the continued descent of the plungers, their blade-portions U′ operate to force down the staples that have in the meantime been fed to the guide-stock and held therein by the expansion of the springs *j*, and thus these staples are driven into the fabric and frames astraddle of a wire in said fabric and on opposite sides of the line of cut of the knife Z, the necessary movement of this knife being due to the action of said plungers connected thereto, and its line of cut coming between the abutting frame-panels on the machine table. The operation just described having been accomplished the lever Y is released and, by the automatic descent of the weight Y′ thereon, the several parts connected thereto are returned to their normal position after which the carriage is again moved to bring the guide-stock in opposition to another wire in the taut fabric for a new operation of the staple-driving and fabric-cutting mechanism. From the foregoing it will be seen that the fabric is pressed firmly on the frames and rigidly secured thereto, by the staples that also bind the ends of the wires in each section cut from said fabric.

The fingers V, pivoted in pairs to the guide-stock T, have their lower ends normally impinged against the inclined guides W in the path of staples thereon, but each time the plunger U makes a descent, the lugs *h* thereon actuate said fingers to bring them out of the path of said staples and permit the inner one of the latter on each guide to slide down against the blade portion U′ of the relative plunger. Upon a subsequent ascension of the blades their lower extremities will clear the staples that have slipped past the retracted stop-fingers and these staples will drop into the guide-stock against the flat-springs *j* and the inner ends of the guides W, as shown in Fig. 4, to be there retained until another descent of said blades, and the springs *k* act to return said fingers to their normal position, as the plunger-lugs *h* ascend. The lower inner edges of the stop-fingers V being beveled the staples that have come into contact with the blades U′ are forced into the guide-stock by the return of said fingers to their normal position, incidental to the action of the springs *k*, the latter being employed to insure of this return action at the instant the plunger-lugs cease to exert press-

ure, in order that the staples remaining on the guides may be held back, and those fed to the guide-stock properly positioned in advance of another descent of said blades.

The guide-stock is shown as being provided with a stop *t* that comes into contact with the carriage-handle S to limit downward movement of said guide-stock when the latter is not opposed by the fabric and frames and it is desirable to push out some of the staples by an action of the plungers.

Having now fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of a suitable table, supports projecting above the same, a tightener for slat-and-wire fabric drawn from a reel journaled in the supports, a carriage having a travel transverse to the table, a staple-driving and fabric-cutting mechanism supported by the carriage, and suitable means for holding panel-frames on said table against a draw of the fabric incidental to an operation of the tightener, substantially as set forth.

2. The combination of a suitable table having parallel longitudinal gages one at least of which is adjustable in a direction transverse of the table, supports projecting above the table, a tightener for slat-and-wire fabric drawn from a reel journaled in the supports, a carriage having a travel cross-wise of said table, a staple-driving and fabric-cutting mechanism supported by the carriage, and suitable means for holding panel-frames on said table against a draw of the fabric incidental to an operation of the tightener, substantially as set forth.

3. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, suitable means for feeding staples to said guide-stock in advance of a descent of the plungers, and other suitable means for drawing a web of slat-and-wire fabric taut on said table, substantially as set forth.

4. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, suitable means for feeding staples to said guide-stock in advance of a descent of the plungers, yielding stops for the temporary restraint of the staples thus fed, and suitable means for drawing a web of slat-and-wire fabric taut on said table, substantially as set forth.

5. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, lugs on the plungers, inclined staple-guides extended from said guide-stock adjacent to the paths of the plungers, spring-controlled staple-stops pivotally connected to the aforesaid guide-stock to have portions thereof normally in the paths of the plunger-lugs, and suitable means for drawing a web of slat-and-wire fabric taut on said table substantially as set forth.

6. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, suitable means for feeding staples to said guide-stock in advance of a descent of the plungers, a knife connected to said carriage, and suitable means for actuating this knife coincident with the action of said plungers, substantially as set forth.

7. The combination of a suitable table, a carriage having a travel transverse to the table, a vertical guide-stock loose in the carriage but provided with a stop in opposition to the top of the same, plungers loose in the guide-stock, suitable means for limiting movement of the plungers in said guide-stock, other suitable means for feeding staples to the aforesaid guide-stock in advance of a descent of said plungers, a knife having one end thereof pivotally hung from said carriage, a lever linked to the upper portion of the aforesaid carriage and pivotally connected to said plungers, and a hanger connecting these plungers and other end of the knife, substantially as set forth.

8. The combination of a suitable table, a carriage having a travel transverse to the table, a vertical guide-stock loose in the carriage but provided with a stop in opposition to the top of the same, plungers loose in the guide-stock, suitable means for limiting movement of the plungers in said guide-stock, other suitable means for feeding staples to the aforesaid guide-stock in advance of a descent of said plungers, a knife having one end thereof pivotally hung from said carriage, and a weighted lever controlling the movement of the aforesaid guide-stock plungers and knife, substantially as set forth.

9. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, inclined staple guides extended from the said guide-stock adjacent to the paths of the plungers, staple-stops in the form of fingers that have beveled inner edges at their lower extremities and are pivoted in pairs to the aforesaid guide-stock, suitable means for actuating these fingers on their pivots, and other suitable means for drawing a web of slat-and-wire fabric taut on said table, substantially as set forth.

10. The combination of a suitable table, provided with bearings for the journals of a reel of slat-and-wire fabric, a tightener for the fabric that consists of end-blocks journaled in bearings adjacent to the reel, a pair

of bars joined at their ends to said blocks, and a lever fast on one of the end-block journals; a carriage having a travel transverse to the table, a staple-driving and fabric-cutting mechanism supported by the carriage, and suitable means for holding panel-frames on said table against a draw of the fabric incidental to an operation of the tightener, substantially as set forth.

11. The combination of a suitable table provided with bearings for the journals of a reel of slat-and-wire fabric, a fabric-tightener provided with a weighted actuating lever, a carriage having a travel transverse to the table, a staple-driving and fabric-cutting mechanism supported by the carriage, and suitable means for holding panel-frames on said table against a draw of the fabric incidental to an operation of the tightener, substantially as set forth.

12. A method of making panels, the same consisting in first fastening one end of a continuous web of slat and wire fabric to the outer end of the outermost wooden frame in a pair laid in successive order and held stationary for a time, drawing the fabric taut over the frames, simultaneously fastening said fabric to the meeting ends of said frames, and cutting the aforesaid fabric intermediate of the aforesaid frames, whereby one panel is completed and the outer end of the fabric-web made fast to the frame succeeding said finished panel, other frames being supplied from time to time as the work proceeds.

In testimony that we claim the foregoing we have hereunto set our hands, at Watertown, in the county of Jefferson and State of Wisconsin, in the presence of two witnesses.

CHARLES E. PARKS.
LOBEGOTT MOLLART.

Witnesses:
E. J. BRANDT,
F. W. GAMM.