

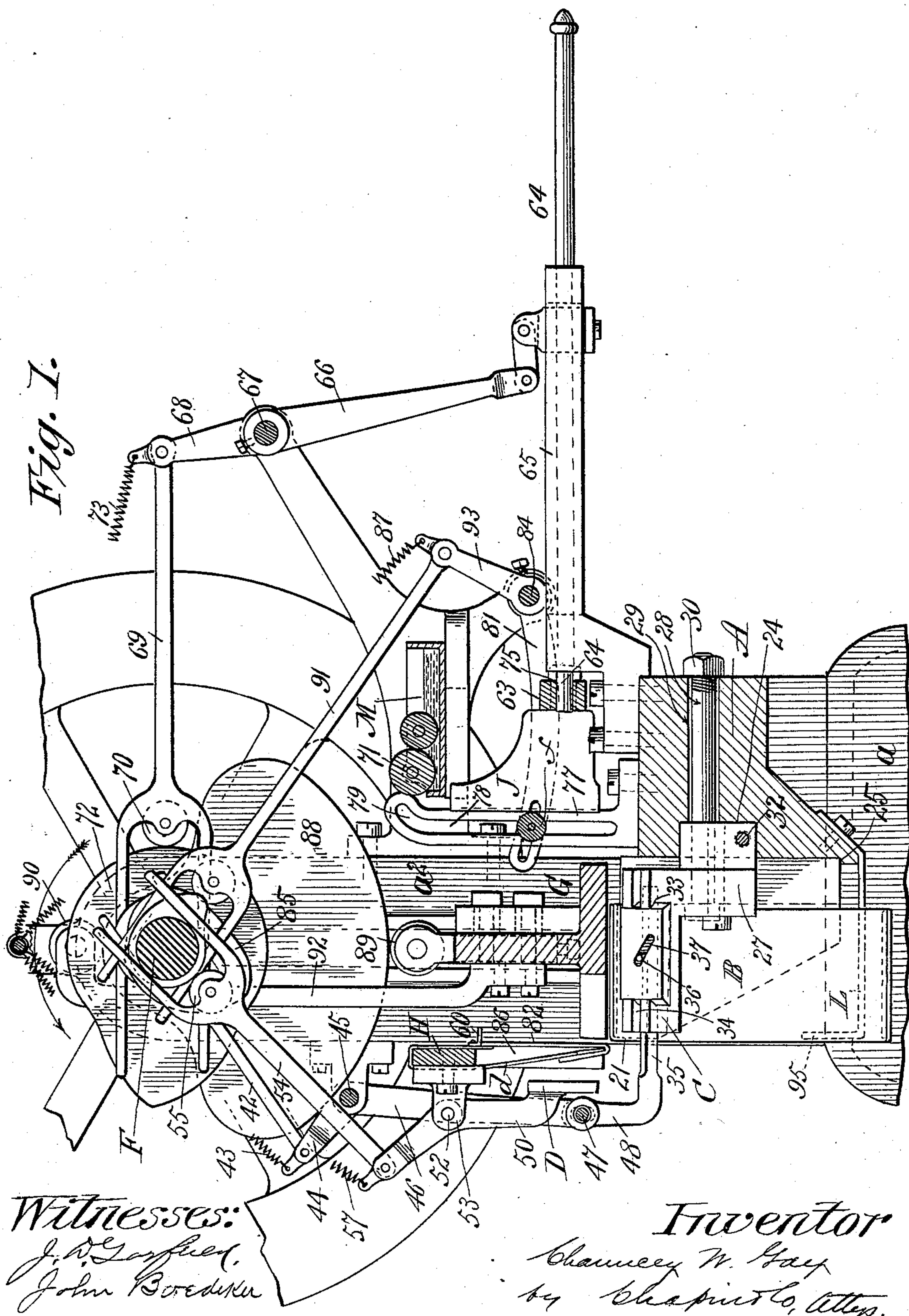
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6 Sheets—Sheet 1.

C. W. GAY.  
PAPER BOX MACHINE.

No. 539,803.

Patented May 28, 1895.



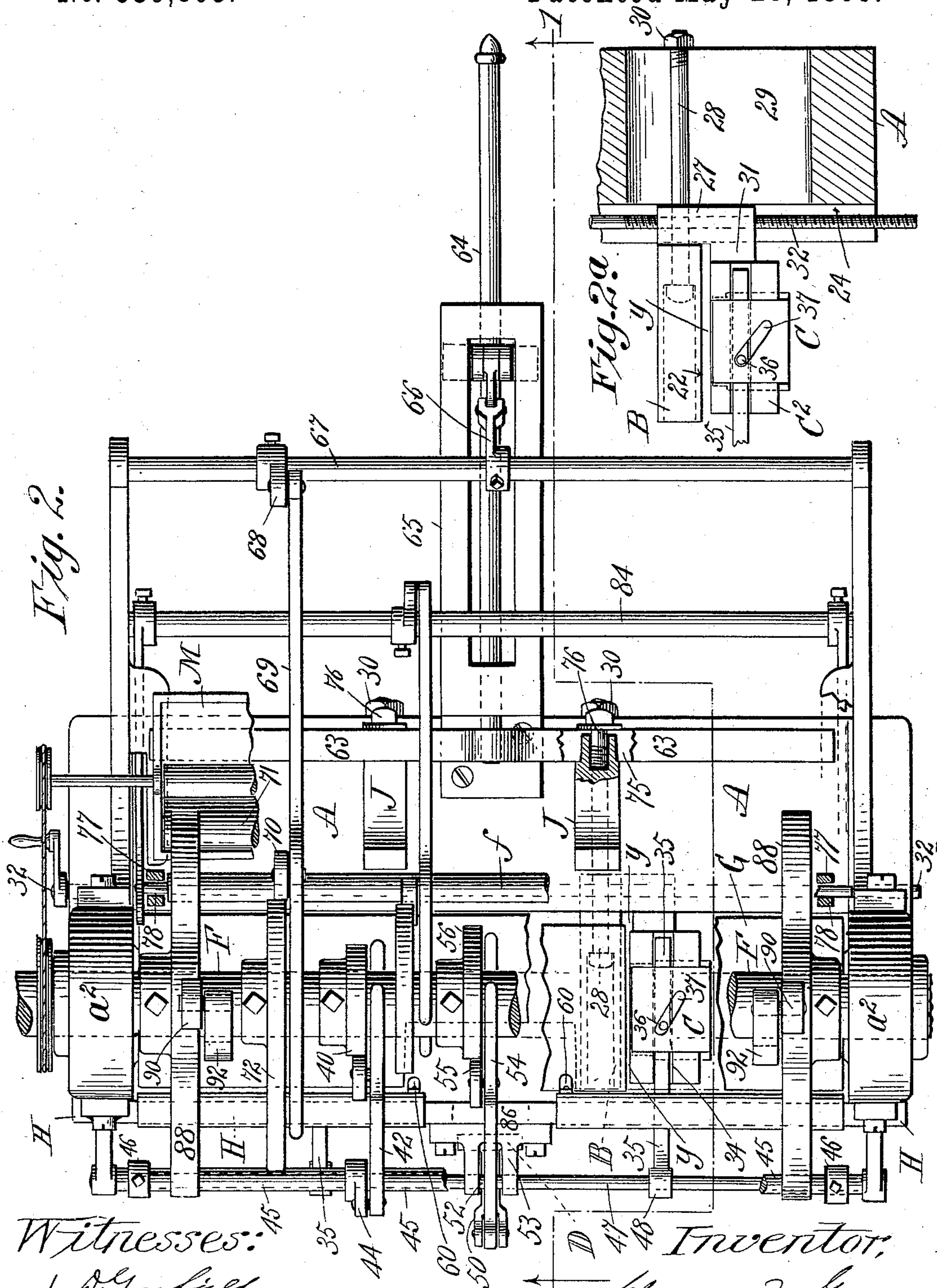
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No. 539,803.

Patented May 28, 1895.



Witnesses:  
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John Boedeker

Inventor:  
Chauncey W. Gay  
by Chapin & Co.  
attys.



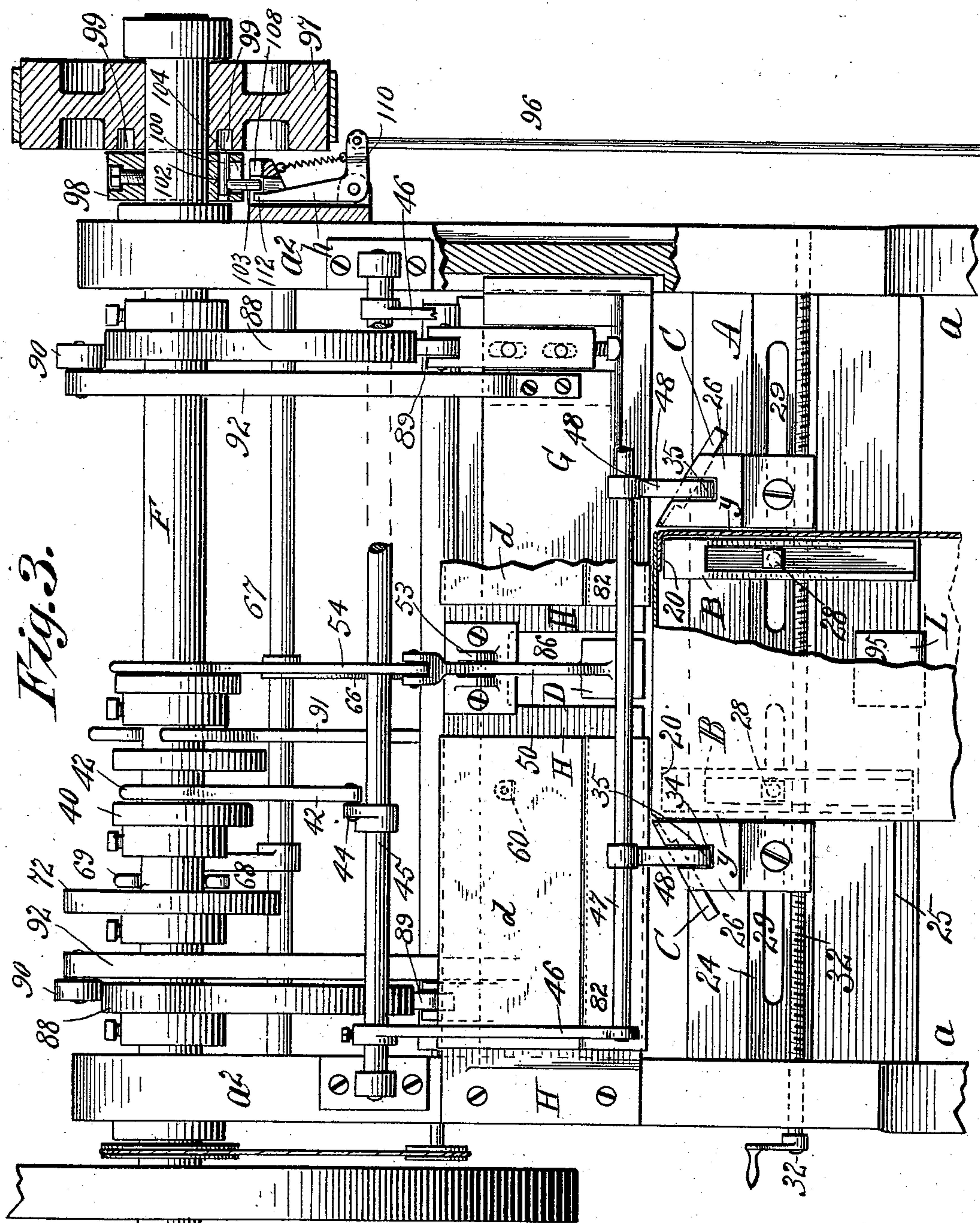
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C. W. GAY.  
PAPER BOX MACHINE.

No. 539,803.

Patented May 28, 1895.



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(No Model.)

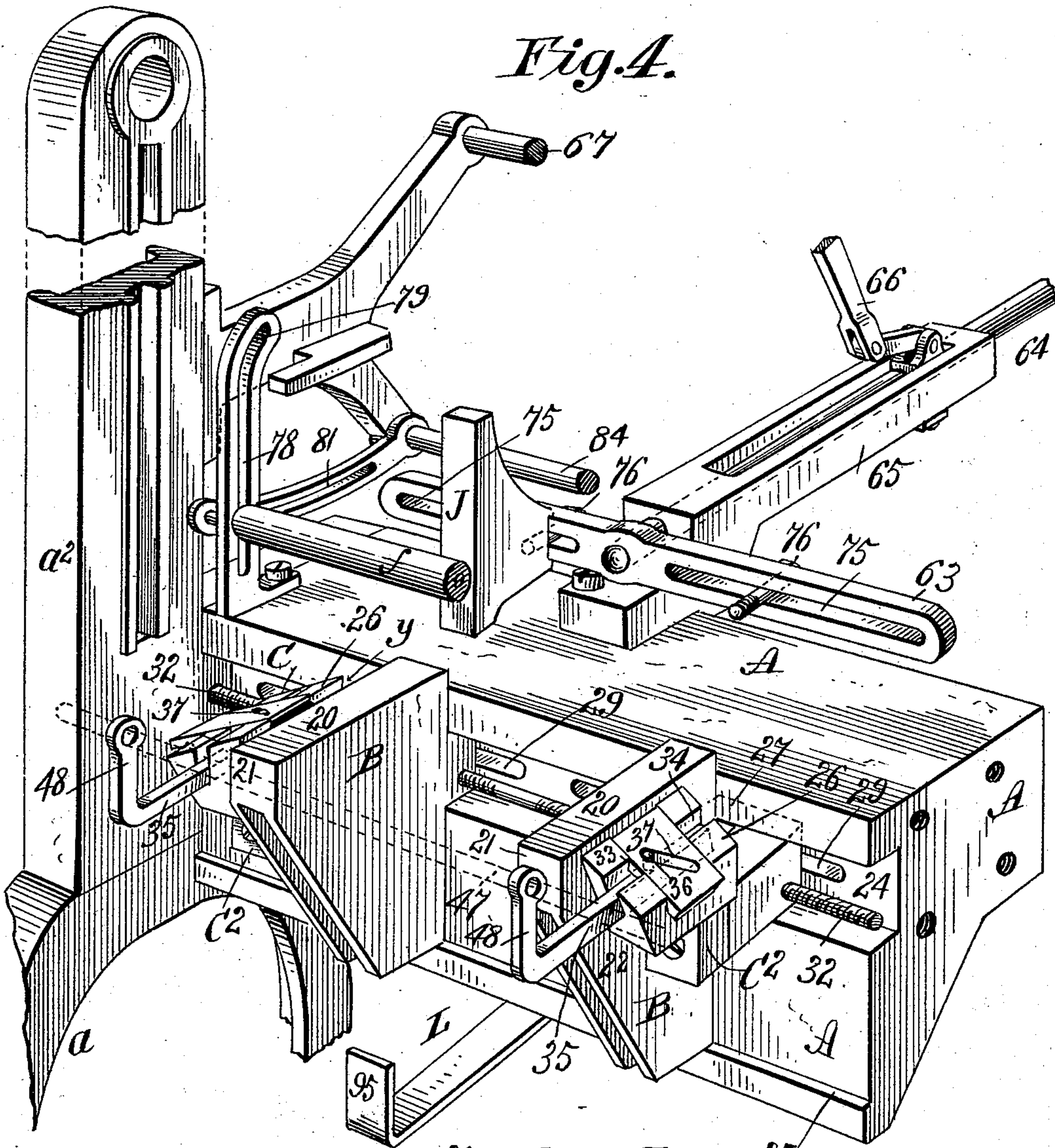
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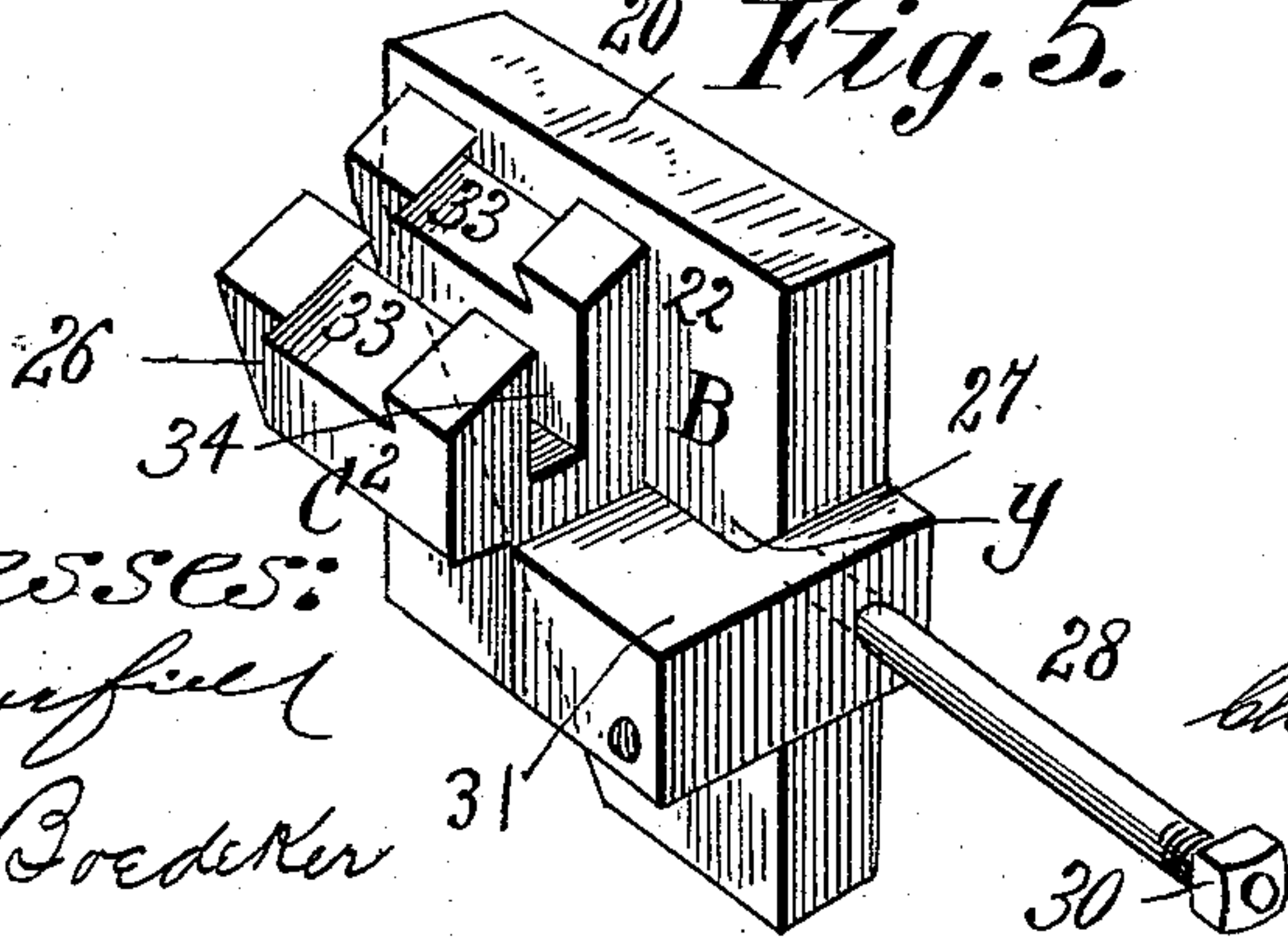
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*Fig. 4.*



*Fig. 5.*



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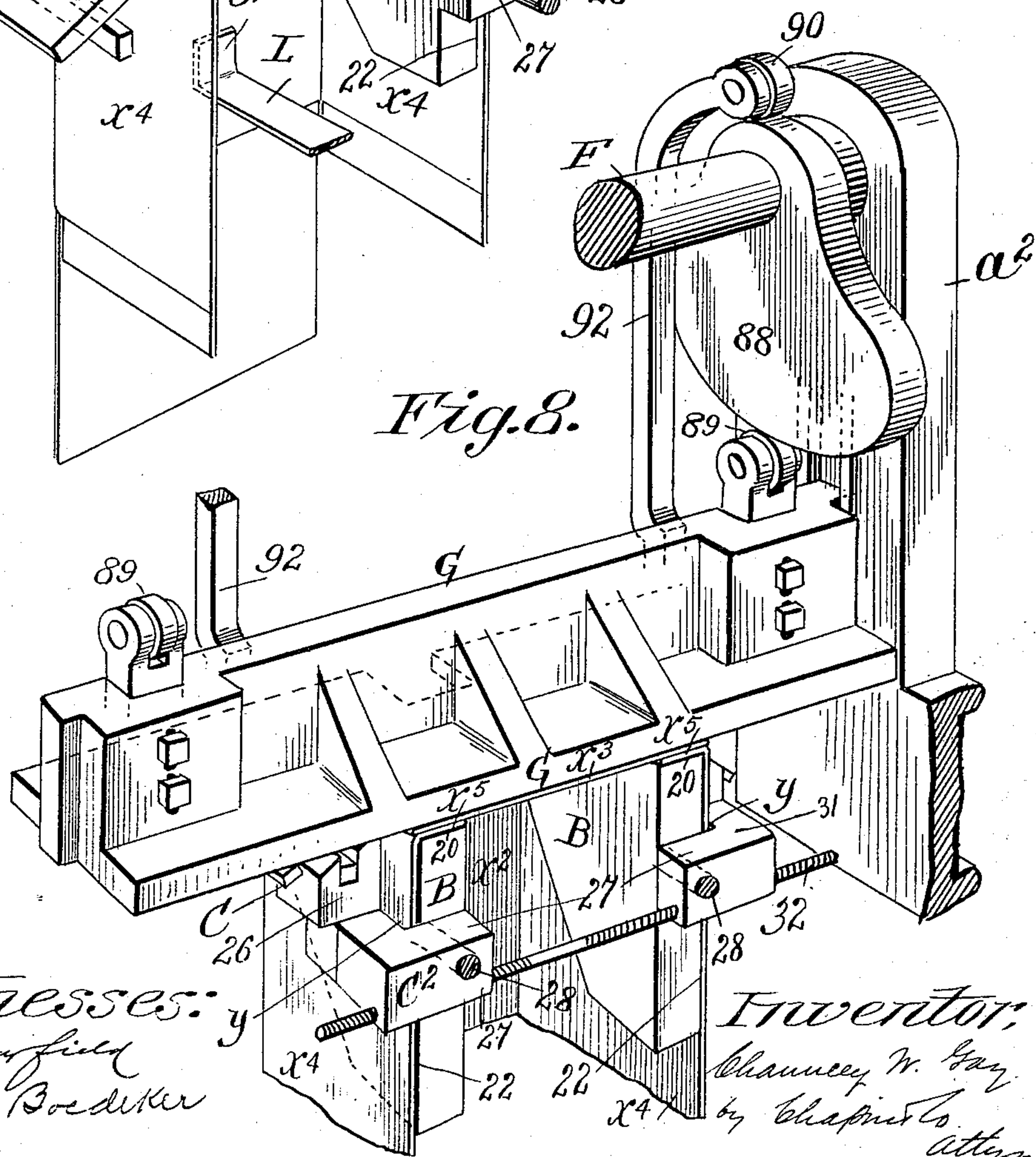
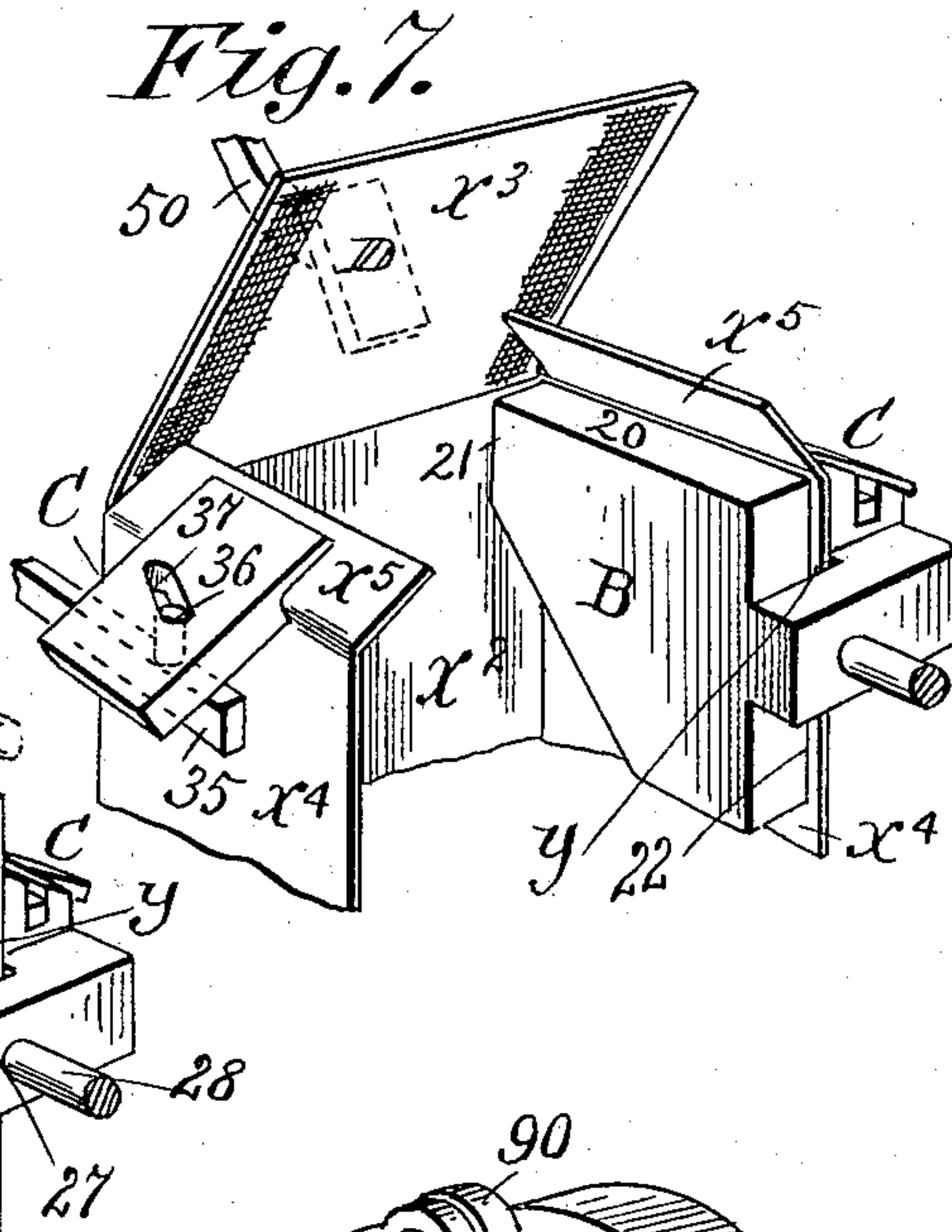
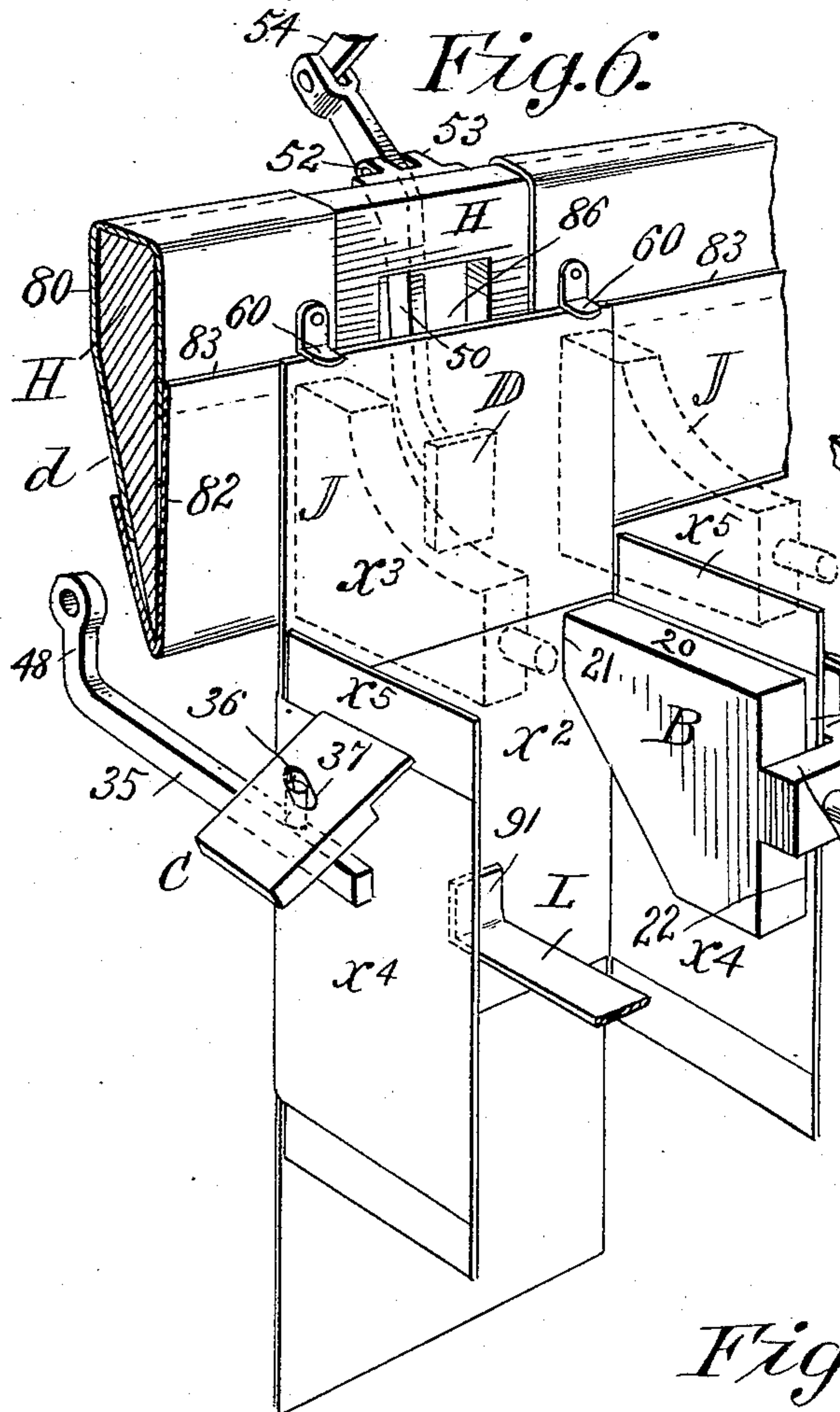
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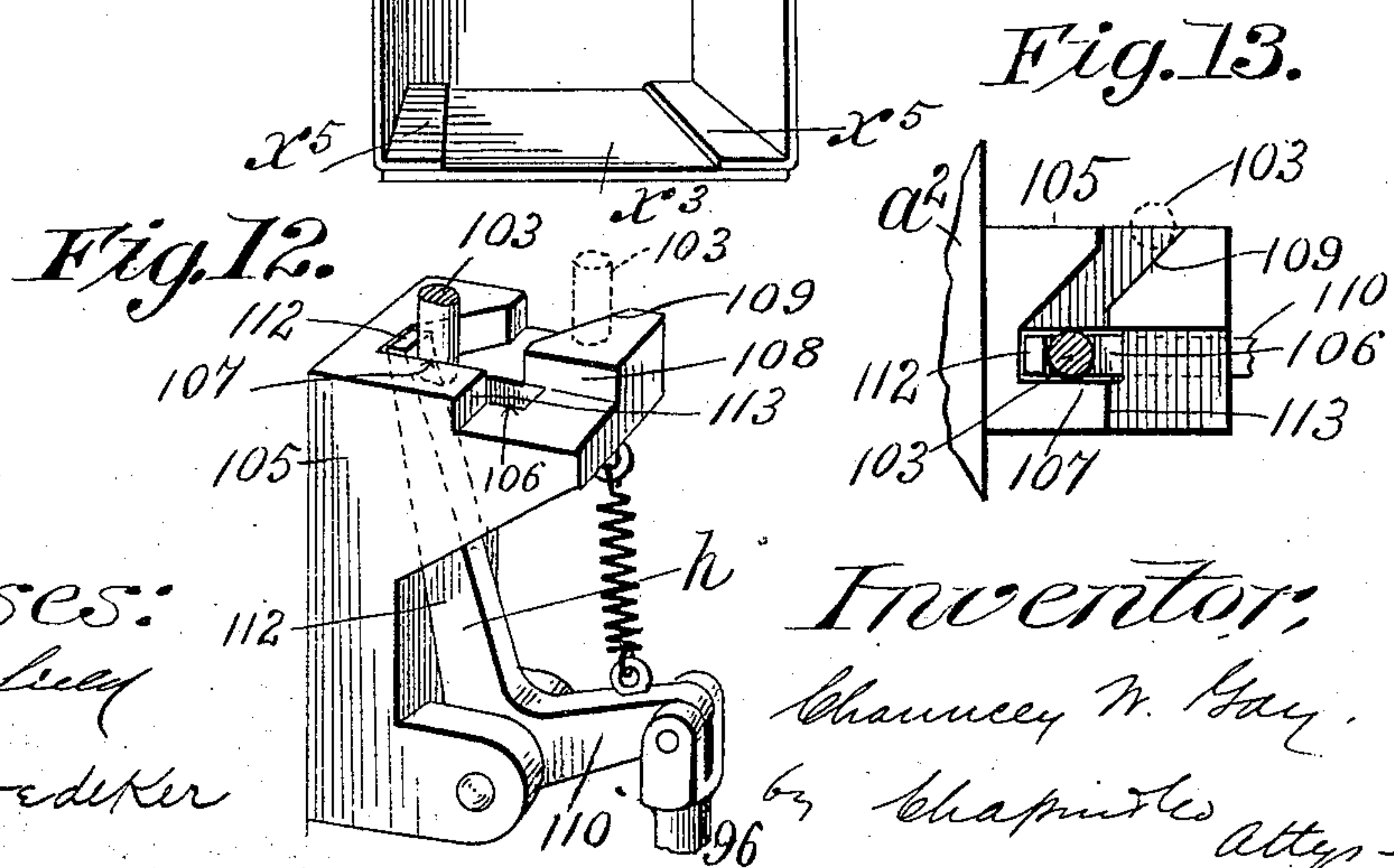
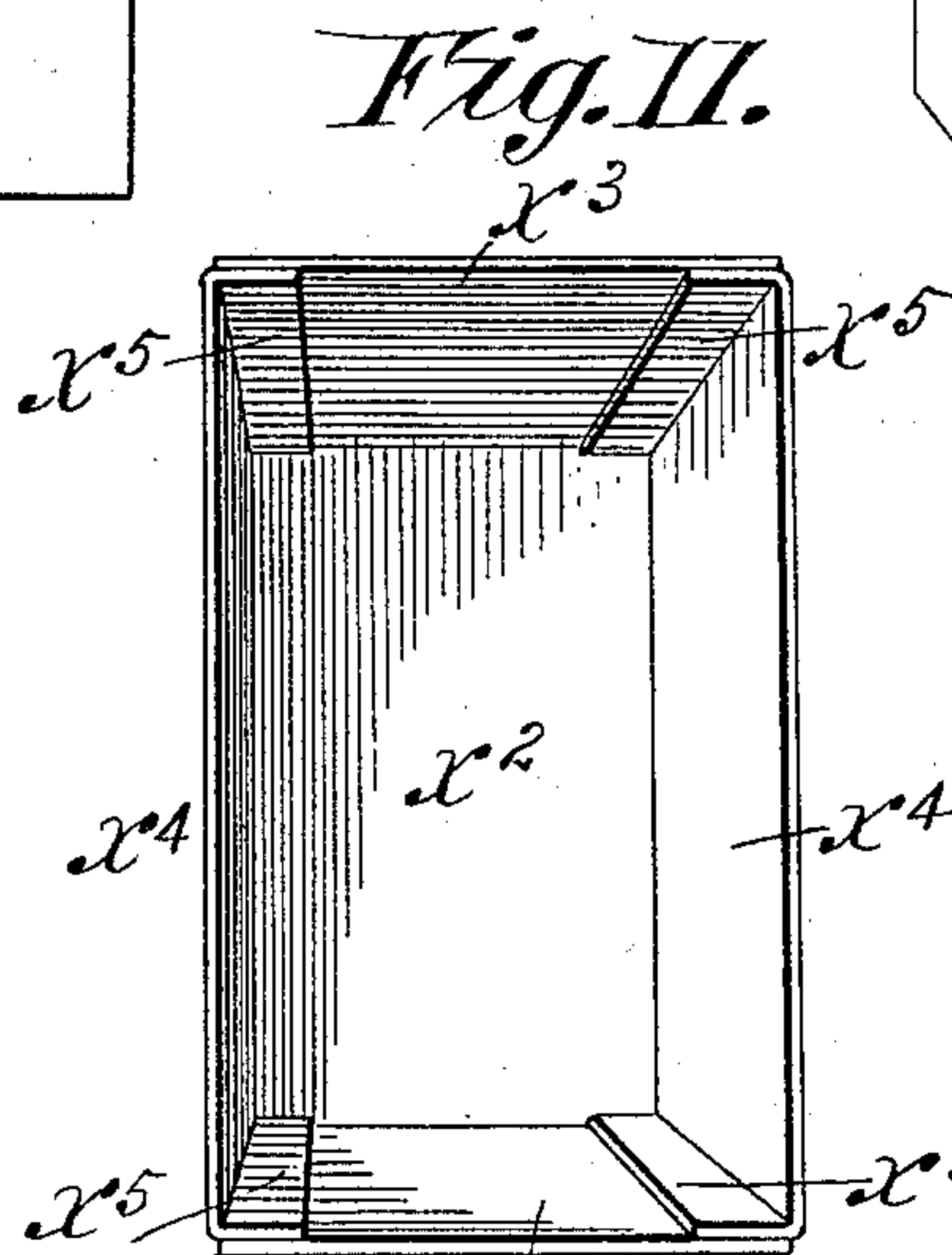
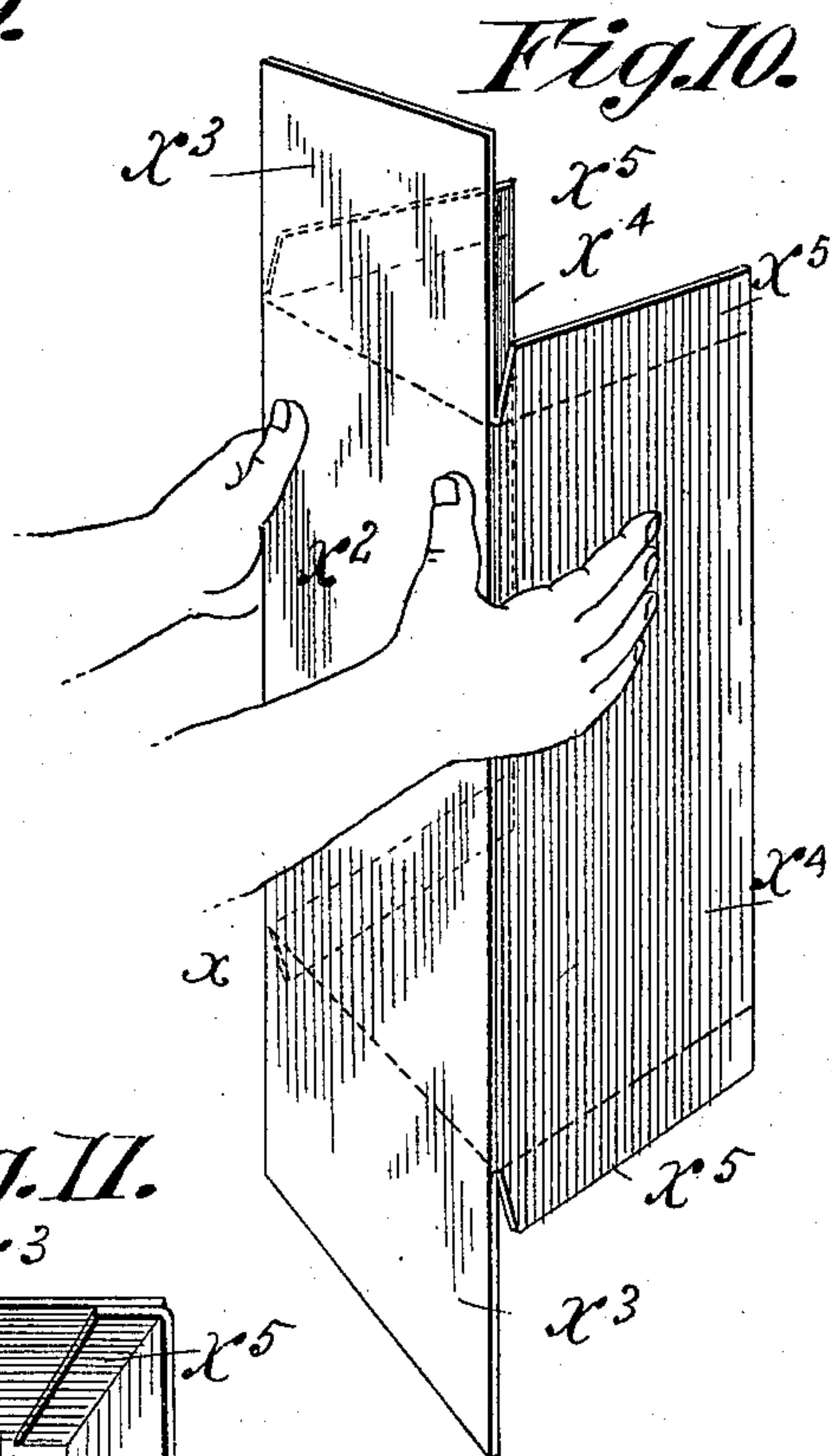
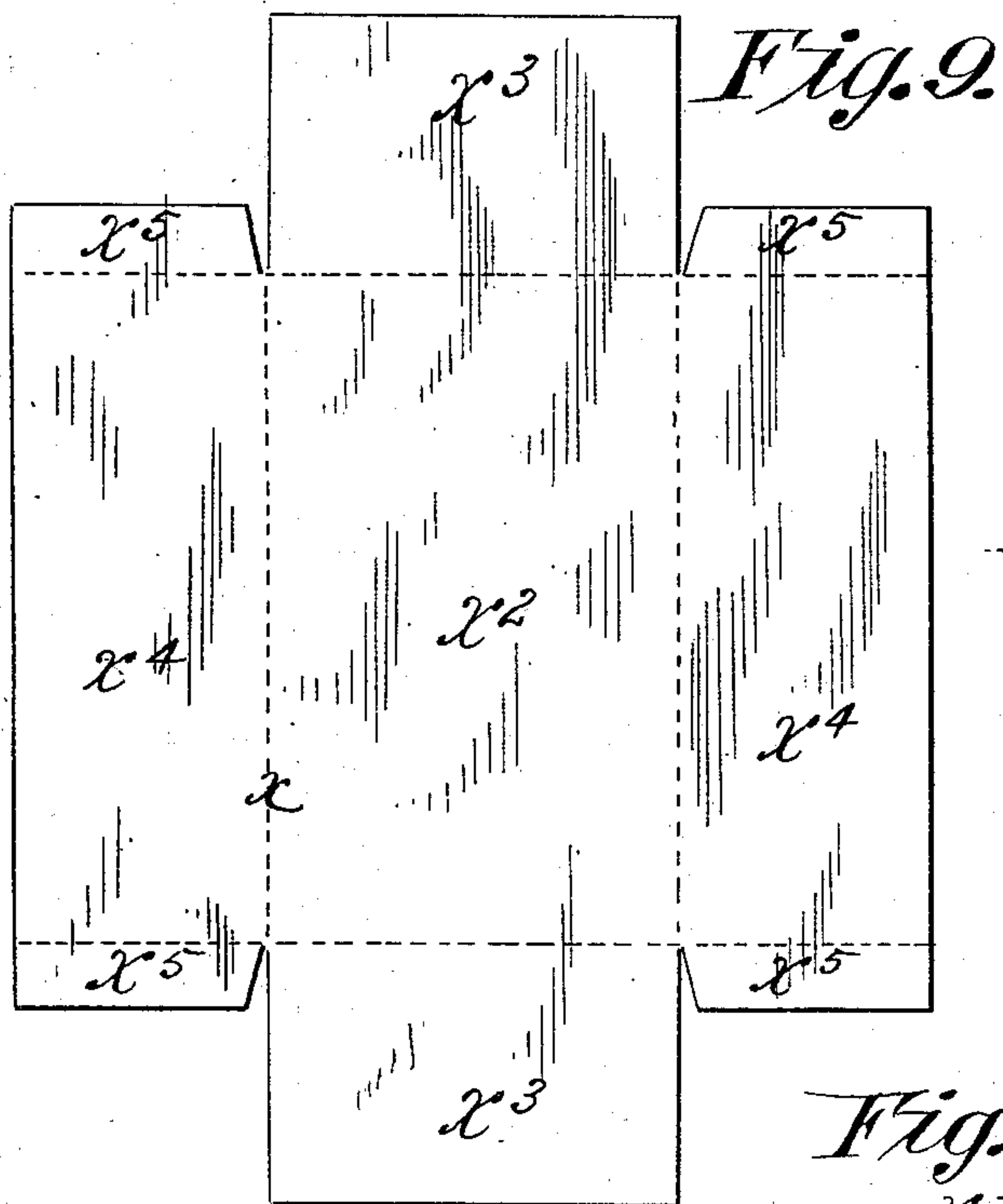
(No Model.)

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C. W. GAY.  
PAPER BOX MACHINE.

No. 539,803.

Patented May 28, 1895.



Witnesses:  
J. W. Gay  
John Boedeker

Inventor:  
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# UNITED STATES PATENT OFFICE.

CHAUNCEY W. GAY, OF WEST SPRINGFIELD, ASSIGNOR TO L. W. BROWN & CO., OF SPRINGFIELD, MASSACHUSETTS.

## PAPER-BOX MACHINE.

SPECIFICATION forming part of Letters Patent No. 539,803, dated May 28, 1895.

Application filed July 16, 1894. Serial No. 517,671. (No model.)

*To all whom it may concern:*

Be it known that I, CHAUNCEY W. GAY, a citizen of the United States, residing at West Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Paper-Box Machines, of which the following is a specification.

The object of this invention is to produce a machine for making paper boxes of substantially the same form as those shown and described as made in the machine for which Letters Patent of the United States were granted to me May 8, 1894, No. 519,531,—which machine of the present invention, while not being entirely automatic in all respects, is of comparatively simple and inexpensive construction, and capable of performing the bending and setting operations upon the side and end flaps and stay sections with the utmost efficiency.

In using this machine, the scored blank from which the box is to be made has its flaps, which constitute the opposite sides of the box, bent up by hand, and then introduced into the machine, which on being then set in motion gums the blank at one end, turns in the stay sections at each end, and bends the corresponding end flap at right angles to the part of the blank which constitutes the bottom and causes the adhesion and setting of the end section to, and upon, the inturned stay sections. The box is then, by hand, withdrawn and turned end for end and the machine on being again set in motion repeats the aforementioned operations.

Another object of the invention is to so construct the machine that the operative devices may be adjusted and adapted to boxes of different dimensions, and the invention consists in constructions and combinations of parts, all substantially as will hereinafter fully appear and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which the present improvements are illustrated, and in which—

Figure 1 is a sectional elevation showing all of the principal operating parts of the machine. Fig. 2 is a plan view of the machine with some of the more unimportant upper parts of the machine broken away for clearer

illustration of parts therebelow. Fig. 2<sup>a</sup> is a plan view of parts hereinafter particularly referred to. Fig. 3 is a front elevation of the machine with some parts in vertical section. Fig. 4 is a perspective view to especially show the form and arrangement of some of the parts, more especially the gumming mechanism and the devices which turn in the stay-sections. Fig. 5 is a perspective view showing the adjustable support for one of the stay-turning devices. Fig. 6 is a perspective view to illustrate the flap and stay inturning devices as in their operating relations to the corresponding portions of the box-blank. Fig. 7 is a perspective view showing the devices as having partially inturned the end section and stay-sections at one end of the box. Fig. 8 is a perspective view particularly showing the co-operation of the follower which sets the inturned parts, with the devices which turn in the said parts and the fixed parts on or against which the work is performed. Fig. 9 is a plan view of the blank from which the box is to be made. Fig. 10 shows the manner of sizing the blank and bending in the side flaps, on which are the stay-sections, ready for introduction into the machine. Fig. 11 is a perspective view of the completed paper-board box as seen looking into it. Fig. 12 is a perspective view of a part of the automatic unclutching mechanism, which insures the stopping of the machine after one end-flap and stay-section inturning and setting operation. Fig. 13 is a plan view of the mechanism shown in Fig. 12.

Similar characters of reference indicate corresponding parts in all of the views.

Reference is first directed to the drawings in which the box-blank is variously illustrated, and generally indicated by the letter,  $x$ . Of this blank, the middle portion,  $x^2$ , is to be termed the bottom section, the portions,  $x^3, x^3$ , the end-flaps, the portions,  $x^4, x^4$ , the side flaps and the portions,  $x^5, x^5$ , at the ends of the end flaps, the stay sections.

The dotted lines in Fig. 9 represent the scoring, or lines of bending. In the making of the box after the side flaps have been bent up at right angles to the bottom section, the stay-sections are inturned into planes at right angles to the side flaps, and then the gummed



end-flaps are turned in upon and united to the stay-sections.

In the drawings, A represents the bed or table of the machine which is in the form of a massive bar or block extended in the manner of a cross-girder between, and bolted to, the side standards which constitute the supporting legs,  $a$ ,  $a$ , and uprights,  $a^2$ ,  $a^2$ . At the front edge of this bed, A, are supported two forwardly projected metallic blocks, or thick plates, or castings, B, with plane level tops, 20, and with the opposite outer perpendicular faces, 22. The separation of said opposite outer faces is to be the same as the width of the box which is to be produced. These blocks, B, which may be termed the blank-rests are the parts on and against which the box-blank is presented and supported and with which co-operate the inturning devices, C, for the stay-sections,  $x^5$ , and the inturning devices, D, for the end flap, and which withstand the pressure of the follower, G, which very forcibly presses and sets the so-inturned portions of the blank.

The bed, A, has at its front face the large, deep, longitudinal groove, 24, and near the bottom the forwardly standing ledge, 25. The blank-rests, B, B, are connected, as a matter of preference and advantage, with the supports,  $C^2$ ,  $C^2$ , for the stay-section inturning devices. Said rests, B, have angular or L-shaped lugs or projections formed on or secured thereto. The member, 27, of each angular projection of the rest, B, extends at and beyond the rear edge of the block, B, as seen in Figs. 1, 2<sup>a</sup>, 5, 6, 7, and 8, while the other member, 31, of the angular projection has its position alongside the outer face, 22, of rest, B, and is separated from such face by a distance somewhat greater than the thickness of the card-board from which the blanks are formed. The support,  $C^2$ , is securely screwed or fitted to the member, 31, of the angular projection and as seen in Fig. 4 has the elevated part, or riser, 26. This space,—for the introduction of the blank,—between the face, 22, of rest, B, and the proximate side of the support,  $C^2$ , and part, 31, is clearly shown at  $y$ , in Figs. 2<sup>a</sup>, 3, 5, 6, 7, and 8. The bed has the horizontal slots, 29, 29, through which the said bolts pass, all so that by said bolts and the nuts, 30, therefor, the rests, B, and supports,  $C^2$ , may be rigidly confined in any desired separated adjustment upon the so-slotted bed. The aforesaid part, 27, fits in the longitudinal groove, 24, in the front of the bed, A. The lower edges of the rests, B, may also have bearings upon the tops of the aforementioned ledge, 25.

The combined rests, B, B, and supports,  $C^2$ ,  $C^2$ , for the stay-section inturning devices are engaged by a right-and-left hand screw, 32, suitably journaled and constrained against endwise movement and provided with the crank-handle, or other adequate means for causing its rotation, through means of which, when the nuts are loosened, to adjust to a

nicety the said parts, B and  $C^2$ , which move as one part. Now, in each of the aforesaid risers, 26, are formed the transverse oblique way, 33, in which is fitted the slide, C, which constitutes the stay-section inturning device, and the way, 34, extending fore-and-aft and deeper than the way, 33, in which slides the bar, 35, which carries the stud, 36, which impinges in the cam-slot, 37, of the stay inturner so that, duly, the proper transverse movements may be imparted to the sliding device, C.

The actuating motion is imparted to the bar, 35, by means as follows: The cam, 40, on the main shaft, F, together with the thrust-rod, 42, and corresponding springs, 43, impart the rocking reciprocatory movement to the arm, 44, of the rock-shaft, 45; and the rocking movement of such shaft, through its duplicated lever-arms, 46, which are connected to the horizontal rod, 47, impart a bodily reciprocatory movement to said rod, which, being in engagement with the upturned perforated, or slotted members, 48, of the bars, 35, drive the latter. The engagement between the upturned members of the operating bars, 35, and the rod, 47, is a loose sliding one so that any required adjustments of the parts,  $C^2$ , carrying said operating bars, 35, will be permitted and insured without any attention to this connection.

The device, D, which turns inwardly and rearwardly the end-flap, is constructed in the form of a pusher block, or plate, carried by the intermediately pivoted lever, 50, the pivotal support, 52, for this lever being in the bracket, 53, which is bolted upon the stationary cross-bar, H, which extends horizontally across the front of the machine between and supported by the uprights,  $a^2$ ,  $a^2$ , and above the rests, B, B, and with its rear vertical face in a plane very slightly in advance of the faces, 21, of said rests, B. The said intermediately pivoted lever, 50, has its upper arm in connection with the thrust-rod, 54, the roller 55, of which is in operative engagement with the cam, 56, of the main shaft, F.

The spring, 57, is operatively applied to insure the retractile movement of the parts as the cam recedes, all as common in this class of machinery.

J J represent the gummers. These have a reciprocatory movement horizontally fore-and-aft to gum the end flap near the marginal portions thereof which are to be brought against and united to the stay sections,  $x^5$ ,  $x^5$ . (See Sheet 5.) These gummers have their projection forwardly, to gum, in their paths of movement which are just above the rests, B, B, and their gumming impact is against the aforesaid bar, H, though of course directly against the interposed end flap,  $x^3$ , which, as clearly seen in Fig. 6, lies against the rear face of this bar up to the gages, 60, 60.

The gummers, J, J, consist of suitably faced gummer bodies which are secured, with their vertical gumming faces forwardly presented, upon the horizontal bar, 63, which is carried



at the forward end of the shaft, 64, which latter is constrained for its fore-and-aft movements in ways therefor of the guide support, 65. The shaft, 64, receives its reciprocatory movement by being linked to the lever, 66, of the rock-shaft, 67, which shaft receives its rocking movement by having its arm, 68, connected to the thrust-rod, 69, the roller, 70, of which is impinged upon by the cam, 72. In conjunction with this cam the retracting spring, 73, is operatively applied for the manifest purpose. The aforesaid gummer-supporting-bar, 63, is longitudinally slotted, as seen at 75, whereby, through means of the bolts, 76, the gummers may be adjustably confined in any proper degree of separation.

The gummers are gummed by means as follows: The gum-box, M, with the gum-box-roll, 71, is mounted above the paths of movement of the gummers; and just forward of the ends of the gum-box are the two opposite standards, 77, 77, having the slots, 78, which are vertical as to the greater portion of their lengths, with, however, the rearwardly curved upper terminals seen at 79, Figs. 1 and 4. The gudgeons of the bodily reciprocatory gum roll *f*, extend through said slots, 78, and outside of the said standards, they receive connection with the slotted arms, 81, which extend forwardly from the rock-shaft, 84. This rock-shaft is operated by cam, 85, and spring, 87, through the thrust-rod, 91, and radial arm, 93, of the said rock-shaft, 84. As the arms, 81, are swung, the gum-roll, *f*, moves, as it is constrained to do by the slotted standards, vertically over the faces of the then properly positioned gummers, J, and then rearwardly to contact against the gum-box-roll, 71. The aforesaid bar, H, is surrounded by the tube, or envelope, *d*, of flexible material, such, for instance, as one constituted in part of canvas or other textile material, as seen at 80, and in part of an extra thickness of rubber as seen at 82, the one edge, 83, of which rubber, thickness is horizontal and longitudinally along the inner face of the bar, H, between its upper and lower edges, as seen in Fig. 6, particularly. The object of this band, or envelope, *d*, surrounding the bar, H, is to provide at the rear face of the said impact part, H, an even and prominent layer or thickness which is to reach up just as high as the upper edge of the end flap so that when the gumming face of the gummer comes against the end flap,  $x^3$ , with a layer of gum thereon which may be fully as thick or a little thicker than the thickness of the blank, and in case the gummer has a height greater than the vertical extension of the flap,  $x^3$ , there will be a distance of separation,—when the gummer has come to its impact against the blank,—between the face of the gummer and the proximate face of the bar, H, or the rabbeted part of the envelope, *d*, therefor, greater than may ever be spanned by any layer of gum on the gummer. Thus there can be no accumulating deposits of gum against the rear face of the impact-bar, H, to,

after a time, prevent the gummer contacting properly on the end-flap. The gages, 60, 60, are carried upon the aforesaid envelope, *d*, surrounding the bar, H, and when this bar is adjusted to bring the upper edge, 83, of the more prominent layer, 82, at any given height to correspond with the width of the end-flap, the said gages, 60, 60, are incidentally, and correspondingly properly brought to their due adjustments.

In order that the aforesaid inturning device for the end-flap may have its proper action against the flap which, while being gummed and previously to being inturned, lies against the inner side of the impact bar, H, faced as aforesaid, the said bar, H, is apertured as seen at 86.

The follower, G, has its descending movement, after the gummed flap,  $x^3$ , and stay-sections,  $x^5$ , have been inturned to set and unite these parts firmly upon each other and to impart the decided and true right-angular shaping to the end of the box by means, for instance, such as the duplicated cams, 88, which impinge for the descent against the rollers, 89, of the said follower and for the ascent of the follower against the rollers, 90, which are carried at the upper ends of vertical arms, 92.

In addition to the rests, B, B, projecting forwardly from the front of the bed of the machine there is also another stop or rest seen at L, which is below and between the said rests, being projected forwardly from its supporting connection with the under part of the bed so that the vertical face, 95, at its outer extremity will be substantially in a plane coincident with the outer vertical end faces, 21, of the said rests.

This machine is so constructed and equipped that it may be intermittently given one complete operation at pleasure,—as occasioned by one complete rotation of its driving shaft,—by means of the rod, 96, which may be actuated by a treadle, or otherwise, the endwise thrust of which rod insures the establishment of clutched relations of the loose pulley, 97, on the main shaft, F, with the fixed collar, 98, on said shaft through means of intervening devices which also automatically secure the unclutching when the one complete operation of the machine has been effected, and which devices will be now pointed out.

The hub of the loose pulley, 97, has in circular arrangement a series of sockets, 99, while the fixed collar, 98, has the bolt, 100, which plays in a socket, 102, therefor, in the said fixed collar, which is parallel with the axis of said collar. This bolt, 100, carries the radial stud, 103, which projects through and beyond the longitudinal slot, 104, through the side of the collar which is open to the said socket, 102. The said radial stud, 103, of course revolves in consonance with the rotation of the shaft, F. Under the shaft, F, and adjacent the path of revolution of said stud, 103, there is a bracket, or casting, 105, suit-



ably sustained by one of the uprights,  $\alpha^2$ . This part has at its shelf-like top a construction such as seen in Fig. 12, that is, it has a vertical slot, 106, the length of which is parallel with the shaft, F. At the forward side of the slot the bracket top is formed with an abutment, or raised wall, 107, which occupies a portion, only, of the length of said slot while at the rear side of the bracket there is another raised part, 108, with the rear surface thereof cam-formed, or beveled, as seen at 109, the inclination of this bevel being from a point at the rear of the bracket near its end which is toward the end of the shaft, F, to a point which is near the plane of the outer end of the abutment, 107. The angular lever,  $h$ , to an arm, 110, of which the operating rod, 96, is connected, has its other arm, 112, extended to play within the aforesaid slot, 106, its extremity being between the stud, 103, and the end of the slot. Of course when the stud, 103, has a position against the abutment, 107, which is when the bolt which carries this stud is withdrawn from its clutching engagement with the loose pulley, the collar, 98, and the shaft, F, as well, are restrained against rotation. Now so soon as the angular lever,  $h$ , is swung to force the stud out from engagement with the abutment, 107, the bolt, 100, is moved into clutch, whereupon the main shaft, F, receives its rotary movement,—the now revolving stud, 103, being permitted to pass the end, 113, of the abutment, 107. The plane in which this stud, 103, revolves is one which intersects the oblique rearwardly presented face, 109, of the raised part, 108, so that one rotation of the shaft having been almost completed, the stud is, by its impingement against the cam surface, 109, caused to have a movement lateral to its plane of revolution, causing the bolt, 100, to be withdrawn from clutch and its stud to assume a position to have its further progress impeded by the abutment, 107.

It will now be manifest from the foregoing description and a familiarity with the accompanying drawings that this machine may be utilized as follows: When the machine is at rest and the follower, G, is elevated and the pusher, or inturning device, D, stands in its forward position and the stay-section deflectors, C, are receded, the operative may, after having seized the blank and bent the side flaps at right angles to the bottom, as shown in Fig. 10, slip the blank into the relative position indicated in Fig. 6 so that the flap,  $d$ , at one end is pushed up and upon the inner face of the bar, H, the bottom section lies against the outer or front end faces of the rests, B, B, and the stop, L, the side flaps,  $\alpha^4$ , lie against the opposite lateral sides of the rests, B, B, and between such sides and the supports,  $C^2$ ,  $C^2$ , while the stay sections,  $\alpha^5$ ,  $\alpha^5$ , project above the level of the tops of said rests. The machine is now set in operation whereupon in their due times the gummers, J, J, move forwardly to gum the blank and recede, the

devices C, C, inwardly deflect the stay sections and the pusher, D, inturns the end flap, whereupon the follower, G, descends and sets the inturned flap and stay sections, the devices, C, C, and D, and having in good time, as determined by the grade of their operating cams, receded. The machine is now automatically stopped by the unclutching device whereupon the box is reversed and its other end is operated upon by the means, and in the manner described whereupon the completed box is withdrawn to leave the machine clear for a repetition of the said operations.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a paper box machine, the combination with a stationary perpendicular front faced rest against which to set the box blank which rest has a flat horizontal part and perpendicular lateral sides, of a deflector for the end flap having its location normally above, and in front of, said rest, and adapted to move above and rearwardly across the top of said rest, and then to retreat, and the paired deflectors for the stay-sections adapted to have approaching movements across and above the lateral upper corners of the said rest and to then recede, and means for imparting the reciprocatory movements to the said deflectors, substantially as described.

2. In a paper box machine, a rest having a flat top, perpendicular front surface and perpendicular lateral sides, a bar above and having its rear vertical face slightly in advance of the plane of the front-face of said rest, in combination with gummers having a reciprocatory movement forward and rearwardly above said rests to and away from said bar, substantially as described.

3. In a paper box machine, a rest having a level top, a perpendicular front surface and perpendicular lateral sides, a bar above and having its rear vertical face slightly in advance of the plane of the front-face of said rest and having an aperture therethrough, and the end flap deflector mounted to move above and rearwardly across the rest and through the said aperture and to then retreat, and means for actuating it, substantially as described.

4. In a paper box machine, a rest for the paper box blank having a level top, a perpendicular front surface face and perpendicular lateral sides, of a fixed bar above and having its rear vertical face slightly in advance of the plane of the front face of said rest, and having one or more gages rearwardly extended from its vertical rear face, substantially as described.

5. In a paper box machine, the combination with the rests, of the bar above and forward of the plane of the front face of the rest and end-flap deflector, lateral stay-wing deflectors, horizontally reciprocatory gummers and the follower to descend against, and rise from,



the top of the rest, and means for imparting the motions to said respective movable devices, substantially as described.

6. In a paper box machine, the combination with the pair of rests and the supports for the stay-wing deflectors supported thereon and which with said rests are adjustable, substantially as described, of the stay-wing deflector slides, horizontal reciprocatory gummerns, which are adjustably mounted, the end flap deflector and the follower to descend against and rise from the top of said rests and means for imparting the motions to said deflector slides, the gummerns the end flap deflector and said follower, substantially as described.

7. In a paper box machine, the combination with a bed or table having a groove way in its front face, of the blocks or rests, B, B, having at their rears the projecting members, 27, to fit in said groove-way, and means for holding them in confinement in said groove way, substantially as described.

8. In a paper box machine, the combination with the bed or table having a groove-way therein, of the blocks or rests, B, B, having supporting and slide engagements in said groove-way, of the right-and-left-hand screw which screw engages said rests, and means whereby to rotate it, substantially as described.

9. In a paper box machine, the combination with a bed or table, of blocks or rests, B, B, having a movable supporting engagement at the front of the table and supporting inturning devices for the stay-sections which have their position outside of, and at a short distance from, the lateral vertical sides of said rests, and means for causing the approaching movements of said devices above, and across, the upper corners of the rests, substantially as described.

10. In a paper box machine, the rests, B, B, and the stay-section inturning devices, located outside of the lateral vertical sides of said rests, and having supports therefor which are sustained by, and movable as one with, said rests, but which have their positions alongside of, and separated from, the said vertical lateral sides of the rests, substantially as described.

11. In a paper box machine, the combination with the bed having the groove-way and the rests, B, B, which have support and slide engagements in said groove-way and which carry the supports, C<sup>2</sup>, C<sup>2</sup>, at, and separated from the vertical lateral sides thereof, of the stay section inturning slides which normally have positions outwardly beyond the space separating their supports from the sides of the rests, means for imparting the reciprocatory movements of the slides across said space, and the right-and-left-hand screw engaging the pair of rests, with means for effecting its rotation, substantially as described.

12. In a paper box machine, in combination, the rest, B, having supported in fixed relation to its lateral side the support-block, 26, which

is provided with the transverse way, 33, and therebelow the way, 34, at right angles thereto, the slide constituting the deflector for the stay-section, movable in the transverse way, 33, a bar movable in the way, 34, and having a cam and stud engagement with said slide, and means for imparting a reciprocatory movement to the bar, substantially as described.

13. In a paper box machine, the combination with the bed having the groove-way in its front face and having the horizontal longitudinal slots extending through it from its grooved front to its rear side, of the blocks, or rests, B, having at their rears the projecting members, 27, to fit in said groove-way, the bolts engaging said rests and passed therefrom through said slots of the bed and provided with confining nuts, substantially as described.

14. In a paper box machine, the combination with the rests, B, substantially as described, and the apertured bar, H, standing above, and just forward of, the rests, of the end-flap inturning device which consists of the lever pivotally mounted and having at its extremity a part to move through the aperture of the bar and adapted to impinge against the end flap of the properly presented box blank, together with the cam, a thrust-rod operated by the cam, and connected to said lever, and the retracting spring, 57, substantially as described.

15. In a paper box machine, the combination with the table having the separate and adjustable rests, B, B, which have level tops perpendicular front-faces in a coinciding plane, and perpendicular lateral sides, of a stop, L, having a vertical face which is in a plane coincident with the perpendicular front faces of said rests, substantially as described.

16. In a paper box machine, the combination with the rests, B, B, and bar above, and in front thereof, of gummerns, J, J, and a reciprocatory carrier, mounted for a forward and rearward movement over said rests to, and against, and then away from, the rear face of said bar, the guiding shaft, 64, for said gummer-carrier and the support and guide-ways therefor, the rock-shaft, 67, having the lever-arm, 66, connected to said shaft, 64, and having the arm, 68, a cam, and a thrust-rod operated thereby and connected to said arm, 68, substantially as described.

17. In a paper box machine, the combination with rests and supports, C<sup>2</sup>, adjustable in unison, the stay section inturning devices mounted on said supports, C<sup>2</sup>, of the bar, H, above and in advance of the rests, B, and the gummerns adjustably mounted on a horizontally reciprocatory support, substantially as described.

18. In a paper box machine, the combination with the reciprocatory gummerns, J, J, and the gum-box-roll located adjacent the receded position of the gummerns, the members, 77, having the slots, 78, therein, comprising the deflected terminals, 79, the gum-supplying roller, f, having its journal constrained to move in



said slotted member, 77, the rock-shaft, 84, with its slotted arms, 81, which engage the journals of the roller, *f*, and the lever-arm, 93, the cam and thrust-rod, 91, and spring, 87, all  
5 arranged for operation substantially as described.

19. In a paper box machine, the combination with the bar, H, of an envelope which is in the form of a flexible tube adapted to the  
10 cross sectional contour of the bar, which may be slipped around on the bar and provided with one or more rearwardly projecting gages, 60, 60, substantially as described.

20. In a paper box machine, the combination  
15 with the bar, H, of an envelope which is in the form of a flexible tube adapted to the cross sectional contour of the bar, and which may be slipped around on the bar and which is provided with the extra thickening layer,  
20 82, which has its upper edge at some distance below the top edge of said bar, substantially as and for the purpose set forth.

21. In a paper box machine, the combination with the rests, B, B, adjustably mounted and  
25 each having, in fixed relation to its lateral side, and separated therefrom, a support which is provided with a slide-way for the stay-wing deflector which has a position, normally, outside of the space that separates the rests from  
3 said support, slide-bars movably guided in said supports and having cam-actuating engagements with the said deflector slides, a rod with which said slide-bars have sliding engagements and means for imparting a bodily

reciprocatory movement to said rod in a direction at right angles to its length, substantially as and for the purpose set forth. 35

22. In a paper box machine, the combination with the slides, C, C, movable in supporting ways therefor and reciprocatory bars, 35, 35, 40 having studs engaging in cam slots of said slides, of the rod extending crosswise of, and having sliding engagements with both of said bars and means for imparting a bodily reciprocatory movement to said rod in a direction 45 transversely of its length, substantially as described.

23. In a paper box machine, the combination with the bed or table and the rests, B, B, movably mounted on the bed, having the supports, C<sup>2</sup>, C<sup>2</sup>, supported thereby in separation 50 from their lateral sides, which supports have the slides, C, C, adapted for movement in ways thereof across the adjacent edge of the rests, B, B, the bars, 35, 35, having studs engaging in cam slots of said slides, the rod 55 extending crosswise of, and having sliding engagements with both of said bars, means for imparting a bodily reciprocatory movement to said rod in a direction transversely 60 of its length, and the right-and-left-hand screw engaging both of the said rests, B, B, substantially as and for the purpose set forth.

CHAUNCEY W. GAY.

Witnesses:

WM. S. BELLOWS,

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