

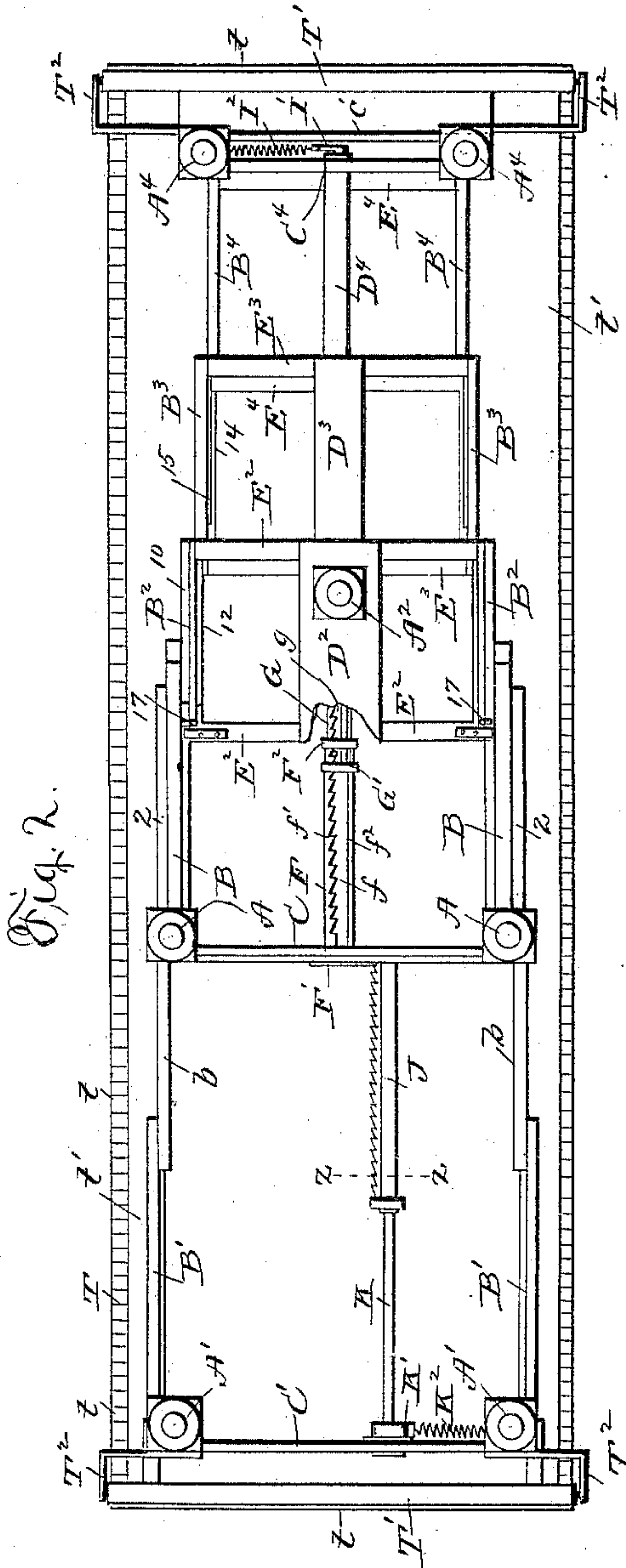
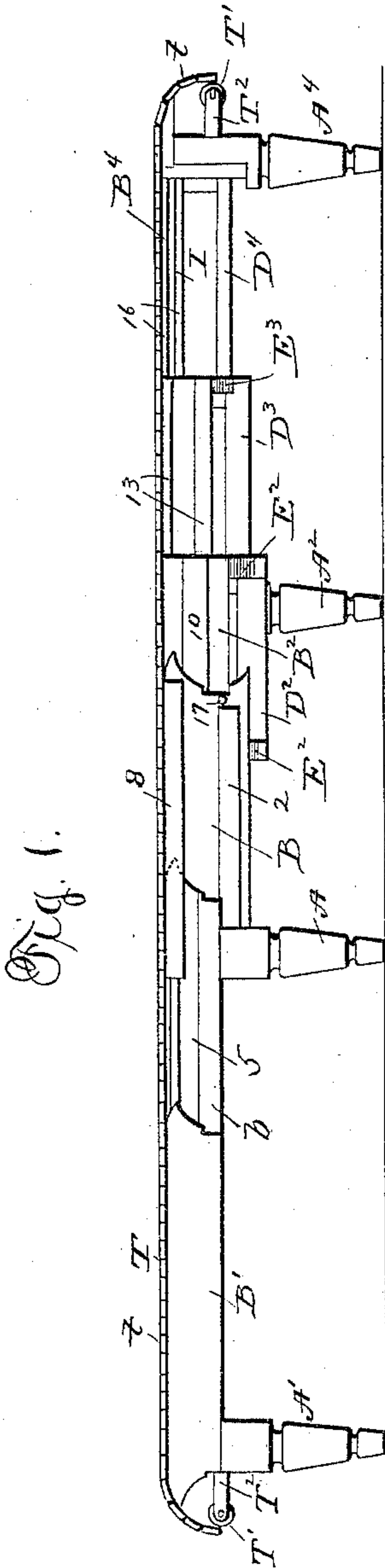
(No Model.)

3 Sheets—Sheet 1.

J. COUCH.  
EXTENSION TABLE.

No. 465,053.

Patented Dec. 15, 1891.



Witnesses/  
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Fig. 4.

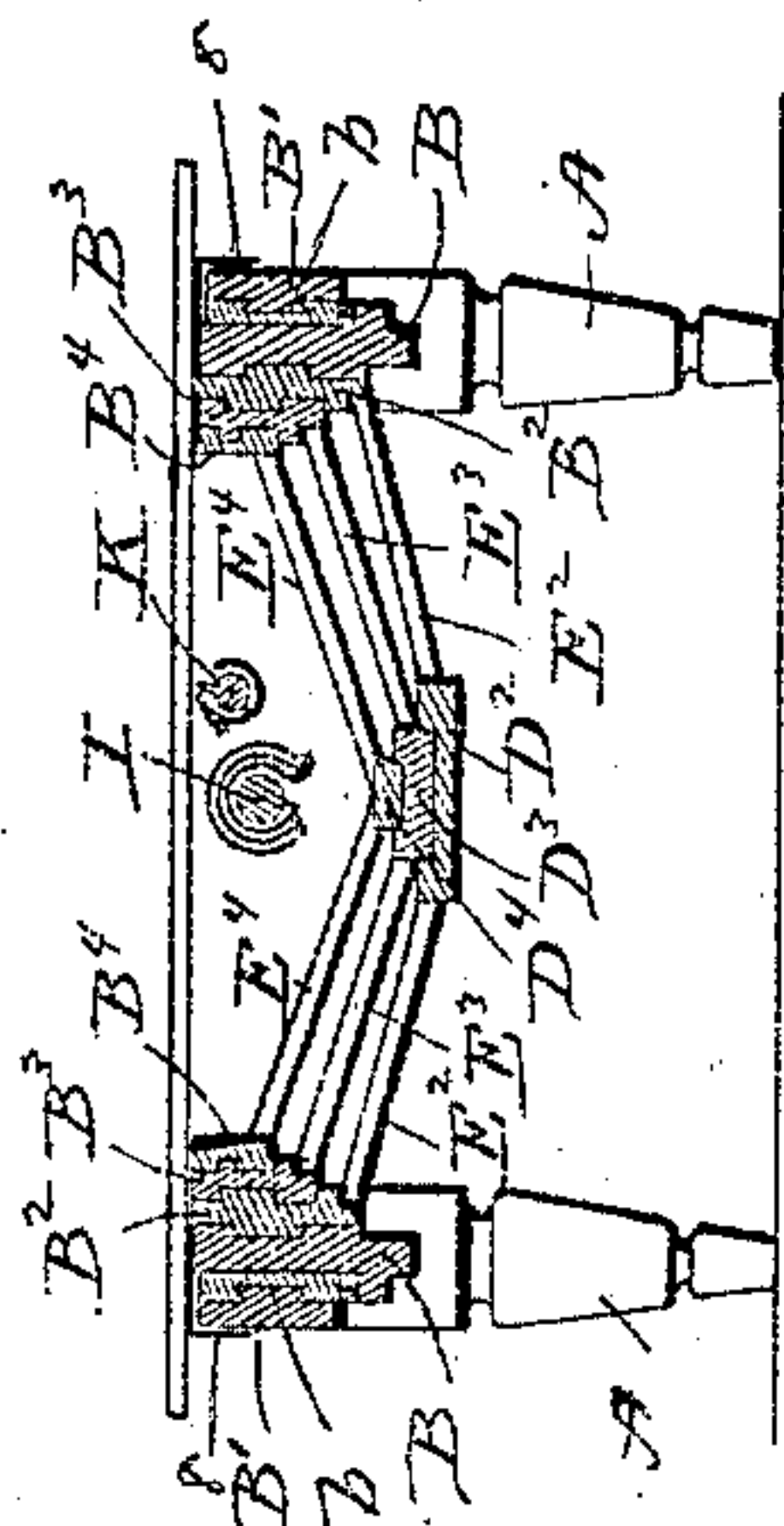


Fig. 3.

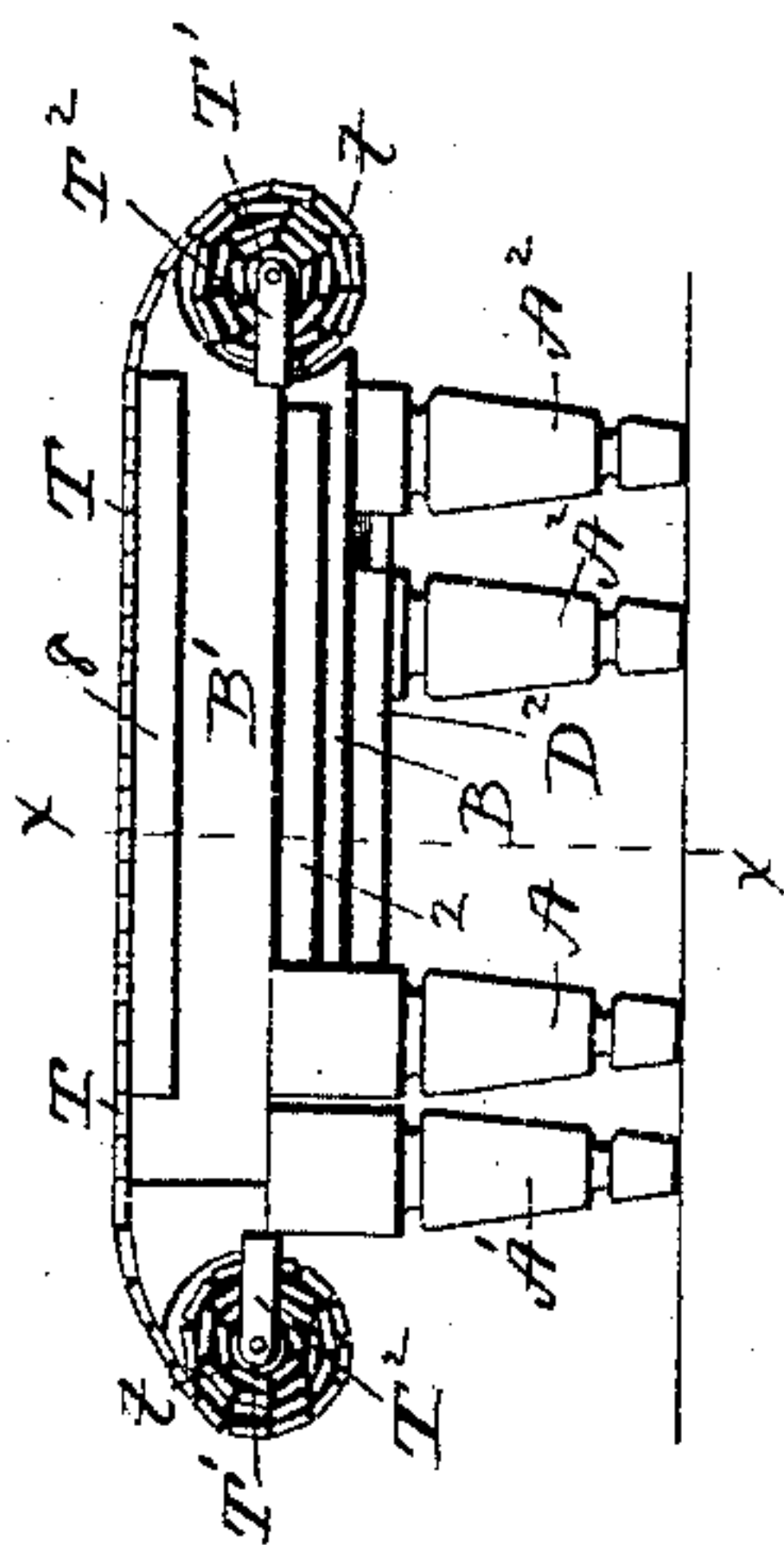


Fig. 10.

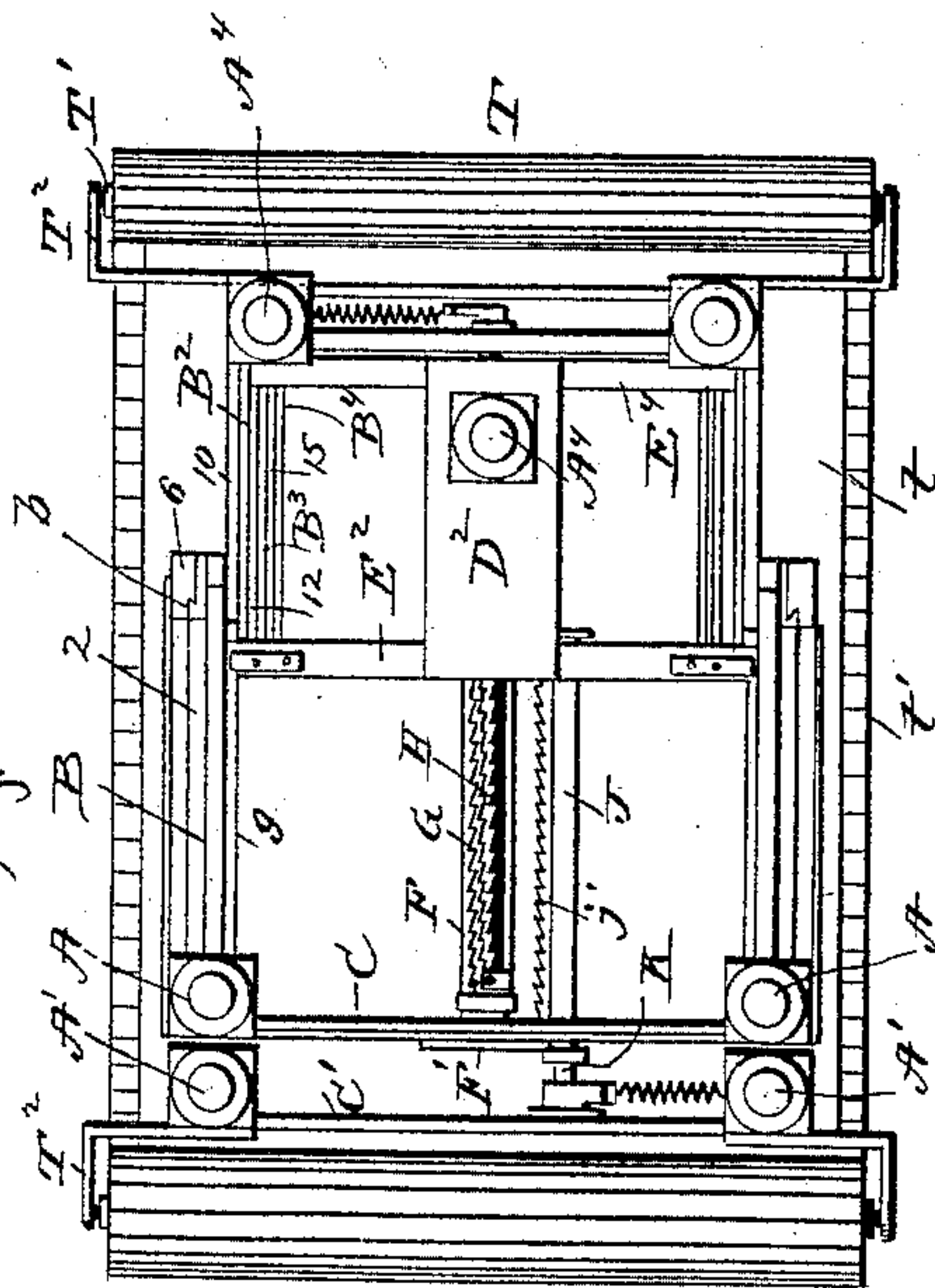
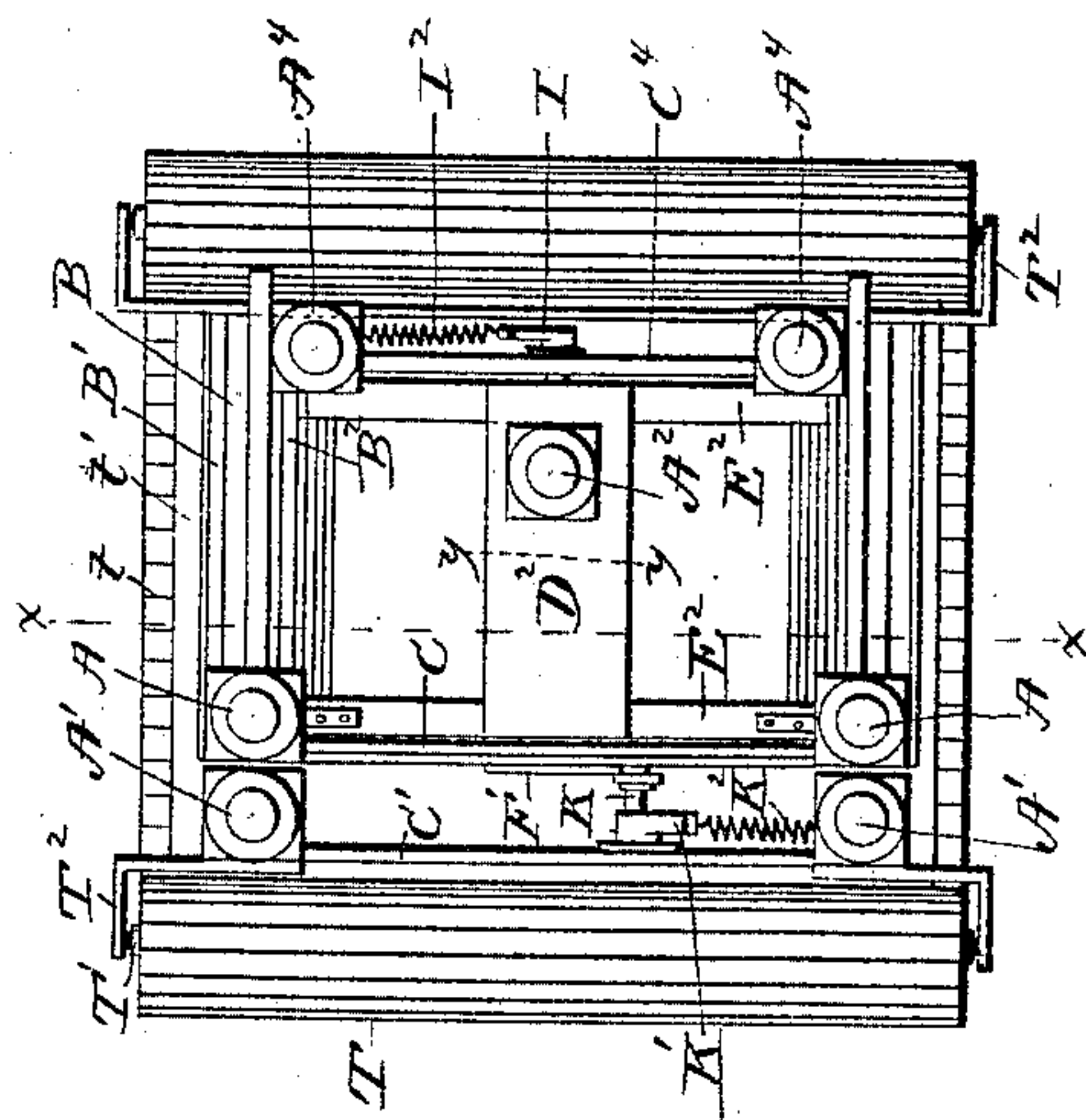


Fig. 5.



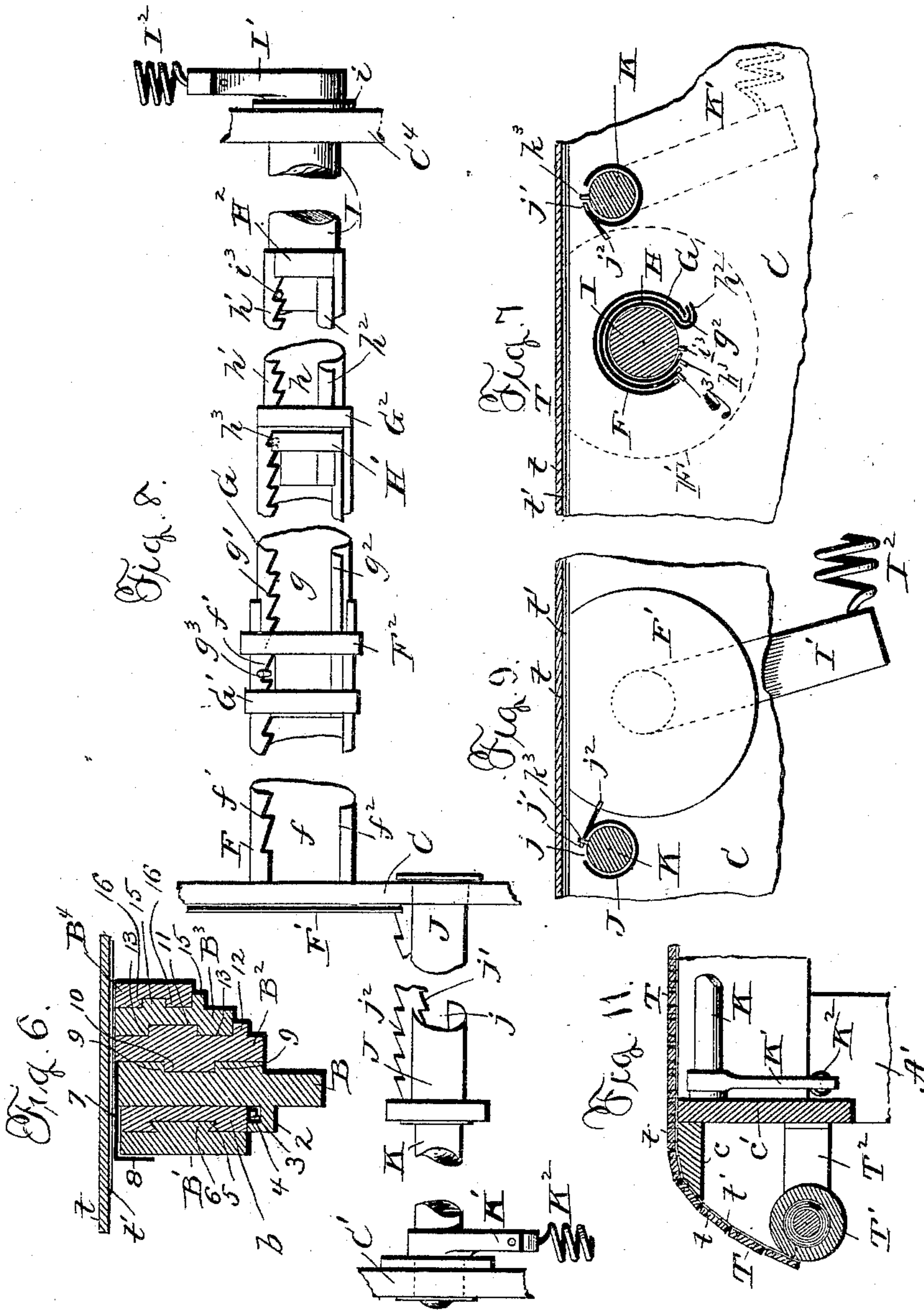
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# UNITED STATES PATENT OFFICE.

JOEL COUCH, OF CLAYTON, NEW YORK.

## EXTENSION-TABLE.

SPECIFICATION forming part of Letters Patent No. 465,053, dated December 15, 1891.

Application filed October 10, 1891. Serial No. 408,355. (No model.)

*To all whom it may concern:*

Be it known that I, JOEL COUCH, a subject of the Queen of Great Britain, residing at Clayton, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Extension-Tables; and I do declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in extension-tables; and it has for its object among others to provide a table of this character which will be capable of being folded within a very small space and which may be easily extended when desired, the top of the table working automatically.

The invention has for a further object to generally improve upon this class of appliances.

To the above ends and to such others as the invention may pertain the same consists in the peculiar construction and in the novel combination, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters and figures of reference marked thereon, form a part of this specification, like letters and figures of reference indicating the same parts throughout the several views, and in which drawings—

Figure 1 is an elevation of my improved extension-table, showing the same fully extended or drawn out. Fig. 2 is a top plan view of the same reversed. Fig. 3 is an elevation showing the table entirely closed or contracted. Fig. 4 is a vertical transverse section of the same upon the line  $x x$  of Figs. 3 and 5. Fig. 5 is a top plan view of the table reversed and closed. Fig. 6 shows the sliding rails, the same being a part of Fig. 4 upon an enlarged scale. Fig. 7 is a detail, upon a larger scale, of the locking device, the same being a cross-section upon the line  $y y$  of Fig. 5. Fig. 8 is a top plan view of the same reversed and with parts broken away, the same correspond-

ing to Fig. 2, but upon a larger scale. Fig. 9 is a detail of the locking device, being a section upon line  $z z$  of Fig. 2. Fig. 10 is a top plan view of the table reversed and partly extended, showing the locking device. Fig. 11 is a detail view of the table top and roller in cross-section.

Reference now being had to the details of the drawings by letter, A, A', A<sup>2</sup>, and A<sup>4</sup> are legs secured to different parts of the framework.

B, B', and B<sup>4</sup> are slide-rails secured, respectively, to the legs and cross-rails, and C, C', and C<sup>4</sup> are cross-rails, each connecting one of the three pairs of legs and forming frames A B C, A' B' C', and A<sup>4</sup> B<sup>4</sup> C<sup>4</sup>, open at one end, supported by legs at the other end, and all independent of each other, but slidingly connected. The frame A B C forms the main frame, upon which the others, by means of intermediate pieces, slide. Each rail B has formed upon its outer face a slideway by having secured upon it near its lower edge a fillet 2, which has upon its upper face a groove 3. In this slideway a separate or extension rail  $b$  is bedded, engaging the groove 3, being stopped against the leg A. The extension-rail  $b$  is free at both ends, corresponds in length to the frame A B, and has sunk in its outer face a dovetailed sectioned slideway 5. Each rail B' has upon its inner face a corresponding dovetail 6, engaging the dovetail bed 5 in the rail  $b$  slidingly.

7 is a metallic plate secured upon the top of the rail B and having a flange 8, turned down the side of the outer rail B', preventing the rails  $b$  and B' from twisting and separating from the rail B at the top edge, thus forming part of the slideway of each main rail B. Within the frame A B C are arranged a series of frames, sliding successively in each other. Each rail B has on its inner face a wide groove, preferably formed by two raised fillets 9, adapted to form a slideway. The rails B<sup>2</sup>, together with a flat central rail D<sup>2</sup> and the downward sloping flat cross-pieces E<sup>2</sup>, form a frame supported by the leg A<sup>2</sup>, which is secured to said central rail and which frame slides by the rails B<sup>2</sup> on the rails B, said rails B<sup>2</sup> having each on its outer face a corresponding fillet 10 to fit the groove formed by the fillets 9. A slideway is formed on the inner face of the rails B<sup>2</sup> by fillets 11 and 12, forming a rabbet and groove.



The central rail  $D^2$  is channeled on its upper side to form a slideway.

$B^3$  are rails having on their outer face a groove formed by two raised fillets 13, fitting the rabbet and groove of the rails  $B^2$  and forming with the central rail  $D^3$  and the cross pieces  $E^3$  a frame in all respects similar to the frame  $B^2 D^2 E^2$ , but smaller, so as to slide within it, and without leg, the central rail  $D^3$  being also channeled on its upper face to form a slideway. A slideway is also provided on the inner face of each of the rails  $B^3$  by fillets 14 and 15, forming rabbet and groove to receive corresponding fillets or projections 16 on the outer face of the rail  $B^4$ , central rail  $D^4$ , and cross-pieces  $E^4$  from another frame similar to the one last described, but smaller, so as to be contained within it, and is attached to the cross-rail  $C^4$  and the legs  $A^4$ . Stops 17 are provided to limit the traverse of the frames. It will be seen that  $A B C$  is the main or stationary frame,  $A' B' C'$  one of the end frames with the extension-rails  $b$  between it and the former, and  $A^4 B^4 C^4 D^4 E^4$  the other end frame with the extension-frames  $A^2 B^2 D^2 E^2$  and  $B^3 D^3 E^3$  between it and the main frame.

The table-top  $T$  is composed of transversely-disposed slats  $t$ , secured upon a flexible sheet of fabric  $t'$  by tacks or in any other suitable manner. An intermediate portion of said top is permanently secured upon the main rails  $B$  or the metallic plate 7, and each end is secured to a self-coiling roller  $T'$ , (after the manner of the well-known spring-blind rollers,) which are held in brackets  $T^2$ , secured to the exterior of the cross rails and legs  $C' A'$  and  $C^4 A^4$ , respectively. The rollers  $T'$  are allowed sufficient projection from the ends of the frames and sufficient depth from the top to permit the necessary bulk of coil by the bend and height of the brackets  $T^2$ , and brackets or gussets  $c$  and nosings  $c'$  are secured to the legs  $A C$  and  $A^4 C^4$  and cross-rails to guide and support the flexible top from the edges of the cross-rails to the rollers  $T'$ .

To prevent the voluntary coiling up of the top  $T$  by the rollers  $T'$ , locking devices are provided, which are shown in Figs. 7, 8, 9, and 10. In the cross-rail  $C$ , midway between the two legs  $A$ , is secured a tube  $F$ , projecting into and extending nearly the whole length of the rails  $B$ , and throughout its length a wide slot  $f$ , one edge of which has notches  $f'$ , consisting of one rectangular shoulder and a side sloping from bottom of the notch toward the free end. The other edge  $f^2$  is plain. Near the free end the slot is bridged by part of a ring  $F^2$ , of larger diameter than the tube and having both ends secured to it a little distance from the edges, so as to leave the spaces between them and it. The end of the tube is rigidly secured or formed integrally with a plate or disk  $F'$ , and this is rigidly secured to the cross-rail  $C$  on the side facing the frame  $A' B' C'$ .

$G$  is a tube similar to  $F$ , but a little less in

diameter, and contained slidingly within the latter, the slot  $g$  being somewhat narrower, so that the serration  $g'$  clears that in the tube  $F$  and comes clear within the slot of the latter. The other edge  $g^2$  is turned up and overlaps the plain edge of tube  $F$ . To the end nearest the cross-rail  $C$  is secured at the highest part of the doubled-up edge  $g^2$  a guide-ring  $G'$ , encircling the tube  $F$ , and near it on the serrated edge is an upwardly-projecting pin  $g^3$ , adapted to engage the notches  $f'$  in the tube  $F$ . The other end of said tube is provided with a bridge-piece  $G^2$ , similar to  $F^2$ .

$H$  is another tube similar to the tube  $G$ , but smaller, and contained slidingly within the latter, its upturned edge  $h^2$  overlapping the upturned edge  $g^2$  of the tube  $G$ . The slot  $h$  is narrower still, so that the notches  $h'$  clear the notches  $g'$  and having pin  $h^3$ , the bridge-piece holding the other end together. The tubes  $g h$  have a limited rotation in the tubes  $f$  and  $g$ , respectively. The pin  $h^3$  is taken out of engagement with the notches  $g'$  by turning the rod  $I$ , so that it strikes against the edge  $h^3$  of the tube  $h$ , thus turning the tube, and in like manner the pin  $g^3$  is taken out of engagement with the notches  $f'$  by the contact of the edge  $h^2$  with the edge  $g^2$ , thus causing a partial rotation of the tube  $h$ .  $I$  is a rod fitting within the tube  $H$  and sliding therein, provided at one end with a pin  $i^3$  to engage the notches  $h'$  of the tube  $H$  and having the other end journaled in the cross-rail  $C^4$ , being shouldered on the inner side and having a collar  $i$  and lever  $I'$  secured to it on the outside. Said lever is drawn by a spring  $I^2$  to one side, turning the rod so as to keep the pins  $i^3 h^3$  in engagement with the notches  $h' g'$ , respectively.

The device thus far described controls the extensions between the rails  $C$  and  $C^4$  and the following those between  $C$  and  $C'$ .

$J$  is a tube slotted nearly its entire length, and having one edge of the slot  $j$  serrated with notches  $j'$ , said notches being similar to the notches  $f' g' h'$ . Close to this serrated edge is a serrated ridge  $j^2$ , the notches in the same sloping in the opposite direction. Said tube is inserted slidingly and rotatably in the cross-rail  $C$ , so that the serrated edge  $j^2$  engages the edge of the disk or plate  $F'$ , or may be turned clear of the same.  $K$  is rod fitting said tube slidingly. It has one end journaled in the cross-rail  $C'$ , so that it does not slide in its journal, and being provided with a lever  $K'$  rigidly secured thereto. The other end carries a projecting pin  $k^3$ , moving in the slot  $j$  and adapted to engage the notches  $j'$ . The notches  $j^2$  are taken out of engagement with the disk  $F$  in substantially the same way as the pins  $h^3$  and  $g^3$  are taken out of their engagement with their notches and above explained. The lever  $K'$  is drawn to one side by a spring  $K^2$ , causing the pin  $k^3$  to press on the serrated edge  $j'$  of the tube and bring the serrated ridge  $j^2$  into engagement with the disk  $F'$ . The tube  $J$  and rod  $K$  keep the tow-



rails C and C' apart, the disk F' preventing the tube J from passing through the rail C by the engagement of one of the notches  $j^2$  and the rod K by the pin  $k^3$ , engaging one of the notches  $j'$ . If that end of the tube is to be closed or contracted, the lever K' is drawn in the opposite direction to the pull of the spring K<sup>2</sup>, thereby turning the rod K and the tube J and disengaging the former from the latter, and this from the disk F', allowing the rod to slide in the tube and the latter to pass through the rail C into the frame B C. The locking device between C and C<sup>4</sup> acts similarly, the spring I<sup>2</sup> holding the lever I' on one side, thus turning the rod I so as to keep the pin  $i^3$  in engagement with one of the notches  $h'$  in the tube H, the pin  $h^3$  of the latter in one of the notches  $g'$  of the tube G, and the pin  $g^3$  of that in one of the notches  $f'$  of the tube F. Drawing the lever I' in the opposite direction turns the rod and the tubes H and G, disengages the pins on them from the notches, allowing all to slide into the tube F. In drawing out or extending the table it is necessary to turn the levers so that the pins on the rods and tubes will readily pass over the inclined sides of the notches  $f'$ ,  $g'$ ,  $h'$ , and  $j'$ . It will be observed that this table can be made any desired length intermediate between the two extreme limits, and either on one side or the other, or both simultaneously, the several extension rails and frames operating in their turn, and the self-coiling rollers giving up the top when extending and taking it up when closing or contracting.

What I claim to be new is—

1. In an extension-table, the combination of the main frame A B C, the extension-rails  $b$ , connected slidingly with the rails B, the frame A' B' C', having its rails B' connected slidingly with the rails  $b$ , plates 7, having a flange 8, secured to the top of the rails B, the spring-roller T', brackets T<sup>2</sup>, secured to the frame end A' C' and carrying said roller, the grooved runner, the pins on said extension-rails and engaging the grooves of the runner, and the top T, partly secured to the main frame and one end to said spring-roller, substantially as set forth.

2. In an extension-table, the combination of the legs A, cross-rail C, connecting said legs, longitudinal rails B, having one end secured to said legs and provided on the outer face with a grooved runner 2, extension-rails  $b$ , connected slidingly to said rails B and having pins 4 engaging the grooves 3 in said runner, and having on its outer face a dovetailed slideway 6, engaging the slideway 5, the legs A', secured to said rails B, the cross-rail C, connecting said legs, and the flanged plate 7, secured to the top of the rails B, substantially as set forth.

3. In an extension-table, the combination of the frame A B C, extension-frame A<sup>2</sup> B<sup>2</sup> D<sup>2</sup> E<sup>2</sup>, having its rails B<sup>2</sup> slidingly connected with the inner face of the rails B by fillets 9 and 10, the extension-frame B<sup>3</sup> D<sup>3</sup> E<sup>3</sup>, having

its rails B<sup>3</sup> slidingly connected with the inner face of the rails B<sup>2</sup> by fillets 11, 12, and 13 and its central rail D<sup>3</sup>, sliding in a channel on the rail D<sup>2</sup>, the frame A<sup>4</sup> B<sup>4</sup> C<sup>4</sup> D<sup>4</sup> E<sup>4</sup>, having its rails B<sup>4</sup> slidingly connected with the inner faces of the rails B<sup>3</sup> by fillets 14, 15, and 16, the rollers T', journaled to the legs and rail A<sup>4</sup> C<sup>4</sup> by brackets, the rods E<sup>3</sup>, connecting the slides B<sup>3</sup> to the slides D<sup>3</sup>, respectively, and the top T, secured to the main frame A B C and to said roller, substantially as described.

4. The combination of a pair of rails, a pair of rails B<sup>2</sup>, adapted to slide on and between said pair of rails, a flat central rail D<sup>2</sup>, having a slideway on its upper face, and the downwardly-sloping cross-pieces E<sup>2</sup>, connecting the lower part of the rails B<sup>2</sup> with the edges of the central rail D<sup>2</sup>, substantially as described.

5. In an extension-table, the combination, with the cross-rails C and C<sup>4</sup>, of a tube F, provided with a long slot having a serrated edge and having one end secured to one of the rails and having a bridge-piece F<sup>2</sup> at the other end, the tube G within said tube F, having a narrower slot, one edge of which is serrated and the other turned up and overlapping the plain edge of the containing-tube and provided with bridge-pieces at the ends and with a pin adapted to engage the serrated edge of the containing-tube, the tube H within said tube G and having a narrower slot than the slot in the latter, one edge of said slot being serrated and the other overlapping the plain edge of the containing-tube and provided with bridge-pieces at the ends and with a pin adapted to engage the serrated edge of the containing-tube, and a rod I, slidingly contained within the tube H and having a pin  $a$ , adapted to engage the serrated edge of the tube H and having one end journaled in the rail C<sup>4</sup> and provided with a lever I', the spring-rollers, the sections of the extension-table to which the tubes are connected, and the flexible top, as described.

6. In an extension-table, the combination, with the rails C and C', of the tube I, adapted to slide and turn in the rail C, and having a slot, one edge of which is serrated, and a serrated ridge  $j^2$ , a disk or plate F' on said tube and adapted to engage said serrated ridge, the rod K, slidingly contained in said tube and journaled at one end in the cross-rail C' and provided with a lever K', and having at the other end a pin adapted to engage the serrated edge of said tube, the spring-roller, the flexible top, and the sections of the table to which the tube is connected, substantially as set forth.

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

JOEL COUCH.

Witnesses:

A. E. SPALSBURY,  
 SOLON H. JOHNSON.