

April 5, 1932.

A. BERTA

1,852,914

COLLAPSIBLE OR EXTENSIBLE TABLE

Filed May 6, 1931

4 Sheets-Sheet 1

Fig. 1.

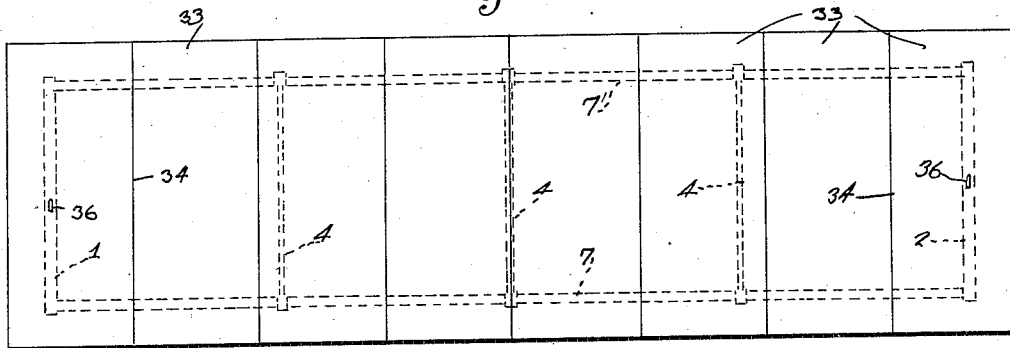


Fig. 2.

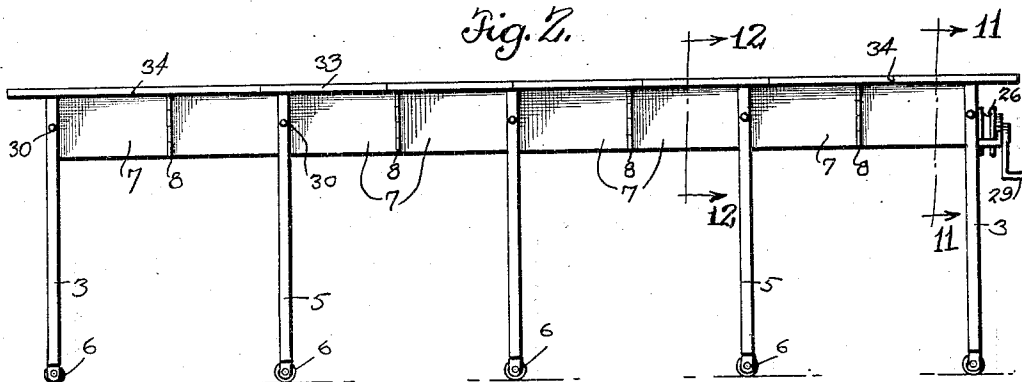
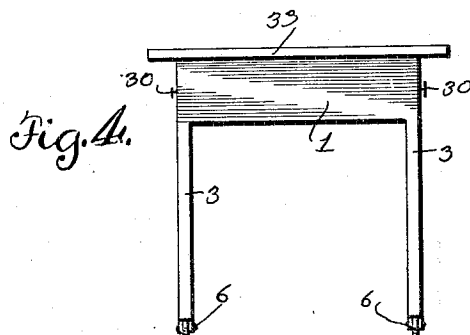
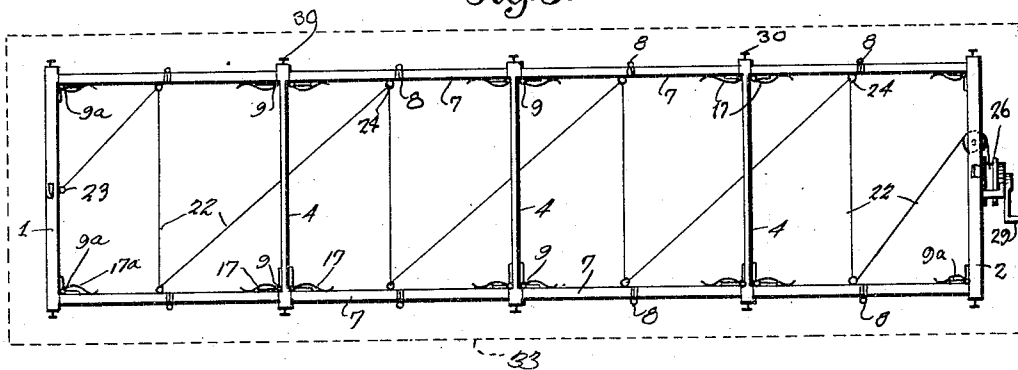


Fig. 3.



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Fig. 5.

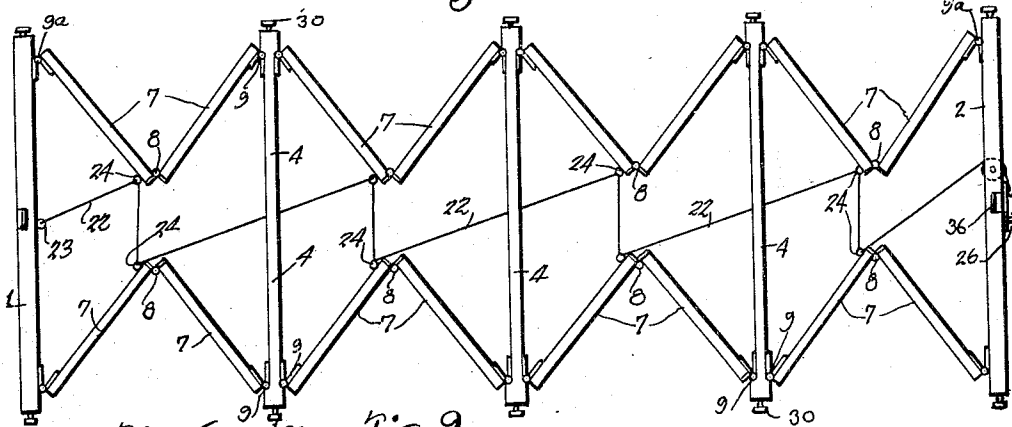


Fig. 6.

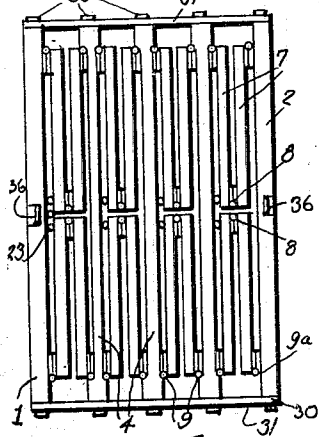


Fig. 9.

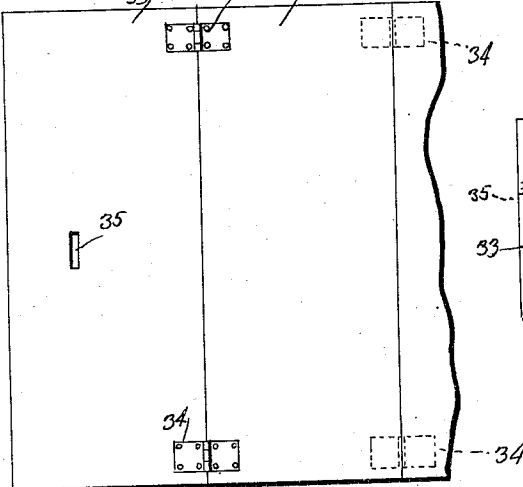


Fig. 10.

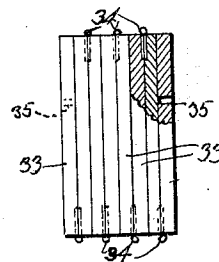


Fig. 7.

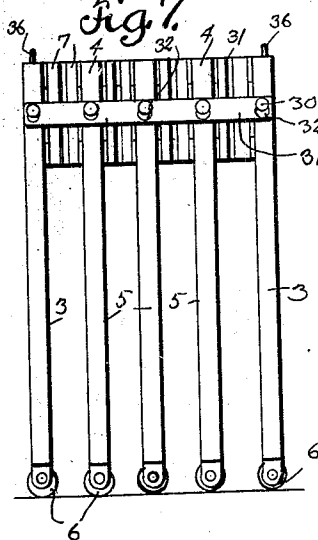
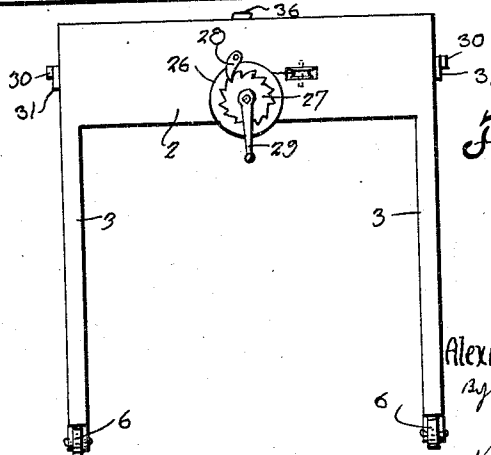


Fig. 8.



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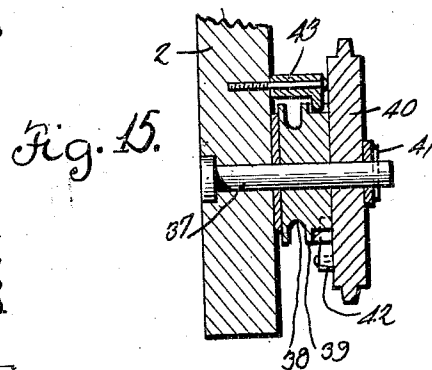
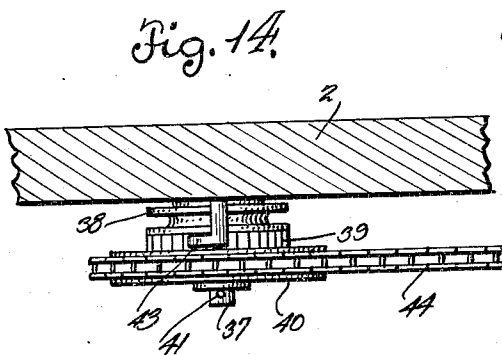
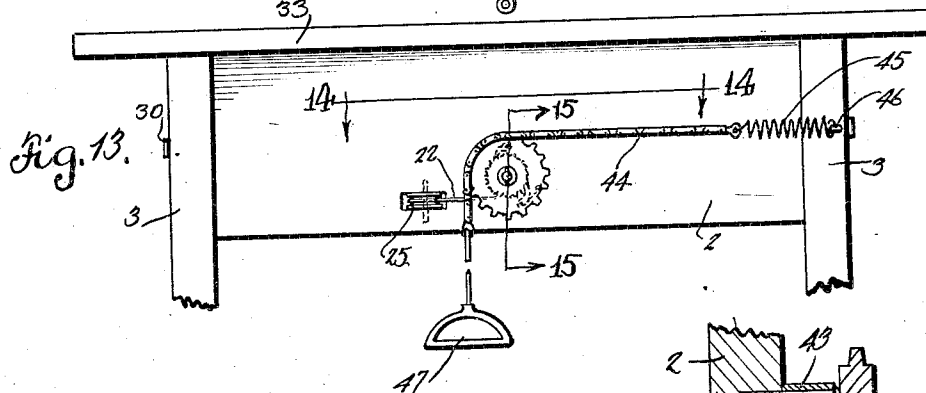
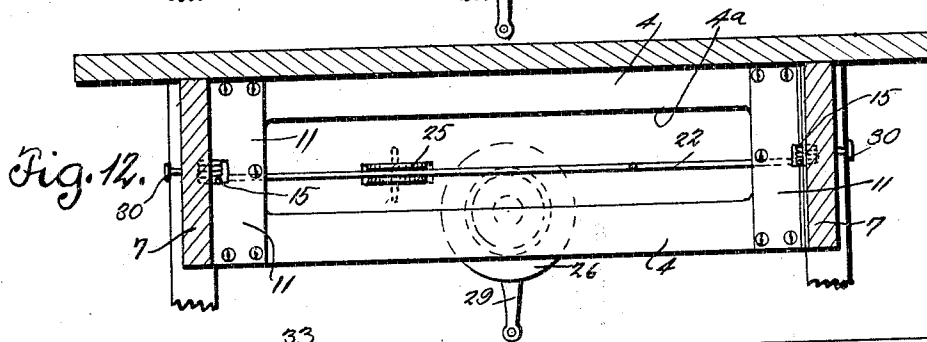
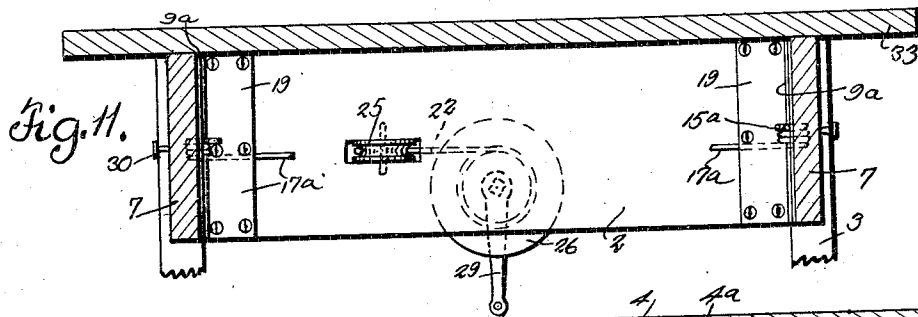
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COLLAPSIBLE OR EXTENSIBLE TABLE

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4 Sheets-Sheet 3



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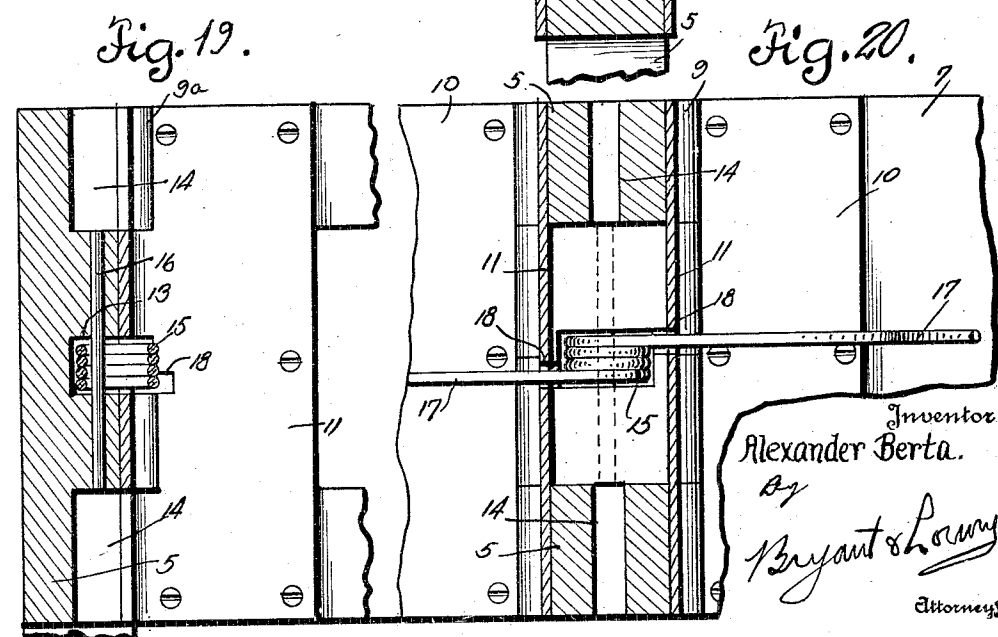
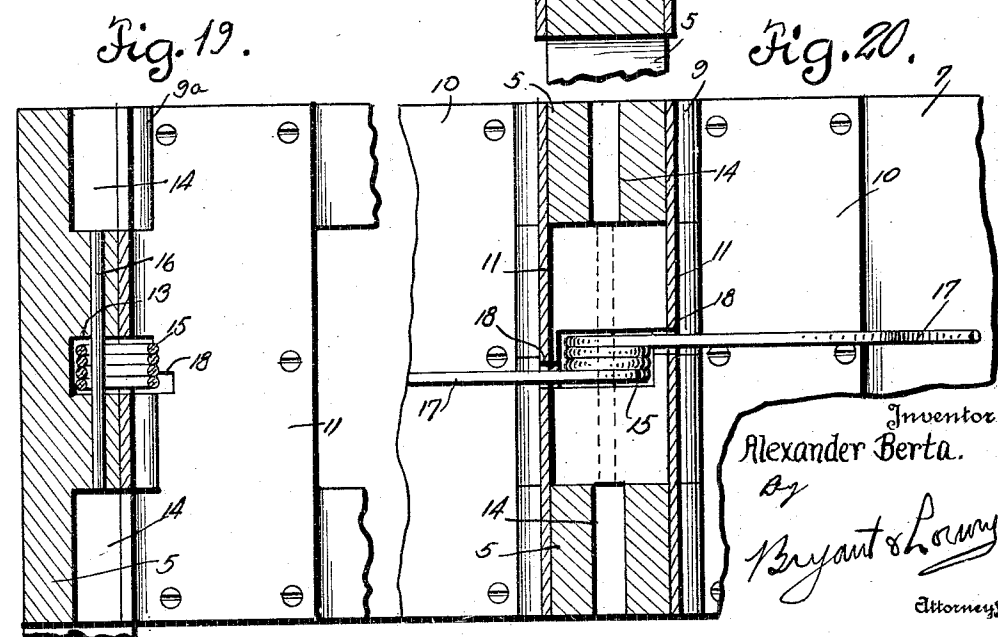
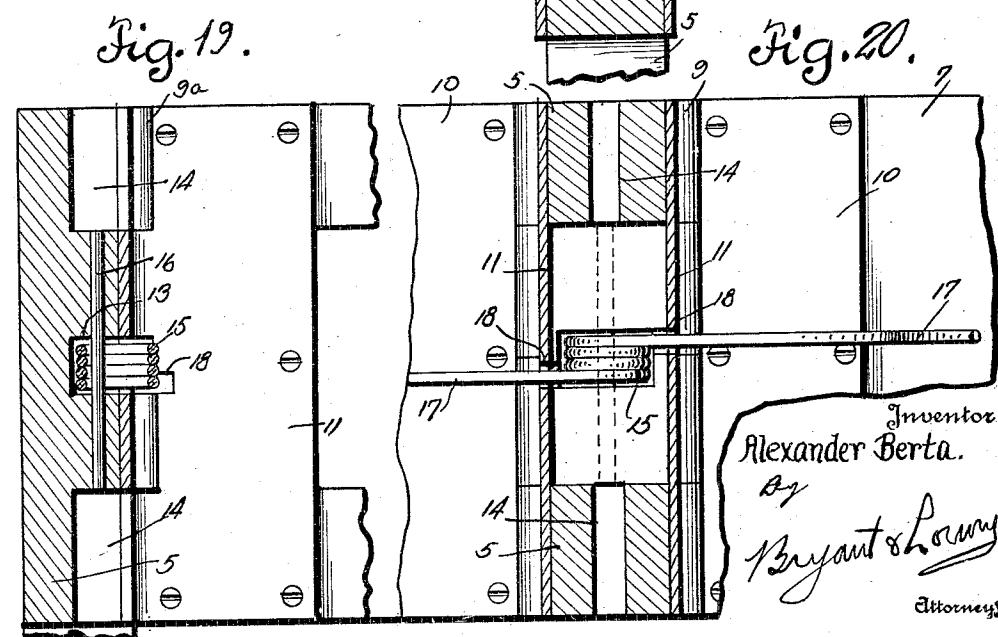
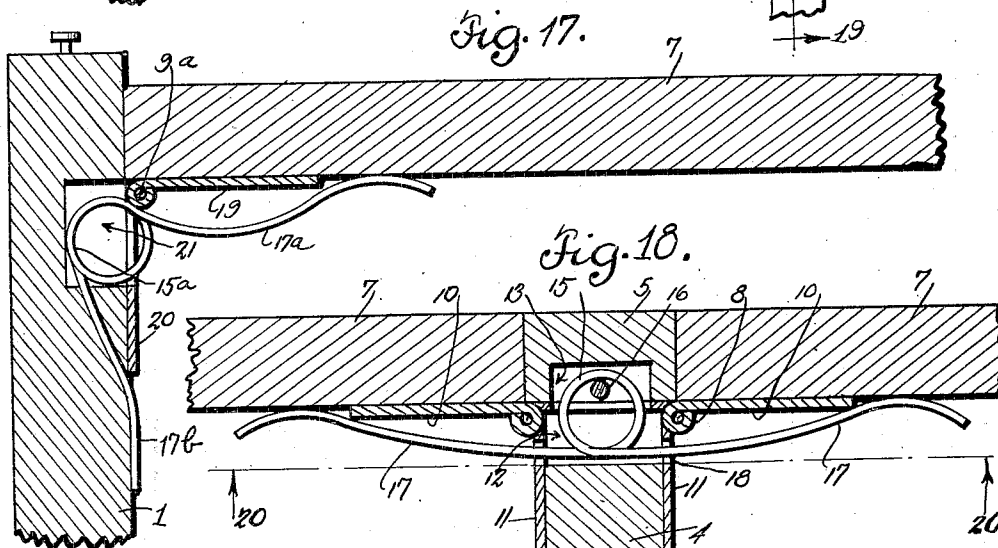
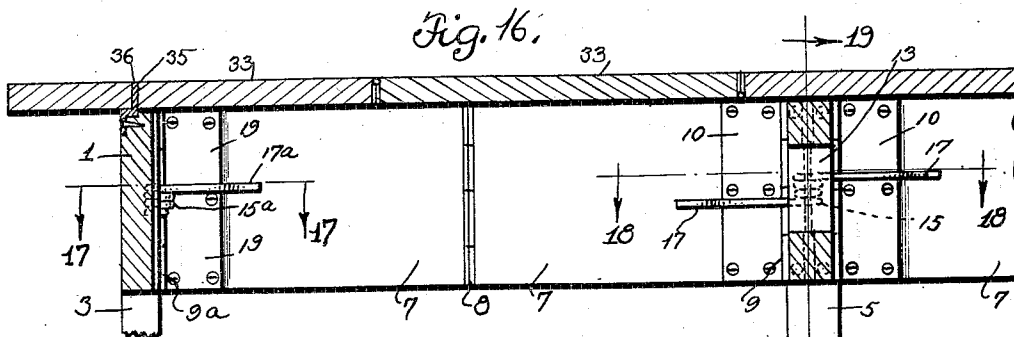
A. BERTA

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COLLAPSIBLE OR EXTENSIBLE TABLE

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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COLLAPSIBLE OR EXTENSIBLE TABLE

Application filed May 6, 1931. Serial No. 535,497.

This invention relates to certain new and useful improvements in collapsible or extension tables.

The primary object of the invention is to provide a collapsible or extension table that when folded or collapsed occupies a minimum of space and which when extended for use provides a substantial structure.

A further object of the invention is to provide a collapsible or extension table wherein side boards formed of hingedly connected sections are hingedly connected at their outer ends to supporting legs with spring devices associated with the latter connections automatically effecting opening movement or extension of the hinged side boards when the structure is extended into table formation.

A still further object of the invention is to provide a table structure of the foregoing character wherein means is provided for association with the supporting legs when the device is in collapsed condition for restraining the structure from opening movement by the spring devices associated therewith.

Another object of the invention is to provide an operating table associated with the adjacent hinged ends of the side board sections to effect collapsing of the table structure with a manually rotated reel or drum upon which the cable is wound when the table is to be collapsed.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings:—

Figure 1 is a top plan view of the collapsible or extensible table constructed in accordance with the present invention;

Figure 2 is a side elevational view of the table in extended condition showing the supporting legs and the side boards formed of hingedly connected sections;

Figure 3 is a top plan view of the table frame with the table top illustrated by dotted lines and showing springs associated with the hinged connection between the side board ta-

ble legs and the cable for effecting collapsing of the table associated with the adjacent hinged ends of the side board sections;

Figure 4 is an end elevational view of the table;

Figure 5 is a top plan view showing the table frame partly collapsed with the table top removed;

Figure 6 is a top plan view of the table in fully collapsed condition and so retained by straps engaged with adjacently positioned supporting legs;

Figure 7 is a side elevational view of the table in collapsed condition;

Figure 8 is an end elevational view of the table showing the cable, drum and ratchet mechanism associated therewith;

Figure 9 is a fragmentary bottom plan view of the table top showing the hingedly connected sections thereof;

Figure 10 is an end elevational view, partly in section of the table top in folded condition;

Figure 11 is a cross-sectional view taken on line 11—11 of Figure 2, showing a guide pulley for the cable journaled in an end board of the table with the winding drum for the cable journaled on the end board;

Figure 12 is a cross-sectional view taken on line 12—12 of Figure 2 showing a skeleton form of intermediately positioned cross boards for the free passage of the table collapsing cable;

Figure 13 is a fragmentary end elevational view of another form of operating means for the cable winding drum;

Figure 14 is a fragmentary horizontal sectional view taken on line 14—14 of Figure 13;

Figure 15 is a detail sectional view taken on line 15—15 of Figure 13;

Figure 16 is a fragmentary longitudinal sectional view, showing spring devices engaged with the outer ends of the hingedly connected side boards;

Figure 17 is a detail sectional view taken on line 17—17 of Figure 16, showing a spring associated with a corner leg of a table and the adjacent section of a side board;

Figure 18 is a detail sectional view taken on line 18—18 of Figure 16, showing the

spring associated with an intermediate leg and having portions engaged with adjacent sections of side boards;

Figure 19 is a detail sectional view taken on line 19—19 of Figure 16, showing openings in a supporting leg to permit positioning of a retaining pin for the spring device; and

Figure 20 is a detail sectional view taken on line 20—20 of Figure 18.

Referring more in detail to the accompanying drawings, the table structure as shown in Figures 1 to 5 comprises end boards 1 and 2 carrying end legs 3 and intermediately positioned cross-boards 4 carrying end legs 5, all of said legs being provided with casters or rollers 6. Side boards for the table structure are formed of sections 7 which are hingedly connected together at their adjacent ends as at 8, while the outer end of each section is hingedly connected as at 9 to an adjacent leg, the hinge connection between the leg 3 and the adjacent side board section 7 being designated by the reference character 9a, all of said hinges comprising vertical pintles whereby the side board sections are movable in horizontal planes with the hinge connections 8 movable toward and away from each other as shown in Figure 5.

As shown in Figures 16, 18 and 20, each hinge member 8 includes strap portions 10 and 11 respectively secured to a section of a side board at the adjacent side of an intermediate cross-board 4 and each end of the cross board terminates in spaced relation to the upper ends of the intermediate legs 5 to provide a pocket 12 registering with the side pocket 13 in the upper end of the leg 5, said leg above and below the pocket 13 having openings 14 therein as illustrated. A coiled spring 15 is located in the registering pockets 12 and 13 and is retained in position by the pin 16 seated in the leg openings 14, the free ends 17 of the spring extending through openings 18 in the hinge straps 11 for engagement with adjacent sections of the side boards 7 and operating normally to move the side boards to an open extended position. Similar spring is associated with the hinge connection 9a between the end side board section 7 and corner leg 3 as shown in Figures 17 and 19, the hinge 9a including straps 19 and 20 respectively secured to the side board section and leg, the hinge strap 20 having an opening therein registering with the pocket 21 in the leg that receives the coil spring 15a, one end 17a thereof being engaged with the side board section, while its other end 17b is anchored in the corner leg as illustrated.

The table structure is automatically extended by the spring devices associated with the spring hinge connections between the side boards and the supporting legs and to collapse the table, an operating cable is associated therewith. As shown in Figures 3 and 5, a cord or cable 22 is anchored at one end as

at 23 to the inner face of the end board 1 intermediate the ends thereof, the cable being threaded through eyelets 4 carried by corresponding ends of side board sections 7 adjacent their hinge connection 8, the cross boards 4 being cut away as at 4a as shown in Figure 12 to permit unobstructed passage of the cable therethrough, the cable being operatively engaged with corresponding ends of each pair of side board sections as illustrated and finally passing through an opening in the end board 2 and guided by a pulley 25 journaled in said opening.

As shown in Figures 8, 11 and 12, a winding drum 26 is journaled upon the outer face of the end board 2 and to which the adjacent end of the cable 22 is attached, the drum carrying a ratchet wheel 27 to be engaged by a pawl 28 pivoted on the end board 2 and said drum and ratchet wheel are operated by the crank handle 29. Assuming that the table frame is in its extended position, and it is desired to collapse the same, the drum 26 is rotated by the crank handle 29 to wind the cable 22 thereon, the cable moving through the guide eyelets 24 carried by the side sections 7 causing said side boards to move on their hinge connections against the tension of the springs associated therewith, the adjacent hinged ends 8 of the side board sections moving inwardly while the cross boards 4 move toward each other, the cross board 1 approaching the end board 2, the table frame finally assuming the formation shown in Figures 6 and 7 and there retained against the tension of the springs associated with the hinge connections by the pawl and ratchet mechanism associated with the winding drum 26. To hold the table in collapsed condition, in addition to the pawl and ratchet mechanism, means are provided which include a pin 30 projecting outwardly from each cross board and end board to be engaged by a strap 31 having openings 32 therein to receive the pin thereby securing a locking closure for the table frame in collapsed condition.

To extend the table frame, the straps 31 are removed and upon releasing the pawl 28 from the ratchet wheel 27, the springs associated with the hinge connection between the side sections and legs automatically extends the table frame to the full line position shown in Figure 3 for reception of the table top.

The table top is composed of sections 33 hinged together at adjacent edges 34 and unfolded from the position shown in Figure 10 is placed upon the table frame and to temporarily secure the table top in position, the end boards of the sectional top are each provided with an opening 35, that receives the upstanding pin 36 rising from the upper edges of the end boards 1 and 2 as shown in Figures 6 to 8. When the table is to be collapsed, the sectional top is disengaged there-

from and folded into compact form as shown in Figure 10.

Another form of cable operating mechanism is shown in Figures 13 to 15, the end board 2 of the table having a stub shaft 37 extending outwardly thereof for the rotatable support of a drum 38 with a ratchet wheel 39 forming a part thereof and also a sprocket wheel 40 retained upon the shaft by the pin 41. A spring pressed pawl 42 is carried by the sprocket wheel 40 and is engaged with the ratchet wheel 39 at one side thereof and another pawl 43 carried by the end board 2 is engaged with the ratchet wheel 39 at the opposite side thereof. The sprocket chain 44 that passes over the sprocket wheel 40 is attached to one end of a coil spring 45 that is anchored as at 46 to an end leg 3 while the other end of the sprocket chain that depends from the end board 2 carries a stirrup 47. To collapse the table frame, a foot is placed in the stirrup 47 to pull the sprocket chain 44 against the tension of the spring 45 for rotating the sprocket wheel 40 and cable drum 38 through the medium of the pawl 42 carried by the sprocket wheel that engages with the ratchet wheel 39, the pawl 43 holding the cable drum and ratchet wheel in shifted position while the pawl 42 permits reverse rotation of the sprocket wheel on the influence of the spring 45 and sprocket chain 44, repeated operation of depressing the stirrup 47 accomplishing a complete collapsing movement of the table frame. When it is desired to extend the table frame, both the pawls 42 and 43 may be disengaged from the ratchet wheel 39 and the spring devices associated with the hinged connections between the side boards and legs of the table operate to extend the table frame.

From the above detailed description of the invention, it is believed that the construction and operation thereof will at once be apparent, and while there are herein shown and described the preferred embodiments of the invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

I claim:—

1. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table and spring devices associated with the hinge connections between the legs and side boards for automatically extending the table, a pin projecting from each end of the cross boards, and a strap engaged with the pins for holding the table in collapsed condition.

2. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table, spring devices associated with the hinge connections

between the legs and side boards for automatically extending the table, a cable associated with the side board sections adjacent the section hinges for collapsing the table, a pin projecting from each end of the cross boards, and a strap engaged with the pins for holding the table in collapsed condition.

3. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table, spring devices associated with the hinge connections between the legs and side boards for automatically extending the table, a sectional table top having interlocking connections at its ends with the end cross boards, a pin projecting from each end of the cross boards, and a strap engaged with the pins for holding the table in collapsed condition.

4. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table, spring devices associated with the hinge connections between the legs and side boards for automatically extending the table, a cable associated with the side board sections adjacent the section hinges for collapsing the table, a sectional table top having interlocking connections at its ends with the end cross boards, a pin projecting from each end of the cross boards, and a strap engaged with the pins for holding the table in collapsed condition.

5. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table and collapsible in a horizontal plane, each leg having a pocket therein, a coil spring anchored in the pocket with its ends engaged with a side board section for normally holding the side board sections in extended table forming position, means for collapsing the table and moving the adjacent hinged ends of the side board sections toward each other and the cross boards in adjacent relations, and means interlockingly engaged with the ends of the cross boards for holding the table in collapsed condition.

6. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table and collapsible in a horizontal plane, each leg having a pocket therein, a coil spring anchored in the pocket with its ends engaged with a side board section for normally holding the side board sections in extended table forming position, means for collapsing the table and moving the adjacent hinged ends of the side board sections toward each other and the cross boards in adjacent relations, the table collapsing means including a cable anchored at one end to an end cross board and having

take-up engagement with adjacent ends of the hinged side board sections.

7. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table and collapsible in a horizontal plane, each leg having a pocket therein, a coil spring anchored in the pocket with its ends engaged with a side board section for normally holding the side board sections in extended table forming position, means for collapsing the table and moving the adjacent hinged ends of the side board sections toward each other and the cross boards in adjacent relations, and means interlockingly engaged with the ends of the cross boards for holding the table in collapsed condition, the table collapsing means including a cable anchored at one end to an end cross board and having take-up engagement with adjacent ends of the hinged side board sections.

8. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table and collapsible in a horizontal plane, each leg having a pocket therein, a coil spring anchored in the pocket with its ends engaged with a side board section for normally holding the side board sections in extended table forming position, means for collapsing the table and moving the adjacent hinged ends of the side board sections toward each other and the cross boards in adjacent relations, the table collapsing means including a cable anchored at one end to an end cross board and having take-up engagement with adjacent ends of the hinged side board sections, a cable drum journaled on the other end cross board upon which the cable is wound and pawl and ratchet mechanism associated with the cable drum.

9. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table and collapsible in a horizontal plane, each leg having a pocket therein, a coil spring anchored in the pocket with its ends engaged with a side board section for normally holding the side board sections in extended table forming position, means for collapsing the table and moving the adjacent hinged ends of the side board sections toward each other and the cross boards in adjacent relations, and means interlockingly engaged with the ends of the cross boards for holding the table in collapsed condition, the table collapsing means including a cable anchored at one end to an end cross board and having take-up engagement with adjacent ends of the hinged side board sections, a cable drum journaled on the other end cross board upon which the

cable is wound and pawl and ratchet mechanism associated with the cable drum.

10. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table and collapsible in a horizontal plane, each leg having a pocket therein, a coil spring anchored in the pocket with its ends engaged with a side board section for normally holding the side board sections in extended table forming position, means for collapsing the table and moving the adjacent hinged ends of the side board sections toward each other and the cross boards in adjacent relations, the table collapsing means including a cable anchored at one end to an end cross board and having take-up engagement with adjacent ends of the hinged side board sections, a cable drum journaled on the other end cross board upon which the cable is wound, a ratchet wheel rigid with the drum, a pivoted pawl on the end board engageable with the ratchet wheel, a sprocket wheel adjacent the ratchet wheel, a pawl on the sprocket wheel engageable with the ratchet wheel, and a tensioned sprocket chain for operating the sprocket wheel and having a stirrup at one end to facilitate operation thereof.

11. In a table of the character described, supporting legs, cross boards between the legs, hinged sectional side boards hinged to the legs at each side of the table and collapsible in a horizontal plane, each leg having a pocket therein, a coil spring anchored in the pocket with its ends engaged with a side board section for normally holding the side board sections in extended table forming position, means for collapsing the table and moving the adjacent hinged ends of the side board sections toward each other and the cross boards in adjacent relations, and means interlockingly engaged with the ends of the cross boards for holding the table in collapsed condition, the table collapsing means including a cable anchored at one end to an end cross board and having take-up engagement with adjacent ends of the hinged side board sections, a cable drum journaled on the other end cross board upon which the cable is wound, a ratchet wheel rigid with the drum, a pivoted pawl on the end board engageable with the ratchet wheel, a sprocket wheel adjacent the ratchet wheel, a pawl on the sprocket wheel engageable with the ratchet wheel and a tensioned sprocket chain for operating the sprocket wheel and having a stirrup at one end to facilitate operation thereof.

In testimony whereof I affix my signature.
ALEXANDER BERTA.