March 24, 1925.

F. KOENIGKRAMER

1,530,726

FOLDING TABLE

Filed May 28, 1919

2 Sheets-Sheet 1

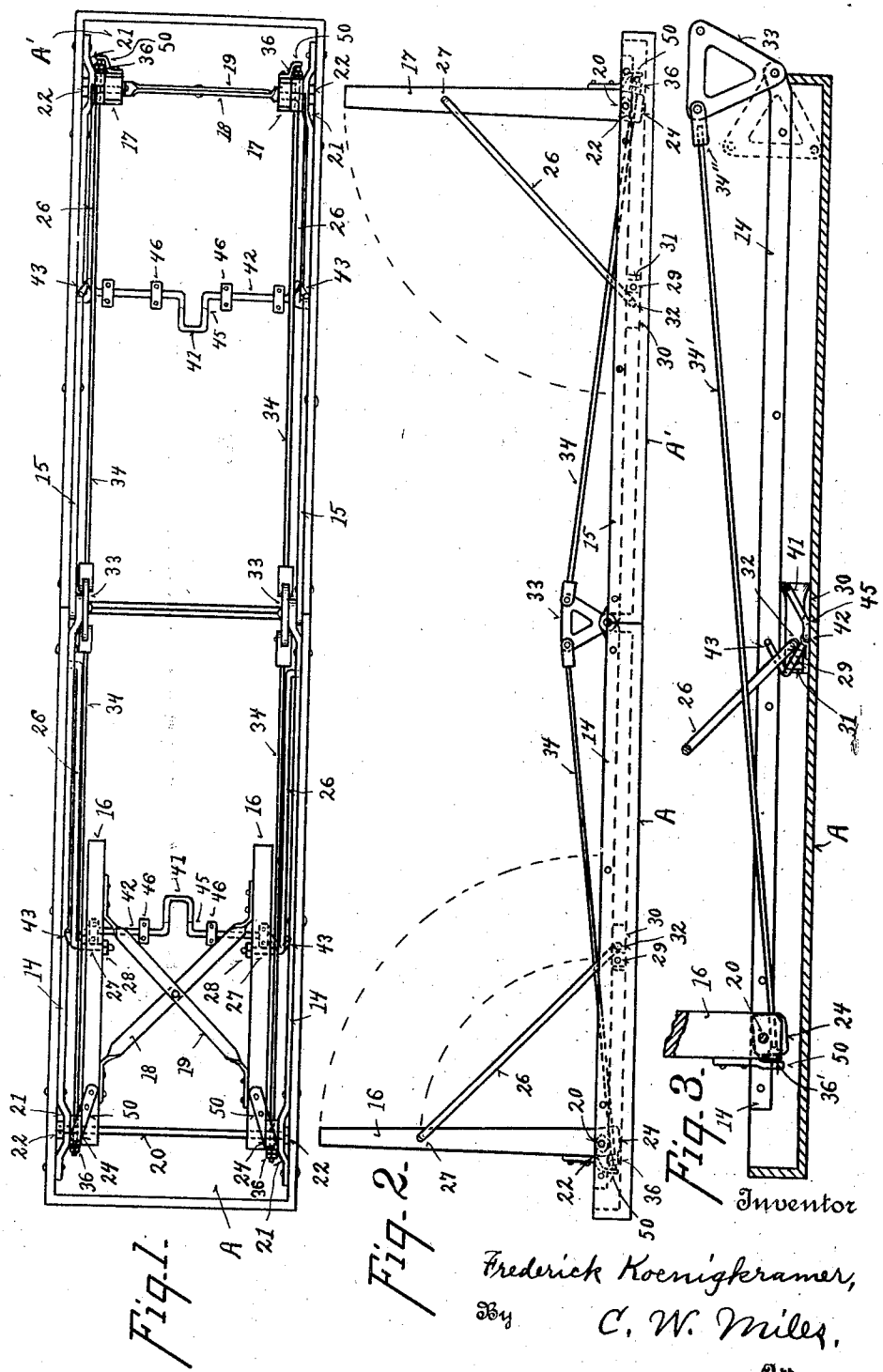


Fig. 1.

Fig. 2.

Fig. 3.

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2 Sheets-Sheet 2

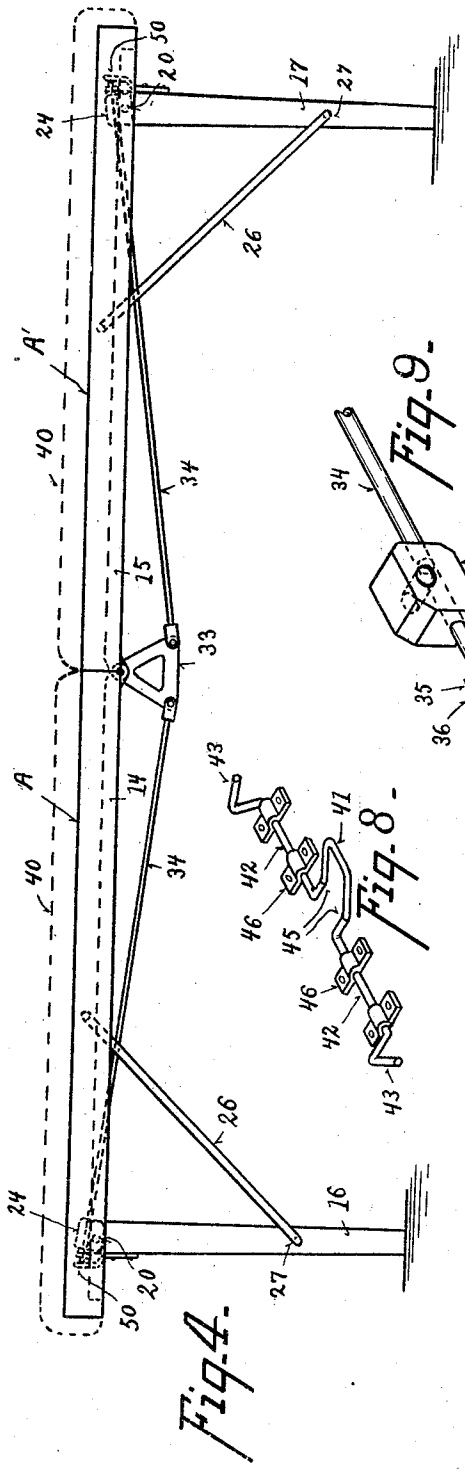


Fig. 4.

Fig. 9.

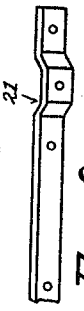


Fig. 6.

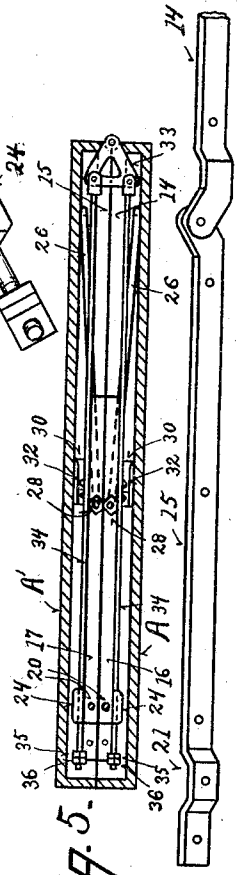


Fig. 5.

Fig. 8.

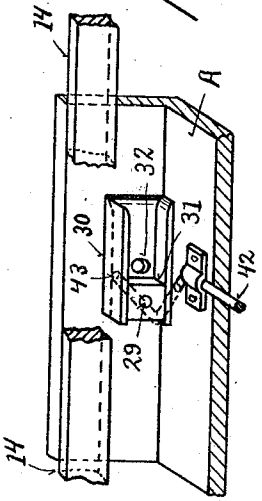


Fig. 7.

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Patented Mar. 24, 1925. 1,530,726

UNITED STATES PATENT OFFICE.

FREDERICK KOENIGKRAMER, OF CINCINNATI, OHIO, ASSIGNOR TO JOHN V. McMANIS, OF KIRKSVILLE, MISSOURI.

FOLDING TABLE.

Application filed May 28, 1919. Serial No. 300,413.

To all whom it may concern:

Be it known that I, FREDERICK KOENIGKRAMER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Folding Tables, of which the following is a specification.

My invention relates to improvements in folding or portable tables suitable for a variety of purposes, as for instance the administration of osteopathic treatments. One of its objects is to provide a table of light weight adapted to fold up and have the appearance of a suit case or traveling case, and which is at the same time of sufficient strength and rigidity to be safely employed as a table to support heavy weights, as for instance adult patients for osteopathic treatments. Another object is to provide improved mechanism to attach the legs in folding relation to the table. Another object is to provide improved truss means to support the central or hinge section of the table relative to the ends or leg supporting sections thereof. Another object is to provide improved leg brace mechanism and releasing and guiding means therefor. Another object is to provide a table which can be readily and conveniently extended and folded. My invention also comprises certain details of form, combination and arrangement, all of which will be fully set forth in the description of the accompanying drawings, in which:

Fig. 1 is a bottom plan of my improved table with one pair of legs in extended and the other pair in folded position.

Fig. 2 is a side elevation of the table in its face down position after having been unfolded and before being set upon its legs.

Fig. 3 is a sectional detail longitudinally of one of the table sections illustrating the folding and brace mechanism.

Fig. 4 is a side elevation of the table in position for use.

Fig. 5 is a central vertical section of the table in folded position.

Fig. 6 is a perspective view of a pair of hinge straps detached.

Fig. 7 is a detail in perspective of the brace locking and releasing means.

Fig. 8 is a detail in perspective of a portion of the brace releasing means.

Fig. 9 is a detail in perspective of a portion of the truss supporting means.

The accompanying drawings illustrate the preferred embodiment of my invention, in which A and A′ represent two sections of a table top which are hinged together at their meeting ends by hinge members 14 and 15, which are preferably in the form of metal hinge straps extending nearly the entire length of the respective top sections at opposite sides thereof, and thereby forming a reenforcement for the top sections and a point of attachment pivotally securing the folding legs 16 and 17 to the respective top sections. The top sections are preferably constructed of wood in the form of shallow rectangular boxes, which fold together so as to encompass and contain the legs and brace and truss members. The leg members 16 are united and braced relative to each other by brace rods 18 and 19 preferably connected together where they cross each other. A hinge rod 20 serves to connect the legs 16 to the hinge straps 14, said straps being provided with offsets 21 with perforations for the passage of the rod 20, and providing room between the straps and the side walls of the top sections to receive and house nuts or blocks 22 which are threaded to the ends of the rod 20. Between the legs 16 and the offsets 21 and pivotally mounted on the rod 20 are metal blocks 24 through which the truss rods 34 also pass and are movable endwise.

Brace rods 26 are bent at right angles at one end and pivotally connected to the legs at 27 and held against displacement relative to the legs by means of nuts 28 threaded to the bent ends of said brace rods. At the opposite ends the brace rods 26 have short sections bent outwardly at right angles, and which bear yieldingly against the inner faces of the side rails of the top section due to the resiliency of said rods 26. Short sections of channel iron 30 are secured to the side rails of the top section between the top board and the hinge strap, and secured to the side rails by means of bolts 29 and nuts 31, thereby forming metal pockets into which the outwardly turned free ends

of the rods 26 are guided when the legs are unfolded and caused to enter and lock in recesses 32 through the members 30. The edges of members 30 at the entrance to said pocket are beveled to assist in guiding the brace rods into and out of the pockets.

Pivotally connected upon the hinge bolts which connect the hinge straps 14 and 15 together are triangular truss members 33, one at each side of the table. Truss rods 34 are pivotally connected at one end to said members 33, and at their opposite ends pass through perforations in the blocks 24 and are provided outside the blocks 24 with lock nuts 35 and 36 which limit the endwise movement of the rods 34 through the blocks 24 and thus transmit strain from said blocks to the members 33 tending to support the central portion of the table from its ends against any strain or weight applied near the center of the table. The truss members 33 and truss rods 34 constitute truss mechanisms at opposite sides of the table which are automatically folded and extended as the table is folded or extended by reason of the pivotal and sliding connections between the truss mechanisms and the table. If desired in place of the lock nuts 35 and 36, the end of the rod 34 may be upset and formed into a head 36′ as illustrated in Fig. 3, and the adjustment of the rods 34′ as to length attained by threading the rod 34′ into the forked head 34″ at the inner or opposite end thereof. The construction, mounting, bracing, and connection of the truss rods for the legs 17 are the same as described for the legs 16. In order to hold the rods 26 against accidental or other displacement, I preferably string the rods 34 so as to pass inside of the rods 26, or with the rods 26 between the rods 34 and the side rails of the top sections, thus positively guiding the free ends of rods 26 on opposite sides.

In practice in setting up the table, it is placed on the floor closed as shown in Fig. 5, and the top sections thrown open to the position shown in Fig. 2, then the legs 16 are lifted into a vertical position and then the legs 17 lifted to a similar position and the table lifted and set upon its legs as shown in Fig. 4. If desired the exterior of the top sections may be provided with upholstering material 40 as shown in Fig. 4.

When it is desired to fold the table, it is first placed top down on the floor as shown in Fig. 2, then the operator by placing his foot for an instant upon the loop 41 of the bent rod 42 causes a partial rotation of said rod in its bearings, whereby the ends 43 of said rod entering between the free ends of the brace rods 26 and the ribs of the member 30 act as cams and lift the outwardly turned free ends of rods 26 out of the recesses 32 and permit the legs 16 to be folded into the top section A. The loop 41 of the opposite rod 42 is then depressed by the operator to release the brace rods 26 of the legs 17 and permit the legs 17 to be folded into the top section A′. The top sections are then ready to be folded one upon the other to the position Fig. 5, and during the operation the triangular members 33 turn upon their hinge axles so as to fold inside of the top sections, while the rods 34 are thrust endwise through their recesses in the blocks 24 to permit said movement of the member 33. When the table is unfolded as indicated in Fig. 4 the lock nuts 35 are drawn tight against the blocks 24 at the upper ends of the legs 16 and 17 so that the rods 34 and member 33 are under tension. It will be noted that the loops 41 are bent at 45 to an obtuse angle, and that the bearings 46 are placed some distance from the ends of the loop 41. These provisions are so that the rod 42 will have a normal position of rest when the table is unfolded, in which the extreme ends 43 of rod 42 are in engagement with the ends of rods 26 and the bends 45 rest under slight tension against the inside of the top board with the loop 41 extended outwardly from the top board. When the end loop is pressed in contact with the top board, the bend 45 acts as a fulcrum but also enables a partial rotation of rod 42 to take place, and as soon as pressure on loop 41 is released it tends to return to normal position. The hinge straps, legs, and truss mechanism can all be assembled together and then slipped into position with reference to the top sections and bolted in position to the side rails thereof.

Metal brackets 50 attached to the upper ends of the legs 16 and 17 as illustrated in Figs. 1, 2, and 3, serve when the legs are in the unfolded position to cover or cap the ends of the truss rods 34 or 34′ and the lock nuts 35 and 36 or the heads 36′ and to thus prevent movement endwise of the rods 34 or 34′ relative to the blocks 24, and in this manner prevent top sections A and A′ from folding upon their hinge connections should an attempt be made to lift the table by grasping it at some point intermediate of the legs to lift it from the floor. When the legs are folded into the top sections the members 50 move with the legs so as to uncap the ends of the truss rods and permit them to move endwise in the blocks 24 as the top sections fold together.

The mechanism herein illustrated and described is capable of considerable modification without departing from the principle of my invention.

What I claim is:

1. A folding table comprising a pair of top sections hinged together by hinge straps which extend along the inside of the side rails of said top sections to near the opposite ends of said top sections and also con-

stitute means of attachment for folding legs to support said top sections in the open position and to fold within said top sections in the closed position, and brace rods pivotally connected at one end to said legs intermediate of the ends of said legs and the opposite ends of said brace rods being guided along channels formed by said hinge straps from open to folded position and means to lock said brace rods to said top sections when the legs are in the open position.

2. A folding table comprising a pair of top sections hinged together at one end and provided near their opposite ends with legs adapted to be folded within said top sections, brace rods connected at one end to said legs intermediate of their ends and at their opposite ends being turned outwardly and movable in guide channels carried by said top sections, locking recesses at one extremity of said channels to engage the outwardly turned ends of said braces, and means carried by said top sections to release said brace rods from said locking recesses in pairs when it is desired to fold said table.

3. A folding table comprising a pair of top sections hinged together at their adjacent ends upon a single hinge axis with legs adapted to be folded within said top sections, a truss member pivotally attached to said top sections at the hinged ends thereof, truss rods pivotally connected to said pivotally attached truss member, and extending to and having sliding relation with the opposite ends of said top sections.

4. In a folding table a folding truss mechanism comprising truss members adapted to be folded within the top sections of the table having triangularly arranged points of attachment one of which serves to attach said members to the hinged ends of the top sections and the other two of which serve to pivotally connect thereto truss rods which rods are in turn connected near opposite ends of the respective top sections in sliding relation thereto.

5. In a folding table a folding truss mechanism comprising truss members adapted to be folded within the top sections of the table having triangularly arranged points of attachment one of which serves to attach said members to the hinged ends of the top sections and the other two of which serve to connect truss rods to said truss member, and truss rods respectively connected at one end to said truss member and at the opposite end to the outer end of one of the top sections, the connection at one end of said truss rods being a sliding connection.

6. A folding table comprising a pair of top sections hinged together at one end and provided near their opposite ends with legs adapted to be folded within said top sections, brace rods connected at one end to said legs intermediate of their ends and at their opposite ends being turned outwardly and movable in guide channels carried by said top sections, locking recesses at one extremity of said channels to engage the outwardly turned ends of said braces, means carried by the top sections to release said brace rods from said locking recesses when it is desired to fold the table, and folding truss mechanism serving to support the central portion of said table from its ends, and also to prevent lateral displacement of said brace rods.

7. In a folding table a folding truss mechanism comprising truss members adapted to be folded within the top sections of the table having triangularly arranged points of attachment one of which serves to attach said members to the hinged ends of the top sections and the other two of which serve to connect truss rods to said truss member, and truss rods respectively pivotally connected at one end to said truss member and at their opposite ends by sliding connections to the outer ends of the respective top sections, folding legs to support said table, and means controlled by the movement of said legs to lock said truss rods against sliding movement when said legs are in the unfolded position.

8. A folding table comprising a pair of top sections hinged together at one end and provided near their opposite ends with legs adapted to be folded within said top sections, brace members to lock said legs in their unfolded position, a folding truss mechanism comprising truss members hinged to said top sections and pivotally connected to truss rods respectively connected by sliding connections to the outer ends of said top sections, and means controlled by the position of said legs to lock said truss rods against sliding movement relative to the top sections when said legs are in their unfolded positions.

9. A folding table comprising a pair of top sections hinged together by hinge straps which extend along the inside of the side rails of said top sections to near the opposite ends of said respective top sections to constitute means of attachment for folding table legs and also form with said top sections guide channels to guide the free ends of brace rods carried by said table legs, table legs hinged in pairs to the outer ends of said hinge straps, brace rods pivotally attached at one end to said table legs with their opposite ends held resiliently in said guide channels to travel from open to folded position, and locking recesses at the ends of said guide channels into which the free ends of said brace rods automatically enter when the table legs are in the open position.

10. A folding table comprising a pair of top sections hinged together at one end and provided near their opposite ends with legs

adapted to be folded within said top sections, brace rods connected at one end to said legs intermediate of their ends and at their opposite ends movable along guides carried by said top sections, means to automatically lock said brace rods at one extremity of their movement along said guides to firmly lock the table and legs in the open position, and means carried by said top sections to release said brace rods from their locked relation in pairs when it is desired to fold said table.

In testimony whereof I have affixed my signature.

FREDERICK KOENIGKRAMER.