R. M. LAMBIE.
Folding-Table.

No. 208,912. Patented Oct. 15, 1878.

Fig. 1.

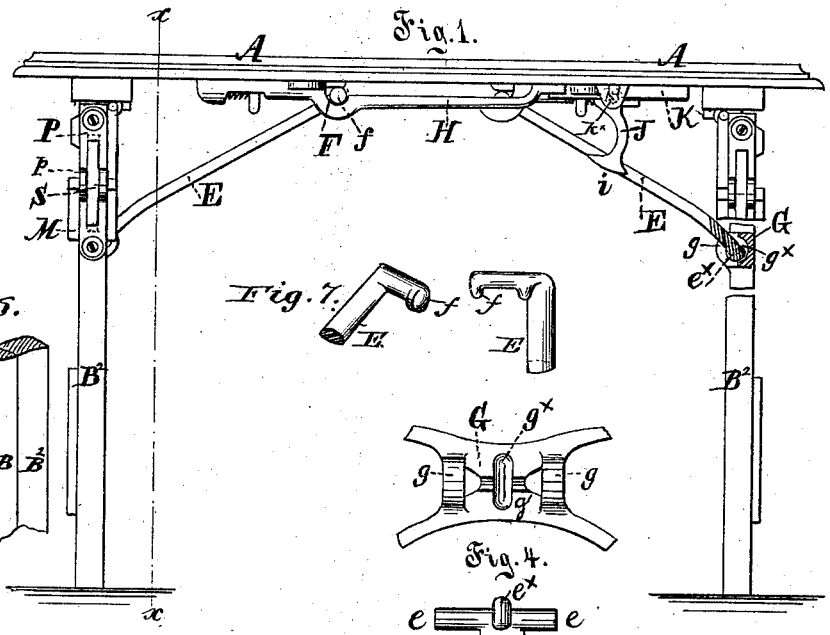


Fig. 6.

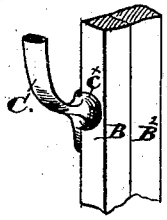


Fig. 7.

Fig. 4.

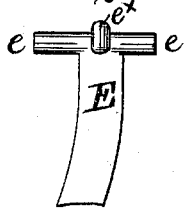


Fig. 2.

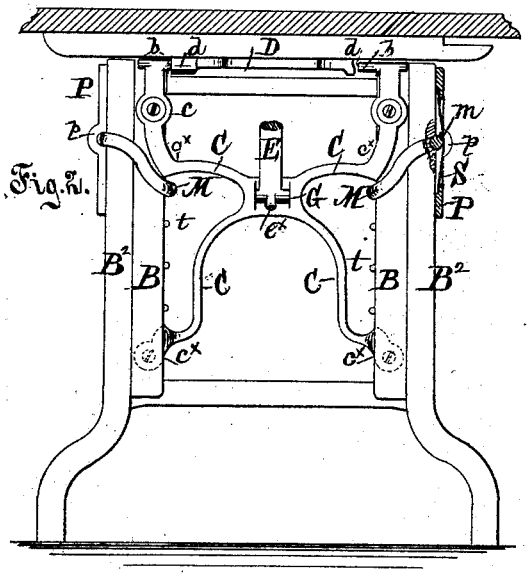


Fig. 3.

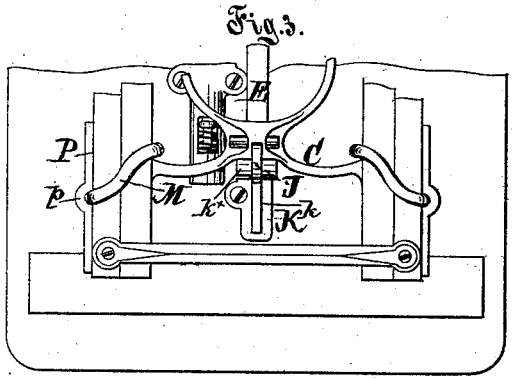
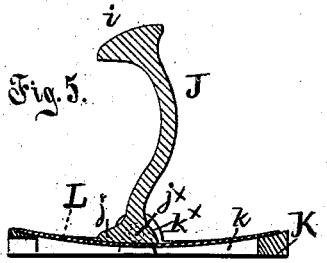


Fig. 5.



Witnesses:
E. R. Brown
L. Lees

Inventor:
Robert M. Lambie
By E. R. Brown,
Attorney.

UNITED STATES PATENT OFFICE.

ROBERT M. LAMBIE, OF NEW YORK, N. Y.

IMPROVEMENT IN FOLDING TABLES.

Specification forming part of Letters Patent No. **208,912**, dated October 15, 1878; application filed October 31, 1877.

To all whom it may concern:

Be it known that I, ROBERT M. LAMBIE, of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Folding Tables, and that the following is a full, clear, and exact description thereof.

My invention relates particularly to folding tables similar to those for which Letters Patent were heretofore granted to myself and Jasper E. Lambie and Patrick Munde, No. 150,330, dated April 28, 1874, and to myself and George F. Sargent, No. 171,145, dated December 14, 1875.

In the first-mentioned patent each pair of legs is made in two sections, arranged to slide in connection with each other, so that the table may be adjusted to different heights. In the last-mentioned patent the hinge-pivots are formed on the upper ends of the legs. The two legs of each pair are connected by a horizontal cross-brace, and also a center brace, in which is a socket of peculiar construction, as therein described; but no provision is made for raising and lowering the top of the table and adjusting it to different heights.

The present invention is applicable to tables embracing the folding and the adjustable features referred to.

The invention consists in a novel construction of the center brace of the leg-frame, and in forming the hinge-pivots on said brace instead of on the legs; also, in a novel construction and form of the socket for connection with the brace or bar, which supports the legs when at rest, and preserves their proper motion when in the act of being folded or unfolded; and, further, in a novel construction and combination, with the table-top and leg-frame, of a device for holding the legs securely in place when folded against the under side of the table-top; and, still further, in a novel construction and combination, with the sections of the leg-frame, of devices for holding the table at different heights.

The accompanying drawing illustrates the manner of carrying out my invention.

Figure 1 is a side view of a table embodying my improvements. Fig. 2 is a transverse vertical section of the same, taken in the line *x x*. Fig. 3 is a bottom view of the table with the legs folded. Figs. 4 and 5 are detail views, hereinafter referred to. Fig. 6 is a perspective view of a portion of the center brace and leg-frame. Fig. 7 is a detail view of a portion of the arm F.

The table-top A may be similar to that described in the patent of December 14, 1875, No. 171,145. The leg-frames are each made in two sections, arranged to slide one within the other, in a similar manner to that shown in the patent of April 28, 1874, No. 150,330. The section B is hinged to the table-top, and the section B^2 is arranged in connection with it by means of tongues and grooves, so that one may slide within the other, as described in said patent.

The patent of December 14, 1875, No. 171,145, shows the center brace made in one piece with the leg-frame, and the hinge-pivots formed on the upper ends of the legs. In this invention the center brace is a separate piece, made preferably of cast metal, and may be attached to legs made of either wood or metal. The drawing shows this brace C with four arms or branches, diverging from a common center, somewhat resembling the letter **X**. The four arms or branches are perforated near their ends for the admission of screws or bolts, in order to fasten them to the legs. Two of the branches are attached to one leg and the other two branches to the other leg and thus the leg-frame is formed. Near the ends of the branches the metal is thinner than the remainder of the brace, and the thin portions of the two lower branches are on one side of the brace and those on the other two branches are on the opposite side, so that when the parts are in place together the two lower branches bear against the outer sides of the legs and the two upper branches bear against the inner sides. These thin portions or lugs *c* are formed with shoulders $c^{\times}$, for engagement with the corners of the legs. By this construction and mode of attachment of the brace to the legs I obtain the greatest strength where it is most needed.

The upper branches of the brace C are continued beyond the perforations or screw-holes, and are turned inward toward each other, and are made round, and thus constitute hinge-pivots *b*. These pivots *b* engage with sockets

d in a bar, D, of the same form, and in the same manner as shown in the patent No. 171,145, aforesaid. By making them on the brace instead of on the legs, I am enabled to apply them to legs of any suitable description, whether said legs are made of wood or metal.

Another advantage gained by making the pivots on the brace is this: if a pivot should be broken it can be readily replaced by applying a new brace, without the necessity for an entire new leg-frame.

For supporting the legs when at rest, and for preserving their proper motion when in the act of being folded or unfolded, I employ a brace or bar, E, having at one end two projections, *e e*, for engagement with a socket, and at the other end an arm, F, provided with two lips or lugs, *f f*, for engagement with a keeper, H, attached to the under side of the table-top. The brace or bar E and keeper H are similar to those shown in Patent No. 171,145; but the socket for engagement with the projections *e e* differs in form and construction, as I will now describe.

In the patent No. 171,145 the socket has two bearings—one bearing for one of the pivots or studs *e*, and another bearing for the other pivot or stud; and one of said pivots tends to push the leg-frame in one direction, and the other tends to pull it in an opposite direction. It has been found, in practice, that when the socket is made in the form described there is a tendency to twist the leg-frame when in the act of folding or unfolding, and to obviate this is the object of the improved socket in this invention. To this end the socket G is provided with two cylindrical bearing-surfaces, *g g*, for engagement with the studs *e e*, instead of being semi-cylindrical, as in said former patent, so that both of the studs or pivots in this invention exert the same pressure in the same direction at the same time, and all twisting of the frame is prevented, as the pressure of the pivots is uniform on both sides of the center of the frame.

Midway between the cylindrical bearings *g g* is a depression, $g^{\times}$, formed in the central web, *g'*, for engagement with a projection, $e^{\times}$, on the brace E. (See Fig. 4.) This projection $e^{\times}$ is in the form of a segment of a circle, and extends from one side of the brace E, near the extreme end, and slightly beyond the end.

To connect the parts together, the brace E and socket G are held in the position relatively to each other, as shown in Fig. 4, with the flat portion of the brace next to the socket. One of the pivots *e* is first inserted in one of the bearings *g*, and the brace moved toward one side until it lies flat between the two bearings. It is then moved in the opposite direction until the other pivot *e* is engaged with the other bearing *g* and the projection $e^{\times}$ is in line with the depression $g^{\times}$. The position of the brace E is then reversed by swinging it upward, so as to cause the projection $e^{\times}$ to engage with the depression $g^{\times}$, by which means the displacement of the brace from the socket is rendered impossible. While in this position with relation to each other the parts are secured in place on the table.

In the patent to Lambie & Sargent, dated December 14, 1875, No. 171,145, the bearing-surfaces *g g* are semi-cylindrical, and the one toward the center of the table-top is entirely open, like a notch.

It has been found, in practice, that when the keeper H is warped or sprung, and does not perfectly fit the arm F and lips or lugs *f f*, when the legs are folded the pivots or studs *e e* are liable to drop out and become disengaged from the seats or bearing-surfaces *g g;* and when the legs are unfolded again said studs *e e* are liable to bind in said seats *g g* and prevent the easy working of the parts, and in some cases to cause the breaking of some portion of the bar E.

The present invention entirely overcomes this difficulty, in addition to forming a more perfect hinge, and also preventing twisting, as before described.

For holding the legs securely in position when folded against the under side of the table-top, I employ a device constructed and arranged as follows:

Referring to Fig. 5 of the drawing, J represents a bar, one end of which is formed into a hook, *i*, with an inclined outer surface, and the other end forms a foot, *j*, the sole of which is at a right angle with the length of the bar. K is a metal plate, with a longitudinal slot, *k*, running nearly its entire length.

Near the foot *j*, on the bar J, are two studs, $j^{\times}$, projecting in opposite directions. In the plate K, about midway of the length of the slot, are two recesses, $k^{\times}$, one on each side of said slot.

L is a flat metal spring, slightly narrower than the slot *k*, so as to work freely therein, but sufficiently longer to enable its ends to rest firmly on the outer surface of the plate K beyond the ends of said slot. The studs $j^{\times}$ extend transversely to the length of the foot *j*, and, when engaged with the depressions or sockets $k^{\times}$, serve as pivots for the bar J to oscillate upon. When so engaged the spring L is placed in position in the slot *k*, with the ends of the spring resting on the plate K beyond the ends of the slot, and with the sole of the foot *j* resting on the spring. The toe of the foot *j* is sufficiently long and flat to prevent the bar J from moving forward; but the heel of said foot is sufficiently inclined or rounded to allow the bar to move backward a certain distance.

The parts so constructed and arranged constitute the device for holding the legs in position when folded.

The plate K, having the bar J and spring L attached, as described, is secured to the under side of the table-top, with the hook *i* downward, and in such a position as to enable it to engage with the brace C, or other suitable portion of the leg-frame. (See Fig. 1.) When the leg-frame is folded against the un-

der side of the table-top, (see Fig. 3,) a portion of the brace C comes in contact with the inclined outer surface of the hook *i*, and, sliding down said inclined surface, forces the bar J backward far enough to allow the brace to slip beyond the point of the hook, whereupon the spring L, bearing against the foot *j*, forces the bar J forward again, so as to cause the hook *i* to slip over the brace C and prevent the leg-frame from receding. The table may then be turned in any desired position without danger of displacement of the leg-frame until the bar J is moved backward to release it. At the points where the ends of the spring L rest on the plate K shoulders are provided, which prevent displacement of the spring in either direction.

In the patent of April 28, 1874, No. 150,330 aforesaid, the leg-frame was provided with a loop, hinged upon the inner section, and surrounding one leg of the outer section, which was provided with notches, into which the loop was forced successively by means of a spring bearing against the hinged portion of the loop, so as to hold the table at different heights. In order to change the height of the table it was necessary to disengage the loop from the notches by pulling it with the fingers.

In this invention, for the purpose of holding the parts in place when the table is adjusted to different heights, I employ a clevis, M, carried by a plate, P, somewhat similar in construction to the plate K, before described—that is to say, the plate P is formed with a slot, in which works a flat spring, S, and it is provided with depressions *p*, one on each side of the slot, forming bearing-surfaces for the clevis. The length of the clevis is greater than the width of the contiguous portions of the two sections of the leg-frame, and when in position for use it occupies an inclined or diagonal position with relation thereto. On the pivot side or end of the clevis is a projecting lip or tongue, *m*, against which the spring S bears and holds it always in an inclined position, either upward or downward.

The plate P is attached to the outer section of the leg-frame, so that the clevis surrounds a leg of the outer section and also a leg of the inner section, on the inner edge of which it engages with bosses, knobs, or projections *t*, and thus holds the table at the different heights to which it is adjusted. The clevis is also engaged by the upper and lower arms or branches of the center brace, C, by which means the amount of adjustability is limited.

When the table has been adjusted to its greatest height, in order to lower it again it is raised so as to cause the brace C to reverse the position of the clevis and allow the projections *t* to pass freely by it and the table to be lowered to the desired position. Upon reaching the lowest position the brace C again reverses the clevis, so as to place it in position for the table to be again raised when desired.

I do not claim herein anything shown or described in the patent granted to R. M. Lambie and G. F. Sargent, December 14, 1875, No. 171,145.

What I claim as new, and desire to secure by Letters Patent, is—

1. The center brace, C, having its arms or branches provided with the lugs *c* and shoulders $c^{\times}$, and having the hinge-pivots *b b* formed on its upper branches, in combination with the leg-sections B B^2, the plate or bar D and its sockets *d d*, and the table-top A, as herein shown and described.

2. The fastening device consisting of the plate K and its slot *k* and recesses $k^{\times}$, the bar J and its hook *i*, foot *j*, and studs or pivots $j^{\times}$, and the spring L, in combination with a folding leg-frame and a table-top, substantially as and for the purpose herein shown and described.

3. The clevis M, provided with the lip or tongue *m*, the carrying-plate P, and the spring S, in combination with the leg-sections and the center brace, substantially as and for the purpose shown and described.

4. The bearing G, consisting of the curved bearing-ribs *g g* and the central web g^1, having the curved groove $g^{\times}$, adapted to receive and retain the brace E, having the studs or pivots *e e* and the segmental projection $e^{\times}$, as and for the purpose set forth.

R. M. LAMBIE.

Witnesses:
E. R. BROWN,
I. L. HEWLETT.