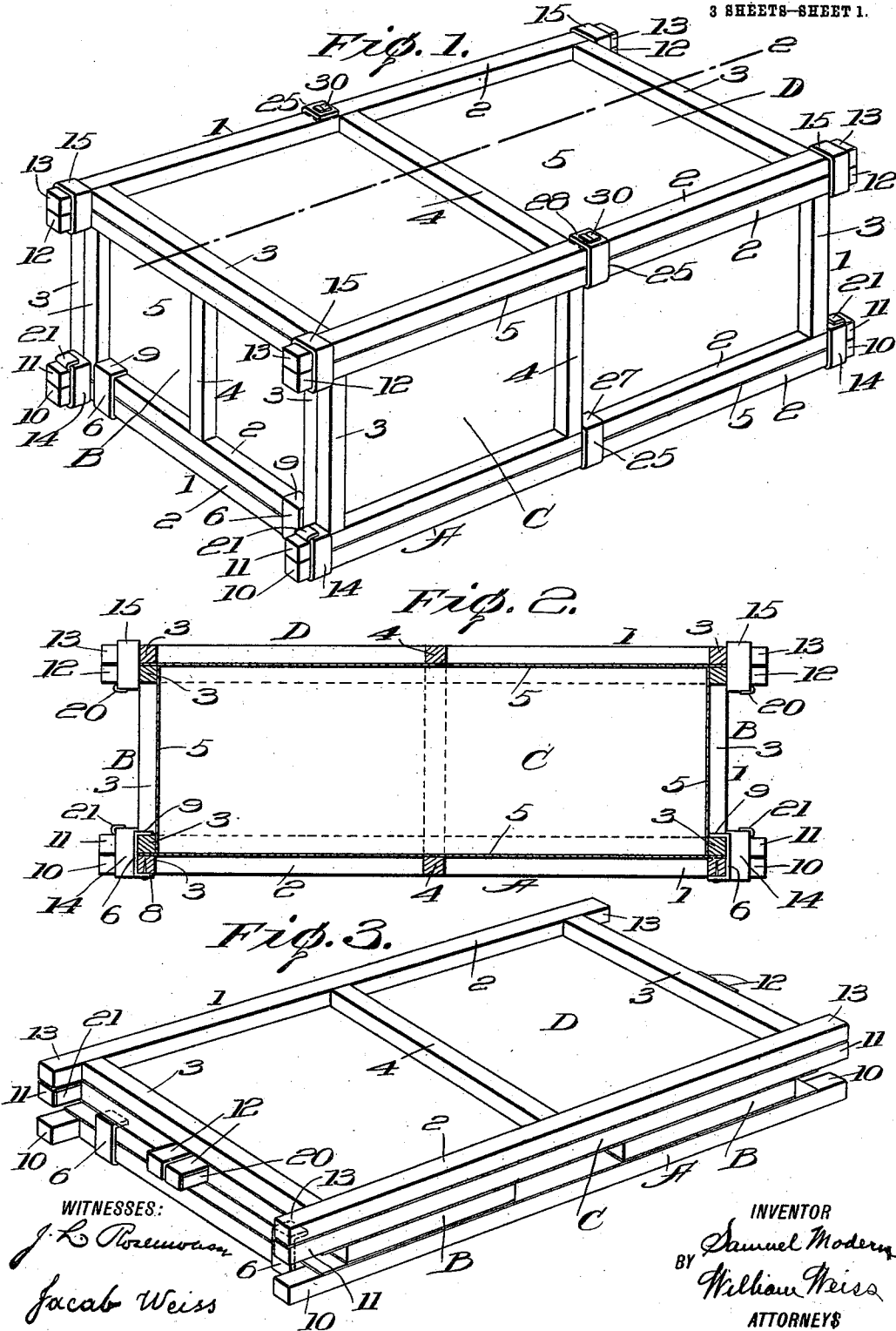


S. MODERN.
COLLAPSIBLE BOX.
APPLICATION FILED FEB. 8, 1910.

979,877.

Patented Dec. 27, 1910.

3 SHEETS—SHEET 1.



WITNESSES:

J. L. Rosenbaum
Jacob Weiss

INVENTOR

Samuel Modern
BY William Weiss
ATTORNEYS

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3 SHEETS—SHEET 2.

Fig. 4.

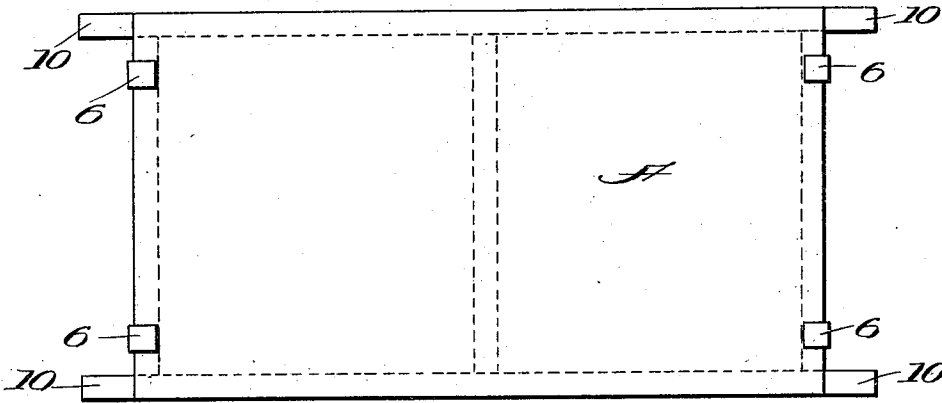


Fig. 5.

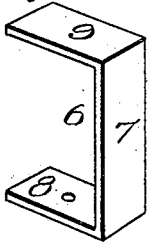


Fig. 6.

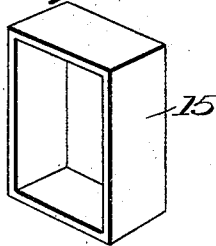


Fig. 7.

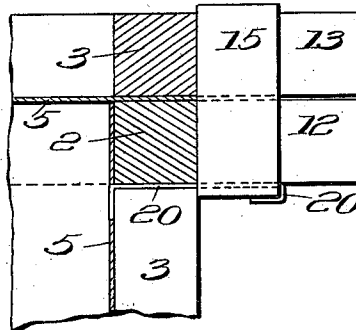


Fig. 9.

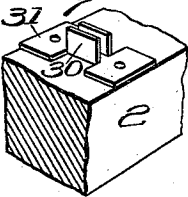


Fig. 8.

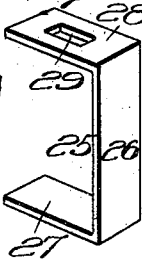


Fig. 10.

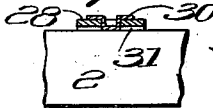
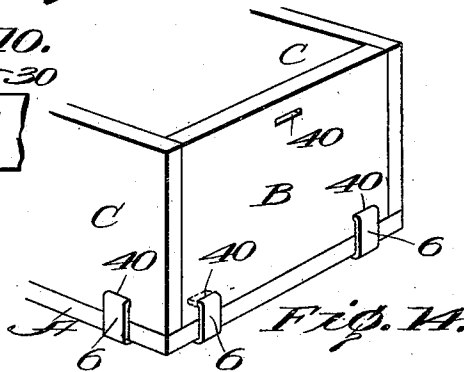
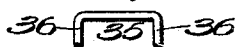


Fig. 11.



WITNESSES:

J. L. Porewarsen
Jacob Weiss

INVENTOR
Samuel Modern
BY William Weiss
ATTORNEY

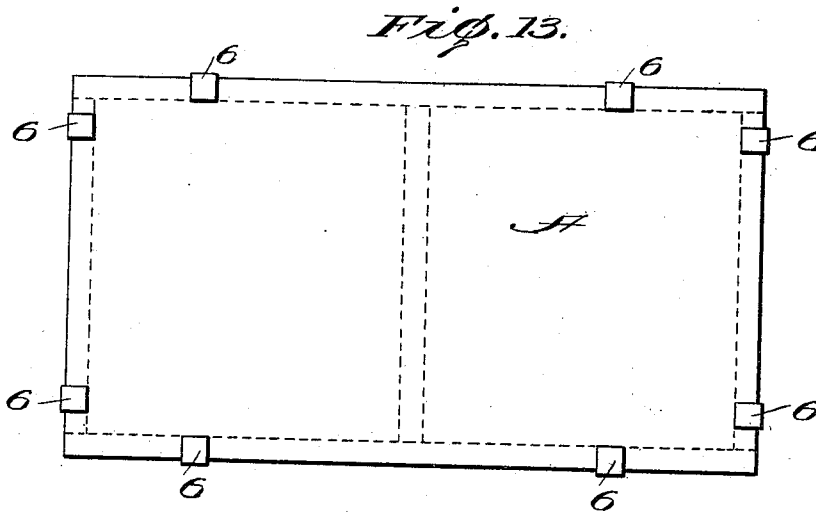
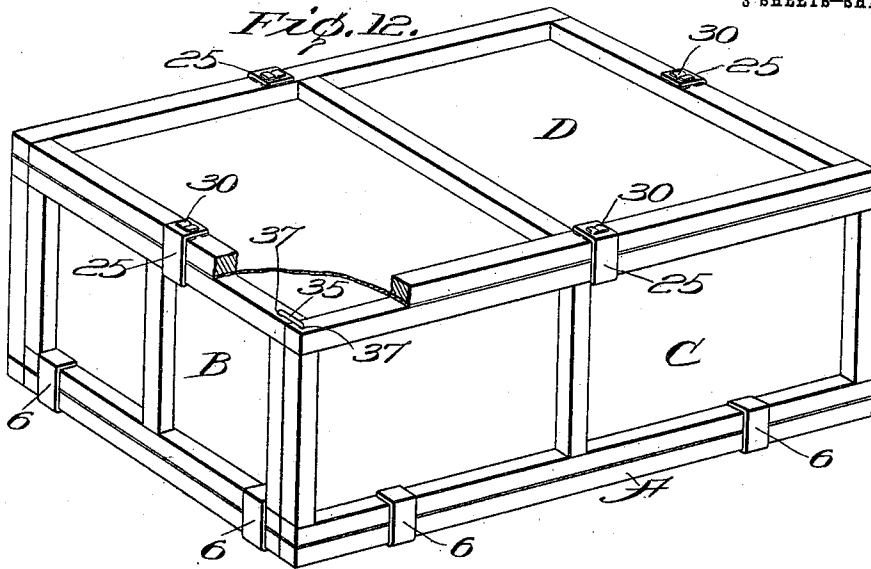
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3 SHEETS—SHEET 3.



Witnesses:
J. L. Rosenwasser
Jacob Weiss

Inventor
Samuel Modern
by William Weiss
Attorney.

UNITED STATES PATENT OFFICE.

SAMUEL MODERN, OF NEW YORK, N. Y.

COLLAPSIBLE BOX.

979,877.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed February 8, 1910. Serial No. 542,727.

To all whom it may concern:

Be it known that I, SAMUEL MODERN, a subject of Austria-Hungary, residing at New York city, in the county of New York and State of New York, have invented a new and useful Collapsible Box, of which the following is a specification.

This invention relates to improvements in collapsible boxes.

One of the objects of the invention is to provide an improved box of this type which may be readily set up in position for use and collapsed into a small and compact bundle when not in use.

Another object is to provide a box of this class which will be light in weight and at the same time strong and durable.

A further object is to provide a box of this class which will be simple in construction and economical in manufacture so that it may be produced at a very low cost.

Other objects will appear from the hereinafter description.

The invention consists in certain novel features of construction and arrangement of parts which will be hereinafter described in the specification and pointed out in the claims.

A desirable embodiment of my invention is illustrated in the accompanying drawings in which the reference characters of the specification indicate the corresponding parts in all the views.

Figure 1 is a perspective view of my improved box set up in position for use. Fig. 2 is a longitudinal section of the box taken on the line 2 of Fig. 1. Fig. 3 is a perspective view of the box in collapsed position. Fig. 4 is a plan view of the bottom of the box. Fig. 5 is a perspective view of one of the cleats for securing the ends and sides to the bottom of the box. Fig. 6 is a perspective view of one of the securing bands which fit over the projecting ends of the bottom, sides and top of the box. Fig. 7 is a detail view showing the means for locking said band in position. Fig. 8 is a perspective view of one of the detachable cleats which are used for securing the top of the box in place. Fig. 9 is a perspective view of one of the locking members for locking said cleats in position on the box. Fig. 10 is a detail sectional view showing how said cleats are locked by said locking members. Fig. 11 is a view of one of the staples for securing the

sides and ends of the box rigidly together before the top is put on. Fig. 12 is a perspective view of a modified form of my improved box. Fig. 13 is a plan view of the bottom of the box shown in Fig. 12. Fig. 14 is a perspective view of a modification.

The box is made up of several independent sections, A, B, C and D, which respectively form the bottom, ends, sides and top of the box. Each of said sections preferably comprises a frame 1, formed by the rails 2 and 3 and the brace 4, which are glued, nailed or secured together in any suitable manner, to the inner surface of which is secured a sheet of thin material 5, which may be wood, fiber, metal, pasteboard, paper or any other suitable material. At the ends of the bottom of the box are located the cleats, 6, each of which comprises the intermediate member 7, and the flanges 8 and 9 respectively, which extend at right angles from the member 7. The cleat is preferably secured to the bottom of the box by means of the nail or screw driven through the flange 8 and into the frame 1. The member 7 of the cleats rests against the end of the bottom A, while the flanges 9 rest above the upper surface of said bottom at a distance sufficient to permit the lower rail of the frames 1 of the ends B of the box to be inserted under the flanges.

The bottom A of the box is provided with end projections 10; the sides C are provided with end projections 11 and 12 while the top D is provided with projections 13 so that when the box is set up in position for use the projections 11 of the sides of the box register with the projections 10 of the bottom thereof and the projections 13 of the top of the box register with the projections 12 of the sides thereof. Securing bands 14 fit over the projections 10 and 11 and secure the sides to the bottom of the box while similar bands 15 fit over the projections 12 and 13 and secure the top to the sides of the box. Each of the cleats 14 is prevented from slipping off of the projections by means of a locking member 22 consisting of a flat piece of flexible material, which fits between the rails 2 and 3 of the side C, of the box and has its inner end bent at right angles against the surface of the rail 3 to prevent it from pulling out, while its outer end extends between the projection 12 and the inside of the band 15 and is bent around

the outside of the band. The cleats 14 are secured in position on the projections 10 and 11 by locking members 21 similar to the locking members 20. The cleats 6 and the bands 14 and 15 are generally sufficient to hold the parts of the box together but when an extra strong box is desired additional cleats 25 may be used. These cleats are somewhat similar to the cleats 6, comprising the intermediate member 26 and the flanges 27 and 28 which extend at right angles from said intermediate member. The flange 28 is provided with an opening 29 to receive the ears 30 of the locking member 31, which is secured to any of the rails 2 or 3 of the top, sides, ends or bottom of the box. The other flange 27 of said cleat engages the edge of the rail against which rests the rail to which said locking member is secured as clearly shown in Fig. 9 of the drawing. When the cleat is thus placed on the box the ears 30 which extend through the opening 29 in the flange 28, are bent over both sides of said opening on to the flange as clearly shown in Fig. 10 of the drawing. These cleats may be placed at various points along the rails 2 and 3 and as many may be used as conditions require. Before the top is put on the box, and especially when the box is being packed, the sides and ends of the box may be held rigidly together at their upper corners by means of staples 35, the ends 36 of which fit in holes 37 formed in the rails 2 and 3 of the ends B and sides C respectively.

In the modification shown in Figs. 12 and 13 of the drawings the projections 10, 11, 12 and 13 and the bands 14 and 15 are dispensed with and the sides C of the box are held in position by the cleats 6, while the top D is held in position entirely by the cleats 25.

In the modification shown in Fig. 14, the bottom, ends, sides and top of the box are each made in one solid piece and the ends and sides are provided with slots 40 to receive the flanges 9 and 27 of the cleats 6 and 25, respectively.

The box is assembled in the following manner: The ends B of the box are first placed on the bottom A, with the outer face of the rails 2 resting against the members 7 of the cleats 6 and the flanges 9 of said cleats, engaging the upper face of said rails; the sides C are then placed on the bottom A, with the projections 11 of said sides registering with the projections 10 of the bottom; the bands 14 are then slipped over said projections and the ends of the locking members 21 are bent over the edges of said bands; the staples 35 are then placed in position at the upper corners of the sides and ends of the box; the top D is then placed on the upper edges of the ends B and sides C, with the projections 13 of the top registering with

the projections 12 of the sides; the bands 15 are then slipped over said projections and the ends of the locking member 20 are bent over the edges of said bands; the cleats 25 are then placed in position. In assembling the box shown in Fig. 12 the sides C are placed in position before the ends. The box is now completely assembled and the parts are held rigidly and firmly together without the use of nails, screws, cord or other objectionable fastening means.

It may here be noted that the words "top," "bottom," "sides," "ends," "upper," and "lower," "inner" and "outer" are relative terms and merely for convenience in the foregoing description. It is quite immaterial in what position the box may rest or what position the parts may assume with relation to the box.

I do not limit myself to the exact construction and arrangement of parts herein shown and described, as it is obvious that variations and modifications may be made without departing from the spirit of the invention.

Having described my invention I claim:

1. A box comprising a bottom, ends and sides, means for securing said ends to said bottom, projections on said bottom, projections on said sides registering with said bottom projections, bands fitting over said projections and securing said sides to said bottom and means for securing the upper edges of the sides and ends of the box together.

2. A box comprising a bottom, sides, ends, means for securing said ends to said bottom, projections on said bottom, projections on said sides registering with said bottom projections, bands fitting over said projections and securing said sides to said bottom, means for locking said bands on said projections, and means for securing the upper edges of said sides and ends together.

3. A box comprising a bottom, sides and ends, means for securing said ends to said bottom, projections on said bottom, projections on said sides, registering with said bottom projections, locking members secured to the box, comprising strips of flexible material, bands fitting over said projections and said strips, said strips having their ends bent over the edges of said bands to lock said bands in position on said projections, and means for securing the upper edges of said sides and ends together.

4. A box composed of a plurality of sections, a projection on one of said sections, a projection on another of said sections registering with the aforesaid projection, a locking member secured to one of said sections comprising a strip of flexible material, a band surrounding said projections and said strip to secure said projections together, said strip having its end bent over the edge of said band to lock said band in position on said projections.

5. In a box comprising a plurality of sections, a projection on one of said sections, a projection on another of said sections, registering with the aforesaid projection, a band fitting over said projections and securing said sections together, and means for locking said band on said projections.

6. A box composed of a plurality of sections, a projection on one of said sections, a projection on another of said sections registering with the aforesaid projection, and a band surrounding said projections and securing said sections together.

7. In a box composed of a plurality of sections, a cleat comprising an intermediate member and inturned flanges, one of said flanges having an opening formed therein, a locking member secured to one of said sections and provided with flexible ears extending through said opening and bent down on said flange to lock the cleat on said section, the other flange of the cleat engaging the other section whereby the two sections are secured together.

8. In a box composed of a plurality of sections, means for securing the end and side sections to the bottom of the box, the upper corners of said side and end sections being provided with holes, a staple the projecting ends of which are adapted to fit in said holes

and hold the upper edges of said sides and ends together.

9. In a box composed of a plurality of sections, means for securing the end sections to the bottom of the box, means for securing the side sections to the bottom of the box, projections at the upper edges of said side sections, projections on the top section registering with the aforesaid projections, bands surrounding said projections and securing said sides and top together.

10. In a box comprising a plurality of sections, each section comprising a frame formed by edge rails and a sheet of thin material secured to the inner surface of each of said frames, cleats secured to the bottom sections of the box, said cleats having inturned flanges engaging the lower rails of said frames to secure the end sections to said bottom section, projections on said bottom and said side sections, bands surrounding said projections and securing said sides to said bottom projections on said side and top sections, and bands surrounding said sections and securing said top to said sides.

SAMUEL MODERN.

Witnesses:

J. L. ROSENWASSER,
JACOB WEISS.