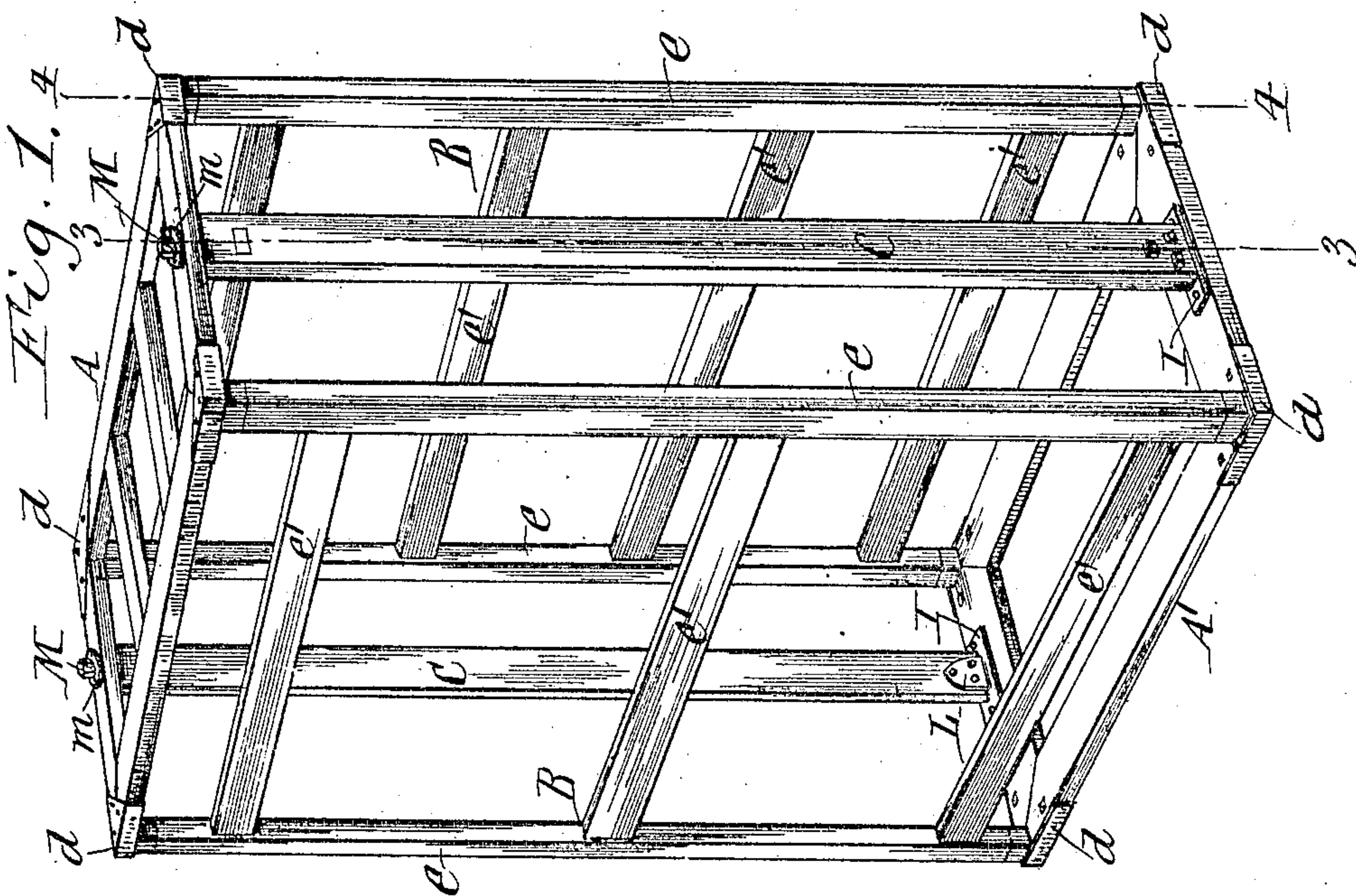
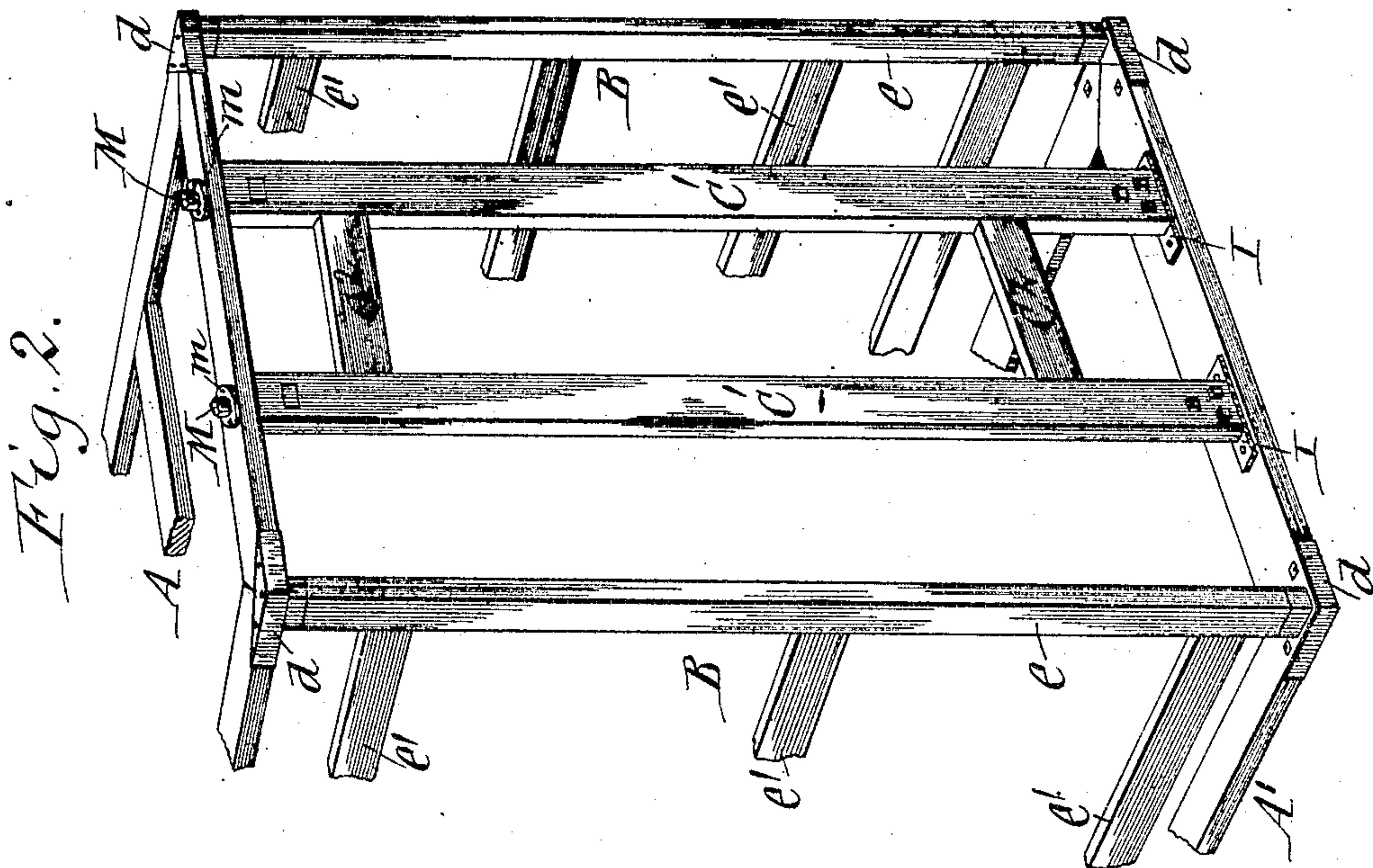


No. 844,649.

PATENTED FEB. 19, 1907.

W. H. BARNES.
KNOCKDOWN CRATE.
APPLICATION FILED SEPT. 7, 1905.

2 SHEETS—SHEET 1.



Witnesses:
Louis W. Grady.
May E. McWhirter

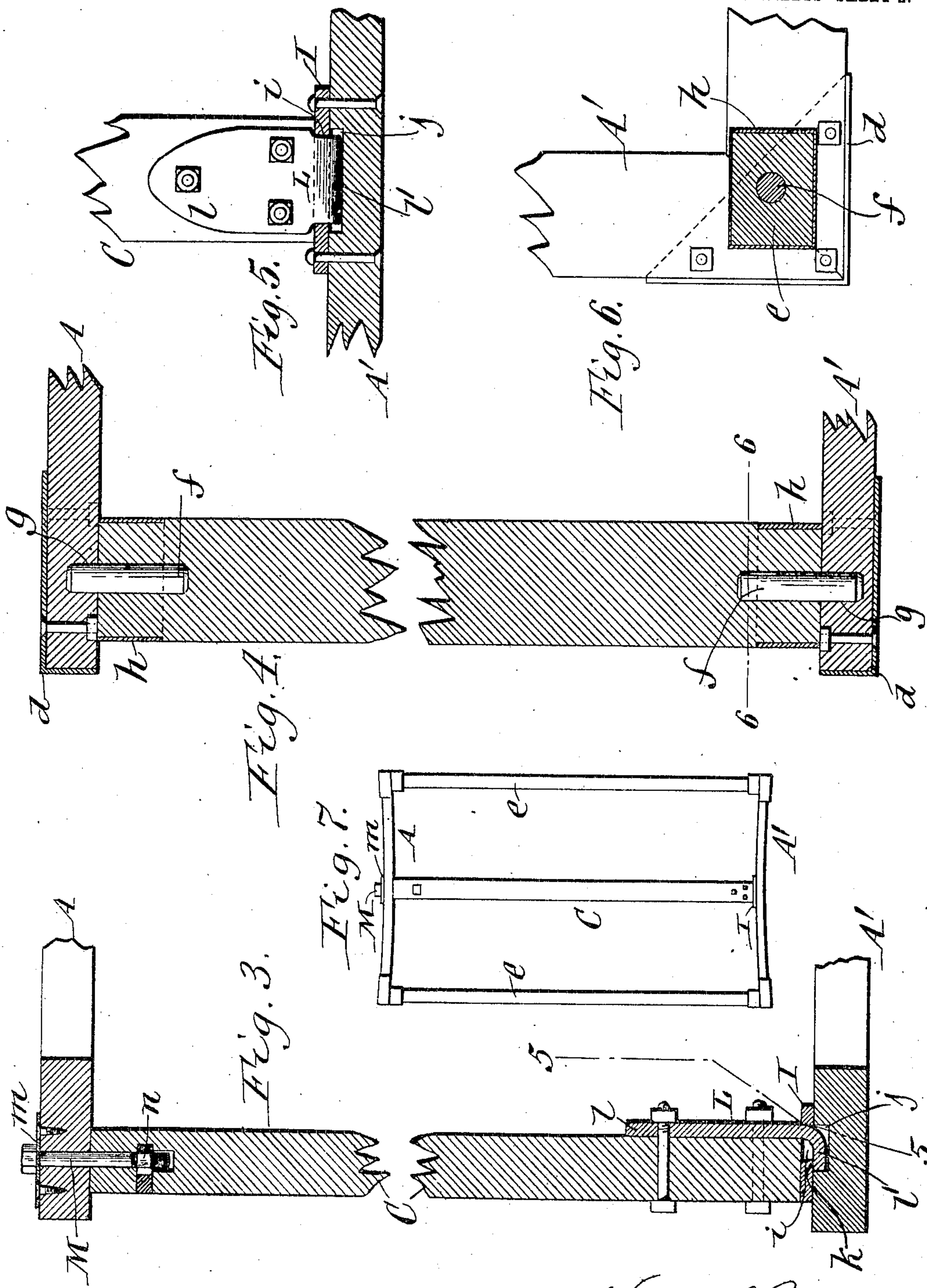
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UNITED STATES PATENT OFFICE.

WALTER H. BARNES, OF BUFFALO, NEW YORK, ASSIGNOR TO LARKIN CO.,
OF BUFFALO, NEW YORK, A CORPORATION OF WEST VIRGINIA.

KNOCKDOWN CRATE.

No. 844,649.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed September 7, 1905. Serial No. 277,294.

To all whom it may concern:

Be it known that I, WALTER H. BARNES, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Knockdown Crates, of which the following is a specification.

This invention relates to a knockdown crate which is more particularly designed for shipping furniture, although the same may also be used to advantage for shipping other articles.

The object of this invention is the production of a crate of this character which is very strong and durable in construction, which can be quickly and easily assembled for use or dismembered to permit of storing the same compactly, and which can be produced at comparatively low cost.

In the accompanying drawings, consisting of two sheets, Figure 1 is a perspective view showing one form of knockdown crate embodying my improvement. Fig. 2 is a fragmentary perspective view showing a slight modification of my invention applied to a knockdown crate. Figs. 3 and 4 are fragmentary vertical sections, on an enlarged scale, in lines 3 3 and 4 4, Fig. 1. Fig. 5 is a fragmentary vertical section in line 5 5, Fig. 3. Fig. 6 is a horizontal section in line 6 6, Fig. 4. Fig. 7 is an elevation of the crate, on a reduced scale, showing the manner of springing the top and base when the parts are assembled.

Similar letters of reference indicate corresponding parts throughout the several views.

The body, main frame, or inclosing members of the crate, as shown in Fig. 1, are constructed of wood and consist, essentially, of a horizontal top and base A A', which are preferably of rectangular form, two vertical opposing side pieces or walls B B' of substantially rectangular form, each of which is interposed between the top and base at the corresponding longitudinal edges thereof, and two opposing vertical tie-bars C, each of which is arranged midway between the side pieces and interposed between the top and base at the corresponding transverse edges thereof.

The top and base may be variously constructed; but for the sake of lightness they are made in the form of skeleton or open work. The corners of the top and base are preferably reinforced by means of corner-

irons d d, which are firmly secured thereto by bolts or otherwise.

Each of the side pieces preferably consists of vertical posts e, which form the longitudinal or corner edges thereof, and horizontal bars or stretchers e', connecting the posts. Each of these posts is provided at opposite ends with dowels or pins f, which fit into sockets or recesses g, formed in the corresponding corners of the top and base. In order to prevent the wood around these dowels from splitting, metal collars or ferrules h are applied to the ends of the posts.

The top and base are held with their sockets in engagement with the dowels of the post by means of the tie-bars, which latter are detachably connected at opposite ends with the top and base. The means for thus connecting the tie-bars with the top and base are so constructed that these parts can be readily connected to facilitate the erection of the crate for use and easily disconnected when it is desired to unpack the article which is inclosed by the crate. The means for this purpose shown in the drawings are constructed as follows:

I represent coupling-plates secured to the upper sides of the base at the transverse edges thereof by rivets or otherwise and each provided with a slot i, which extends in a direction transversely of the crate. Underneath each of these plates and extending from the inner edge of its slot beyond the outer edge thereof the base is provided in its upper side with an undercut recess j, forming a shoulder k on the under side of said plate adjacent to the outer edge of its slot. L represents a coupling-hook which is secured with its shank l to the inner side of the adjacent tie-bar at the lower end thereof and has its bill l' curved downwardly and outwardly toward the outer side of the tie-bar. By placing the bill of this hook over the slot in the coupling-plate while the tie-bar is in an outwardly-inclined position and then raising this bar into a vertical position the bill will pass downwardly through the slot of the plate and engage with the shoulder k thereof. When the parts are in this position the tie-bars and the base are held against vertical displacement with reference to each other by reason of the tie-bar and hook bearing against the top and bottom of the coupling-plate, and these parts are also held against horizontal transverse

movement with reference to each other by reason of the bill of the hook bearing against the inner side of the slot in the coupling-plate and the outer side of the recess *j* in the base, thereby forming a practically rigid connection between these parts of the crate.

After each tie-bar has been thus coupled at its lower end with the base its upper end is connected with the top. The preferred means for this purpose which are shown in the drawings consist of a clamping-bolt *M*, which passes with its body downwardly through corresponding openings in the top and the tie-bar and bears with the head at its upper end against a washer or bearing plate-*m*, secured to the upper side of the top, while its lower or threaded end engages with a screw-nut *n*, which is anchored or set in the adjacent part of the tie-bar.

The interior of the crate members may be provided with various pads, brackets, or filling-pieces which are adapted to fit the particular article which is being packed for the purpose of securely holding the same in the crate.

The tie-bars are preferably slightly shorter than the posts of the side pieces. By this means either the top and base, or both, are sprung inwardly in tightening the clamping-bolts *M*, as shown somewhat exaggerated in Fig. 7, for illustrating this feature, thereby insuring a firm and reliable joint between the side pieces and the top and base which effectually prevents these parts from becoming separated accidentally.

When it is desired to unpack the article from the crate, the bolts *M* of both tie-bars are removed. When this is done, the top may be easily removed from the upper ends of the side pieces and the latter and the tie-bars may be detached from the base, thereby completing the uncrating of the article. This operation of knocking down the crate and unpacking the article inclosed thereby can be effected expeditiously and without the aid of any tools other than that required for turning the bolts *M*. After the crate has been thus knocked down the bolts *M* are screwed into the anchored nuts *n*.

The construction shown in Fig. 1 contains single tie-bars for connecting the top and base which is suited for comparatively small crates; but when the crates are of considerable width it is desirable to employ double tie-bars *C' C'*, which may either be independent of each other or connected by horizontal stretchers *C² C²*, as shown in Fig. 2.

My improved crate aside from being strong and durable in construction is composed of

comparatively few parts, thereby effecting a saving in time while handling the same. Furthermore, there are no small loose parts which are liable to become lost.

I claim as my invention—

1. A knockdown crate comprising a top, a base, two side pieces detachably interlocked at opposite ends with the opposite side edges of the top and base and tie-bars which are connected with the top and base at their end edges and only between the side edges thereof, said tie-bars differing in length from the side pieces whereby the top and base are deflected at the central part thereof and caused to be securely held in place on the side pieces, substantially as set forth.

2. A knockdown crate comprising a top and a base each of which is provided on its inner side with sockets, side pieces arranged between the side edges of the top and base and each having dowels at opposite ends which are removably seated in the sockets of the top and base at one side thereof, and tie-bars arranged between the ends of the top and base and each tie-bar being detachably connected with the central parts only of the top and base at the ends thereof, and said bar being shorter than the side pieces, whereby the central parts of the top and base are sprung toward each other upon applying the tie-bars thereto and cause the top and base to be securely held in place on the side pieces, substantially as set forth.

3. A knockdown crate comprising a top and a base each of which is provided on its inner side with sockets, side pieces arranged between the side edges of the top and base and each having dowels at opposite ends which are removably seated in the sockets of the top and base at one side thereof, and tie-bars arranged between the ends of the top and base and each tie-bar being detachably connected with the central part only of the top and base at the ends thereof by means of a hook at the lower end of the bar engaging with a shoulder on the base and a bolt connecting the upper end of the bar with the top, and said bar being shorter than the side pieces, whereby the central parts of the top and base are sprung toward each other upon applying the tie-bars thereto and causing the top and base to be securely held in place on the side pieces, substantially as set forth.

Witness my hand this 5th day of September, 1905.

WALTER H. BARNES.

Witnesses:

FRANCIS A. RANSOM,
THEO. L. POPP.