

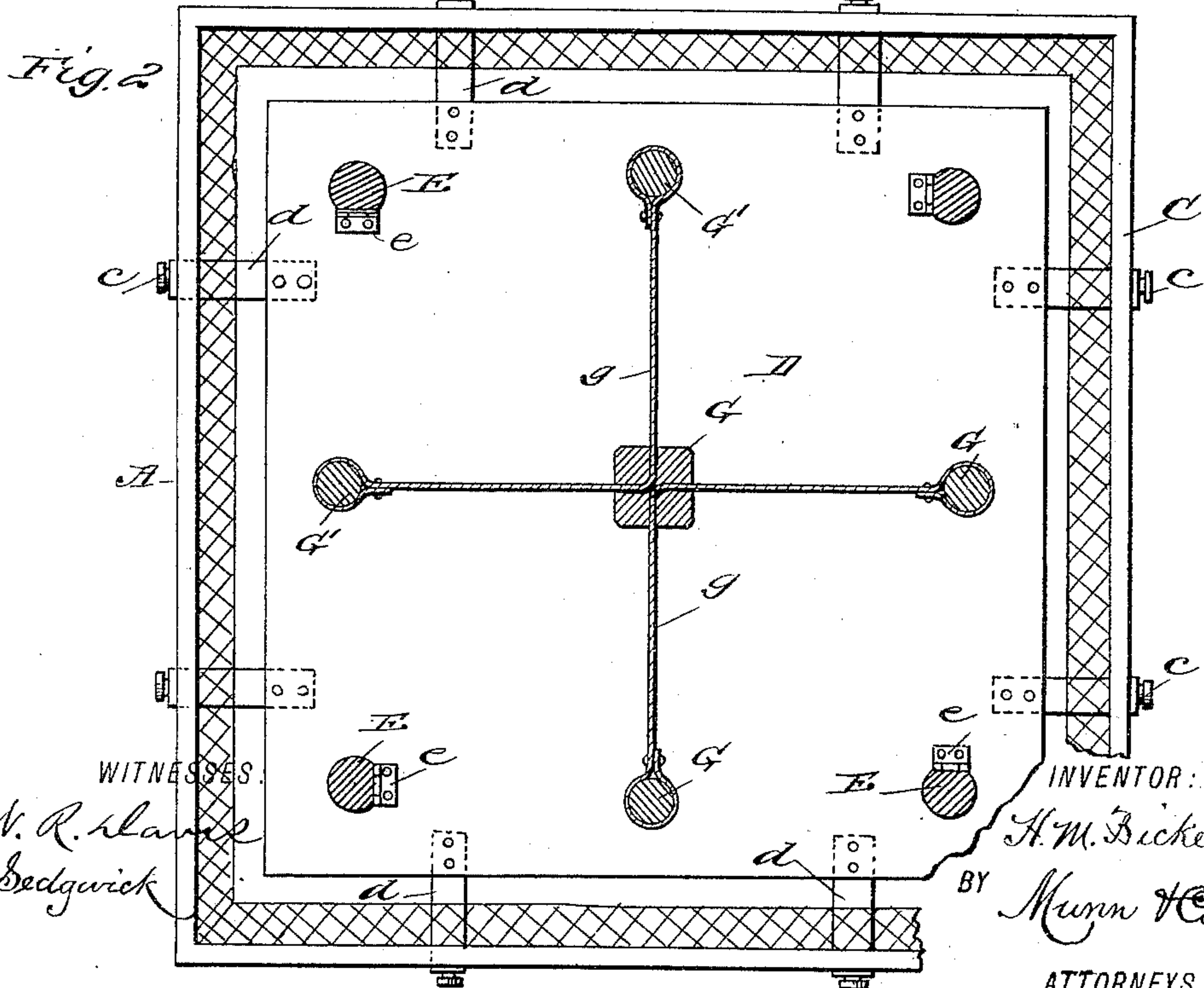
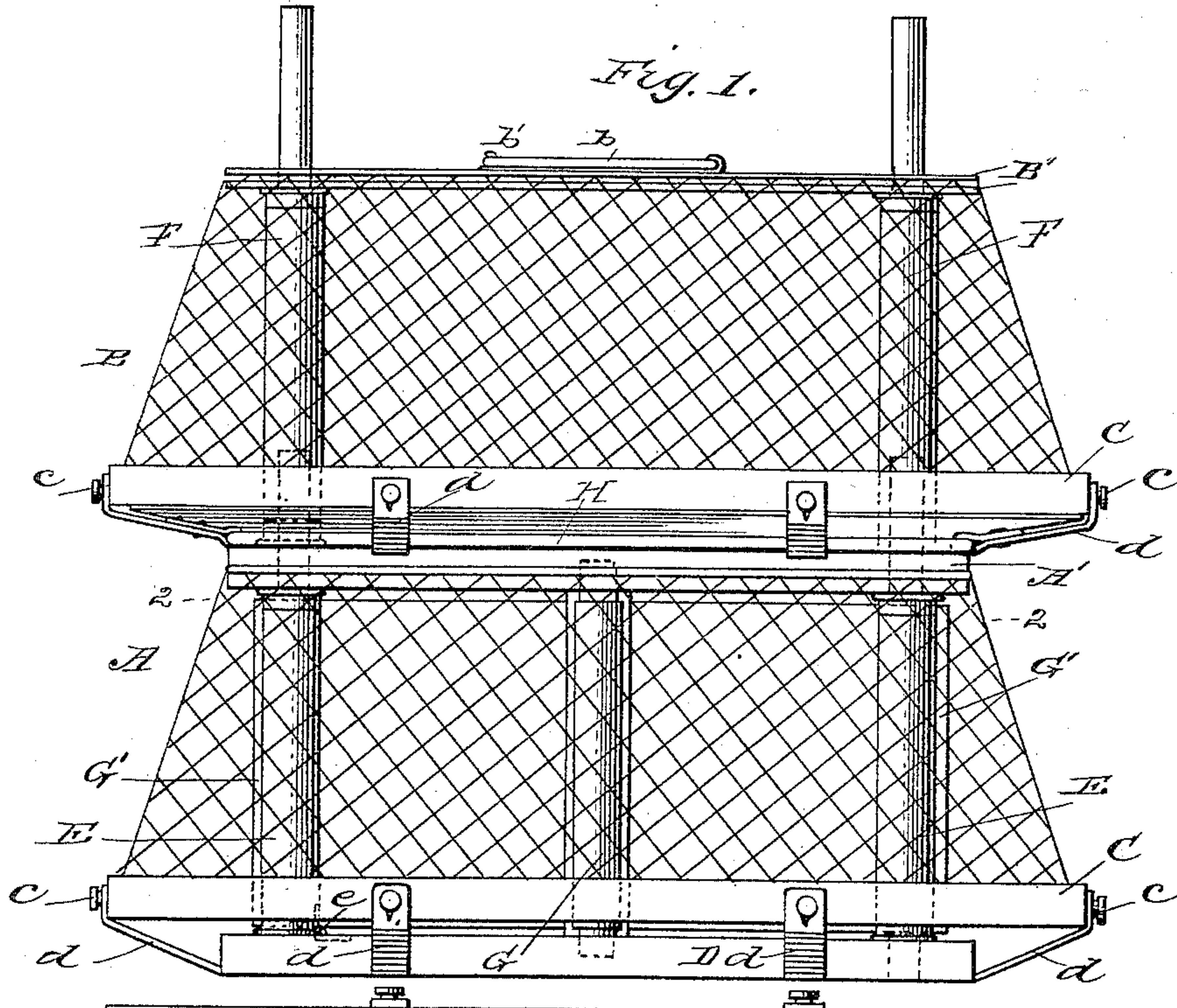
(No Model.)

3 Sheets—Sheet 1.

H. M. BICKEL.
KNOCKDOWN CRATE.

No. 444,999.

Patented Jan. 20, 1891.



WITNESSES.

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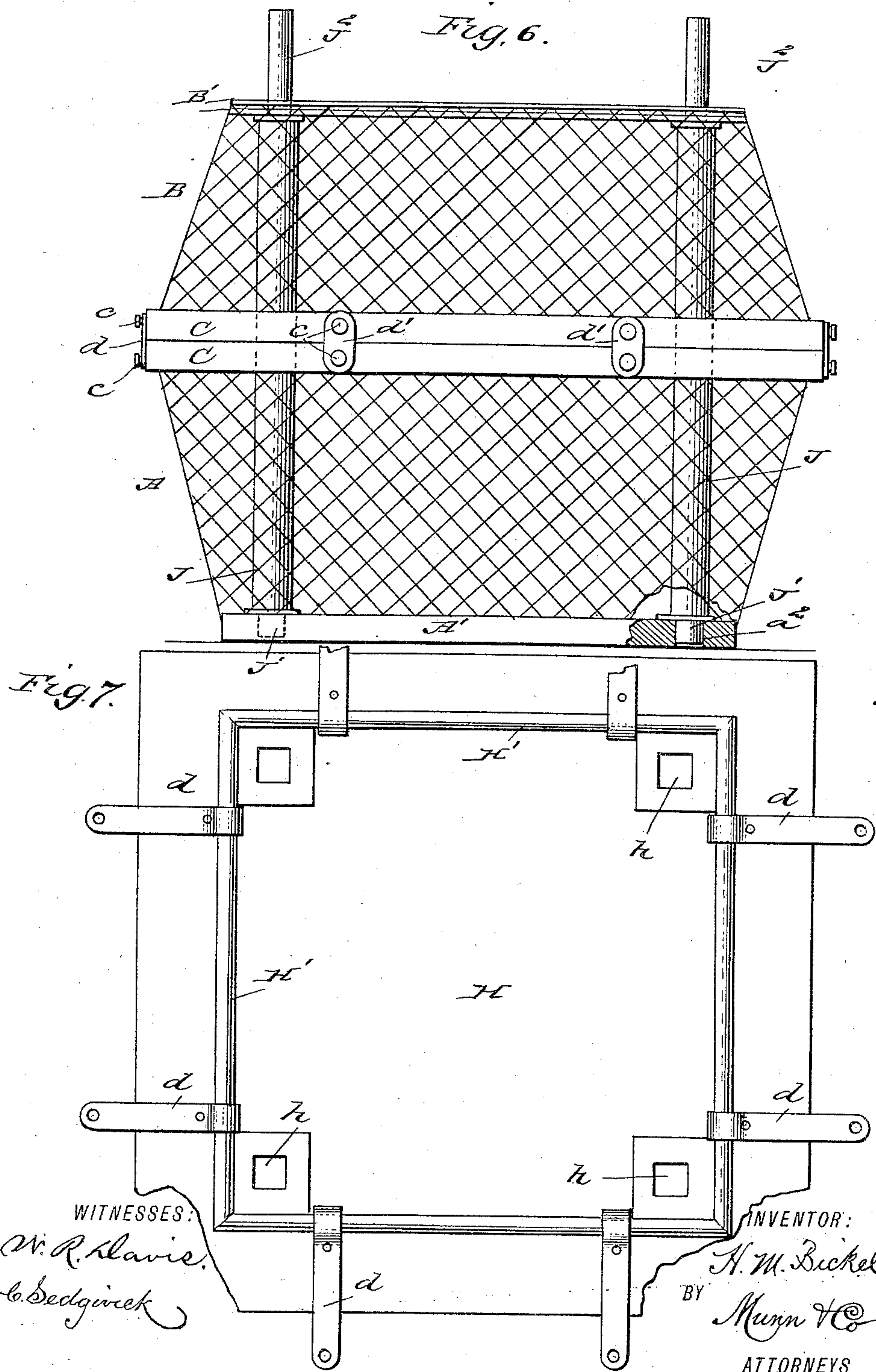
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UNITED STATES PATENT OFFICE.

HENRY M. BICKEL, OF LARNED, KANSAS.

KNOCKDOWN CRATE.

SPECIFICATION forming part of Letters Patent No. 444,999, dated January 20, 1891.

Application filed August 29, 1890. Serial No. 363,422. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. BICKEL, of Larned, in the county of Pawnee and State of Kansas, have invented a new and Improved Knockdown Crate, of which the following is a full, clear, and exact description.

My invention relates to improvements in that variety of crates which are used in the shipment of live poultry, birds, and small animals, and also in the shipment of fruits, vegetables, and other perishable products; and the object of my invention is to produce a simple, substantial, and inexpensive crate, which may be very conveniently used, will safely carry the poultry, animals, or articles therein, which may be advantageously used for exhibiting the articles or creatures contained therein, and which when not in use may be packed into a very small compass, so that it may be cheaply stored or may be cheaply returned empty from the point to which it has been shipped.

To this end my invention consists in certain features of construction and combinations of parts, which will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a double crate embodying my invention, showing the same set up and ready for use. Fig. 2 is a horizontal section of the same on the line 2 2 of Fig. 1. Fig. 3 is a vertical cross-section of the same. Fig. 4 is a vertical cross-section of the lower member of the crate. Fig. 5 is a side elevation of the crate with the various parts packed together ready for shipment or storage. Fig. 6 is a side elevation of the crate adapted to contain larger animals or poultry than when put together in the manner shown in Fig. 1, and Fig. 7 is a broken detailed plan view of one of the detachable floors used in connection with the crate.

I have shown two single crates A and B, the crate A having two opposite flat sides, the smaller of the sides being closed by the ceiling or floor A' and the larger of which is open, the remaining sides of the crate being beveled, as shown, and covered by a wire-net-

ting, although other material may be used. The modified form of crate B corresponds in size and shape to the crate A, having one open flat side, as shown, and a smaller flat side closed by wire-netting, which is strengthened by the two plates B', extending around the corners of the smaller flat side of the crate B and serving to brace the netting covering said side.

The floor or ceiling A' of the crate A is provided centrally with sliding doors a, which move in the slideways a', so that the doors may be easily opened to insert any creatures or articles into the crate. The floor or ceiling A' is also provided at the corners with slots or perforations a², adapted to receive the ends of suitable supporting-posts, as described below. The small flat side of the crate B is also provided with a swinging door b, which is held closed by a suitable catch b', and by means of which any articles or animals may be inserted into the crate. The larger flat sides of the crates A and B, which are open, are strengthened by the side strips C, which inclose said open sides, and the outer sides of the side strips are provided with buttons c, which engage the binding-straps, as described below.

A detachable floor D is used in connection with the crate, the floor corresponding in size to the small or flat sides of the crates A and B, and fixed to the lower side of the floor near the outer edges are straps d, by which the floor may be connected with the buttons c and side strips C of the crates A or B.

The floor D is provided with beveled perforations D' near the corners thereof, and hinged to the floor by the hinges e are the vertical posts E, the lower ends of the posts being arranged to project into the perforations D' of the floor, and the upper ends of the posts are reduced at E', so as to project through the ceiling or floor A' of the crate A, thus forming shoulders to support said floor or ceiling, and also providing means for connecting with the supporting-posts above with the view of holding the different supporting-posts firmly in a vertical position and to prevent the different crates from sliding sidewise. The shoulders thus formed may be provided with suitable wear-plates e', if desired.

Detachable posts F are used in connection with the crates, the said posts having vertical bores F' at the bottom to receive the reduced ends of the posts E, and having reduced upper ends F², which extend through the smaller side or top of the crate B, thus forming shoulders which support said crate and also providing means for connecting with the supporting-posts of another crate if it should be desired to mount another crate thereon. The shoulders formed on the posts F² are provided with suitable wear-plates f.

The floor D has a post G centrally erected therein in such a manner that it may be easily removed, and posts G' are adapted to be supported near the edges of the floor D near the four sides thereof, the said posts being connected with the central post G by a web g, which is preferably of cloth, but which may be of any suitable material, the web corresponding in width to the height of the crate A, and by the above means the said crate is divided into four compartments, and it is obvious that it may be divided into a greater or less number of compartments in the same manner, if desired. The webs G pass through suitable slots in the center post G, so that they may be easily regulated or moved, as desired.

A detachable floor H is also used in connection with the crate, the floor being preferably made of cloth, although it may be made of other flexible material, and the floor is strengthened by the rib or rod H', which extends around the floor near the outer edge, and the said rib is adapted to fit within the side strips C of the crates A or B. The floor is also provided with straps d, adapted to connect with the buttons c of the side strips C, and just inside the rib H' and near the corners of the floor are holes h, through which the supporting-posts of the crate may pass.

When the crate is used in the manner shown in Fig. 6, with the side strips C of the crates A and B abutting, the supporting-posts J are used, said posts being long enough to reach through the two crates and to extend above the top, so as to connect with another crate. The posts J are provided at the bottom with reduced ends J', adapted to rest in the perforations a² of the floor or ceiling A', and the upper ends are reduced, as shown at J², so as to extend through the upper portion of crate B, thus forming suitable shoulders to support said crate.

The crate may be used either as a double crate, as shown in Fig. 1, or as a single crate, as shown in Figs. 4 and 6, which latter form is specially adapted for larger animals or fowls than the form shown in Figs. 1 and 4. When the crates are to be erected in the manner shown in Fig. 1, the floor D is placed upon the ground or other support and the supporting-posts E are turned into a vertical position, and if a crate is to be subdivided, the posts G and G', with their connecting-web, are erected upon the floor in the manner described. The crate A is then placed upon the

floor D with the open side down, so that the ends E' of the posts E will project through the perforations a² in the corners of the floor or ceiling A', and the straps d of the floor D are attached to the buttons c on the strips C of the crate A. The flexible floor H is then placed upon the floor or ceiling A'. The detachable posts F are then placed upon the reduced ends E' of the posts E, the crate B is placed upon the floor H, the open side of the said crate being next the floor, the crate being supported by the posts F, and the straps d on the floor H are fastened to the buttons c on the strips C of the crate B. The crate is then ready for use, and any articles or creatures to be inserted therein may be passed into the crate through the doors a and b.

The different crates may be separately handled and the floors may all be made like the two described.

Instead of placing the crate B on the top of the crate A, as described, a series of crates A may be piled one on the other and the floor H may be used or not, as desired, or the crates B may be arranged in the same manner, the crates A and B differing only in the form of top or partition closing the small end thereof.

When a crate is to be used for larger creatures or articles, the crate A is placed with the floor or ceiling A' upon the ground or support, the posts J are erected in the corners thereof with the ends J' extending into the perforations a², the crate B is placed over said posts, so that the upper ends of the posts will extend through corresponding perforations b² in the upper crate, and the two side strips C of the crates A and B are fastened together by the straps b.

When the crates are to be stored or shipped empty, one crate is packed within the other, the floor D is placed within the inner crate, the posts E are turned flatwise upon the floor, the detachable parts of the crates are packed within the inner crate, and the floor H is strapped across the open side of the inner crate, the said crates being held together by straps attached to the buttons c.

I have described crates of peculiar form. The form shown, having the opposite flat sides and the beveled sides, I find most convenient for use; but the form may be changed as desired without departing from the principle of my invention, as it is essential that the crates should be formed in such manner that one may be packed within the other, and it is evident that if the walls of the crates are formed of wire or other thin ventilated material there must be supporting-posts for sustaining the crates which are independent of the crate-walls.

The crates cannot be advantageously packed unless the walls are made of thin material, such as woven wire, perforated tin, cloth, &c.

It is obvious that instead of the straps d and buttons c suitable hooks and eyes may be used for fastening the various parts of the

crate together, and it will be seen, too, that the different floors shown and described may be used interchangeably.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent--

1. A crate having inclined flexible side walls of open-work, a permanent closure in its smaller end provided with a series of post-openings and a door, posts for preventing the crate from collapsing endwise, and a marginal strip around its larger open end provided with fastening devices, substantially as set forth.

2. A double crate consisting in two single crates having inclined flexible side walls of open-work, permanent closures secured in the smaller ends of the crates and each provided with a series of post-apertures, marginal strips C around the larger ends of the crates, fastenings on the two strips for connecting the crates together, and posts having reduced ends fitting said apertures and preventing the crates from collapsing endwise, substantially as set forth.

3. A crate having a removable closure for one end, provided with folding hinged posts to engage the opposite end when extended, substantially as shown and described.

4. A crate having a removable closure for its open end, provided with folding hinged posts tenoned at their distal ends, fastenings for said removable closure, and apertures in the permanently-closed end of the crate, through which said tenoned ends of the posts project, substantially as shown and described.

5. A crate having tapering side walls formed of flexible open-work material, a permanent closure for the smaller end of the crate, provided with post-openings, and a removable closure for the larger open end of the crate, also having post-openings, said removable closure being of about the same diameter as the permanent closure to permit it to rest thereon, flexible fastenings to connect said removable closure with the open end of the

crate, and posts tenoned at their ends to enter the apertures in the two closures and prevent the crate from collapsing, substantially as shown and described.

6. A partition for crates, consisting of a central post having longitudinal slots and two webs passing movably through the slots and provided at their ends with posts parallel with the central post, substantially as shown and described.

7. The combination, with a crate having a suitable floor, as shown, of a removable partition for the crate, said partition comprising a central post and posts arranged near the edge of the floor, the latter posts and said central post being connected by a suitable web, substantially as described.

8. A double crate comprising two similar crates having beveled side walls and opposite flat sides, one of which is open, as shown, a detachable floor adapted to extend beneath the lower crate, said floor having means for attaching it to the side walls of the crate, posts supported upon the floor and extending through the top of the lower crate, a flexible floor adapted to be mounted upon the lower crate, said floor having openings near the corners for the passage of the posts and having means for connecting it with the side walls of the upper crate, and supporting-posts for the upper crate, said supporting-posts having vertical bores in their lower ends to rest upon the lower posts and having reduced upper ends, substantially as described.

9. The combination, with a crate having an open side, as shown, of a flexible floor closing the said side and having an encircling rib H', adapted to enter the open side of the crate, and provided with means for attachment to the side walls of the crate, substantially as described.

HENRY M. BICKEL.

Witnesses:

E. L. CHAPMAN,
GEORGE W. FINNEY.