

June 19, 1923.

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FOLDABLE AND COLLAPSIBLE CONTAINER

Filed July 27, 1921

2 Sheets-Sheet 1

Fig. 1.

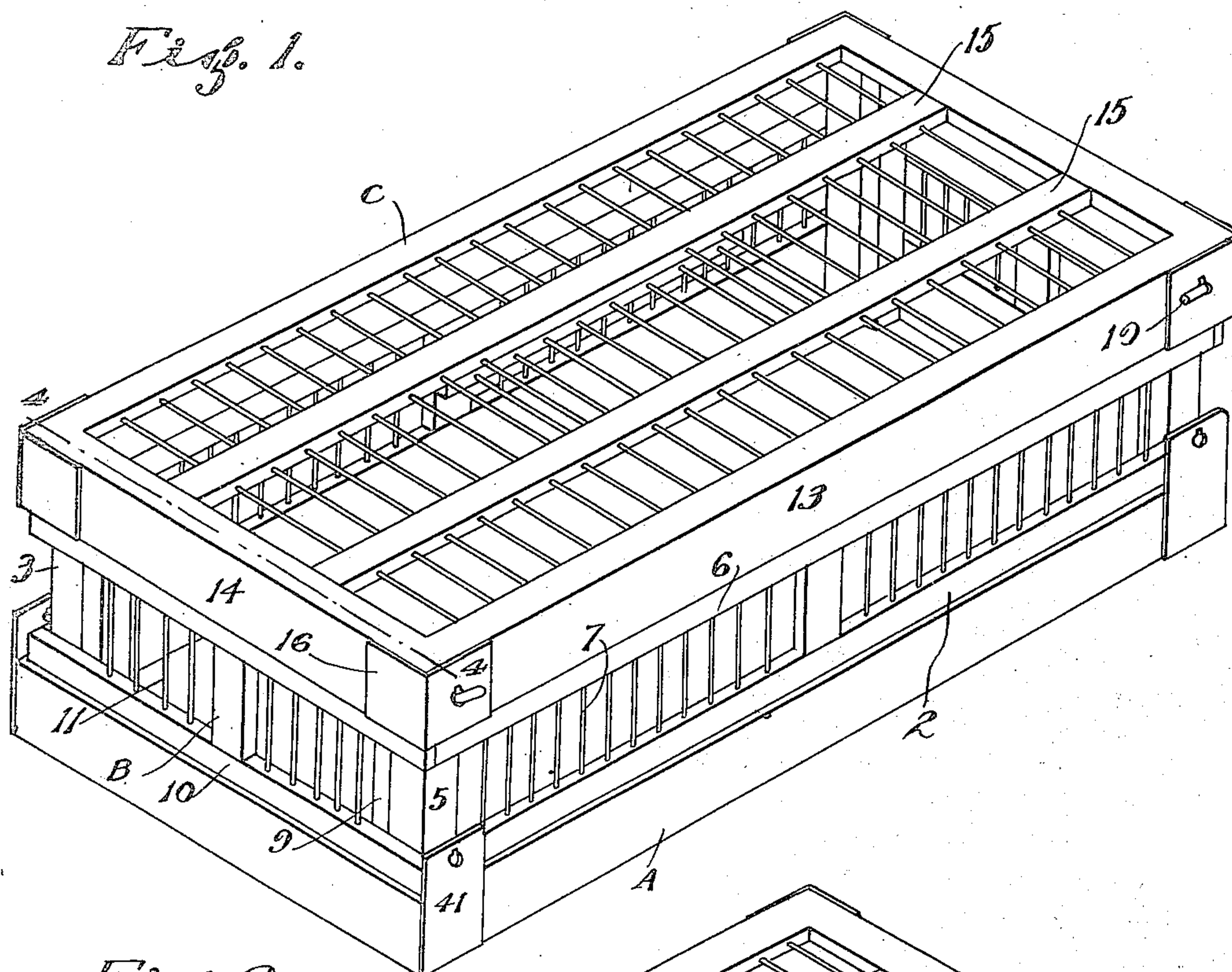
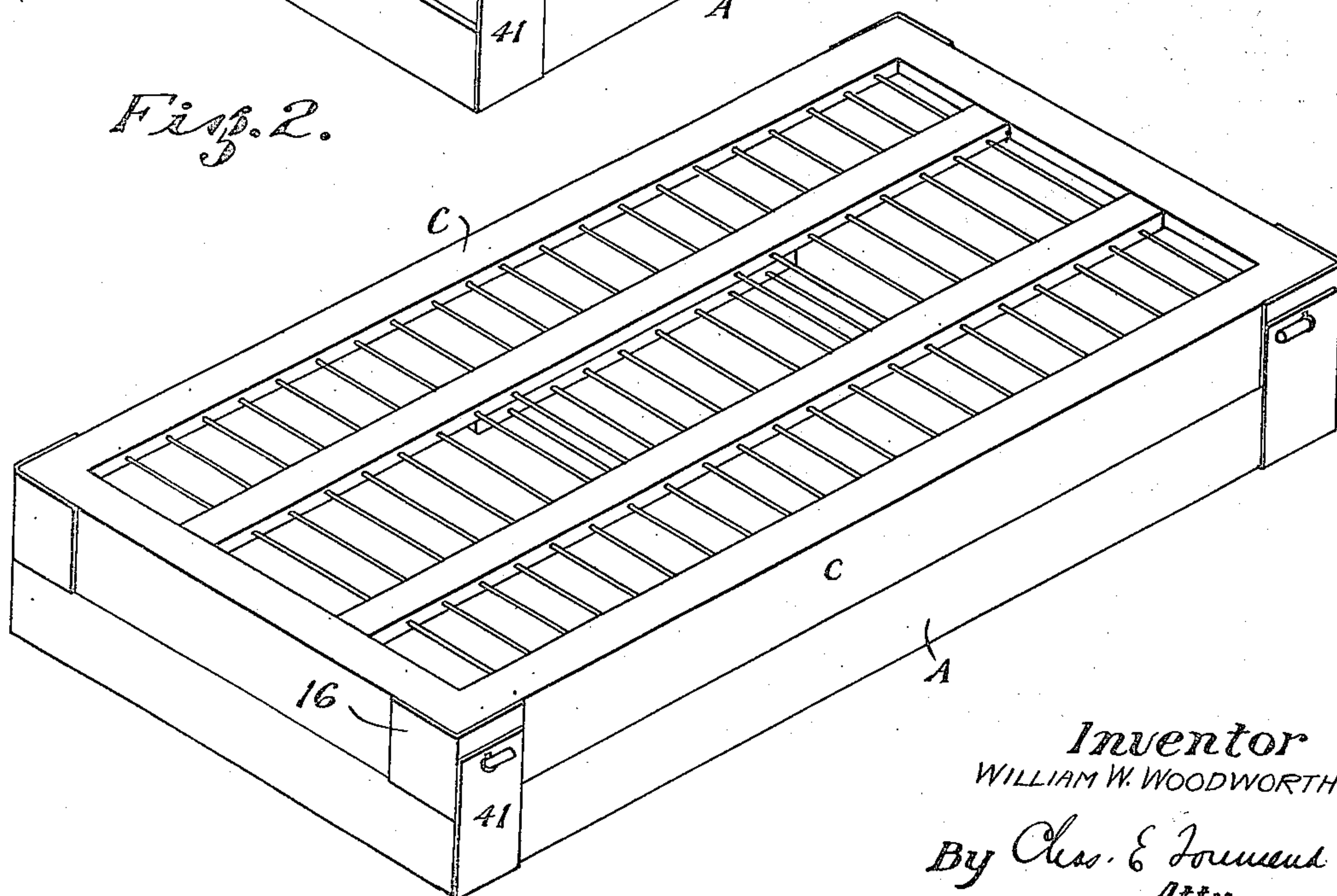


Fig. 2.



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Fig. 3.

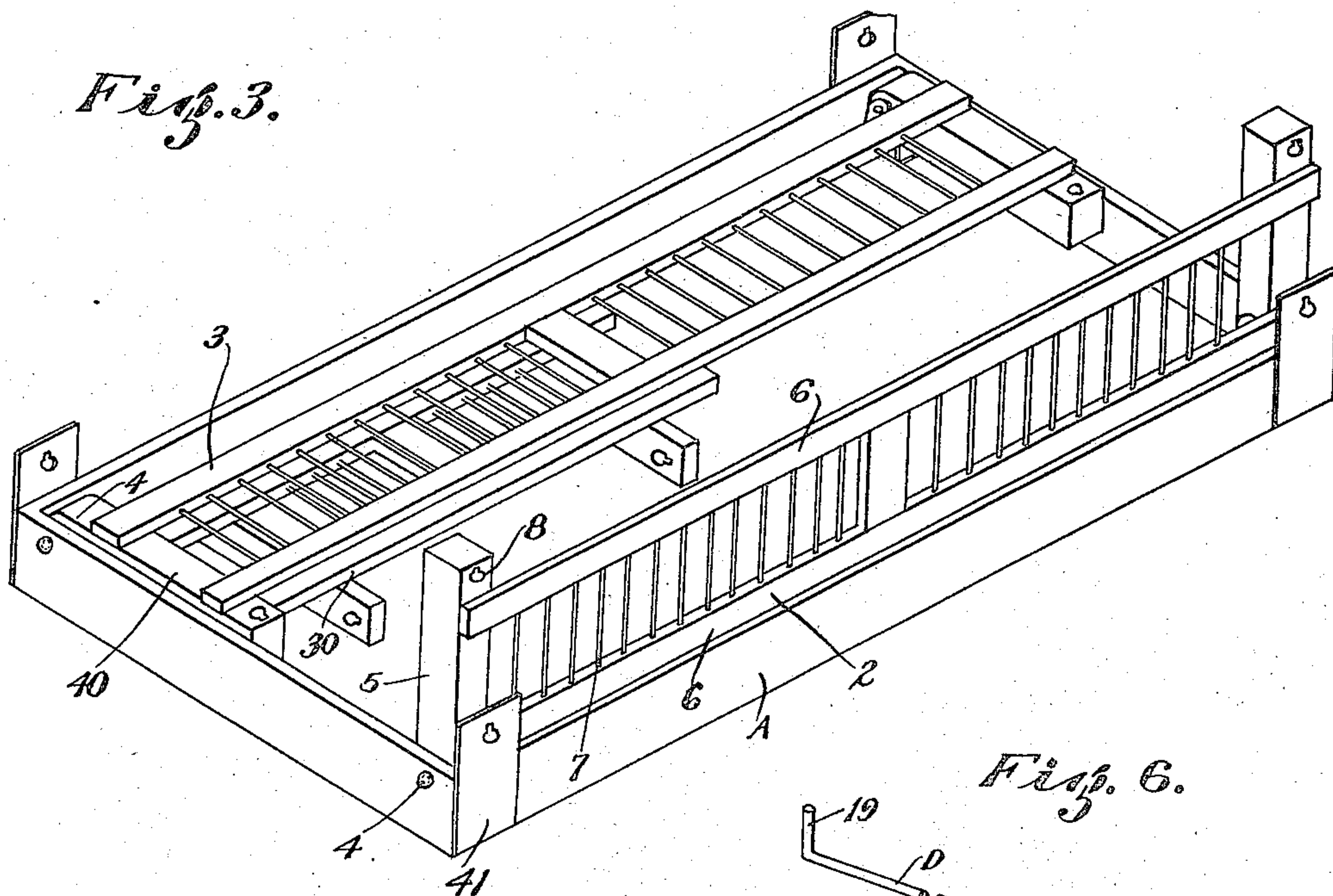


Fig. 4.

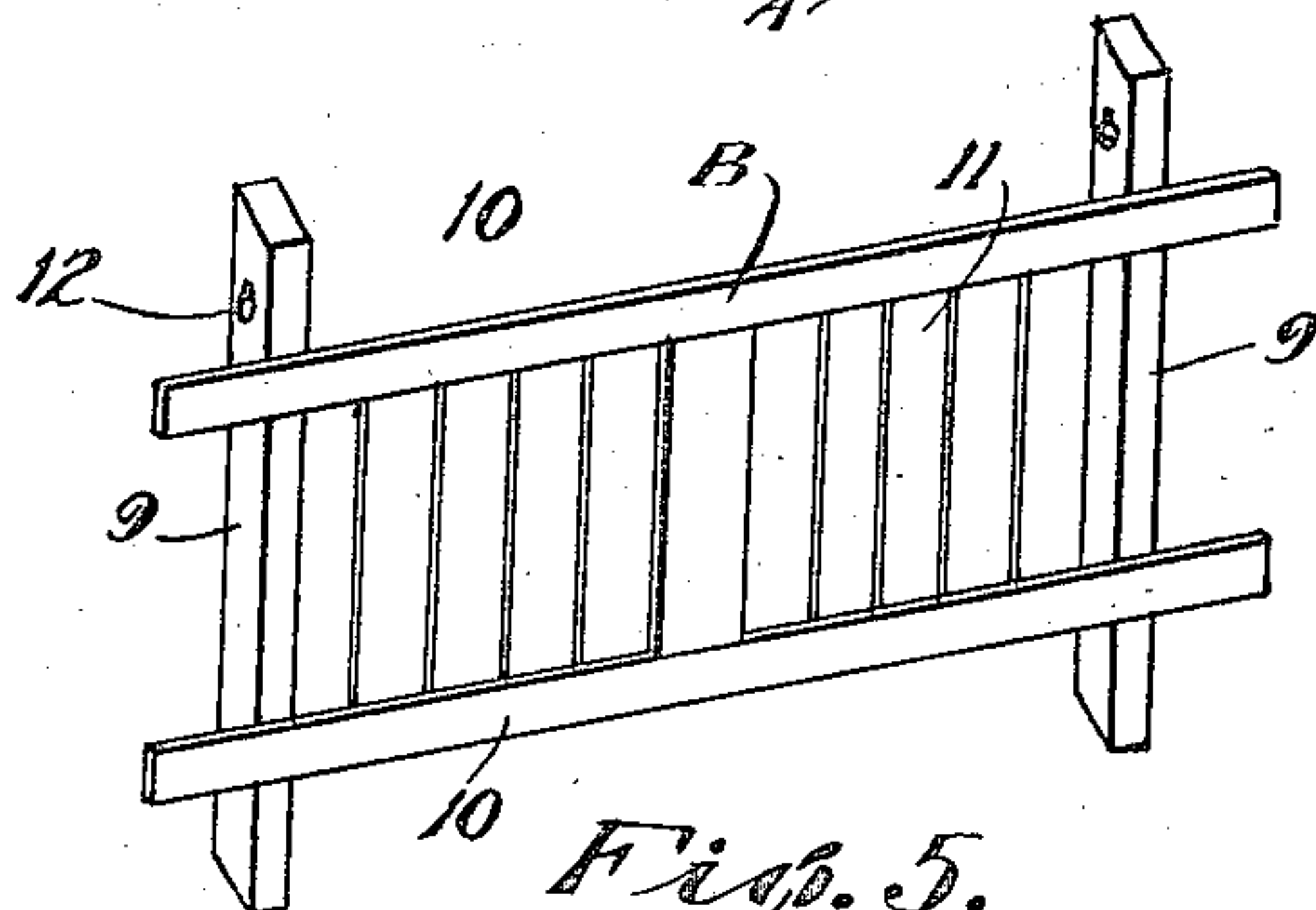
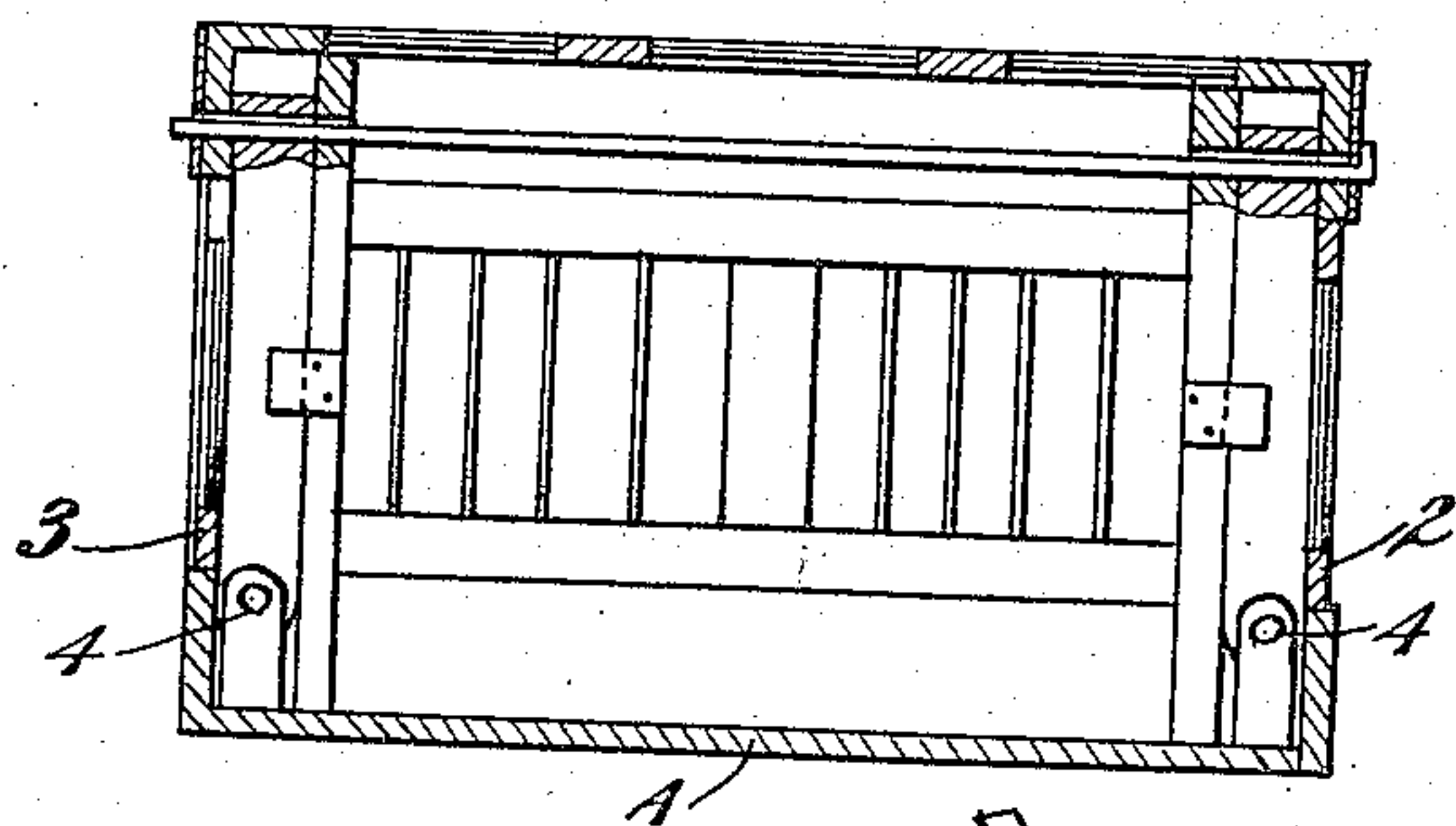
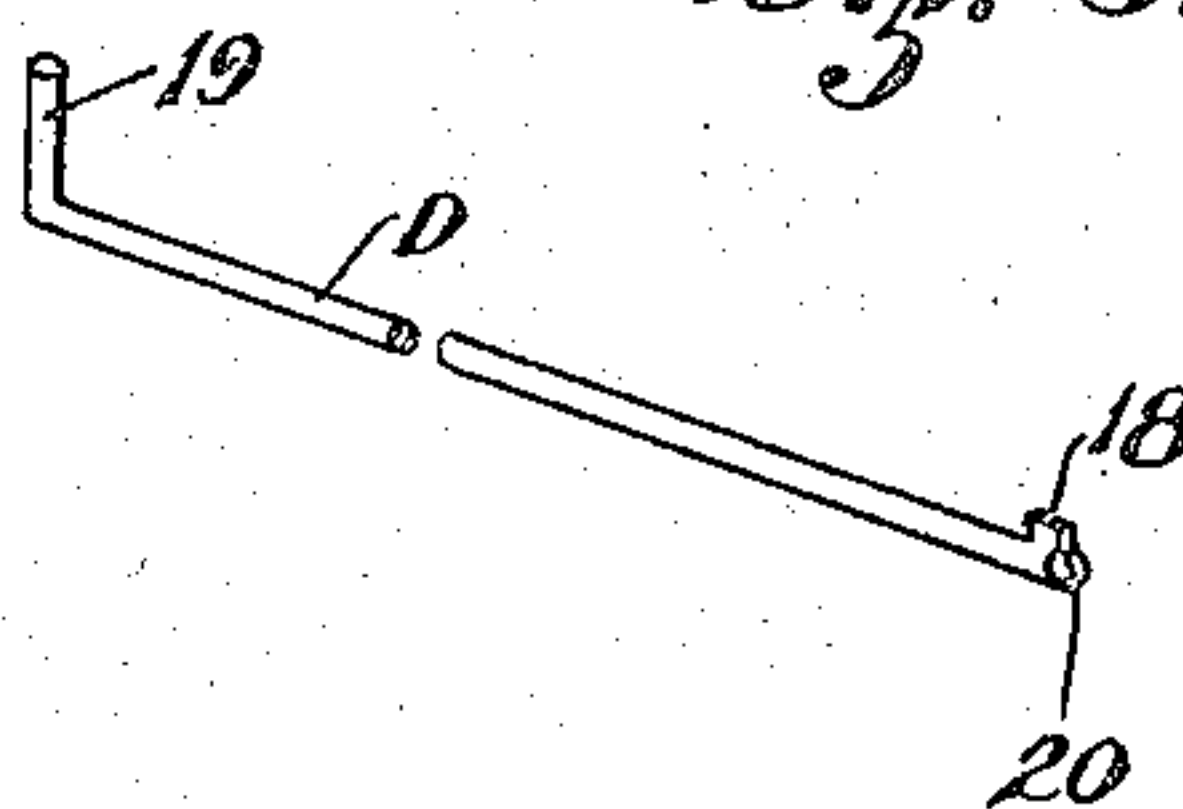


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM W. WOODWORTH, OF SOUTH BERKELEY, CALIFORNIA.

FOLDABLE AND COLLAPSIBLE CONTAINER.

Application filed July 27, 1921. Serial No. 487,906.

To all whom it may concern:

Be it known that I, WILLIAM W. WOODWORTH, a citizen of the United States, residing at South Berkeley, in the county of Alameda and State of California, have invented new and useful Improvements in Foldable and Collapsible Containers, of which the following is a specification.

This invention relates to containers, and especially to foldable crates such as are used for live chickens and other fowl.

One of the objects of the present invention is to generally improve and simplify containers of the character described, and especially to provide a crate-like container which is simple and substantial in construction, cheap to manufacture, and which may be quickly and readily assembled or folded as occasion may demand.

Another object of the invention is to provide a crate or container of the character described which consists of a bottom section, a pair of side sections hingedly secured thereto, a pair of removable end sections and a removable cover section; further to provide a common means for locking the several sections with relation to each other whether assembled or folded.

Other objects will hereinafter appear.

The invention consists of the parts and the construction, combination and arrangement of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings in which—

Fig. 1 is a perspective view of the crate.

Fig. 2 is a perspective view of the crate showing it in folded position.

Fig. 3 is a perspective view showing the bottom section of the crate and the two side sections, one side section being folded.

Fig. 4 is a cross section of the crate taken on line 4—4, Fig. 1.

Fig. 5 is a perspective view of one of the end sections.

Fig. 6 is a perspective view of one of the locking rods.

Referring to the drawings in detail, A indicates the bottom section of the crate and 2 and 3 a pair of side sections which are hingedly secured to the bottom section as at 4. Each side section consists of a pair of posts or uprights 5 and a pair of longitudinally extending bars 6. These bars tie the posts with relation to each other and they form a support for a series of wire rods 7 or any other screen-like material such as

chicken wire net or the like. The upper ends of the posts are provided with perforations 8 which are keyhole-shaped as will hereinafter be described. Adapted to be placed between the upright posts 5 of the respective side sections, is a pair of end sections generally indicated at B. Each end section consists of a pair of upright posts 9 and a pair of connecting bars 10; said bars serving the same function as the bars 6 of the side sections as they form a support or means of attachment for a series of wire rods 11 or the like. The uprights 9 of the end sections are adapted to fit between the posts or uprights 5 of the side sections as shown in Fig. 4 and the bars 10 connecting the uprights 9 are adapted to engage the exterior sides or ends of the posts 5, thus forming an interlock between the side and end sections which prevents inward movement of the end sections with relation to the side sections. The upper ends of the posts or uprights 9 are also perforated and the perforations are keyhole like in shape as indicated at 12. Adapted to form a closure for the crate when assembled is a cover section generally indicated at C. This cover section consists of sides 13, ends 14 and longitudinally extending bars 15; the sides, ends and the connecting bars 15 being secured together in any suitable manner, for instance by mortised joints, nailing or otherwise. The side and end sections are sufficiently high to permit the cover as a whole to be dropped down over the posts 8 and 9 as shown in Figs. 1 and 4, and the cover is secured against further downward movement by the upper side bars 6 and the cross bars 10 of the end sections. The corners of the cover section are reinforced with angle plates 16 as are also the corners of the bottom section. The angle plates 16 however, together with the side sections 13, are perforated and the perforations are so positioned that they will align with the perforations 8 and 12 formed in the posts 5 and 9 respectively; the perforations in the cover section being also key-hole shaped to permit insertion of a pair of locking rods generally indicated at D, see Fig. 6. One end of each rod is provided with a lug or key-like projection 18, while the opposite end is provided with a handle extension 19; the lug 18 being perforated as at 20 to receive a pad lock or a wire seal as conditions may demand. In actual practice when a crate is folded,

it assumes the position shown in Fig. 2, and when assembled or erected, the position shown in Fig. 1. If the crate is folded and it is desired to assemble or erect the same, it is only necessary to turn the rods D until the key or lug 18 aligns with the perforations. The rods may then be moved endwise and the cover section is thus released with relation to the bottom section. When removed it is only necessary to raise the side sections as shown in Figs. 3 and 4, and then to insert the end sections B. The cover may then be replaced and the rods D re-inserted, that is the rods are passed through the perforations in the angle plates 16 and the perforations formed in the upper ends of the posts 5 and 9. After insertion of the rod has taken place, it is only necessary to turn the same until the key lugs 18 move out of register with the perforations formed for their reception and to insert the pad lock or any other locking means to prevent removal of the rods and folding of the crate during shipment.

The crate here shown is particularly intended for shipping live chickens and other fowl. Crates of this character consume considerable room when assembled; such room being necessary to permit freedom and head room for the fowl being shipped. However such room is not required when the crates are being returned empty and it is with this object in view that the folding structure has been devised.

When crates have been emptied and are to be re-shipped, it is only necessary to unlock the rods D and remove the same. The cover section can then be lifted vertically and removed with relation to the side and end sections. The end sections are then lifted vertically from between the side sections and are placed within the bottom section as shown at 30, in Fig. 3, one end section at each end. The side sections are then folded inwardly and downwardly against the bottom section to assume the horizontal position shown at 40, see Fig. 3; sufficient space being provided between the side sections and the bottom section proper when folded to receive the end sections as indicated at 30.

With the end sections inserted and the side sections folded, it is only necessary to apply the cover section as shown in Fig. 2. The cover section is placed directly on top of the bottom section and is here secured by again replacing the locking rods D. The rods will in this instance pass through the perforated angle plates 41 secured to the bottom section and the perforations formed in the cover section or the angle plates 16; the rods when inserted being locked as previously described. The crate thus folded and assembled forms an exceedingly compact unit, which in actual practice consumes only

one-third the space occupied by the crate when assembled. Three crates can thus be returned in the same amount of space occupied by one crate when assembled.

Another important feature of the present invention is the substantial construction employed, that is the corners of the cover and bottom section are heavily reinforced with angle plates as shown. This ties the bottom and cover sections against rack and tear and materially increases their strength. The assembling of the top and bottom sections, as shown in Fig. 2, is also of importance as it entirely encloses the side and end sections, thus preventing damage of the same during return shipment.

The crates are exceedingly cheap to manufacture and as they may be used over and over again, it is obvious that economy is obtained, not only as far as wear and tear is concerned, but also as far as freight charges are concerned, as only one-third the space is occupied during the return shipment.

While the crate here shown is more or less specifically illustrated, I wish it understood that various changes in form and proportion may be resorted to within the scope of the appended claims, similarly that the materials and finish of the several parts employed may be such as the experience and judgment of the manufacturer may dictate or varying uses may demand. Also, while the crate here described is particularly adapted for live chickens and other fowl, it is obvious that it may be used for any other purpose desired.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A device of the character described comprising a bottom section, a pair of side sections pivotally secured thereto and arranged to fold upon the upper face of the same, a pair of removable end sections, a cover section adapted to be supported by the side and end sections, and locking means extending through the side, end and cover sections respectively and removable therefrom, said bottom section being provided with means to receive the locking means when the same has been removed from the said sections.

2. A device of the character described comprising a bottom section, a pair of side sections pivotally secured thereto, a pair of removable end sections, a cover section adapted to be supported by the side and end sections, and a continuous transverse locking rod disposed at each end and extending through the side, end and cover sections respectively and entirely removable therefrom to engage the bottom section when the device is folded.

3. A device of the character described comprising a bottom section, a pair of side

sections pivotally secured thereto, a pair of removable end sections, a cover section adapted to be supported by the side and end sections, a continuous transverse locking rod disposed at each end and extending through the side, end and cover sections respectively and removable therefrom to engage the bottom section when the device is folded, and means for securing said locking rods against removal.

4. A device of the character described comprising a bottom section, a pair of side sections pivotally secured thereto, an upright post at each end of each side section and forming a part of each side section, a perforation in the upper end of each post, a removable end section insertible between each pair of posts, a post forming a part of each end section and perforated at their upper ends, said end section post aligning with the side section posts, a cover section adapted to be supported by the respective posts, aligning perforations formed in the corners of the cover section, and a locking rod at each end of the cover section adapted to extend through the cover section, the side posts and the end posts.

5. A device of the character described comprising a bottom section, a pair of side sections pivotally secured thereto, an upright post at each end of each side section and forming a part of each side section, a perforation in the upper end of each post, a removable end section insertible between each pair of posts, a post forming a part of each end section and perforated at their upper ends, said end section post aligning with the side section posts, a cover section adapted to be supported by the respective posts, aligning perforations formed in the corners of the cover section, a locking rod at each end of the cover section adapted to extend through the cover section, the side posts

and the end posts, said perforations in the cover, in the side posts and in the end posts being key hole shaped, a key-like lug on each rod adapted to move into and out of register with the keyhole shaped perforations, and a locking means attachable to said lugs.

6. A shipping crate comprising a bottom section, a pair of side sections hingedly secured thereto, and a cover section, a pair of removable end sections adapted to be placed between the bottom and the side sections, when the side sections are folded with relation to the bottom section, a pair of lugs at each end of the bottom section adapted to receive the cover section, perforations formed in said lugs and in the cover section, and rods adapted to extend through the perforated portions to secure the cover section with relation to the bottom section.

7. A device of the class described, comprising a bottom section, a pair of side sections pivotally secured thereto and arranged to fold upon the upper face of the same, a pair of removable end sections adapted to be arranged between the bottom and side sections, a cover section adapted to be supported by the side and end sections and also to be arranged upon the bottom section when the device is folded, angle plates secured to the bottom section at the corners thereof and projecting vertically thereat, horizontally disposed angle plates secured to the corners of the cover section, said angle plates being provided with key hole slots and continuous transverse locking rods adapted to be arranged in the said key hole slots and provided at one end with a lug and having a handle at the other end, the lugs being adapted to be turned out of alignment with the key hole slots and the handles being of greater length than the slots.

WILLIAM W. WOODWORTH.