W. A. SAFLEY.

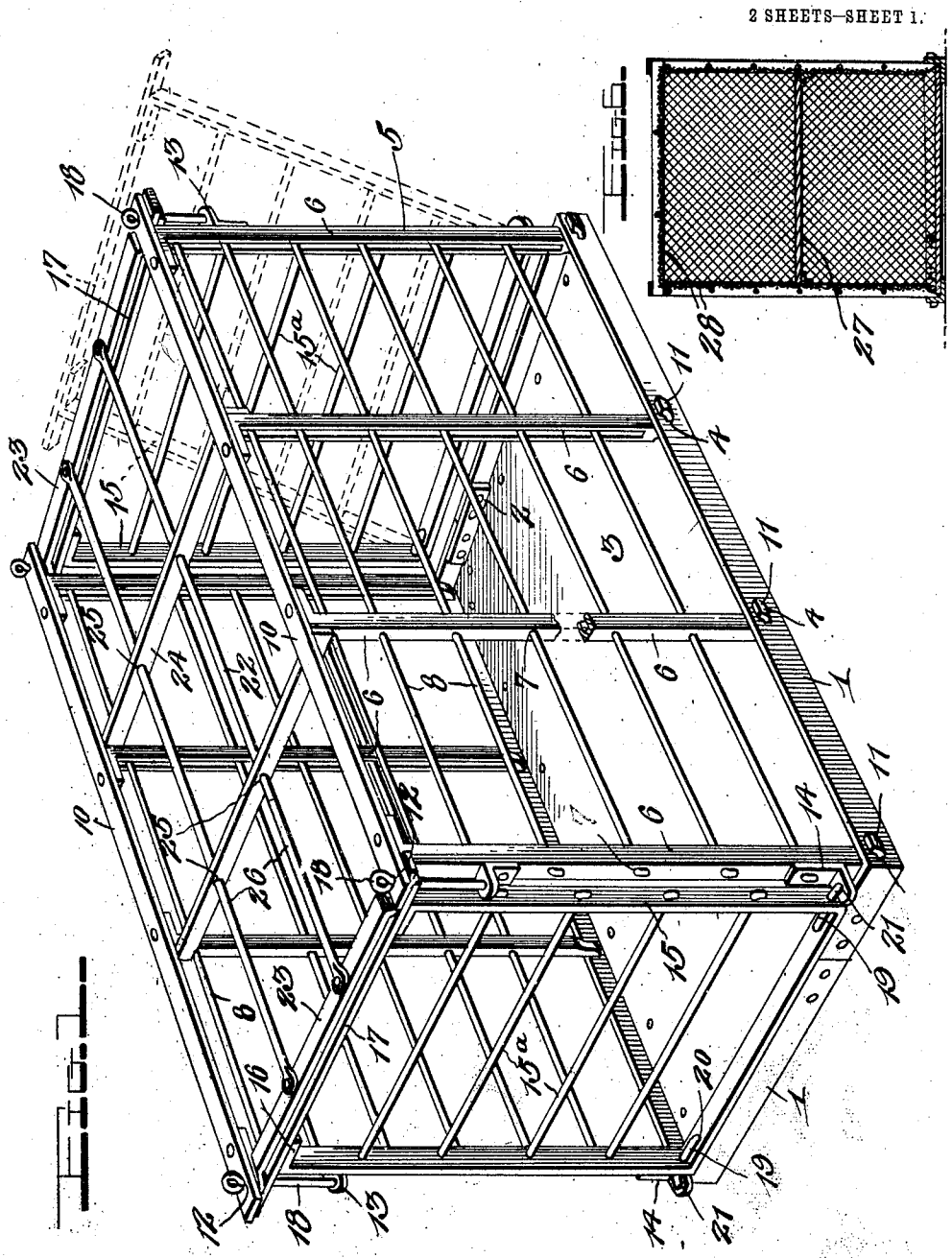
KNOCKDOWN SHIPPING CRATE.

APPLICATION FILED FEB. 26, 1912.

1,044,251.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.



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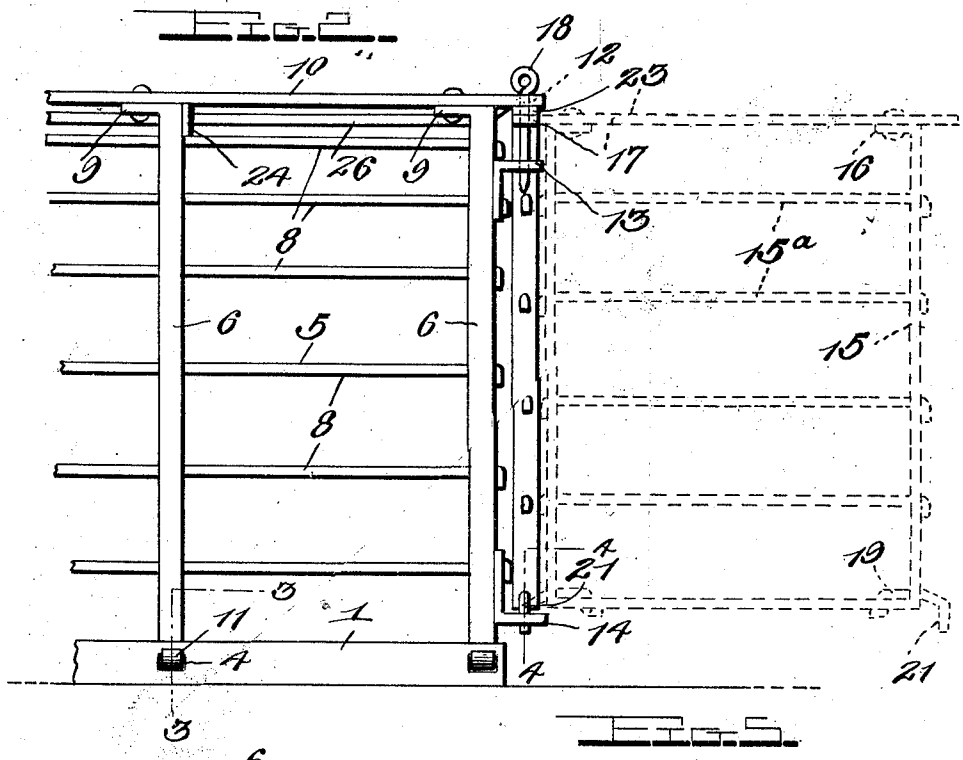


FIG. 3.

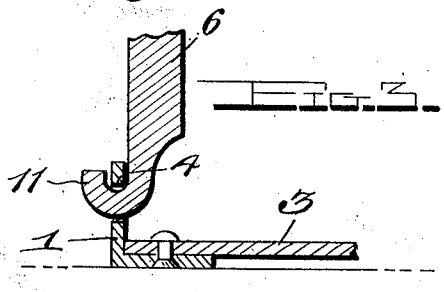


FIG. 5.

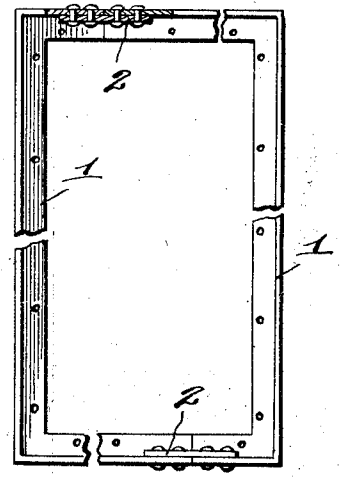
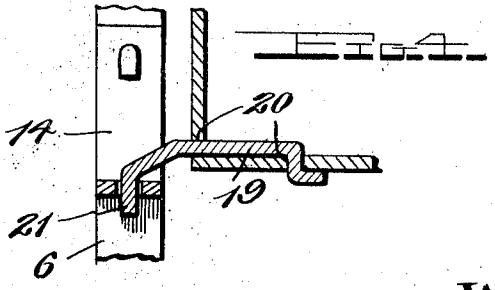


FIG. 4.



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UNITED STATES PATENT OFFICE.

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KNOCKDOWN SHIPPING-CRATE.

1,044,251. Specification of Letters Patent. Patented Nov. 12, 1912.

Application filed February 26, 1912. Serial No. 679,936.

To all whom it may concern:

Be it known that I, WILLIAM A. SAFLEY, a citizen of the United States, residing at Bedford, in the county of Taylor and State of Iowa, have invented certain new and useful Improvements in Knockdown Shipping-Crates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in knockdown shipping crates.

One object of the invention is to provide a shipping crate for live stock or poultry, formed entirely of metal and constructed of a plurality of sections adapted to be detachably connected together whereby the same may be readily separated and closely packed together to facilitate the return shipment and storing of the empty crate.

Another object is to provide an improved means for fastening the end members of the crate in position whereby if desired said fastening means may be employed as hinge members for pivotally or hingedly connecting the ends of the crate, said ends thus forming doors which may be swung to open or closed position.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a perspective view of my improved crate showing the same set up in position for use and indicating in dotted lines the manner in which the ends are disconnected from their upper fastening devices to permit the ends to be removed; Fig. 2 is a side view of one end of the crate showing in dotted lines the manner in which the ends are swung outwardly when hinged to form doors; Fig. 3 is an enlarged detail sectional view through the bottom of the crate taken on the line 3—3 of Fig. 2; and showing the manner in which the supporting standards or bars of the sides of the crate are engaged with the sides of the angle iron bottom frame of the crate; Fig. 4 is a similar view on the line 4—4 of Fig. 2 showing the manner in which the lower end of the end members are pivotally connected to the ends of the crate; Fig. 5 is a plan view of the angle iron bottom frame of the crate with parts broken away and in section; Fig. 6 is a vertical cross sectional view of a slightly modified form or arrangement of the crate wherein the same is adapted for transporting poultry or very small stock.

My improved crate comprises an angle iron bottom frame 1 which is preferably constructed in two right angularly formed sections, the adjoining ends of which are securely fastened together by splicing bars 2 which are riveted or otherwise rigidly secured to the upwardly projecting flanges of the frame as clearly shown in Fig. 5 of the drawings. To the lower or horizontal flanges of the angle iron bottom frame is riveted or otherwise secured a bottom plate 3. In the upwardly extending flanges of the sides of the frame 1 at the ends thereof and at equi-distant points between the ends are formed slots 4.

The sides 5 of the crate comprise a series of vertically disposed channel iron bars or standards 6 which are arranged as shown in Fig. 1 of the drawing and have in their base or bottom sides a series of passages 7 with which are engaged a series of longitudinally disposed rods 8 the ends of which project through the passages 7 in the end bars or standards 6 and are upset or clenched into engagement with the outer surfaces of the base or bottom sides of said standards as shown. The rods 8 when thus fastened are securely held against longitudinal movement in the bars 6. Any number of rods 8 may be employed and said rods may be spaced apart at any desired distance. On the upper ends of the standards 6 are formed right angular apertured lugs 9 which preferably project in the direction shown in Fig. 1 and to which are riveted or otherwise secured an upper standard connecting bar 10. The lower ends of the standards 6 have formed thereon hooks 11 which are adapted to be detachably engaged with the slots 4 in the upwardly projecting flange of the side members of the base frame 1 as clearly shown in Fig. 3 of the drawings. The ends of the upper bars 10 extend a suitable dis-

tance beyond the upper ends of the end standards 6 and said projecting ends of the bars 10 are provided with pin holes 12 which aline with similar holes in pin receiving brackets 13 secured to the end standards a suitable distance below the projecting ends of the bars 10 as shown. On the outer end portions of the standards 6 near the frame 1 are secured apertured end supporting brackets 14 which together with the brackets 13 and the projecting ends of the bars 12 form part of the means for holding the ends of the crate in position.

The end members 15 of the crate comprise rectangular frames, the bottom and side pieces of which are preferably formed from a flat strip or bar of metal bent as shown. The upper ends of the sides of the frame are bent inwardly to form right angular lugs 16 to which are riveted or otherwise secured the top bars 17 of the frames, said bars having their ends projecting beyond the sides of the frame and provided with apertures to receive the upper end fastening devices hereinafter described. The apertured projecting ends of the upper bars 17 extend beneath the projecting ends of the standard connecting bars 10 of the sides of the crate and through the alined apertures in said projecting ends of the bars 10 and 17 are inserted fastening pins 18, the lower ends of which engage the apertures in the brackets 13 and thereby securely fasten the upper ends of the end members to the sides of the crate. Arranged across and having their ends clenched or otherwise rigidly secured in the sides of the end frames are a series of rods 15ª which are spaced a suitable distance to correspond with the rods 8 of the side members of the crate.

The lower ends of the end members 15 are secured to the ends of the side members by short connecting rods 19 the inner portions of which are engaged with the apertures 20 in the sides and bottom portion of the frame and the inner ends of the rods are bent at right angles for passing through the apertures 20 in the bottom of the end frames thereby securely clenching or fastening the rods to the end members. The outer or projecting portions of the rods are bent downwardly at an oblique angle and then at a right angle to form pins or studs 21 which are loosely engaged with the apertures in the brackets 14. It will be noted that the aperture in the bracket 14 with which the pin 21 is engaged is of somewhat greater diameter than the pin. The purpose of this construction will be hereinafter disclosed.

The top 22 of the crate comprises flat or horizontally disposed end bars 23 and intermediate cross bars 24, said bars 24 being arranged edgewise across the crate and having therein apertures 25 with which are engaged longitudinally disposed rods 26 the ends of which are flattened and riveted to the flat end bars 23 as shown. The end bars have their ends or extremities bent downwardly or offset as shown in Fig. 1, said offset ends of the bars being engaged between the ends of the bars 17 of the end frames and the projecting ends of the bars 10 of the side frames. When thus arranged the pins 18 are passed through said apertured offset ends of the bars 23, thereby securely fastening the ends of the top to the side and end members of the frame. When the top 22 is thus arranged the ends of the intermediate cross bars 24 thereof will project between the top bars 10 of the sides of the frame and the upper rods 8 of said sides adjacent to the upper ends of the intermediate standards 6 of the side, said upper rods 8 and bars 10 of the sides thus supporting and holding the bars 24 in position to support the intermediate portion of the top 22.

In Fig. 6 of the drawings is shown a slightly modified construction and arrangement of the crate wherein the same is adapted for shipping poultry or very small live stock. In arranging the crate for this purpose, a floor or horizontal partition 27 is arranged therethrough midway between the top and bottom of the crate, said partition being secured to the side and end members of the crate in any suitable manner. When the crate is arranged as shown in Fig. 6 for the purpose of shipping poultry or small animals, the sides, ends and top thereof are provided with a lining 28 of wire netting which is secured to the sides, ends and top of the crate in any suitable manner and has a mesh sufficiently small to prevent the escape of the poultry or small animals to be shipped in the crate.

By connecting the ends of the crate to the side members thereof as herein shown and described, the ends may be readily removed or arranged to form hinged doors by first removing the pins 18, thus disconnecting the projecting upper ends of the upper bars 17 of the frames whereupon the upper portion of the frame may be swung outwardly by reason of the loose connection between the pins 21 in the lower ends of the frames and the apertures in the brackets 14. The frames when thus swung outwardly a sufficient extent to clear the projecting ends of the bars 10 of the side frames may be lifted, thus disengaging the pin 21 from the apertures in the brackets 14 and permitting the ends to be entirely removed or if desired, one of the pins 21 may be again engaged with its lug 24 and the projecting end of the top bars of the frame above said connecting pin may be again placed beneath and in position to be engaged by the pin 18,

thus hingedly connecting the end member to permit the same to be swung to an open or closed position. In taking the crate to pieces for the purpose of closely packing the parts, the ends are first removed in the manner described, after which the top may be readily removed by disengaging the ends of the bars 23 and 24 from the bars 10 of the sides, after which the hooked lower ends of the standards 6 of the sides may be disengaged from the slots 4 in the sides of the angle iron bottom frame. After the parts have been thus disconnected they may be packed together and placed in or on the bottom of the crate and bound or fastened together in any suitable manner for packing or shipping.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is;

1. A knockdown crate comprising a bottom consisting of an angle iron frame having in the upwardly projecting flanges of the side bars thereof, a series of slots, a metal bottom secured to the bottom flanges of the frame, side members comprising a series of standards having on their lower ends hooks adapted to be engaged with the slots in the flanges of the side bars of the frame, apertured lugs on the upper ends of the standards, standard connecting bars secured to said lugs, a series of longitudinally disposed spaced rods arranged through and secured in said standards, end members comprising frames having secured therein a series of spaced rods, means to detachably and hingedly connect said end members to the ends of the side members, and a top comprising a series of transverse bars having their ends engaged with and supported by said side and end members, and a series of longitudinal rods arranged through and secured to said transverse bars.

2. A knockdown crate comprising a bottom consisting of a rectangular angle iron frame formed in right angular sections, having their adjoining ends spliced together to form said frame, a sheet metal bottom secured to said bottom frame, side members comprising a series of channel iron standards having on their lower ends, hooks adapted to be detachably engaged with the angle iron side bars of the bottom frame, apertured lugs on the upper ends of said bars, a series of longitudinally disposed rods spaced apart and secured in said standards, connecting bars secured to the lugs on the upper ends of said standards, said upper bars being of sufficient length to project beyond the end standards of the sides, end members comprising rectangular frames, the upper bars of which project beyond the sides of the frame and are adapted to be disposed beneath the projecting ends of the top bars of the side members, spaced rods secured in said end frames, means to secure the lower ends of the end frames to the adjacent ends of the side members, a top member comprising end bars having their ends engaged between the projecting ends of the upper bars of the side and end members, intermediate bars having their ends projecting between the upper rods, and top bars of the side members adjacent to the intermediate standards thereof, longitudinal rods arranged through said intermediate bars and having their ends secured to the end bars, and means to fasten the engaging ends of the side, top and end members of the crate together.

3. A knockdown crate comprising a bottom, side members comprising a plurality of standards having a detachable connection at their lower ends with said bottom, standard connecting bars secured to the upper ends of said standards and projecting beyond the ends of the side members, said projecting ends of the standard connecting bars having apertures, a plurality of rods arranged through said standards, upper and lower apertured brackets secured to the outer standards of the side members below the projecting ends of the connecting bars thereof and above the bottom of the crate, end members comprising rectangular frames having their upper cross bars projecting beyond the side bars of the frame and adapted to be engaged beneath the projecting ends of the connecting bars of the standards of the side members, said projecting ends of the upper bars of the end members having apertures, a series of spaced rods arranged in said end frames, connecting rods having their inner ends engaged with and fastened in the side and bottom bars of said end frames, the projecting ends of said rods being bent downwardly to form pins adapted to be loosely engaged with the apertured brackets on the lower portion of the standards of the side members, a top member comprising outer and intermediate transverse bars, said outer transverse bars having their ends engaged between the projecting ends of the top bars of the side and end members of the crate, longitudinal rods arranged through and secured to the transverse bars of said top member, and pins adapted to be inserted through the engaging

ends of the bars of the side, end and top members of the crate and into engagement with the upper brackets on the standards of the side members whereby said members of the crate are detachably and hingedly connected together.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM A. SAFLEY.

Witnesses:
NELLE A. FLICH,
H. P. LONG.