

L. C. EMMONS.
 KNOCKDOWN HEATING APPARATUS FOR CORN CRIBS.
 APPLICATION FILED JUNE 26, 1911.

1,023,787.

Patented Apr. 16, 1912.

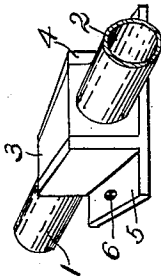


Fig. 2.

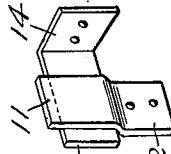


Fig. 5.

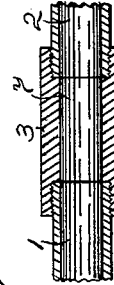


Fig. 3.

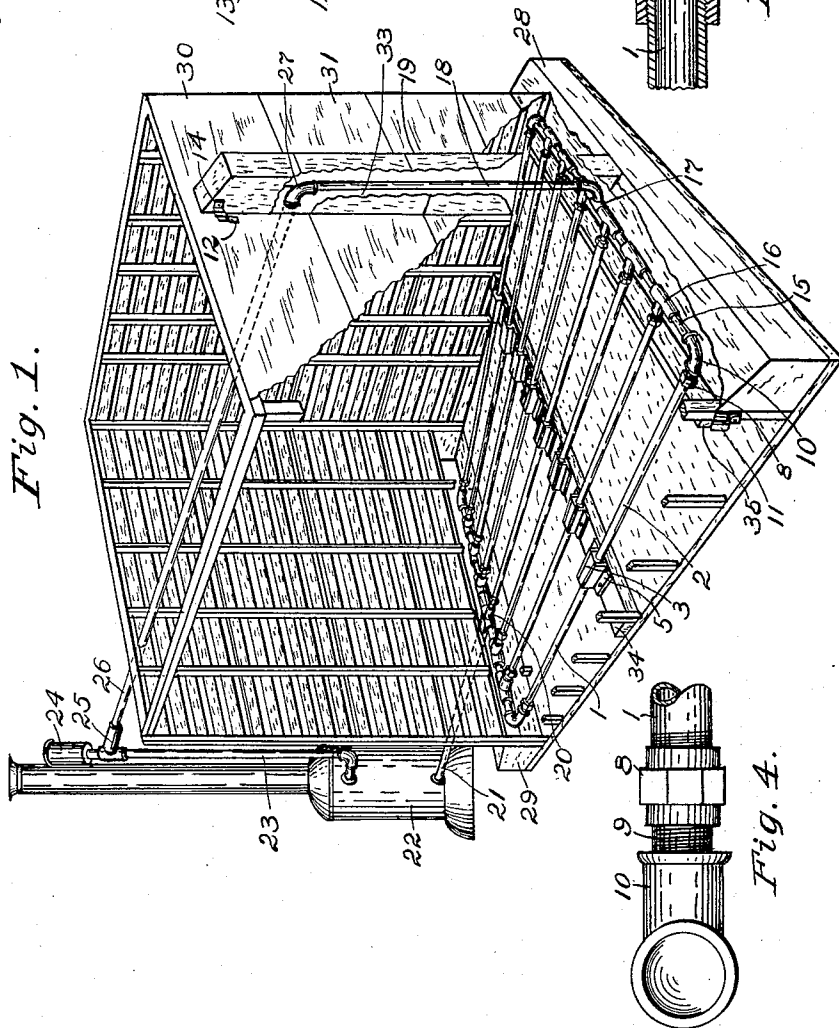


Fig. 1.

Fig. 4.

Witnesses:
 L. F. Noel
 R. B. Allard

Inventor,
 Louis C. Emmons,
 by
 G. B. Kennedy,
 Attorney.

UNITED STATES PATENT OFFICE.

LOUIS C. EMMONS, OF CEDAR FALLS, IOWA, ASSIGNOR TO FANNY J. EMMONS, OF CEDAR FALLS, IOWA.

KNOCKDOWN HEATING APPARATUS FOR CORN-CRIBS.

1,023,787.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed June 26, 1911. Serial No. 635,452.

To all whom it may concern:

Be it known that I, LOUIS C. EMMONS, a citizen of the United States of America, and a resident of Cedar Falls, Blackhawk county, Iowa, have invented certain new and useful Improvements in Knockdown Heating Apparatus for Corn-Cribs, of which the following is a specification.

My invention relates to improvements in knock-down heating apparatus for corn-cribs, and the object of my improvement is to provide a heating device adapted for drying corn in a crib, and which is so constructed as to be easily separated and withdrawn therefrom, at times when it is desired to remove the corn from the crib. This object I have accomplished by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of the interior of a corn crib, with my improved knock-down heating or drying apparatus installed therein, parts being shown as broken away to better disclose the construction of said apparatus. Fig. 2 is an enlarged perspective detail of the medially located cubical coupling of alined and communicating pipes. Fig. 3 is a central longitudinal section of the coupling shown in Fig. 2. Fig. 4 is an enlarged detail view of the coupling used between the longitudinal and the transverse pipes. Fig. 5 is an enlarged perspective view of one of the bracket-connections used to support transverse pipe-supporting beams in said crib.

Similar numerals of reference designate corresponding parts throughout the several views.

Fig. 1 represents a corn-crib 30 constructed in the usual manner with a plank floor, uprights and horizontal boarding secured on the said uprights; the roof not being shown. At opposite ends of said building are boxes 28 and 29 respectively, covered and adapted to receive parts of the heating apparatus projecting thereinto for a purpose to be hereinafter described and explained.

In communication with the box 28 is a tubular vertical boxing 19, rectangular in cross-section, which is closed at the top, and which is removably secured to the outside of the crib by means of detachable fasten-

ings, the nature of the latter being shown in Fig. 5. Each of these fastenings comprises a bracket plate 12, whose upper part 11 is offset outwardly to space it apart sufficiently from the crib upright to which it is secured, and an angle-plate 13—14 whose part 14 is secured to the side of the boxing 19, with the part 13 received by the part 11 of said bracket detachably.

The outside of the crib is covered with paper or other suitable material 31, adapted to close the openings between the cross-boarding and the uprights, to retain and cause to rise the air heated in the building by my heating device. The boxing 19 is separated from the interior of the crib by means of a paper partition 33.

Lying adjacent to and placed longitudinally along the inner upper side of the boxing 28 within the crib is a cross-beam 35, which is removably supported in the proper place and height by means of brackets such as have been shown in Fig. 5. Midway of the crib another cross-beam 34 is placed on the floor, or may be supported similarly above the floor if necessary, and both the beams 34 and 35 serve as supports for the longitudinally placed and alined pipes 1—2 of the heating device to hold them in an inclined position, such pipes being inclined from the beam 35 downwardly at a suitable degree toward the bottom of the boxing 29. There are several of these longitudinally alined pipes 1—2 placed in a parallel arrangement, each pipe 1—2 having its parts 1 and 2 detachably united by means of a coupling-block 3. Each coupling-block 3 has a central longitudinal bore equal to that of the inner diameter of said pipes, and the exteriorly threaded ends of the pipes 1 and 2 are fitted in the interiorly-threaded ends of the bore 7 of said coupling. The outside of said coupling is made rectangular to fit between the parallel upwardly directed ribs 4 of a base-plate 5, the latter having in its lateral ears openings 6, whereby it may be bolted to the cross-beam 34. The outer ends of each pipe 1 as also the outer end of each pipe 2, is made to communicate with a cross tube made up of couplings and pipe sections 10, 16 and 15, forming a gridiron shaped arrangement of communicating pipes for general free circulation of a heated fluid there-through. In Fig. 4 is shown a corner cou-

pling 10, in communication with the pipe 1 by means of a short exteriorly-threaded pipe-section 9, and a coupling-nut 8.

The intermediate pipe-sections 15 are connected by means of T-couplings 16 with each other and with the abutting pipe 1 or 2 as the case may be. A cross-coupling 20 affords communication between the outer ends of the pipes 1 and the lower part of a boiler 22, by means of a connecting pipe 21. A T-coupling 17 affords communication between the outer ends of the pipes 2 and a vertical pipe 18, the latter rising into the vertical boxing 19, and communicating by means of an elbow-coupling 27 with a pipe 26, the latter extending longitudinally across the upper part of the interior of the crib 30, but being inclined toward the coupling 27, with its other end passed through the wall of the crib and communicating with a coupling 25 and a vertical tube 23, the latter opening into the upper part of the boiler 22. The upper end of the tube 23 above said coupling 25 is provided with an expansion receptacle 24 open at the top.

Water heated in the boiler 22 rises through the tube 23 and flows into the downwardly-inclined pipe 26 to the vertical pipe 18, whence the hot water is distributed to the parallel inclined pipes 1—2 by means of the cross-connections above described, the water finally flowing back to the boiler through the pipe 21, the inclinations of the different pipes of the apparatus aiding in the circulation. When the corn which may have been previously deposited upon said apparatus in said crib has been sufficiently dried by the radiant heat derived from the heated circulating water, the water may be withdrawn from the apparatus and the parts of the apparatus removed from the crib to permit of the removal of the corn, in the following manner. The boxing 19 is lifted away from the crib, and then the horizontal boxes 28 and 29 withdrawn, the latter not being otherwise fastened to the crib. This exposes the couplings of the outer ends of the pipes 1—2 which lie without the crib, and said couplings may be easily removed from the pipes 1—2. Then by the use of a pipe-wrench each pipe 1 and 2 may be turned so as to cause it to unscrew its inner end from the block-coupling 3, when said pipes may be pulled out of the crib from under the superincumbent load of corn. The corn then may be removed easily from the crib, and the rest of the apparatus removed, if desired. The arrangement of the parts of my said apparatus thus permits of the use of same without in-

convenience in the removal of the contents of a crib.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. The combination with a repository and a boiler, of a plurality of pipes in detachable communication with each other and with said boiler and located in said repository near the floor thereof, the ends of the pipes extending outside of the repository, each pipe being composed of two alined sections, and fixed couplings adapted to detachably join the sections of said pipes by means of threaded connections therewith.

2. The combination with a repository covered on its sides, and a boiler, of removable boxes in communication with opposite ends of said repository near its floor, a plurality of communicating detachably united pipes whose communicating ends extend into said oppositely located boxes, a conduit communicating between the lower part of said boiler and the ends of said pipes adjacent thereto, a conduit communicating between the upper part of said boiler and the ends of said pipes farthest therefrom, each of said pipes composed of sections of equal length, and couplings for said sections having separable screw-thread connections therewith.

3. The combination with a repository having its sides inclosed and having removable boxes in communication with opposite ends thereof, of a plurality of communicating pipes in said repository located near its floor and having their communicating ends extended into said boxes, their said ends being detachably connected, a conduit in communication between the lower part of said boiler and the adjacent ends of said pipes, a conduit in communication between the upper part of said boiler and the ends of said pipes farthest therefrom, each of said pipes being composed of two equal alined sections, squared couplings for said sections detachably joining them by means of screw-threaded connections, removable seats for said squared couplings adapted to retain them in place, detachably, and removable supporting-means adapted to raise the ends of said pipes farthest from the boiler to a greater height than the ends thereof which lie nearest said boiler.

Signed at Cedar Falls, Iowa, this 7th day of June, 1911.

LOUIS C. EMMONS.

Witnesses:

CHAS. J. RUDOLPH,
GEO. C. KENNEDY.