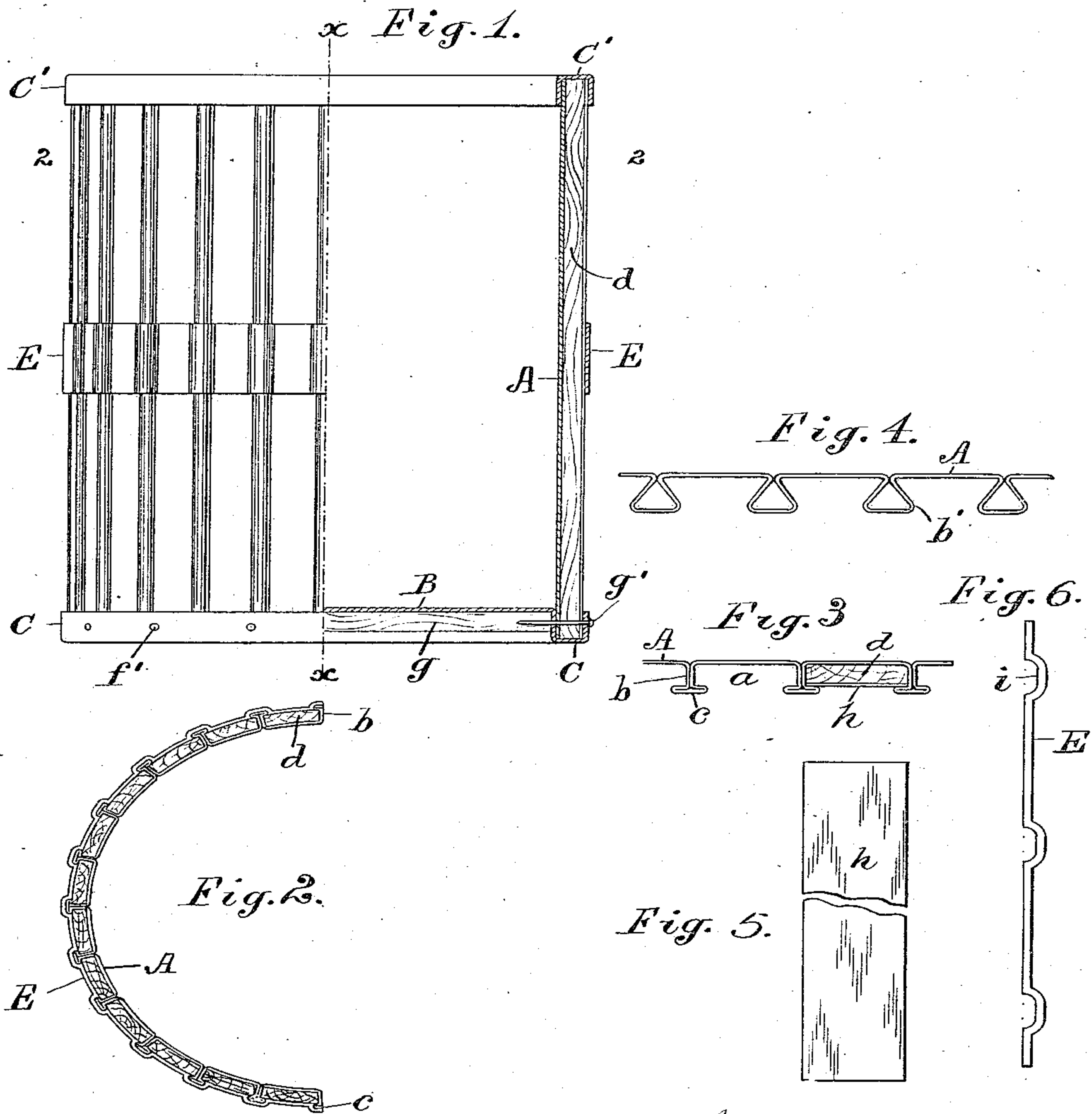


J. C. MILLIGAN.
VERTICALLY CORRUGATED CAN.
(Application filed June 16, 1898.)

(No Model.)



Attest:
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UNITED STATES PATENT OFFICE.

JOHN C. MILLIGAN, OF NEW YORK, N. Y.

VERTICALLY-CORRUGATED CAN.

SPECIFICATION forming part of Letters Patent No. 616,246, dated December 20, 1898.

Application filed June 16, 1898. Serial No. 683,599. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. MILLIGAN, a citizen of the United States, residing at New York, (Brooklyn,) county of Kings, State of New York, have invented certain new and useful Improvements in Vertically-Corrugated Cans, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to form a cellular construction for an ash-can whereby great strength and lightness can be secured and great durability may be obtained. To effect this object, I form the can-body with rectangular cells of the same cross-section throughout their length, so that such cells may be filled when desired with rectangular wooden staves having parallel sides adapted to support the walls of the cells under pressure. To make the cells of rectangular section, I form the can-body with a series of ribs or folds which are disposed radially, and thus at right angles to the cylindrical surface of the body. Such radial disposition of the ribs imparts to the sheet metal the highest degree of resistance to lateral pressure, while it forms, with the body, cells of substantially rectangular cross-section in which parallel wooden staves of the same cross-section throughout may be inserted. Staves of similar cross-section throughout their length are readily made by machinery and are also slipped into the cells from the end with great facility.

To facilitate the construction of the cells and the introduction of the staves therein, the can is made of cylindrical form, which makes the cells straight from end to end. A series of auxiliary sheet-metal coverings are provided to inclose the cells or staves and necessarily add a certain degree of strength to the structure.

The essential feature of the construction is the cylindrical body, the radial ribs, and sheet-metal coverings adapted to inclose the cells.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is an elevation of the can, shown in section at the right-hand side of the line *xx*. Fig. 2 is a horizontal section of one-half the can, taken on line 2 2 in Fig. 1. Fig.

3 is an enlarged view of a part of the sheet-metal shell, provided with the ribs or corrugations required to form the cells, the view being taken from the edge of the sheet and one of the cells being provided with a wooden stave and sheet-metal covering. Fig. 4 represents the sheet metal formed with loops from which the ribs may be shaped by suitable tools. Fig. 5 is an elevation of one of the covering-plates for inclosing the cell. Fig. 6 is an edge view of the indented strip to form the hoop to surround the can.

The cells are formed upon the body of the can by providing a sheet of metal *A* of suitable length and width and bending the sheet metal transversely at intervals, as shown in Figs. 3 and 4, with loops *b'*, which may be afterward shaped by suitable tools to form the folded ribs *b*, at right angles to the body of the blank, with T-heads or flanges *c* upon the edges of such ribs. Figs. 1 and 2 show the can-body made from such blank bent into cylindrical form, with the cells *a* opening outwardly. The cells made by this construction are parallel from top to bottom, so that parallel staves *d* may be readily inserted in the same from the ends.

The outer sides of the cells may be closed to cover the wood by an auxiliary sheet-metal covering, and such covering is represented in Fig. 5 as a parallel strip of sheet metal *h*, which is shown in Fig. 3 inserted in one of the cells over the wooden stave *d*, beneath the flanges *c*, which serve to retain the covering in place.

It is obvious that the sheet of metal *A* is easily prepared, with the cells, to form the body of the can and is readily bent into cylindrical shape and the ends joined, when the staves and coverings can be quickly applied to the cells. The body of the can is then of the same thickness throughout from top to bottom and is protected at the top by a U-shaped band *C'*, which is suitably secured upon the sheet-metal body.

A bottom *B* is shown formed integral with a U-shaped band *C* and reinforced by a wooden disk *g*, the bottom being secured by nails *g'*, inserted into the wood through holes *f'* in the band.

A hoop *E* is shown encircling the middle of the can-body and is formed of band-iron in-

5 dented transversely, as shown in Fig. 6, to embrace the outer projections of the corrugations or ribs. The indentations *i* in the hoop or band form shoulders which are adapted to positively engage the projecting portions of the ribs, and thus hold them from displacement, which materially strengthens the body by keeping the ribs in their radial relation to the sheet metal A.

10 The auxiliary covering for the cells may be made of a continuous sheet with indentations like those designated *i i* in Fig. 6, so as to embrace the flanges *c* and hold the ribs from displacement, as just described in reference to the band, and the construction shown in Fig. 2 would represent such sheet in combination with the body A and radial ribs as correctly as it represents the hoop E, which is shown in Fig. 1.

20 I am aware that barrels and cans have been fluted and ribbed to increase their strength and that structures have been formed of a series of stiffening-pieces and a sheet of flexible material passed alternately over the inner and outer faces of such pieces; but I am not aware that any sheet-metal body has been formed with a series of closed rectangular cells of the same cross-section throughout their length and extended from the top to the bottom of the can, so that the cell-partitions are radial and the cells rectangular, with the ends closed by suitable bands. This design greatly facilitates the construction of the blank, the introduction of the staves, the covering of the cells, and the shaping of the entire shell into cylindrical form as well as the application of the bottom at one end and the top band at the other, while it secures a construction of great strength and elasticity to resist the lateral blows and strains to which such cans are subjected.

The material is cheap, and the article is thus produced at a low cost in proportion to its strength.

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

1. A can having a closed bottom and open top and formed with a cylindrical body hav-

ing a series of rectangular cells of the same cross-section throughout their length, extended from the top to the bottom of the can, parallel staves of wood adapted to insert in the cells from the end of the same, and bands C, C' operating to close the ends of the cells and retain the staves therein, as and for the purpose set forth. 55

2. In a can, the combination, with a sheet-metal cylindrical body formed upon one side only with a series of vertical folded ribs, of a series of auxiliary sheet-metal coverings held in place by engagement with the ribs, and forming with the same a series of closed cells of equal cross-section from the top to the bottom of the can, as and for the purpose set forth. 65

3. The blank for forming a cylindrical can-body with vertical cells of the same cross-section throughout their length, consisting of the metallic sheet A provided upon one side with the transverse series of loops *b'*, adapted for the formation of cells, in connection with auxiliary coverings for such cells, substantially as herein set forth. 70

4. In a can, the combination, with a sheet-metal cylindrical body having upon one side the folded radial ribs *b* having the T-heads *c*, as set forth, of rectangular wooden staves fitted to such cells, and the auxiliary coverings *h* fitted to the cells within the flanges of the T-heads, as and for the purpose set forth. 80

5. In a can, the combination, with a cylindrical can-body having a series of vertical corrugations forming vertical closed cells with radial ribs between the cells, of the hoop E having the series of transverse notches *i* formed at intervals therein to fit upon such ribs and engaging the edges of the same to positively prevent their displacement, substantially as herein set forth. 90

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

JOHN C. MILLIGAN.

Witnesses:

THOMAS S. CRANE,
EDWARD F. KINSEY.