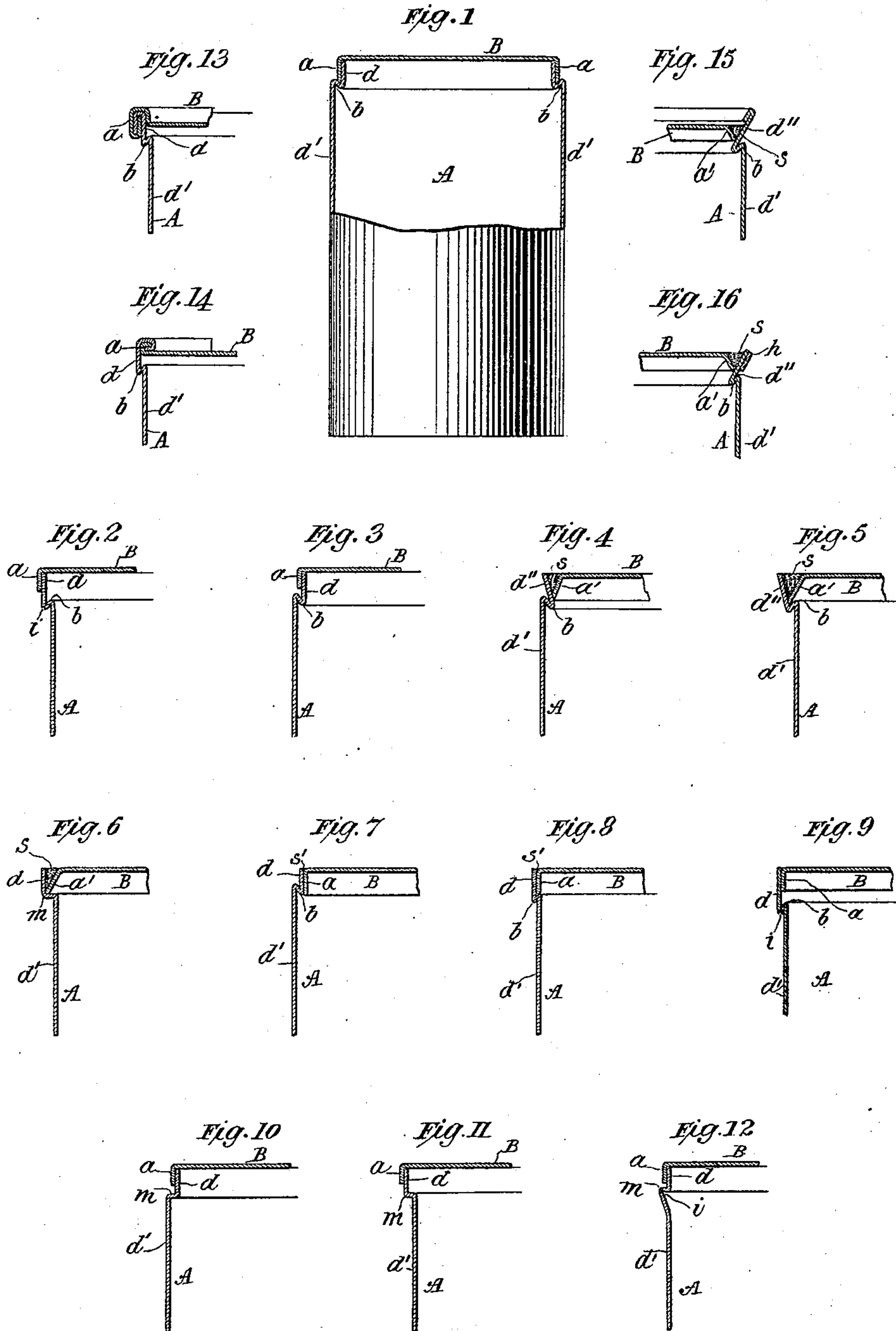


(No Model.)

A. KLEINFELDT & F. P. McCOLL.  
SHEET METAL CAN.

No. 466,992.

Patented Jan. 12, 1892.



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# UNITED STATES PATENT OFFICE.

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## SHEET-METAL CAN.

SPECIFICATION forming part of Letters Patent No. 466,992, dated January 12, 1892.

Application filed November 11, 1891. Serial No. 411,634. (No model.)

*To all whom it may concern:*

Be it known that we, ARTHUR KLEINFELDT, of the city of New York, in the county and State of New York, and FRANCIS P. MCCOLL, of Brooklyn, in the county of Kings, in the said State, have invented certain Improvements in the Construction of Sheet-Metal Cans of the Kind which are Capable of being Hermetically Sealed; and we hereby declare that the following is a full, clear, and exact description thereof, reference being had to the drawings which accompany and form part of this specification.

It is well known that an almost innumerable variety of forms have been proposed for metallic cans of the class referred to; but the impossibility of producing many of them cheaply enough and the difficulty of readily opening nearly all of them have caused them to be looked upon with disfavor, so that the result has been that only a very few of the different forms have gone into use, and of these probably the most successful have been the kind which are opened by stripping off or tearing out a section of the material of which they are composed.

The object of our improvements is to provide, for all the purposes for which cans and other vessels of the hermetically-sealing class are employed, a metallic receptacle which can be very economically manufactured and in respect of cheapness of construction will compete with any other in the market, and which, while adapted to at all times preserve its contents in perfect condition, can be readily opened, when required, by inexperienced persons, and which consequently will be found to be a satisfactory substitute for any can now before the public.

To these ends our invention consists in forming at any desired point between the extremities of the body of a sheet-metal can or other analogous receptacle, but preferably near one of such extremities, a somewhat deep groove, bead, or shoulder, or equivalent indentation, so impressed into the metal that the portion of the body-wall of the can or other vessel which is between the groove or equivalent indentation and one end of the body or between the groove or equivalent and the end of the body nearest thereto will

be parallel with the residue of the body-wall, or sufficiently so, but will be in a different plane therefrom and separated from it by a narrow bridge of the material of a width about equal to the depth of the groove, so that the metal, weakened as it will be by the striking up of the groove, will be adapted to be torn or cut through along the path of the groove or along the space or bridge between the two planes of the metal by the action upon it of one of the covers or heads of the vessel when a slight sudden force from blows or otherwise is applied to or caused to operate upon or be transmitted to such cover.

To enable others to practice our improvements, we will proceed to describe them in detail.

In the drawings, Figure 1 represents, partly in section and partly in elevation, a can constructed in accordance with one form of our invention, which may be taken as a fair type thereof, while in all the remaining figures are illustrated various modifications of our mode of construction, which may be adopted, if preferred.

A, Fig. 1, is the body of a cylindrical sheet-metal can, which is constructed in all respects in the usual manner, except at its upper end. At this upper end we impress in any convenient way into the metal constituting the walls  $d' d'$  of the can a somewhat deep groove or channel  $b b$ , which preferably extends entirely around the periphery of the can, as shown. In this particular figure this channel extends in a downward direction, as seen; but this is not essential. When this groove or channel is formed and at the same operation therewith, a certain portion (represented at  $d$ ) of the wall of the can-body is carried inward to a depth about equal to that of the groove, so that this portion, when the operation is finished, is caused to stand in a different although parallel plane from the plane of the residue of the body-wall. The head or cover B, made in the usual or any suitable manner, is then so fitted to the top of the can-body that its flange  $a a$  shall closely encircle the latter, while the sharp edge of the flange fits into and rests in the bottom of the groove. In this position the cover, when the can is to be closed for the market, is soldered to the



part  $d$  of the wall in the customary manner, and the can is then complete. When it is desired to open it to obtain access to its contents, it is merely necessary to strike a few sharp blows upon the cover or in any manner apply a sudden force to it, when the lower edge of the flange  $a$  will quickly cause the metal of the wall portion  $d$  to be broken through along the groove or channel  $b b$ , and the cover can then be removed without further effort.

It is not in all cases essential that the flange  $a$  of the cover should extend entirely down to the bottom of the groove or even down to the groove. In the forms shown in Figs. 2, 3, 9, 10, 11, and 12 it will be seen that the flange edge stops somewhat short of the groove; but the operation of opening the can will not be affected by this, as the stiffness imparted to the portion  $d$  of the body-wall by the soldering to it of the flange  $a$  in these figures will easily enable the force operating upon the cover to cause the rupture of the metal at the groove  $b b$  in as satisfactory a manner as in the form shown in Fig. 1. It is also not always essential that the portion  $d$  of the body-wall should be so formed as to stand in a parallel plane with that of the portion  $d'$ . This is illustrated in Figs. 4, 5, 15, and 16, which show forms of construction which will often be found very desirable. In these figures it will be seen that the portion of the wall marked  $d''$  stands at a slight angle with the plane of the residue of the wall  $d'$ ; but this lack of parallelism will not be found in practice to affect the operation of opening the can. In the forms shown in these figures the flange of the cover is also turned outward at somewhat of an angle, as seen at  $a'$ . This may be done whenever desired without impairing the ready opening of the can. In each of these four figures, as also in Fig. 6,  $s$  indicates the somewhat thick line of solder which is employed to secure together the flange  $a$  and the wall portion  $d''$  in Figs. 4, 5, 15, and 16 and  $d$  in Fig. 6, this solder being shown on a somewhat exaggerated scale, in order to make the figures more plain. The remaining figures do not require special mention, as the construction of the forms shown in them will be readily apparent and as their operation is substantially similar to that of Fig. 1. In Figs. 6, 10, 11, and 12, however, it will be observed that the groove or channel of the other figures is replaced by an indentation or offset in the shape of a substantially right-angled shoulder, as seen at  $m$ ; but the operation of these forms will be in all respects the same as has been already described.

In Fig. 16 the part marked  $h$  denotes a narrow band or ring, which, when desired, may be caused to encircle the wall, so as to act as

a reinforce and impart greater stiffness to the metal; but otherwise than this the form shown in this figure does not differ essentially from the other figures.

Whenever preferred, an incision extending partially through the metal may be made on either the inside or the outside of the body-wall of the can, either along the path of the groove or equivalent or adjacent thereto. Instances of this form of construction are shown at  $i$  in Figs. 2, 9, and 12. When such an incision is employed, it will be found to facilitate the operation of rupturing the wall of the can; but it is not essential to the successful working of our improvements.

In the forms shown in Figs. 2, 5, 6, 8, 9, 11, 13, 14, 15, and 16 the head or cover B, after the can has been opened, will be found to serve as a slip or removable cover for the vessel, inasmuch as the flange  $a$ , united, as it is, to the wall portion  $d$  or  $d''$ , which in opening the can will be broken off at the groove, will either fit conveniently over the residue of the can-body, as in some of these figures, or will extend more or less into the end of the body, as in the others of said figures, and thus constitute a satisfactory closure for the can.

In all cases where it is found difficult with certain kinds of cans in the market to avoid injury to them during the operation of "processing" their contents our invention will be especially desirable, as cans constructed in accordance with our improvements will always successfully withstand any pressure to which they may be subjected in processing them if the operation be in any manner properly performed.

Having thus described our improvements, what we claim, and desire to secure by Letters Patent, is—

A sheet-metal can or analogous receptacle which is provided with a suitably-formed channel in the wall of the can-body at any desired point between the extremities thereof, so formed that the portion of the wall between such channel and one end of the body or between the channel and that end of the body which is nearest thereto shall be in a different plane from that of the residue of the body and so located in relation to one of the heads or covers that a suitable force applied to or operating upon the latter will cause the can-body to be ruptured along the line of the channel or along the narrow zone of material between the two planes of the metal, and thereby enable the can to be readily opened, substantially as set forth.

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