J. R. HARBECK.

PAPER WALLED CAN.

APPLICATION FILED JUNE 19, 1911.

1,062,002.

Patented May 20, 1913.

2 SHEETS—SHEET 1.

Fig. 1

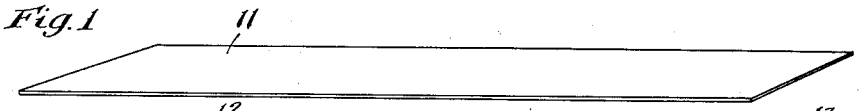


Fig. 2

Fig. 3

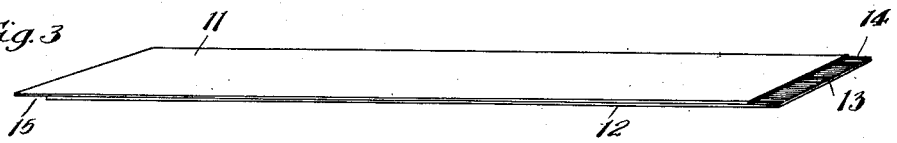


Fig. 4

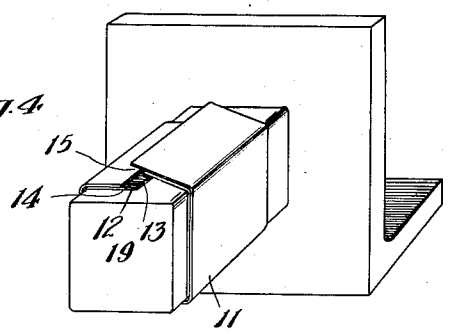
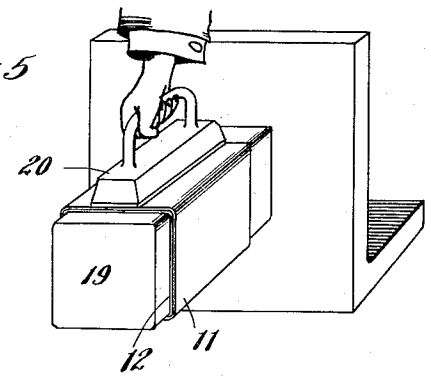


Fig. 5



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2 SHEETS—SHEET 2.

Fig. 9

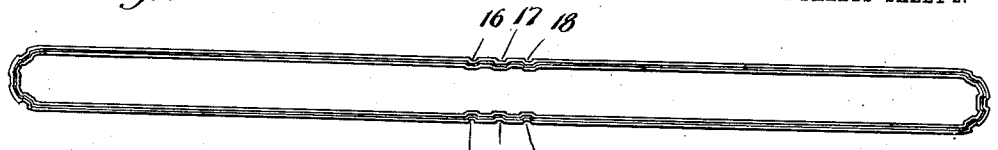


Fig. 6

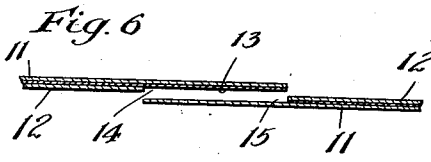


Fig. 7

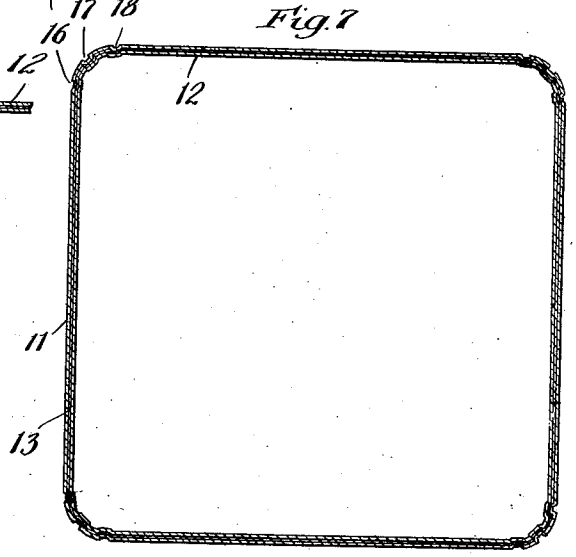
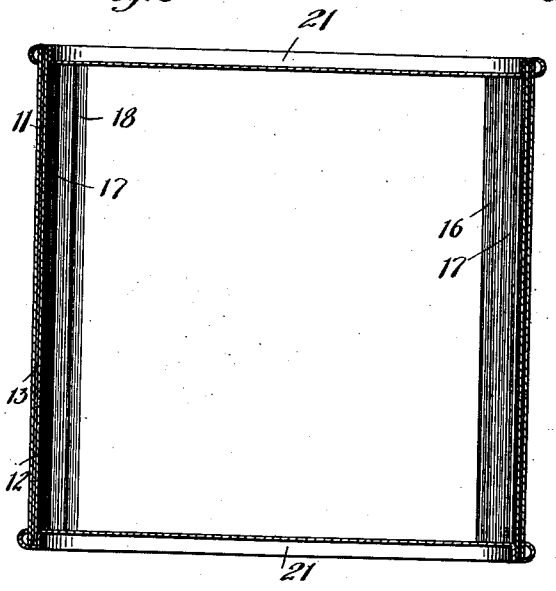


Fig. 8



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UNITED STATES PATENT OFFICE.

JERVIS R. HARBECK, OF DETROIT, MICHIGAN, ASSIGNOR TO DETROIT CAN COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF NEW JERSEY.

PAPER-WALLED CAN.

1,062,002. Specification of Letters Patent. Patented May 20, 1913.

Application filed June 19, 1911. Serial No. 634,021.

To all whom it may concern:

Be it known that I, JERVIS R. HARBECK, a citizen of the United States, residing in Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Paper-Walled Cans, of which the following is a specification.

This invention relates to an improvement in the construction of cans and vessels having paper bodies, and the invention consists in forming the body of strips of the paper material in several layers cemented together by a cement which is coated upon one layer and caused to adhere to the adjacent layer by the application of heat; and it further consists in applying the cemented layers to one another in step fashion, so that the strips when formed into a body may be joined one end to the other end readily; and it further consists in the means for facilitating the formation of the endless paper body into the shape of a square can by crimping said strip at intervals to form the corners, and which crimping also facilitates the shipment of the can body material in the flat.

In the accompanying drawings which form a part of this specification, Figure 1 is a perspective view of a strip of cardboard forming part of the can body. Fig. 2 is a similar view of a similar strip coated with the cement. Fig. 3 is a similar view of the two strips when united together step fashion. Fig. 4 is a view of the composite strip shown at Fig. 3 when the same is folded around a mandrel preparatory to uniting the two ends of the strip. Fig. 5 is a perspective view of the act of uniting the two ends of the cemented strip by the application of a hot iron. Fig. 6 is a fragmentary section of the can body material, showing the joint between the two ends of the strip. Fig. 7 is a horizontal section of the completed can body extended into the square form ready to receive the head. Fig. 8 is a vertical section of the completed can comprising the cement paper body and sheet metal top and bottom heads, and Fig. 9 is a view of the paper body without the heads when pressed into the flat for shipment.

In said drawings 11, 12 are similar strips of cardboard, paper, fiberboard or other similar material cut into oblong form of sufficient width to correspond to the height of the can to be made, and of sufficient length to equal the circumference of the can, and enough longer to form the joint for uniting the two ends of the strip into an endless band. The face of one of the strips, say the strip 12, is coated with the cement 13, which should consist of a fusible compound that remains hard at ordinary temperatures, but may be softened and rendered adhesive by the application of heat, for example, a mixture of asphaltum, paraffin oil and a modicum of beeswax, enough of the paraffin oil and wax being employed to diminish the brittleness of the asphaltum without materially lessening its adhesive properties. The strip 11 is laid upon the strip 12 in such manner, see Fig. 3, as to leave a step 14, 15 at each end, the step 14 being coated with the cement and the step 15 being uncoated. Of course, it will be understood that all of the strips may be coated on one side with the cement, but I find it unnecessary to coat more than one side of the proposed union of strips. If extra thickness and strength be desired, a third strip coated like the strip 12 may be added, said third strip being coated with the cement the same as strip 12 and placed beneath the strip 12 and extending to form a second step, and the number of strips thus united may be still further increased if desired. When the composite strip has been thus laid together, the cementing of the strips to each other in the flat is accomplished by heating them, as for example, by ironing them with a hot iron until the cement has been softened and made to adhere to the paper of the superposed strip. The composite strip still in the flat is now taken and at stated intervals is creased with three creases 16, 17, 18. These creases extend across the strip from side to side and are intended to facilitate the folding of the body into the square form. The three creases have the effect of giving a square form to the body with slightly rounded corners, the rounded corners being intended to facilitate the operation of seaming or compressing the subsequently applied sheet metal head to the said paper body. To unite the stepped ends of the strip, said strip is folded around a mandrel 19 of proper size and shape, and a hot iron 20 applied to the stepped side seam, see Figs. 4 and 5.

Suitable sheet metal heads 21, 21 are

seamed or crimped upon the body to form a completed vessel, the last head being applied after the vessel has been filled. This can or vessel in the knockdown with the bodies complete and ready for application of the heads may be readily shipped in a condition so far completed as to require only the application and crimping on of the heads, since the bodies may be pressed flat into the form indicated at Fig. 9 and the loose heads packed therewith in small space.

The vessels made in this manner, wherein the layers are cemented by a cement consisting of a fusible compound united by application of heat, as contradistinguished from the ordinary cements employed in similar relation, are much more thoroughly water and grease proof than such paper vessels seamed or built up by the employment of such solvent softened pastes or cements. Because, in order to harden solvent softened cement, the solvent must be dried out, which it can only do by passing through the layers of paper between which it is placed, and which escape of the solvent through the paper tends to leave both the paper and the cement in a state where they are pervious to water and grease, especially the latter. And this impervious character of the can body built up of layers of paper united by fusible cement is specially valuable where the can or vessel is to be used for containing aromatic foods, such as coffee, tea, etc., as will be readily understood.

Where the term "paper" is used, any kind or sort of fibrous material is meant.

Having described the invention, claim is made as follows:

1. The vessel having walls made of layers of paper united to each other by a fused cement, substantially as specified.

2. The can body composed of oblong layers of paper cemented to each other step fashion by a fused cement and having its stepped ends cemented together by the fusible cement and caused to adhere to each other by the application of heat, substantially as specified.

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Witnesses:

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