

Jan. 8, 1924.

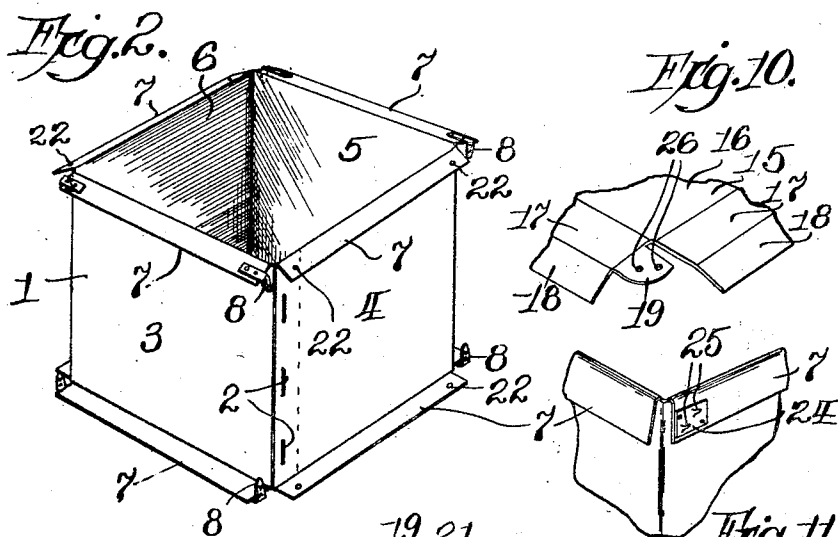
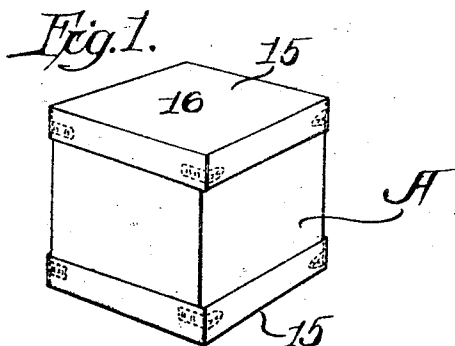
1,480,358

G. M. WIRTZ

FOLDING CARTON

Filed Sept. 10, 1918

2 Sheets-Sheet 1



Jan. 8, 1924.

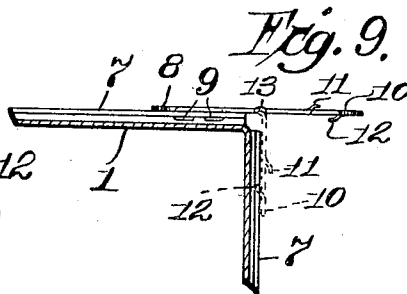
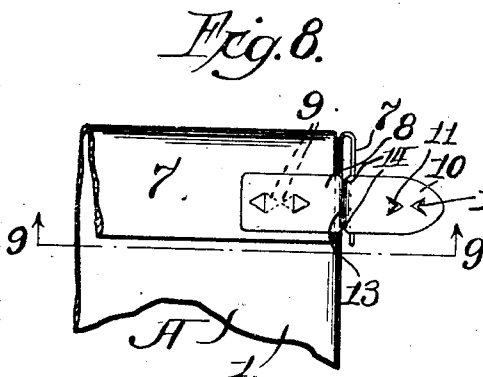
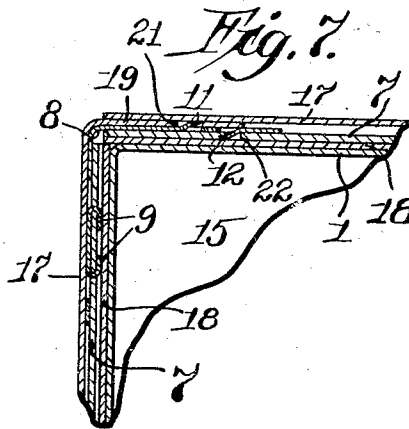
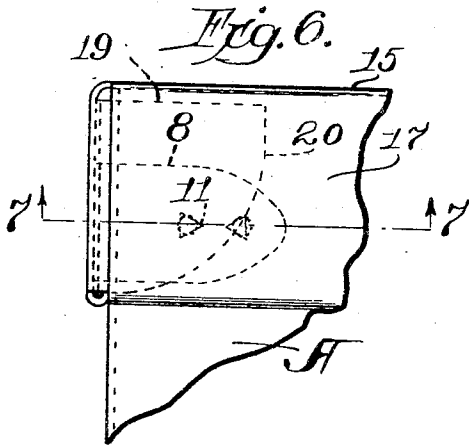
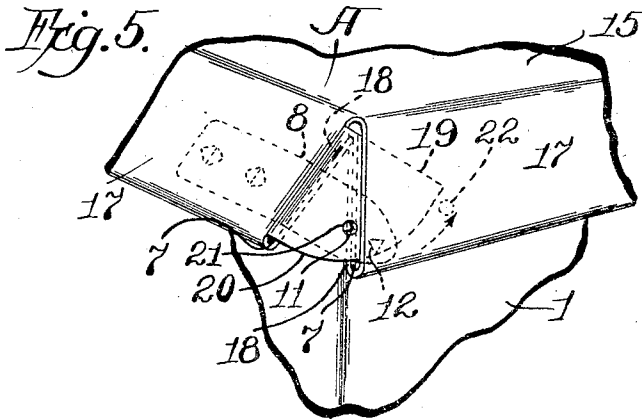
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2 Sheets-Sheet 2



Inventor:
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Attorney.

Patented Jan. 8, 1924.

1,480,358

UNITED STATES PATENT OFFICE.

GEORGE M. WIRTZ, OF ST. PAUL, MINNESOTA.

FOLDING CARTON.

Application filed September 10, 1918. Serial No. 253,478.

To all whom it may concern:

Be it known that I, GEORGE M. WIRTZ, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Folding Cartons, of which the following is a specification.

My invention pertains to folding cartons which are preferably made of cardboard or other suitable material, to give a strong, light weight carton, which can be packed flat so as to require only a small space when it is knocked down or folded together for shipment or storage, while when the carton is opened and put together it makes a suitable container to be used as a shipping carton or box for any desired purpose.

The primary object is in means for locking the box sealed so that the contents of the same can not be tampered with, without destroying the seal or a portion of the carton.

The locking means also forms strengthening means at the corners of the cartons, allowing the same to carry a considerable weight without danger of the carton coming apart in shipment. My carton is formed with reinforcing means about its ends, the reinforcing means being formed by interlocking flaps formed on the body portion and on the closures for the same. The reinforcing means also forms engaging means by which the carton can be easily engaged to carry the same.

In the drawing forming part of the specification:

Figure 1 is a perspective view of my carton in closed position.

Figure 2 is a perspective view of the body portion of a carton before the closures have been attached thereto.

Figure 3 is a perspective view of the closure for either end of the carton.

Figure 4 is a cross sectional detail of a portion of the carton.

Figure 5 is a perspective view of a detail of a portion of the carton.

Figure 6 is a side elevation of a detailed portion of the carton.

Figure 7 is a cross section on the line 7—7 of Figure 6.

Figure 8 is a side elevation of a detailed portion of the carton.

Figure 9 is a cross section on the line 9—9 of Figure 8.

Figure 10 is a perspective of a detailed

portion, illustrating an alternative construction.

Figure 11 is a perspective view of a detailed portion of an alternative construction.

In the drawing, the carton A is formed of cardboard, corrugated board, or other suitable material, having a body portion 1 which is secured together by means of the staples 2, in the ordinary manner, so that the walls 3, 4, 5 and 6 are adapted to form the side walls of the carton A when the same is set up for use.

The walls of the carton A are formed with flaps 7, which are approximately the same length as the width of the walls, and by suitable scoring at the upper and lower edges of the walls the flaps can be hinged so as to be bent downward to lie parallel and adjacent to the outer surface of the wall to which they are attached. A locking member 8, formed of thin sheet metal, or other suitable material, is secured to the ends of the flaps 7 of the opposite walls 3 and 5 by means of the engaging points 9, so as to rigidly secure the locking member 8 to the flap 7. The member 8 is formed with an engaging tongue 10 which projects beyond the edge of the flaps 7 when the member 8 is attached thereto, and the tongue 10 is formed with engaging barbs 11 and 12, the points of which project toward each other. The barb 11 projects from one side or face of the tongue 10, while the barb 12 projects from the other side or face of the tongue. The apex of each of the barbs 11 and 12 is bent inwardly so as to lie approximately parallel with the face of the tongue 10 from which they project, the purpose of which will be hereinafter described. The barbs 11 and 12, together with the engaging points 9 are formed integral with the locking member 8 by punching them out of the same in the ordinary manner.

The locking members 8 are attached to the ends of the flaps 7 of the opposite walls 3 and 5 when the box is in the course of manufacture or construction, and the tongue 10 projects in the same plane with the body of the attached portion of the member 8 so that the member 8, with the tongue 10, lie flat in the same plane to allow packing of the carton A when folded together or in a knocked down state. The locking members 8 are scored transversely along the line 13, and may also be formed

with notches 14 on either side of the member, and in line with the scored line 13 so that when it is desired the locking member can be bent with the tongue 10 projecting at right angles from the body or attached portion of the member, as is illustrated in dotted outline in Figure 9. The tongue 10 of the member 8 is not bent into right angular shape as illustrated in dotted outline in Figure 9 until it is desired to set up the box or carton A for use.

The top and bottom of the carton A is adapted to be closed by members 15 which are formed of cardboard or other suitable material, preferably similar to the material that the body portion 1 of the carton is made of, thus forming a carton of uniform construction when it is put together. The members 15 are rectangular in shape, and the body portion 16 of the same is approximately the same size as the opening in the top and bottom and the body portion 1 when the same is set up in rectangular shape. The body portion 16 of the member 15 is formed with double flaps 17 and 18 which project, and are formed integral from the four sides of the body portion, the flaps 17 and 18 being approximately the same length as the sides of the body portion 16. By means of suitable longitudinally extending scoring between the flaps 17 and 18 and between the flaps 17 and the body portion 16, the flaps 17 and 18 can be folded or hinged together so as to be folded to lie parallel to each other and so that the flaps 17 and 18, when folded, can be positioned to extend at right angles from the body portion 16. The flaps 17 and 18 are a trifle wider than the flap 7, and are adapted to engage the flap 7 between the inner surface of the flaps 17 and 18 when the carton A is put together, as illustrated in Figures 1 and 4. Two of the flaps 17, which are positioned opposite to each other from the body portion 16, are formed with projecting guards 19 which are formed integral with the flaps 17, and by suitable scoring can be bent to extend at right angles to the ends of the flaps 17. The guards or tongues 19 are formed with a curved edge 20 and an opening or hole 21, the purpose of which will be hereinafter described. The guards 19 are preferably slightly narrower than the width of the flaps 17 to allow for folding when the carton is put together.

The flaps 7 projecting from the opposite sides 4 and 6 of the body portion 1 are formed with holes or openings 22 near their ends. When the body portion of the carton A is set up and it is desired to close the carton with the members 15, the flaps 17 carrying the guard 19 are folded over the flaps 7 carrying the locking member 8, the locking member 8 having been bent to a right angular shape before the flap 7 is

engaged by the flaps 17 and 18, so that the guard 19 can be folded over the tongue 10 of the right angular locking member 8 and the barb 11 brought into engagement with the hole 21 so as to hold the guard or tongue 19 in position on the tongue 10. The adjacent flaps 17 and 18 are then folded over the flap 7, having the holes 22 near its ends, and the tongue 10 together with the guard 19 are inserted between the flaps 17, and the flap 7 with the hole 22 in it, forcing the tongue 10 into position so that the barb 12 will engage the opening 22 and thus lock the tongue 10 with the guard 19 in position between the flaps 17 and the flap 7, and drawing the folded flaps 17 and 18 with the enclosed flaps 7 of each of the adjacent ends, at the corner of the carton A being closed, into close proximity to the wall of the body portion of the carton, as illustrated in Figures 5 and 6. The curved edge 20 allows the guard to slide easily into position when being inserted, as illustrated in Figure 5.

The position of the parts illustrated in Figure 5 clearly illustrates how the tongue 10, together with the guard, are inserted between the flaps 17 and 7, the illustration shows the tongue 10 and the guard 19 just at the start of being inserted between the ends of the flaps 17 and 7, and Figure 6 illustrates the tongue 10 in locking position with the barb 12 engaging in the opening 22. The locking member 8 tends to form a reinforcement at the corner of the box strengthening the same, and is protected by the guard 19, so that it is practically impossible to open the box without tearing the hole 22 to such an extent that it will not again hold the locking means in position to lock the folded and interlocked flaps 7, 17 and 18 together at the corners to seal the box. The guards 19 also conceals the locking means, giving a very effective locking device which can not easily be tampered with. Each of the corners of the folded flaps are locked together in the same manner by means of the locking member 8, and when the openings of the carton A are closed by the members 15 the carton is entirely sealed and can not be opened without breaking the seal or locking means. In this manner the carton A is locked without adhesive tape or other gluing means, and the folded flaps or members 17 and 18 of the members 15 form a convenient shoulder by which the carton A can be engaged to carry or handle the same during shipment.

The upper and lower flaps on the body portion 1 of the carton A are identical and the carton is closed by two members or closures, such as 15, which are identical in form and shape. It is essential, however, that the flaps 7 of the opposite walls carry the locking members 8 on their ends, and that the flaps 7 on the other opposite walls

of the carton are formed with openings 22. It is also necessary that the covers 15 have a pair of opposite flaps, such as 17, which carry the guards 19, an opening twenty-one being formed in each of the guards for engagement with the barbs 11 of the locking member. The locking member 8 is not bent into right angular shape until it is desired to set up the carton to be used as a container.

The double folding flaps 17 and 18 interlock with and engage the flaps 7, and when these interlocked and folded flaps are locked together at their corners by means of the locking member 8 the flaps lie against the outer surface of the walls of the carton A and form a reinforcement for the carton about its upper and lower edges, giving a light weight, strong and durable carton.

Figures 10 and 11 illustrate details of an alternative construction of locking means, where a flat, plate like locking member 24 is secured to the pairs of flaps 7 of the opposite walls at their ends in a similar manner as the members 8 and the locking plate 24 is formed with engaging barbs 25 which are adapted to engage in the openings or holes 26 formed in the guard or tongue 19. In this construction the guard or tongue 19 holds the folded flaps 7, 17 and 18 together at each of the corners, and is adapted for use on light weight cartons where a comparatively light content is to be contained in the same. However, the tongues 19 in the construction illustrated in Figure 10 can be made sufficiently strong to carry a considerable strain and thus lock and hold the carton A locked at its corners, if it is desired. The tongue 19 in this construction is inserted between the flaps 17 and the flaps 7 so as to engage the barbs 25 in the holes 26 when the flaps 17 and 18 are folded over the flaps 7. The barbs 25 formed on the locking member 24 project in the same direction and from the same face having their apexes bent to extend in a similar manner as the barbs 11 and 12. When this construction of locking means is used on a carton it is also impossible to open the carton without destroying the locking means.

In each of the constructions illustrated, the locking means is formed by a locking member having sharp barbs which are adapted to engage in a hole or recesses formed in a portion of the carton, and the carton can only be opened by destroying or breaking the seal or locking means sufficiently so that it would be impossible to again use the same locking means to hold the box sealed. The preferred construction of locking means having the right angular member 8 strengthens the carton at its corners, putting most of the strain on the angular locking member at the corner in place of on the tongue 19, as is the case in the

alternative construction. The tongue 19, in the preferred construction, tends to form a guard to conceal and protect the locking member, and also holds the ends of the flaps 17, from which the tongues project, closely against the locking member 8.

In accordance with the patent statutes, I have described the principles of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the construction shown is only illustrative, and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims:

1. In a folding carton having a body portion, a series of flaps formed on said body portion, at the upper and lower edges of the same, closures for said body portion, a series of double flaps formed on said closures, locking means secured to the end of the opposite pairs of said flaps on said body portion, said double flaps being adapted to engage the flaps formed on said body portion between the inner sides of said double flaps to interlock with and engage said flaps on said body portion, and said locking means being adapted to lock said series of double and body flaps together in interlocked and folded position to close and seal said carton, said locking means being concealed between said flaps to prevent exposure or tampering with the same.

2. In a folding carton having a folding body portion, closures for the ends of said body portion, a series of folding flaps formed on said body portion and said closures, which are adapted to interlock with each other when said carton is set up, means for locking said folding and interlocked flaps together at the corners of said carton, and means formed integral with said closure flaps for concealing said locking means for the purposes specified.

3. In a folding carton having a body portion, closures for the ends of said body portion, a series of flaps formed on said body portion, a series of double flaps formed on said closures, locking means secured to the opposite pairs of said flaps on said body portion which are adapted to engage the adjacent ends of the flaps formed on said body portion, guard means formed on the ends of the opposite pair of said double flaps for concealing said locking means, and means for engaging said guards to hold the same in close proximity to said locking means.

4. In a carton of the class described having a folding body portion, closures for the ends of said body portion, a series of folding flaps formed about the edges of the ends of said body portion, a series of double folding flaps formed on said closures, and engag-

ing means secured to the ends of the opposite pairs of said flaps on said body portion, which are adapted to be inserted between the sides of the adjacent ends of the flaps to engage and lock said flaps in folded and interlocked position to close or seal said carton, for the purposes specified.

5 In a carton of the class described having a folding body portion, closures for the open ends of said body portion, a series of hinged flaps projecting from the ends of said body portion, a series of hinged and folding flaps on said closures which are adapted to be folded over said flaps on said body portion to interlock said flaps on said closures with the flaps on said body portion, locking means for locking said interlocked flaps together to seal said carton and tongues formed on said closure flaps for concealing said locking means.

6. In a carton of the class described which is adapted to be folded into a flat thin state, a body portion, a closure for said body portion, interlocking means formed on said body and closure portion including a number of flaps which are adapted to be interlocked when said closure is in position to

close said carton, locking tongues extending between said flaps for holding said interlocking means in folded position, said locking tongues being positioned at the corners of said carton and forming a strengthening means for said carton at its corners.

7. A carton of the class described which is adapted to be folded into a flat, thin state when collapsed, a body portion, a closure for said body portion, interlocking flaps formed on said body portion and closure and means secured to said flaps at the corners of said carton adapted to be concealed by said flaps to lock said flaps and carton at the corners with the interlocked flaps folded flat against the side walls of the body portion of said carton to form a compact carton when concealed.

8. A carton having an opening formed with flaps adjacent said opening, a closure member provided with hinged flaps adapted to fold around the flaps on said carton, locking means secured to the corners of said carton flaps adapted to slide in between said closure and carton flaps to hold the same in place.

GEORGE M. WIRTZ.