

Feb. 17, 1953

A. J. ZENI

2,628,737

ADJUSTABLE PACKING CASE AND THE LIKE

Filed July 3, 1948

3 Sheets-Sheet 1

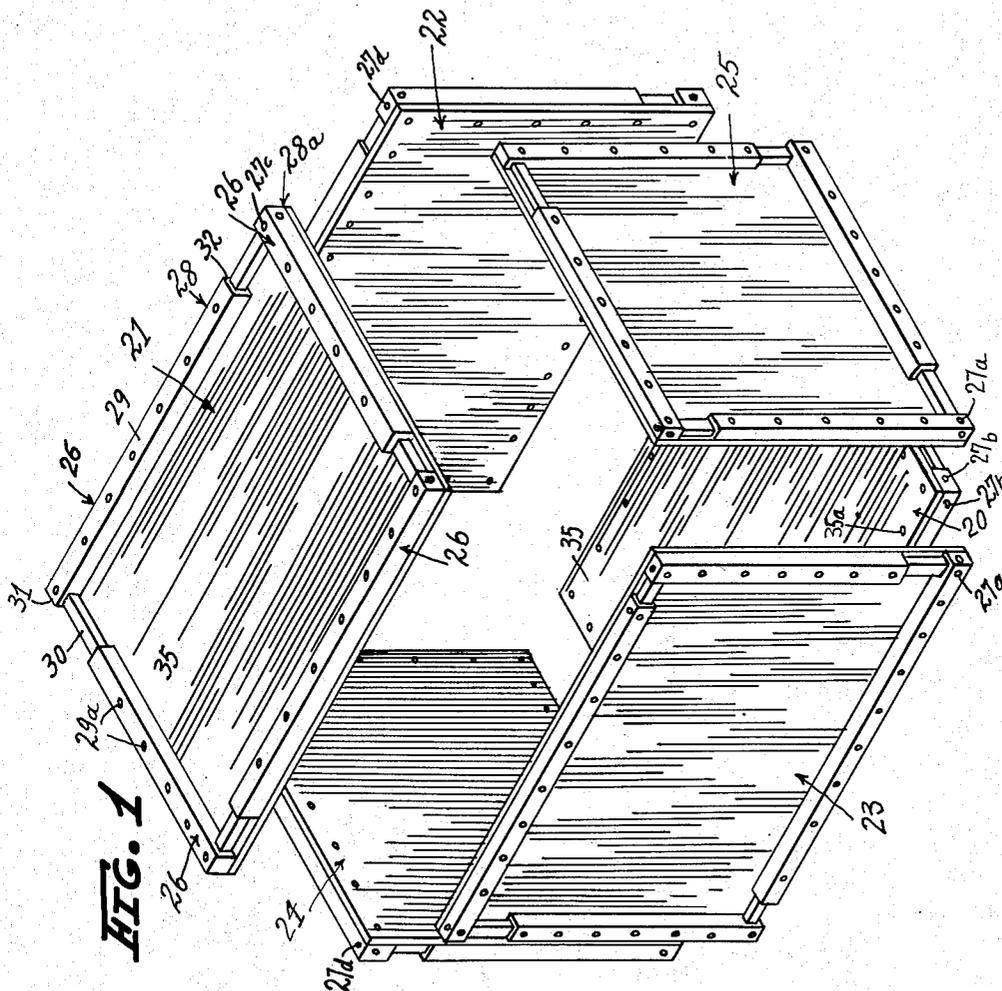
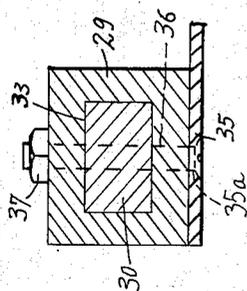


FIG. 1

FIG. 2



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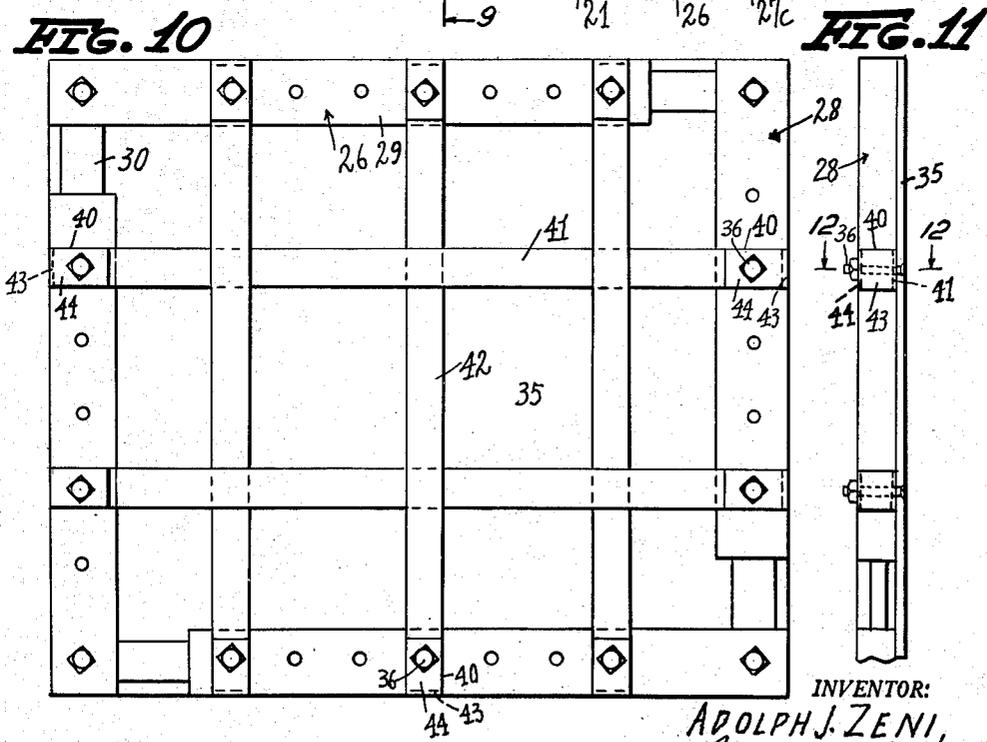
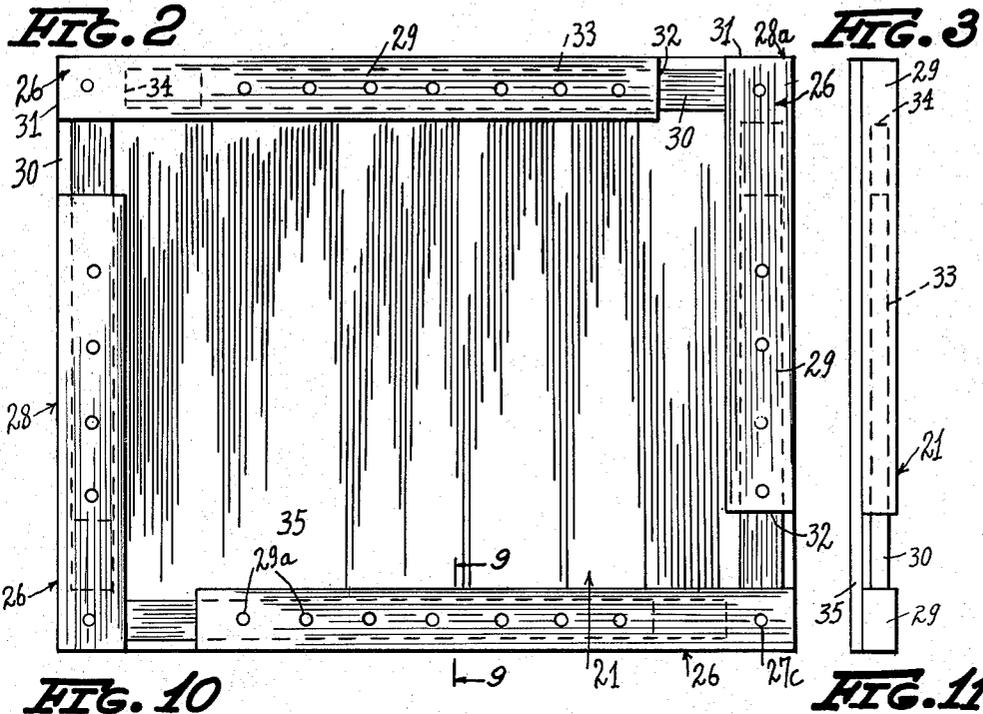
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FIG. 4

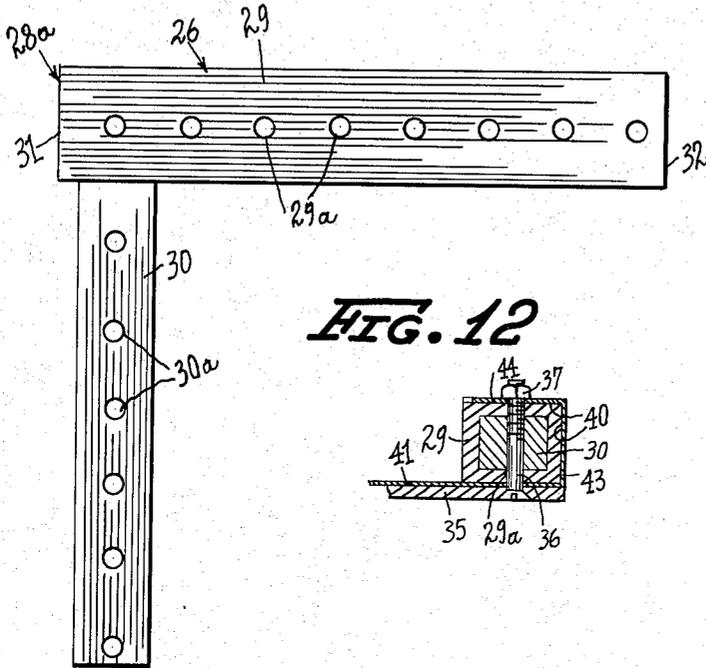


FIG. 5

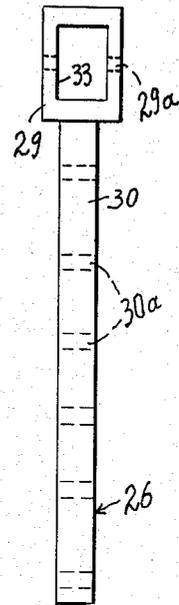


FIG. 12

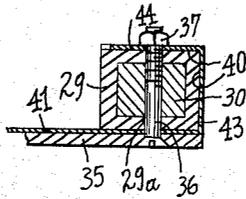


FIG. 6

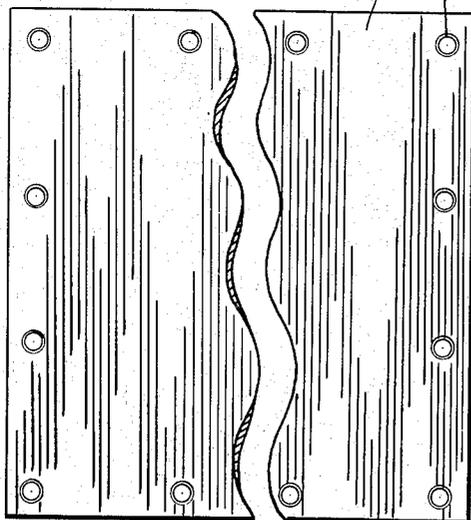
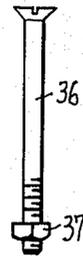


FIG. 7



FIG. 8



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UNITED STATES PATENT OFFICE

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ADJUSTABLE PACKING CASE AND THE LIKE

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7 Claims. (Cl. 217—12)

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This invention relates to packing cases, boxes, and crates, and has for its main object to provide a device of this type which may be adjusted as to size in all three dimensions, and within substantially large limits.

In various industries and businesses, or even within one establishment of this kind, and also for private personal uses, very often packing cases or boxes of various sizes are required which should be adapted to the needs of the articles or goods to be packed and shipped or stored.

At present, forming such a casing or box of a certain size is an awkward, cumbersome, laborious and slow affair, and usually rather expensive, too. Particularly is this the case when the packing box should have an exact, neat rectangular size and should be strong and resisting.

It is also obvious that a device of this character, so built and prepared, becomes a waste after its first and only use and it usually is discarded or used only as waste material.

As has been mentioned, the first object of my invention is to provide a packing box or casing which will be adjustable in the desirable manner indicated.

Another object of my invention is to provide a packing box or crate and the like, which may be adjusted in an easy and quick manner but which still will be of extremely simple construction and which may be secured in its adjusted position in a strong and reliable manner.

Still another object of my invention is to provide a device of the character described, which will have a neat four sided rectangular prismatic shape, having similar perpendicular ends, and which may be shortened or extended in length, width and height in a desired gradual manner and within predetermined ample limits.

A further object of my invention is to provide devices of the indicated type, which may be built up of very few simple and uniform parts, whereby their manufacturing and use will be convenient, easy and inexpensive.

Still other objects of my invention will be apparent as the specification of the same proceeds, or will be pointed out therein, and, among others, I may mention: to provide adjustable packing cases, boxes, or crates, built for the occasion out of a few simple uniform elements, which may be further reinforced and made safe, in a simple inexpensive, quick and efficient manner, and the parts of which may be indefinitely used again and for any new sizes of casings, within their limits.

In the drawings forming a part of this specification and accompanying the same:

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Fig. 1 is a perspective view showing six sides of a prismatic packing case formed according to my invention;

Fig. 2 is a plan view of one side thereof;

Fig. 3 is an end view of the same;

Fig. 4 is a plan view of one corner frame element used in said embodiment of my invention, and

Fig. 5 is a side view thereof;

Figs. 6 and 7 are fragmentary plan and end views, respectively, of a plate or panel used as a closure member for my device, and

Fig. 8 indicates one form of securing means used therein;

Fig. 9 is a sectional detail as indicated by the line 9—9 in Fig. 2;

Figs. 10 and 11 are plan and side views, respectively, of a side of a modified form of my invention, and

Fig. 12 is a detail sectional view thereof, as indicated by line 12—12 in Fig. 11.

It is to be understood that by "sides," I mean the sides proper, top, bottom, or ends of my novel box or crate, all being of identical construction.

Referring now to the drawings more in detail, by characters of reference, the numeral 20 indicates the bottom of a packing case constructed according to a preferred embodiment of my invention and the numeral 21 the top thereof. The numerals 22 and 23 indicate the two sides and the numerals 24 and 25 the two ends of my packing case.

As has been mentioned, and as will be understood by inspecting the drawings, all the sides, top, bottom, and ends, are of the same construction, and taking the top as an example of describing such an element of my device, it will be seen that the same is formed of four angular members, generally indicated by the numeral 26, such a member being shown, separated from the assembled box, in Figs. 4 and 5.

Each such angular member will form a corner, generally indicated by the numeral 28a of a four sided rectangular frame structure 28, for the respective side or panel of my packing case, the same in the embodiment shown, being formed of four such corner units 26. Each angular corner unit will have a tubular heavier part 29 and a thinner tongue portion 30, rectangularly projecting therefrom, adjacent to the closed end 31 thereof. The other end 32 of the same is open and the inner tubular space thereof is indicated at 33 and terminates somewhat inside of the closed end 31, as shown at 34 (Fig. 2). The tubular inner space 33 will be generally of the same size and contour as the tongue member 30, that

is, in the case shown, rectangular, whereby the tongue 30 of each angular corner member 26 may be inserted into the space 33 within the tubular portion 29 of the adjacent angular member, and in this manner the rectangular frame 28 may be formed, as best shown in Figs. 1 and 2.

Frame 28 will be adjusted as to its two dimensions, longitudinally and transversely, by the obvious method of telescopically sliding the tongues 30 in the tubular members 29.

When the frame 28 for the respective side of the final packing case or crate has been adjusted, a closure member may be placed thereon, which, in the embodiment shown, is in the form of a plate 35.

A plurality of holes 29a are provided in tubular members 29, and correspondingly spaced holes 30a in the tongue member 30, and finally appropriately shaped and spaced holes 35a are in the closure plate members 35, and it will be obvious that after the right adjustment of the frame 28, and providing a plate member 35 for the same covering the entire width thereof, said plate member may be secured on the frame by any appropriate means passing through the respective holes, and, obviously, the same securing member may pass through the registering placed holes in the tubular members 29 and in the respective tongues 30, so that each such securing member may lock the respective frame members to one another, as well as the plate 35 thereon.

In Fig. 8 such a securing member is shown, being in the form of a screw 36 with a nut 37, but, obviously, any other means may be used, like wood screws, nails, etc., the screw 36 being adapted for cases where parts of my packing case are of metal. The parts naturally may be of weaker or lighter material, like the panel 35 may be of wood, or even cardboard, as well as the frame members may be of metal, wood, plastic, etc.

The sides or edges of the frames 28 may be secured through the screws 36 and nuts 37 at one or more places as required and similarly the plate 35 may be secured along its four sides in as many places as will be needed. It also will be seen that two nuts may be used, one being the locking nut, or other means may be employed for locking the nuts 37, as it is well known to those versed in this art.

When it is desired to pack a certain type of goods into a packing box or crate of my invention, first the six sides thereof as indicated in Fig. 1, will be adjusted to the right dimensions, and locked in their positions, as described hereinbefore.

The four sides and ends and the bottom may first be secured to one another, and for this purpose the sides and ends 22 to 25 will be placed around the bottom 20, and any appropriate securing means may be employed at the corners 28a of the perpendicular sides and ends to secure them to the respective corners 28a of the bottom 20. For simplicity, in cases where it is indicated, similar screws 36 to those indicated hereinbefore may be used by inserting them through holes 27a in the perpendicular parts and entering into holes 27b in the bottom.

My packing case, now, generally is prepared, except that it is open at the top, whereupon it may be filled with goods, articles or other material desired to be stored or shipped, and the top 21 then will be placed thereon and secured thereto in a similar manner as described for the perpendicular sides, through holes 27c registering with respective holes 27d.

It will be seen that I provide a packing case, crate or box which may be adjusted to any desired dimensions, length, height, and width, within the limit of these parts, and the whole packing case may be generally built of two main portions, the angular units 26 and the securing means or screws 36, to which may be added the plates 35 which are cut according to the size of the respective frames. It also will be seen that with such extreme simplicity, ease and speed of operation, I provide a packing case or crate of very strong construction, reliably locked and secured.

When it is desired to remove the contents of my case, the same may be easily opened by removing the respective screws 36 and taking the top off, and it also will be obvious that the same parts may again be adjusted and secured together for, a new packing case of the same, or, if necessary, of any other dimensions, with the exception that in the second case, the plates 35 may have to be cut, or replaced by new ones, such plates or panels, however, when no substantial strength is desired, may be made of cardboard and cut to size and discarded with very little loss of money or material. When stronger casings are required, then the panel 35 may be made of metal and as heavy as necessary.

It also will be obvious that packing cases made according to the novel principles of my invention may be built of other individual members than shown, for the sides or edges of the frames 28, slidable on one another, whereby each edge of the frame may be adjusted, similarly as described, and in cases when angular corner pieces 26 are used, they need not have the tube and a tongue portion, but they may have other members slidable on one another and secured in their adjusted positions by appropriate means.

Further, it will be seen that the shape of my casing may be of any other necessary or desired one, and the rectangular prism shown and described is only a preferred embodiment thereof. The frame members also may have other shapes than the rectangular tongue and tube here described, they may be of triangular, circular, etc., cross section.

In Figs. 10 to 12 I show a modification of my invention. In this modification the same elements may be used, in the same manner, as indicated in the preferred embodiment, and the bottom, top, ends and sides of my packing case will be prepared and secured together as described. In this embodiment, however, I provide indentations or recesses 40 around the outside of the tubular members 29, in desired places and numbers, and in such a manner that upon adjusting the frame, said recesses 40, in the opposing sides of the frame, will be in registering relation.

Before placing the respective plate 35 on the frame 28, reinforcing bands 41 and 42 will be placed over the plates 35 at the outside thereof, and in the modification shown, the ends of said bands will be arranged in the recesses 43 and bent around the respective tubular members 29 over the outside thereof, as indicated at 43 and 44, and then secured thereon, preferably by using an appropriate aperture 23a described hereinbefore, for a securing screw 36.

It will be seen that a grid work of reinforcing members is now placed on the outside of the plate 35, each element of said grid work being strongly and safely secured at both ends in the respective frame 28. Obviously, other reinforcing means

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may be used, like simply placing such bands around the plates 35 without securing them in the frames 28 but causing them to entirely encircle said plates and then securing their ends to one another as it is used now in sealing packages by metal bands or wires. The reinforcing bands 41 and 42 also may be placed on the outside and around the frames 28 resting in said recesses 40 therein, and they may tightly encircle the whole ready casing and their ends secured to one another.

It will be noted that I provide a packing case, box, or crate construction which attains all the objects of my invention, as indicated hereinbefore, and some more of them, and I desire to additionally recite some such objects and advantages in a short manner.

My invention provides packing cases or boxes which may be built according to requirement in various sizes and still they may be manufactured in a simple inexpensive manner, and built the same way with great facility and speed from practically three parts which may be manufactured in great quantities in uniform sizes. My invention will solve many vexing problems now met in packaging, storing, transporting of goods, and will avoid the many damages, losses accompanying such operations. At the same time it will greatly reduce the cost of labor, time and materials.

Packing cases according to my invention may be made and adjusted to every kind of goods and requirements and for every capacity within close graduations and for any cubic feet space desired, within the limits of the respective parts. With all this, my novel packing case will be strong, reliable, well secured and sealed, and safe against pilfering, breaking open, damages, etc. This construction will also be secure against bad materials, bad or negligent workmanship, etc., which are the cause of so much trouble, loss and expense at present. The safety of shipping goods, even on rough long voyages, in cases of my invention, will greatly reduce all the risks and obviously greatly reduce the cost of insurance.

My invention saves badly needed material, since the parts of the casing may be used over and over again, practically indefinitely.

While I have shown preferred embodiments of my invention, it is to be understood that changes and variations may be resorted to an the elements, construction uses and combinations of my invention, and I reserve my rights to such changes and variations as are within the spirit of this specification and the scope of the claims hereunto appended.

What I claim as new and want to protect by Letters Patent of the United States, is:

1. In a prismatic packing case, rectangular planar sides, each side comprising an adjustable frame and a plane closure member detachably secured to the frame after the same has been adjusted, said frame being composed of angular corner members their respective legs overlapping and being slidable on one another for adjusting the size of the frame, each plane closure member attached thereto, being attached to four angular corner members.

2. In a prismatic packing case, rectangular planar sides, each side comprising an adjustable frame and a plane closure member detachably secured to the frame after the same has been adjusted, said frame being composed of angular corner members their respective legs overlapping and being slidable on one another for adjusting

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the size of the frame, one of each of said pairs of legs slidable on another being tubular and telescopically engaging the same, means to secure said slidable legs in position and said detachable closure member thereto.

3. In a prismatic packing case, rectangular planar sides, each side comprising an adjustable frame and a plane closure member detachably secured to the frame after the same has been adjusted, said frame being composed of angular corner members their respective legs overlapping and being slidable on one another for adjusting the size of the frame, one of each of said pairs of legs slidable on another being tubular and telescopically engaging the same, a plurality of holes through said legs and through said plane closure members, respective holes being adapted to be placed into registering relation and securing means for said closure members passing through respective registering holes, and through registering holes in the rectangular closure member attached thereto.

4. In a prismatic packing case, rectangular planar sides, each side comprising an adjustable frame and a plane closure member detachably secured to the frame after the same has been adjusted, said frame being composed of angular corner members their respective legs overlapping and being slidable on one another for adjusting the size of the frame, one of each of said pairs of legs slidable on another being tubular and telescopically engaging the same, a plurality of holes through said legs and through said plane closure members, respective holes being adapted to be placed into registering relation and securing means for said closure members passing through respective registering holes, additional registering holes in frames for adjacent sides and means to secure said frames perpendicularly to one another.

5. In a prismatic packing case, rectangular planar sides, each side comprising an adjustable frame and a plane closure member detachably secured to the frame after the same has been adjusted, said frame being composed of angular corner members their respective legs overlapping and being telescopically slidable on one another for adjusting the size of the frame, and means to secure the frames of adjacent sides perpendicularly to one another, and means to secure said plane closure members perpendicularly to said frames.

6. In a prismatic packing case, rectangular planar sides, each side comprising an adjustable frame and a plane closure member detachably secured to the frame after the same has been adjusted, said frame being composed of angular corner members their respective legs overlapping and being telescopically slidable on one another for adjusting the size of the frame, said plane closure member being secured to the inner sides of the respective frames, registering recesses around corresponding frame members in the respective sides of the case, means to secure the telescopically slidable legs together in proper dimensions and perpendicular to the said rectangular plane closure members attached thereto.

7. In a prismatic packing case, rectangular planar sides, each side comprising an adjustable frame and a plane closure member detachably secured to the frame after the same has been adjusted, said frame being composed of angular corner members their respective legs overlapping and being slidable on one another for adjusting the size of the frame, said plane closure member

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being secured to the inner sides of the respective frames after being measured and cut to fit the size of the respective frame, registering recesses around corresponding tubular frame members in the respective sides of the case, and reinforcing elements placed across the plane closure member, the ends of the said reinforcing elements being laid into said recesses encircling the frame member and being secured thereto.

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