(No Model.)

F. C. DAMM.

MEANS FOR PACKING FLYING TARGETS.

No. 377,603. Patented Feb. 7, 1888.

Fig. 1.

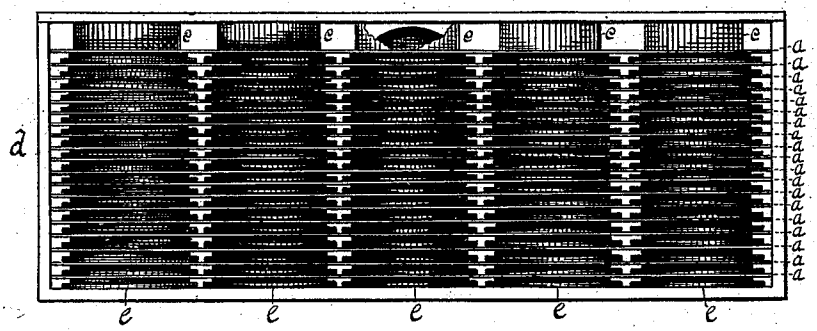


Fig. 2.

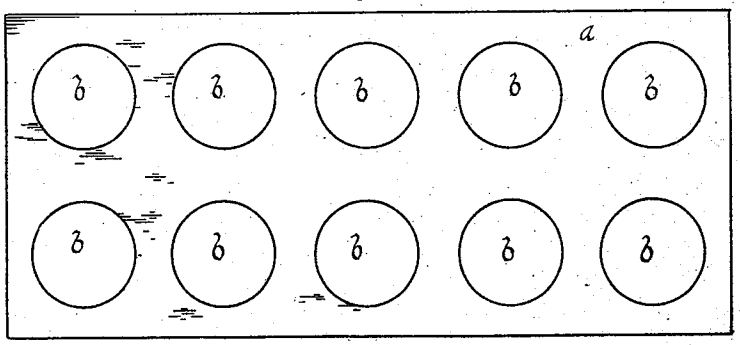


Fig. 3.

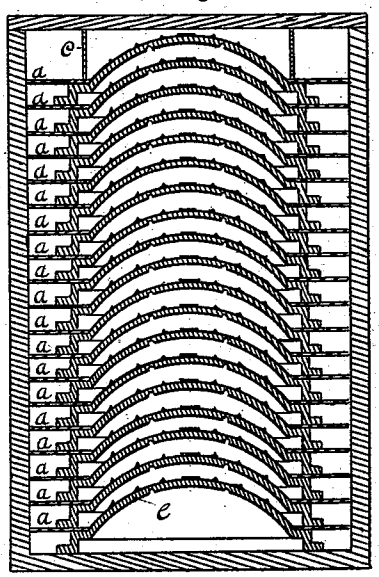
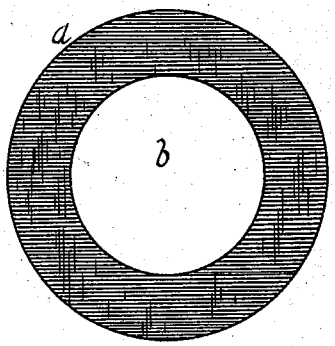


Fig. 4.



WITNESSES

J. D. Walker.

John L. Booth.

INVENTOR.

F. C. DAMM

By L. P. Graham

atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

FREDRICK C. DAMM, OF DECATUR, ILLINOIS, ASSIGNOR TO THE CLEVELAND TARGET COMPANY, OF CLEVELAND, OHIO.

MEANS FOR PACKING FLYING TARGETS.

SPECIFICATION forming part of Letters Patent No. 377,603, dated February 7, 1888.

Application filed March 15, 1886. Serial No. 195,370. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK C. DAMM, a citizen of the United States, residing in Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Means for Packing Flying Targets, of which the following is a specification.

This invention relates to improvements in packing for storage and shipment flying targets composed of a fragile material, having substantially a concavo-convex form.

The essential objects of this invention are to economize to a maximum degree the space required in which to pack the targets, and reduce to a minimum the complexity of the packing devices, and at the same time support the entire base of each and every target independently of every other target and without contact with each other.

A further object is to maintain the targets of one layer on an axial line relative to the corresponding targets of every other layer, whereby the targets of one layer tend to maintain against a lateral or vertical movement the targets of all the layers, while at the same time the base-supports of the targets are in turn supported by the targets and require no cleats or supporting devices other than the targets themselves.

I attain these objects by devices illustrated in the accompanying drawings, in which—

Figure 1 represents a case of targets packed in accordance with my invention, a side of the case being removed and the band being shown in broken section; Fig. 2, a plan and outline view of one of the diaphragms; Fig. 3, a central vertical section of a case containing a single series of targets. Fig. 4 represents a diaphragm that may be used in Fig. 3.

Similar letters of reference indicate the same parts in the several figures of the drawings.

In carrying out my invention of packing targets, a case, *d*, is employed, of any desired material, shape, and size; but preferably the case is of rectangular form and of the construction of ordinary wood packing-cases. In this case are employed diaphragms *a*, which may be of any material insuring lightness and strength, such as thin boards or veneers of wood or pasteboard. The diaphragms *a* are of dimensions substantially corresponding with the inner dimensions of the case, but fit loosely enough to be readily removed therefrom, and so as not to have any material lateral movement when in their operative positions, and each diaphragm is provided at intervals with distinct and separate perforations *b* by cutting through them. Any number of these perforated diaphragms are employed consistent with the capacity of the case for holding targets. The corresponding perforations in all of the diaphragms register with each other and are of a less diameter than that of the targets *e*, so that when packed the entire base of each of the targets will be resting upon and be supported by the diaphragms, while that portion of the target between the base and its top or apex projects partly, if not wholly, through the perforation in the next diaphragm above the base of the target, which thereby constitutes a support for such diaphragm, which in turn likewise constitutes a base-support for the next layer of targets and prevents a contact between the layers of targets so supported and the layer forming the support for said diaphragm.

In commencing the operation of packing, a diaphragm for the layer of targets next the bottom of the case may be omitted and the bottom constitute the base-support for said layer, which layer and all other layers except the top layer will form a support for the diaphragm supporting the next succeeding layer, with the tops of the targets projecting partly or wholly through the diaphragm which they support. When packed in this manner, the targets of one layer will be in an axial line with the corresponding target of every other layer, in which position they are maintained by the walls of the perforations in the diaphragm, which, owing to the weight of the diaphragms and targets above the bottom layer, not only maintain the targets from a lateral movement in the diaphragms, but tend to maintain the diaphragms from a lateral movement on the targets and in the case. This is particularly true as regards any lateral movement of the diaphragms or targets independently of each other. In other words, no

one target of a layer can move independently of the other, nor can any one diaphragm move independently of another; and it will therefore be seen and understood that when the top layer of targets are held in contact with the diaphragm constituting their base-support the several layers of targets and their diaphragms are virtually locked together against both a lateral and a vertical movement, and hence form as nearly as is practically consistent with their form and character a compact mass, and compact to such an extent that one target is not more liable to fracture than another, and that the fracturing of one or several targets in a layer will not disturb the compactness between the layers. Furthermore, all of the packing-space available for targets of this character is utilized, and every target is not only sustained from contact with another, but in such a manner as to best resist the effect of blows and strains upon the case tending to fracture the targets, as will be understood when it is remembered that any blow or strain directed laterally of a layer is not only taken up by every target of that layer, but distributed upon the surface of each target, owing to the contact and circular form of the perforations of the diaphragm supporting such layer. In this connection it is proper to observe that the diaphragms have and need no support except that furnished by the targets themselves, and that by having the targets support the diaphragms the packing-space between every diaphragm is perfectly and fully utilized.

The targets shown herein in illustrating my invention are provided with a ledge on which the diaphragms rest; but my invention is equally applicable to targets which have no such ledge and have substantially a continuous outer surface, for the same result is attainable so long as the perforations in the diaphragms are of less diameter than the targets, which cannot therefore be projected entirely through the perforations. I have also illustrated a band, *c*, between the upper layer of targets and the cover of the case and in contact with said targets and the cover, and while such bands are desirable as a packing by reason of their lightness and cheapness, any other material or form of material commonly used for packing purposes may be employed without a departure from my invention, and also a band or other packing may be used in the bottom, to the exclusion of or in connection with a similar packing at the top of the case, and in this connection it is proper to add that instead of resting the base of the target against the bottom of the case in commencing my method of packing this position of the targets may be reversed.

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

1. A packing-case and a series of diaphragms provided with a number of perforations, the perforations of the diaphragms registering with each other in series, in combination with a layer of targets between each two diaphragms, the bases of the targets of each layer being supported by one of such diaphragms and the apices of the targets projecting into the perforations of the opposing diaphragm, substantially as described.

2. A packing-case and a series of diaphragms provided with a number of rows of perforations, the said rows and perforations in the several diaphragms registering with each other, in combination with layers of targets between said diaphragms, the bases of said layers being supported on one of said diaphragms and their apices projecting into the perforations of the opposing diaphragms, whereby the corresponding targets of the several layers are maintained in an axial line, and packing-space between the diaphragms is utilized to a maximum degree, substantially as described.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

FREDRICK C. DAMM.

Attest:

L. A. MILLS,

L. P. GRAHAM.