

No. 729,135.

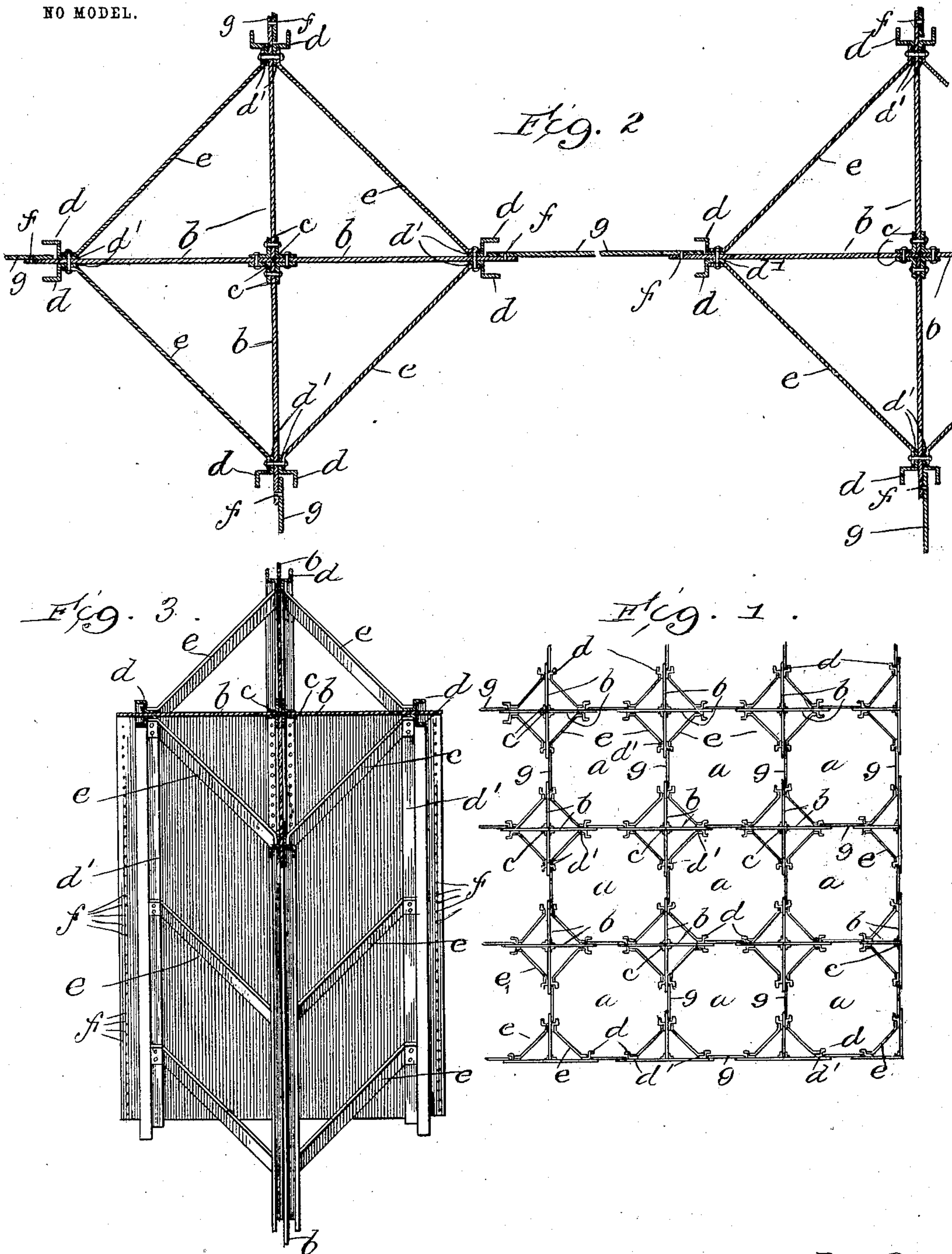
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GRAIN ELEVATOR CONSTRUCTION.

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NO MODEL.



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UNITED STATES PATENT OFFICE.

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GRAIN-ELEVATOR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 729,135, dated May 26, 1903.

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To all whom it may concern:

Be it known that I, ISIDORE COHEN, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Grain-Elevator Construction, of which the following is a specification.

My invention relates to grain-elevators of the sectional or "bin" type wherein the structure is composed of steel or other metal.

It is usual in constructing steel buildings to first punch or drill the rivet-holes and to temporarily assemble the parts in the shop to render it sure the parts will go together properly when they reach the field of erection. After the fitting the parts are disassembled for shipment, and the final riveting is not done until the steel parts are put in place in the building. By such method there are two obvious disadvantages: first, on account of the fact that work in the field is always attended with greater difficulties and expense than work done in the shop, where all accessories are at hand and where the conditions of manufacture are more perfect, and, second, the loss of time incurred in first fitting the parts together in the shop, then assembling, and, finally, disassembling the parts for shipment.

The object of the present invention is to provide a steel-bin-elevator construction whereby fitting, and consequent disassembling, is nearly, if not completely, eliminated and the chief part of the work is accomplished in its permanent form in the shop. I attain this object by the construction shown in the accompanying drawings, in which—

Figure 1 is a plan view showing the general arrangement of my construction and the grouping of the bins. Fig. 2 is a plan sectional view showing the construction of the bin-columns. Fig. 3 is a perspective view of a portion of the bin-column.

Similar reference characters denote similar parts throughout the several views.

In my construction the elevator consists of a group of bins *a*, which are rectangular in outline and wherein adjacent bins have a single wall between them common to both. The proportions in different elevator structures will of course be different; but for the purpose of giving a clearer idea of the inven-

tion it may be stated that a suitable dimension of a single bin might be fourteen feet square and the height of a bin might vary from fifty or sixty feet to a height upward of one hundred feet. The corners of the bins are formed by means of bin-columns, which are composed of plates *b*, riveted to the angle-bars *c*. Said plates *b* form a portion of the walls of the structure and in an elevator of the dimensions above suggested might properly be of a width approximately three feet six inches and a height equal to perhaps thirty feet.

Near the outer edges of the plates *b* are permanently riveted the stiffening-bars *d*, which are preferably Z-shaped in cross-section, as shown. The leg *d'* of said Z-bars lies toward the center of the bin-column and affords a suitable point of riveting for the corner-braces *e*. Said braces consist, preferably, of flat strips of metal and extend from one to the next adjacent stiffening-bar *d*, where they are firmly shop-riveted to stiffen the column. In an elevator of the dimensions above mentioned a suitable cross-section of said braces would be perhaps six inches by one-quarter of an inch, and the space between one of said braces and the next one above or below would vary from, say, one foot to five or six feet, depending upon the height at which the brace would come in the completed building. A series of rivet-holes *f* is provided near the outer edges of the plates *b*.

All of the work thus far described is done in the shop—that is to say, each bin-column composed of the plates *b*, angle-bars *c*, stiffening-bars *d*, and braces *e* is permanently riveted up in the shop, so as to form a complete and permanent entity, and said columns are shipped as columns adapted to enter into and become an integral part of the building structure without alteration. When the columns arrive at the building, they are placed in an upright position, so that the centers thereof shall be at the points chosen for the corners of the bins, and when the columns are thus in place the plates *b*, lying in the same plane and extending toward each other, are connected by means of the wall-plates *g*. By preference the bin-columns are connected together by means of a single plate extending from one column to the other, and this is

made possible by the fact that such a large proportion of the wall-surface is already provided for by the plates *b* themselves. To illustrate, suppose the bins were fourteen feet square, the plates *b* three feet six inches wide, and the plates *g* seven feet wide, the plates *b* of the bin-columns would then form an integral part of one-half of the entire wall-surface of the bin.

By my construction no riveting is required at the building structure except where the intermediate plate *g* is joined to the plates *b* of the bin-columns. The building is therefore in a great measure complete before leaving the shop, which not only insures greater accuracy and completeness of riveting, but also saves the large amount of time usually devoted in the shop to fitting, temporary assembling, and, finally, disassembling prior to shipment. By my construction also the time required to erect the building is greatly lessened, inasmuch as there is comparatively little work to be done at the building, but the greater portion is completed at the shop, where the facilities are greater. Another saving is due to the fact that by this construction there is eliminated the necessity of first marking the parts in the shop and then searching for the marked parts on the field of erection.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a metallic building structure, wherein a set of bins is grouped together so that the walls of adjacent bins are common to both; the combination of bin-columns and plates connecting said columns, said columns consisting of plates joined together edge to edge, stiffening-bars near the outer edges of said plates and braces extending obliquely from one of said column-plates to another substantially as described.

2. In a metallic building structure consisting of a plurality of bins; bin-columns comprising plates joined together edge to edge, a plate of said columns forming a portion of the wall of two adjacent bins, stiffening-bars along the edges of said column-plates, and braces riveted at their ends to the stiffening-bars of

different column-plates in combination with wall-plates riveted to two adjacent bin-columns, thereby forming a portion of the wall of two adjacent bins.

3. In a metallic grain-elevator consisting of a group of bins; bin-columns each consisting of four vertical plates joined together edge to edge, each plate forming a portion of the wall-surface of two adjacent bins, stiffening-bars arranged vertically on both surfaces of each of said plates near the outer edges thereof, and braces extending from a stiffening-bar on one plate to a stiffening-bar on another plate; in combination with plates joining said column-plates, and forming a part of the wall-surface of two adjacent bins.

4. In a metallic grain-elevator comprising a group of bins a bin-column consisting of plates, each of which forms approximately one-quarter of one side of each of two adjacent bins, stiffening-bars along the edges of said plates and braces joining the stiffening-bars in two different plates; in combination with plates connecting said bin-columns.

5. As an article of manufacture, a metallic grain-elevator bin-column, consisting of four vertical plates each adapted to form an integral part of the wall of two adjacent bins, angle-bars riveted to the contingent edges of said plates to join the same together in pairs, stiffening-bars riveted along the outer edges of said plates, and braces riveted at their ends to said stiffening-bars, substantially as described.

6. An elevator-bin construction comprising shop-riveted columns composed of wall-plates joined together along their vertical contingent edges and stiffened by *Z*-bars along their outer edges and by braces joining said *Z*-bars in pairs; in combination with single plates extending from the plate of one of said columns to the plate of another of said columns substantially as described.

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