No. 711,470. Patented Oct. 21, 1902.

D. W. CASWELL.

PORTABLE GRANARY.

(Application filed Jan. 2, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 2.

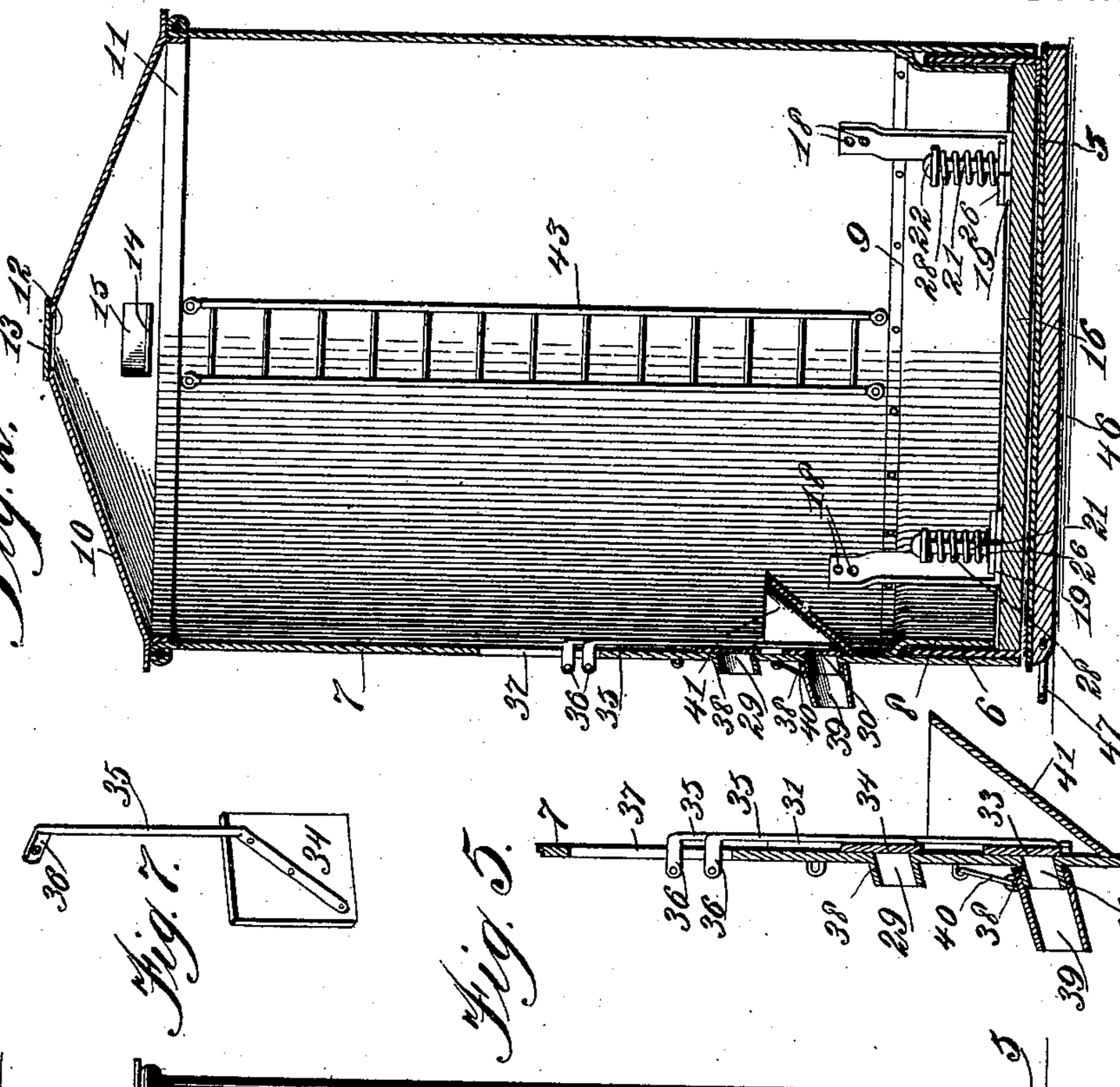
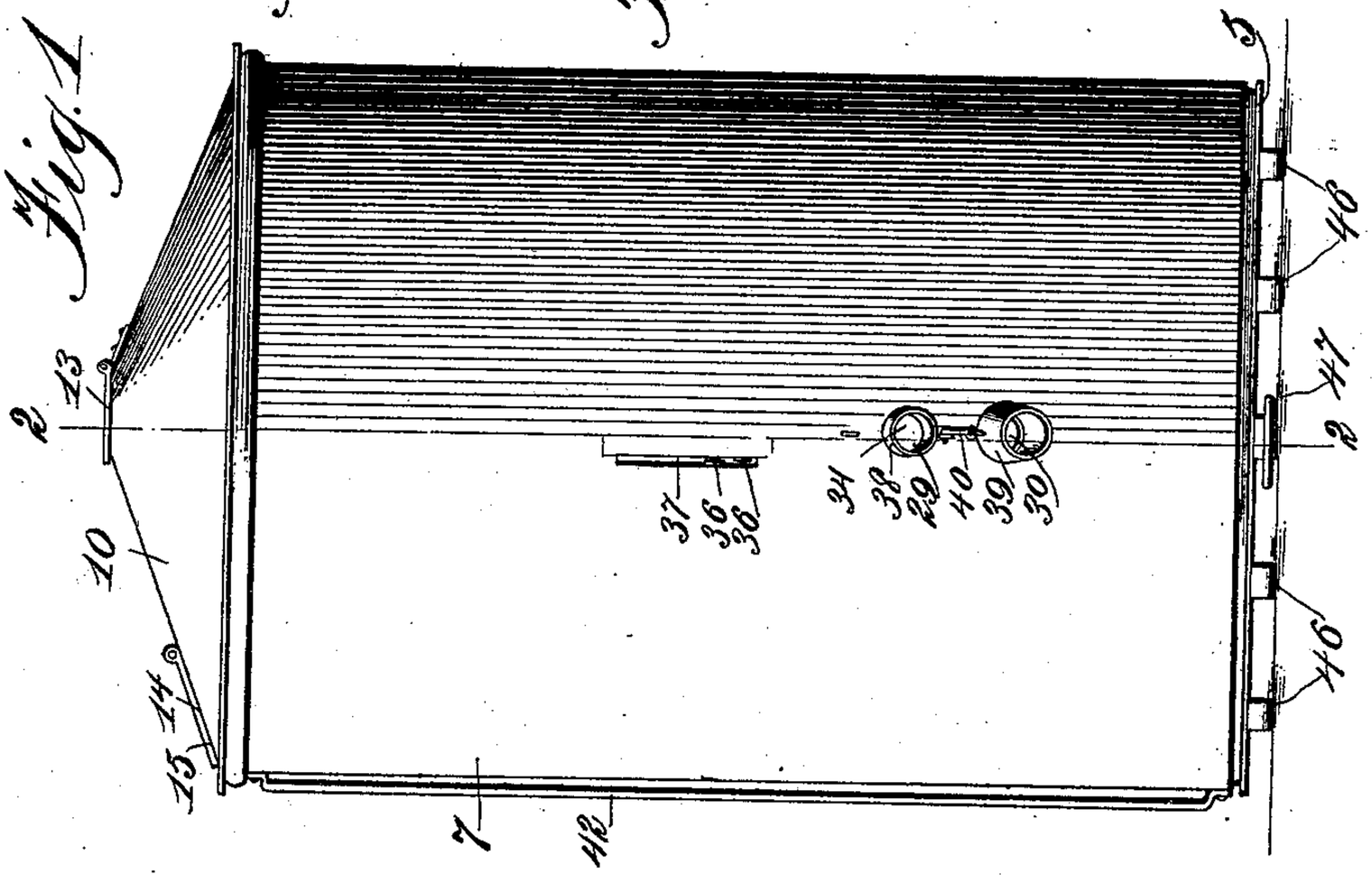


Fig. 7.

Fig. 5.

Fig. 1.



Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

Fig. 8.

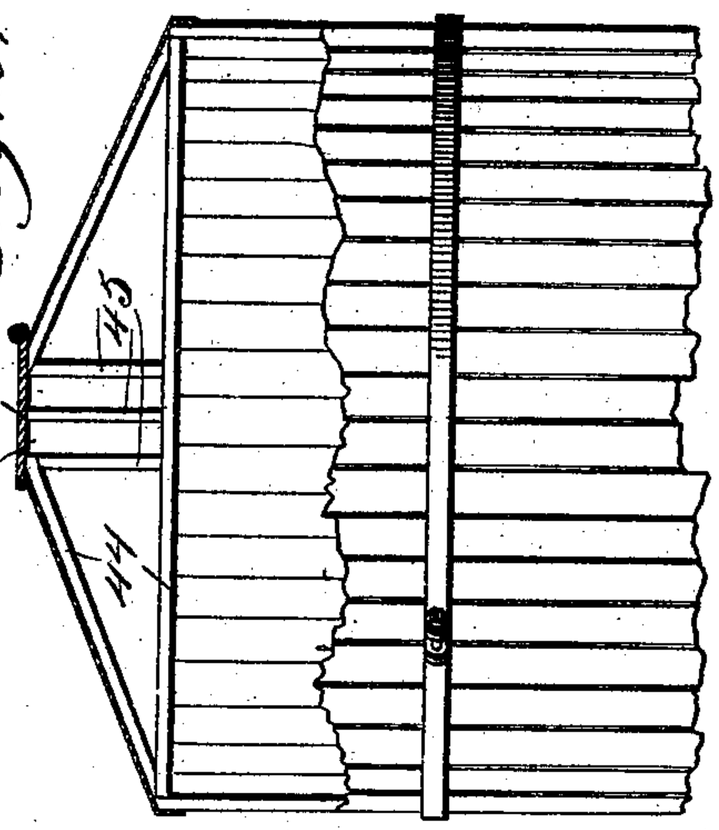


Fig. 9

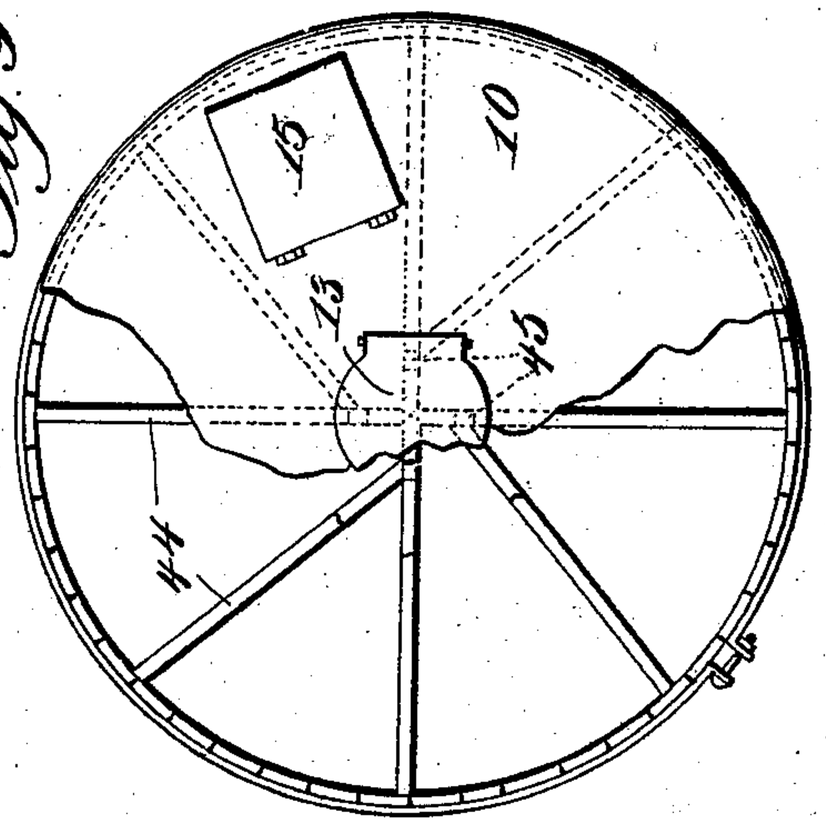


Fig. 10.

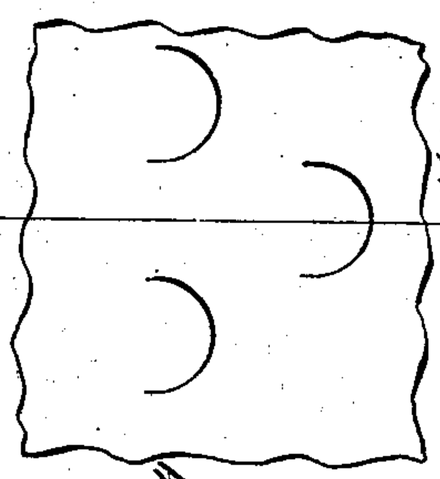


Fig. 11

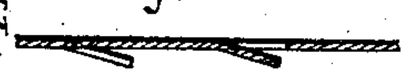


Fig. 6.

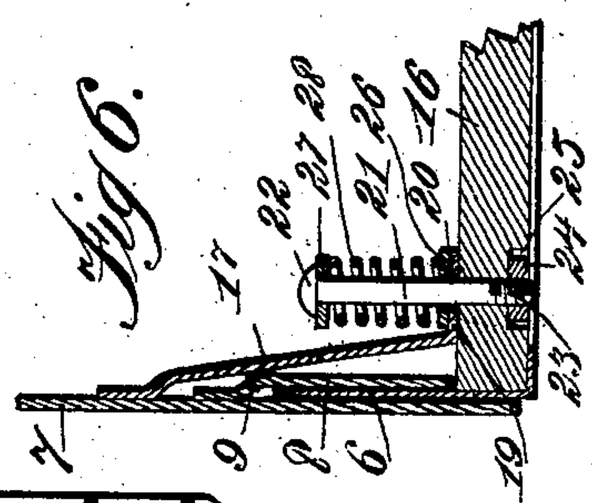


Fig. 3.

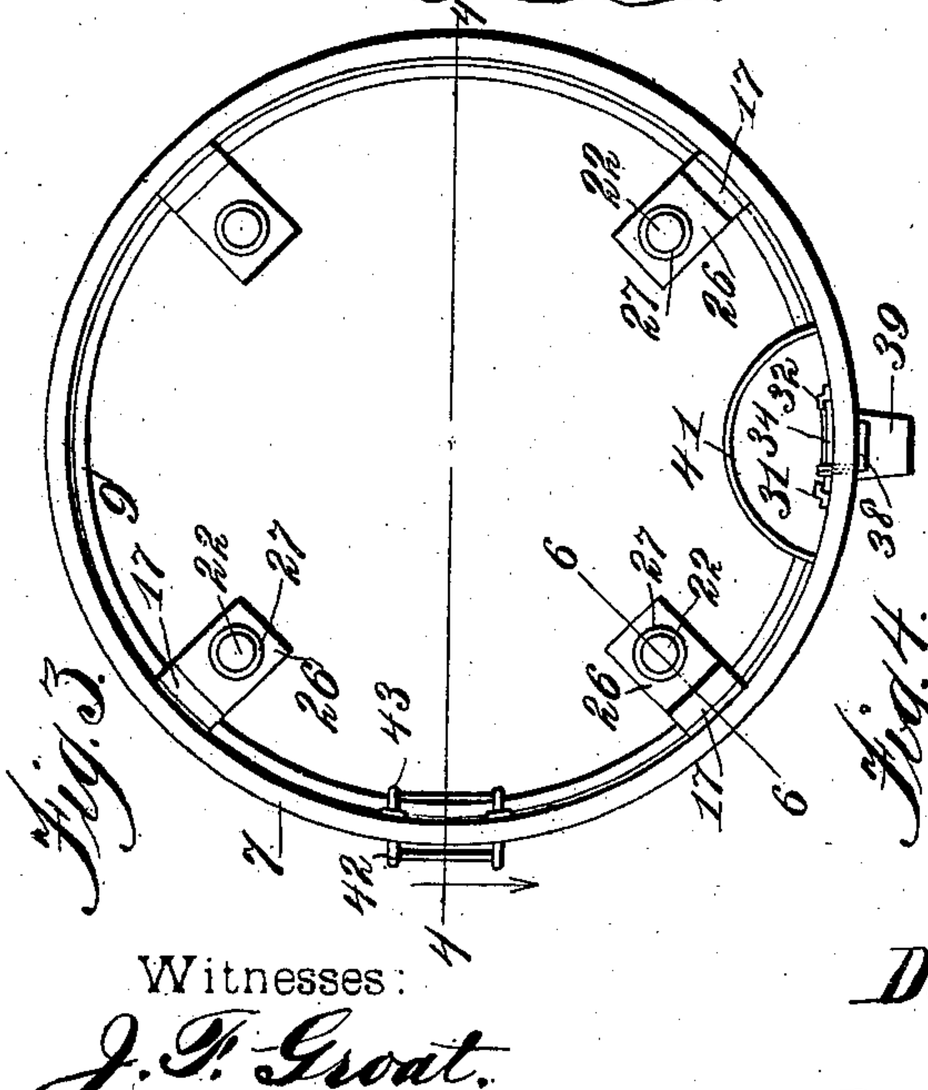
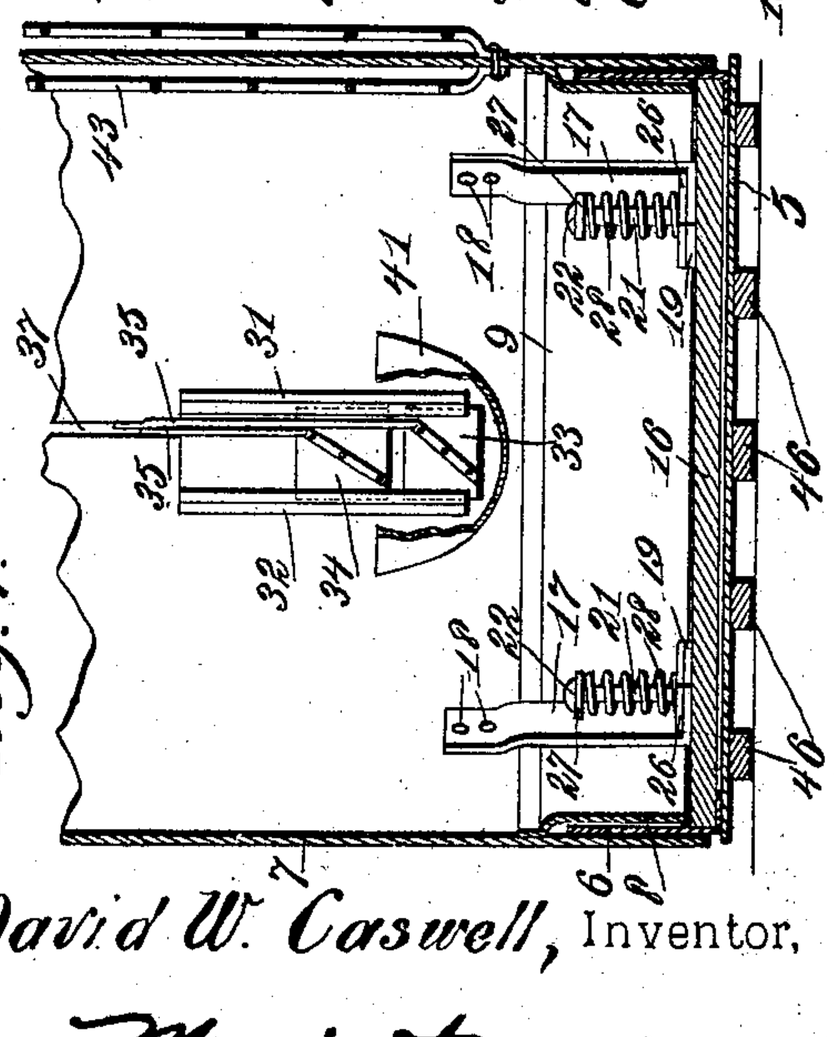


Fig. 4.



Witnesses:
J. F. Groat.
H. Ed. Page.

David W. Caswell, Inventor,
By Marion & Marion
Attorneys

UNITED STATES PATENT OFFICE.

DAVID WILLIAM CASWELL, OF ADAIR, CANADA.

PORTABLE GRANARY.

SPECIFICATION forming part of Letters Patent No. 711,470, dated October 21, 1902.

Application filed January 2, 1902. Serial No. 88,050. (No model.)

To all whom it may concern:

Be it known that I, DAVID WILLIAM CASWELL, a subject of His Majesty the King of Great Britain, residing at Adair, Assiniboia, North-West Territories, Canada, have invented certain new and useful Improvements in Portable Granaries; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in a portable granary; and the primary object that I have in view is the provision of a simple and comparatively inexpensive structure which may be constructed of wood or metal or a combination of both materials and which may easily be moved from one place to another and set up for service in a position close to a threshing-machine or between two stacks of straw, so as to be loaded with the clean grain.

A further object is to provide the structure with means which allows the same to adjust itself to inequalities in the ground without opening spaces or cracks through which grain can make its escape.

A further object is to relieve the upper part of the structure from the weight and pressure of the grain which may be stored therein.

A further object is to allow the grain to be discharged by gravity down to a certain level, and also to provide for the ready removal by shoveling the grain into an elevated chute or spout.

A further object is to allow access to be easily obtained to the interior of the structure.

With these ends in view the invention consists in the novel construction and arrangement of parts, which will be hereinafter fully described and claimed.

In the drawings hereto annexed, forming a part of this specification, Figure 1 is a side elevation of a portable metallic granary embodying my invention. Fig. 2 is a vertical sectional elevation of a metallic granary on the line 2 2 of Fig. 1. Fig. 3 is a plan view with the cover removed. Fig. 4 is a vertical detail section through the lower part of the granary in the plane indicated by the dotted line 4 4 on Fig. 3. Fig. 5 is a fragmentary elevation looking at the inside of the granary and illustrating the means for guiding the valves. Fig. 6 is a detail section on the line 6 6 of Fig. 3. Fig. 7 is a detail perspective view of one of the valves. Fig. 8 is an elevation, partly broken away, of a wooden structure of the granary. Fig. 9 is a plan thereof with the roof partly broken away. Fig. 10 is a detail elevation of perforated sheet metal which may be used in the metallic granary, and Fig. 11 is a section on the line 11 11 of Fig. 10.

The same numerals of reference denote like parts in all the figures of the drawings.

In the metallic construction of the granary shown by Figs. 1 to 6, inclusive, 5 designates the base-plate, which is preferably of metal and in the form of a disk. The vertical shell or casing consists of two members 6 7, the former of which is shorter than the latter, and said section 6 is secured firmly to the base-plate, so as to extend upwardly therefrom for a suitable distance. The longer and upper member 7 of this shell or casing is telescopically fitted to the lower member 6, and said upper member is provided with an inner lining or section 8. This inner lining or section is bent at its upper edge, as at 9, and is secured firmly to the upper member 7 of the shell, said inner lining or section 8 being arranged practically concentric with the upper member 7 and forming therewith an intermediate space, which is adapted to loosely receive the short lower member 6 of the shell, all as more clearly shown by Fig. 2. The upper member or shell 7 is closed by a removable cover 10, which may be made either of metal, wood, or a combination of the materials, said cover preferably having a depending flange 11, that is fitted snugly in said member 7, whereby the cover is adapted to rest upon and be supported by the upper member. The cover is provided at its apex with a grain-inlet opening 12, which is adapted to be closed by a hinged door 13, and in one side of this cover is provided a manhole 14, which is normally closed by the door 15. (See Fig. 6.) The floor 16 of the granary may be made of wood or other suitable material, and this floor is arranged loosely within the lower member 6 of the shell or casing, said floor being unattached to the base-plate 5, upon which it is adapted to rest. In order to relieve the upper member 7 of the shell or

casing from some of the weight and pressure of the grain which may be stored in the structure, I provide a series of truss-bars 17, the same extending upwardly from the floor (see Figs. 2 and 6) and secured firmly at their upper ends to the member 7 of the granary by means of bolts or rivets, as at 18. A series of four of these truss-bars 17 are preferably employed, and they are spaced equidistant within the shell or casing. Such truss-bars are each bent at their lower end in order to form a foot 19, and this foot is arranged at an angle to the truss-bar and so as to rest upon the floor 16. (See Figs. 2, 3, 4, and 6.) The foot of each truss-bar is provided with a vertical opening 20, through which passes an upright stem 21, the latter having a head 22 at its upper end and a threaded lower extremity 23, on which lower end is screwed a nut 24, that is fitted in a recess 25 in the floor 16. (See Fig. 6.) A washer 26 is loosely fitted around the lower portion of the stem, so as to rest upon the foot 19 of the truss-bar, and another washer 27 is arranged on the stem so as to engage with the head 22 thereof. Between the washers on each stem 21 is interposed a coiled spring 28, the latter loosely encircling the stem and adapted to exert pressure against the head of the stem and upon the floor 16. From this description it will be seen that the floor 16 and the upper member 7 of the shell or casing are yieldably united together by means of a plurality of truss-bars which have yieldable attachment to the floor, and hence the truss-bars and the spring serve to absorb or take up some of the weight and pressure of the grain, thus relieving the upper and unbraced part of the granary from undue strain.

The upper member of the shell or casing may be provided with one or more grain-escape openings; but in Figs. 1, 2, 4, and 5 of the drawings I have represented a series of two grain-escape openings 29 30, although it will be understood that the number is not material. These openings are provided in the shell 7 at a suitable height above the ground-line, and they lie one above the other and are spaced at suitable intervals, so as to provide for the discharge of the grain from different levels. Normally these openings are closed by suitable valves, so that the grain may be safely stored in the structure.

On the inside of the shell or casing 7 are secured the guide-strips 31 32, which lie on opposite sides of the openings 29 30, and between these guide-strips are arranged the valves 33 34, which are preferably in the form of plates and provided with the adjusting-rods 35. These adjusting-rods extend upwardly from the valve-plates, and they are provided with the angularly-extending handles 36, which project through a narrow slot 37, that is formed in the shell 7 above the grain-outlet openings 29 30, whereby the valves located within the granary may be operated by an attendant on the outside of the structure, because the handles 36 are accessible from the outside. The valves serve to individually close the openings, and either valve may be adjusted to expose one opening. Each opening 29 30 is provided with a marginal flange 38, over which may be adjusted a spout 39. This spout is shiftable, so that it may be adjusted to fit the flange of either opening, and said spout is held in its adjusted position by a suitable form of fastener, such as the hook 40.

In emptying the granary the contents thereof above the openings 29 30 may be discharged by flowing out through one opening or the other, according to the adjustment of the valve-plates; but when the level is lowered below the opening 30 it is necessary to shovel out the grain. To facilitate this operation, a chute 41 is provided on the inside of the shell 7, as shown by Figs. 2, 4, and 5, said spout being arranged to communicate with the opening 30.

Access to the interior of the structure is obtained by the ladders 42 43, which are fastened to the outside and the inside, respectively, of the shell 7, and these ladders are so disposed that a man may climb thereon and pass through the manhole 14.

As hereinbefore indicated, the granary may be built of metal, as shown by Figs. 1 to 6, inclusive, or it may be constructed of wood in the manner indicated by Figs. 8 and 9. The cover of the granary, whether built of wood or metal, is trussed, as shown by Figs. 8 and 9, in which the numerals 44 indicate certain rafters, that are braced by the king-posts 45, suitably supported within the exterior exposed part of the cover.

To secure portability of the structure, I have provided a series of runners 46, which are fastened to the under side of the base-plate 5 and are spaced at proper intervals one from the other, and the middle runner of the series is provided at its ends with the draft-rings 47, thus making provision for hitching the structure to a suitable draft appliance, whereby a team of horses may be utilized to draw the granary from one place to another.

The improved structure may be drawn by a team into place near a threshing-machine or grain-separator, which should have its grain-elevator equipped with means for delivering the grain through the opening 12 in the cover 10, the door 13 of said opening 12 being raised. The grain can thus be automatically loaded from the threshing-machine directly into the storage apparatus. The telescopic fitting of the upper member 7 to the lower member 6 and the employment of the inner lining-section 8 allow the base-plate and the floor to rest on irregular ground without opening cracks or spaces through which the grain can escape, because the lower part of the shell or casing is loosely received in the annular space which is provided by and

between the member 7 and the inner lining or section 8, which is attached thereto. The grain may be automatically discharged from the granary at different levels, and, as shown by Figs. 2 and 5, the spout is adjusted into coöperative relation to the opening 30. The sliding gate 34 may be adjusted to open the grain-opening 29, and thus the grain may be permitted to flow by gravity from the upper part of the structure into the spout when the latter is fitted to said opening 29. To discharge the grain at a lower level, the spout is adjusted to register with the opening 30, and the gate or valve 33 is elevated for the grain to be discharged through the opening 30. If desired, a man can enter the granary through the manhole 14 in the cover, and the grain in the lower part of the structure can be shoveled into the chute 41.

The shell or casing and various parts of the improved granary may be constructed of sheet metal, wood, or any other appropriate material, and one of the important advantages of my improved structure is that it is thoroughly secure against the encroachment of mice and gophers.

Changes within the scope of the appended claims may be made in the form and proportion of some of the parts while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described my invention, what I claim as new is—

1. A granary comprising a sectional casing, a floor within the lower part of said casing, and truss-bars attached to the upper member of the casing and yieldably connected to the floor, substantially as described.

2. A granary comprising a casing having its members telescopically fitted together, a floor within the lower member of the casing, truss-bars secured to the upper member of said casing and provided with feet, and a series of springs seated upon the feet of the truss-bars and connected by intermediate devices with the floor, substantially as described.

3. A granary comprising a sectional casing having its members fitted telescopically together, an inner section or lining secured to one member of the casing and embracing the other member thereof, a floor within the lower member of the casing, and means for securing the floor and the upper member of the casing together, substantially as described.

4. A granary comprising a casing having its members telescopically fitted together, a floor, a series of truss-bars secured to the upper member of the casing, a series of stems fastened to the floor, and springs confined on the stems and operatively connected with the truss-bars, substantially as described.

5. A granary comprising a base provided with a lower member of the shell or casing, an upper member of the shell or casing provided with the inner section or lining and loosely fitted to said lower member of the shell or casing, a floor within said lower member, and truss-bars secured to the upper member and having yieldable connections with said floor, substantially as described.

6. A granary comprising a shell or casing having vertical walls and provided with a plurality of grain-exit apertures in its side wall at different elevations one over the other, a pair of parallel guide-strips on opposite sides of the row of apertures, a plurality of valves slidable between the guide-strips and the interior side of the apertures and adapted to close the same, a chute fixed to the inner side of the casing immediately under the lowermost aperture, and independent handles attached to each valve and extending through a slot in the side of the casing whereby said valve may be independently manipulated from without, substantially as described.

7. A granary comprising a shell or casing having vertical walls and provided with a plurality of grain-exit apertures in its side wall at different elevations one over the other, a pair of parallel guide-strips on opposite sides of the row of apertures, a plurality of valves slidable between the guide-strips and the interior side of the apertures and adapted to close the same, a chute fixed to the inner side of the casing immediately under the lowermost aperture, marginal flanges surrounding the exterior side of each aperture, and an interchangeable spout adapted to fit over each of said flanges.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

DAVID WILLIAM CASWELL.

Witnesses:
D. MANSON,
L. E. EMSALL.