

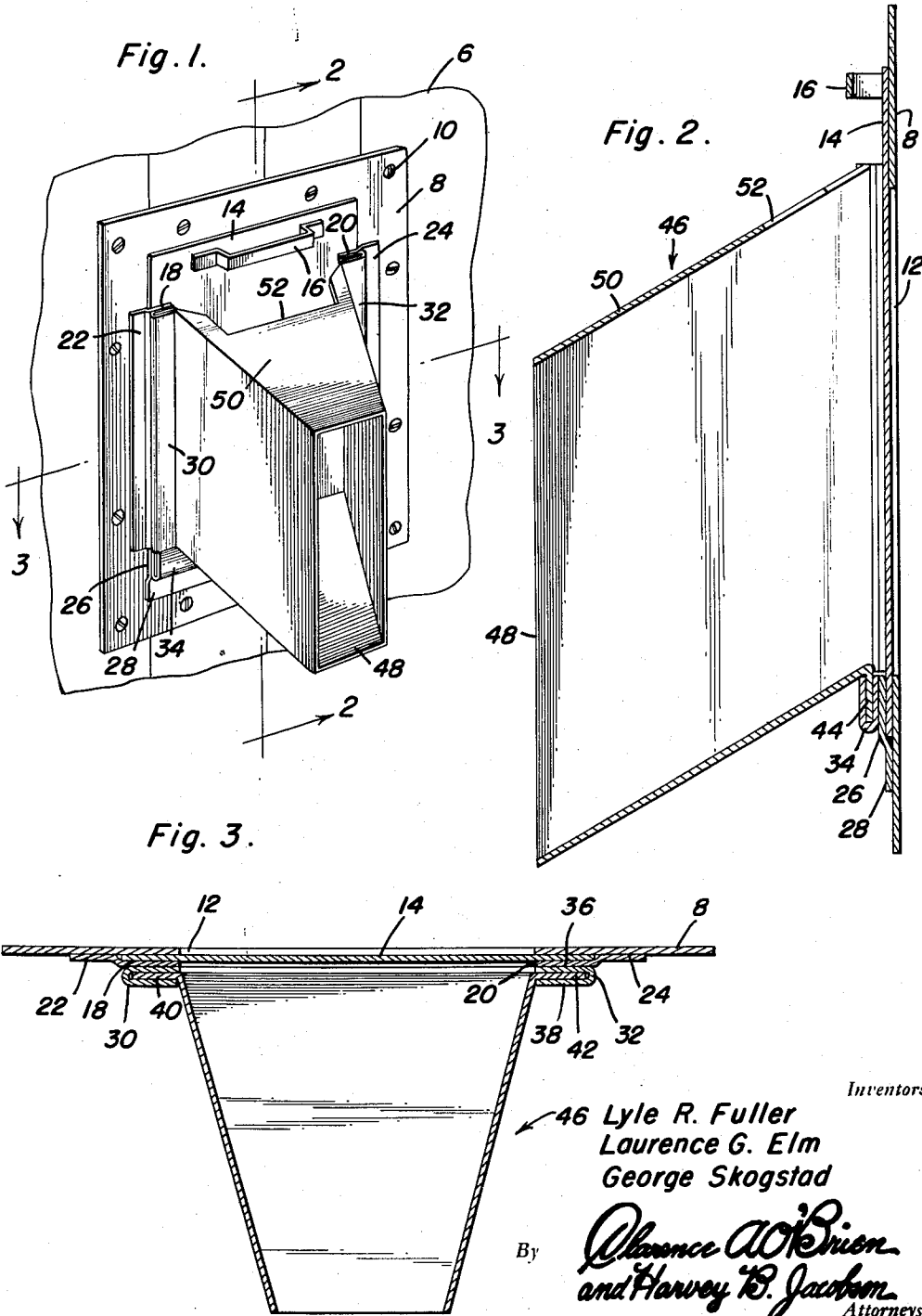
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GRAIN DOOR FUNNEL WITH SLIDING CLOSURE

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2,670,108

GRAIN DOOR FUNNEL WITH SLIDING CLOSURE

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1 Claim. (Cl. 222-561)

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The present invention relates to ways and means whereby grain may be discharged from a grain bin in a granary into a portable elevator with a minimum of the grain being spilled and perhaps thus wasted. More specifically, the means under advisement has to do with an appropriate frame which surrounds the grain discharge opening in the exterior wall of the bin, said frame being provided with special means to accommodate a vertically slidable grain door and complementary means to permit the flanged intake end of a non-spilling funnel to be detachably mounted on the frame in a manner to effectively discharge the grain into the stated elevator once the grain door is slid up to its open position.

There has been a long felt need, it is submitted, for a more satisfactory and reliable method of feeding grain through the door opening of a bin and into a portable elevator and to accomplish such end with little or no spilling of the grain in transit from the door opening to the elevator. As a result of a careful study of the thus given problem, it is felt that a satisfactory solution of same resides in the adoption and use of a simple funnel which may be readily attached and detached and in which manufacturers and users will find their respective needs fully met, contained and available.

Briefly and broadly comprehended, novelty is predicated on an open-ended pyramidal tube, which constitutes the grain pouring and discharging funnel, the intake end of said funnel having several flanges whereby, through the medium of appropriate means, it may be attached to the aforementioned door frame and lined up with the door which is slidable on said frame.

A still further objective is to provide at least one wall of the funnel with notched means which provides a hand-hole and also provides a satisfactory hand-grip to facilitate the steps of attaching and detaching the flanged intake end of the funnel.

Other objects and advantages will become more readily apparent from the following description and the accompanying illustrative drawings.

In the accompanying sheet of drawings, wherein like numerals are employed to designate like parts throughout the views:

Fig. 1 is a perspective view of the complete assemblage, characterized by the improved non-spill funnel.

Fig. 2 is a vertical section on the plane of the line 2-2 of Fig. 1, looking in the direction of the arrows.

Fig. 3 is a horizontal section on the horizontal

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line 3-3 of Fig. 1, looking in the direction of the arrows.

Briefly summarized, the invention has to do with a funnel of pyramidal cross-section which is flanged and open at its intake end and has its opposite discharge end open or truncated, the flanged end having detachable mounting and tracks provided therefor on the frame structure and the track means also serving to accommodate the liftable and lowerable slide or trap-door.

Referring now to the drawings by numerals and lead lines, the granary or bin wall is denoted by the numeral 6. The frame, which is of a suitable size and material, is denoted by the numeral 8 and is fastened at 10 so that it surrounds the usual discharge opening (not detailed) in the bin wall. The discharge opening of the frame is here denoted by the numeral 12. Attention is directed to the slide plate or trap-door which is denoted at 14 and has an appropriate handle 16. The vertical edges of the trap-door slide in tracks 18 and 20 attached at 22 and 24 to the frame 8. A similar offset track or keeper 26 with an attaching portion 28 is secured to the frame at the lower portion of the opening 12. Thus, these several "tracks" 18, 20 and 26 serve to accommodate the corresponding edge portions of the slide or trap-door. Three U-shaped or channel members are also provided and these are denoted by the numerals 30, 32 and 34 and they are superimposed against the tracks 18, 20 and 26, respectively. These several channels each has spaced walls 36 and 38 which define, between themselves, trackways for the corresponding flanges 40, 42 and 44 on the inner intake end of the pyramidal funnel or chute 46. The outer end of this is truncated to provide a discharge opening 48 which empties into a portable conveyor (not shown). In the top wall 50 is a cutaway portion or notch 52 which provides a hand-hole permitting access to be had to the interior of the funnel for unclogging same (if required) and, in addition, for providing a hand-grip to facilitate catching hold of the funnel and guiding the several flanges 40, 42, and 44 into their respective tracks. It follows, therefore, that there are three tracks around the marginal edges of the opening 12 in the frame to accommodate the corresponding three marginal edge portions of the slide or trap-door. Then, there are three tracks superimposed on the first-named track to accommodate the marginal edge flanges on the intake end of the funnel. The funnel is readily applicable and removable and may be lined up with whatever bin is in use. Also, the funnel may be completely

removed and stored away when not in use, thus doing away with a hazard that might injure cattle and animals within the vicinity of the granary.

It is believed to be within the purview of the invention to attach the flanged end of the funnel in alignment with a bin discharge opening by means other than the frame and door assembly herein shown and described.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claim.

Having described the invention, what is claimed as new is:

A grain bin non-spilling grain discharge attachment comprising a flat frame having a discharge opening, said frame being adapted to be secured to the wall of the grain bin in a manner to register said discharge opening with the grain opening in said wall, cooperating tracks superimposed against the exterior side of the frame and situated along the vertical side marginal

portions of said opening, a trap door slidably mounted in said tracks and normally closing said discharge opening, stop means for said door fixed at the bottom of said opening, a plurality of cooperating additional tracks carried by said first-named tracks and adapted to accommodate a readily attachable and detachable funnel, and a funnel open at its respective intake and discharge ends and embodying top, bottom and side walls, the side walls having outstanding flanges and said flanges being fitted into and releasably engaged with the additional tracks for purposes of removably supporting the funnel on the frame, the top wall at the end of the funnel adjacent the intake end having a cut-away portion defining a hand-grip as well as a hand hole, the upper end of said door having handle means cooperable with said hand hole and serving to facilitate the opening and closing of said trap door.

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