June 18, 1940. M. R. REED 2,205,155

CIRCULAR SPREADER

Filed Nov. 29, 1938 2 Sheets-Sheet 1

Fig. 1.

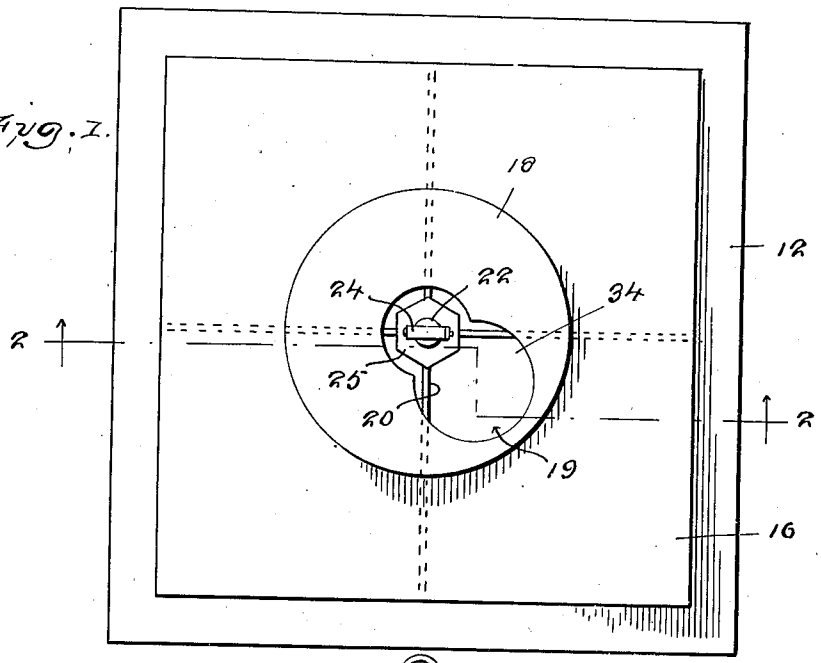

Fig. 2.

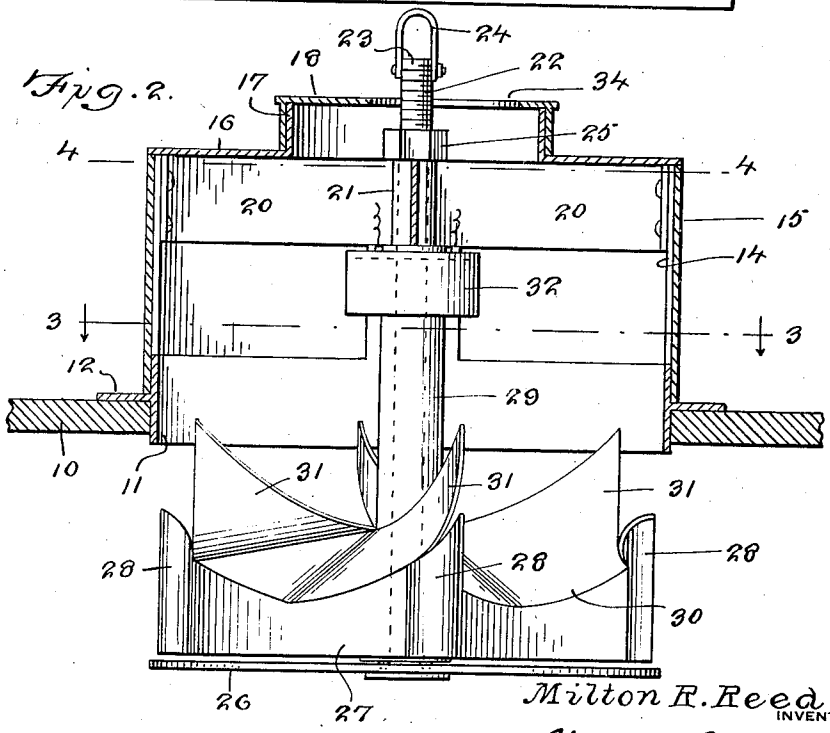

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Fig. 3.

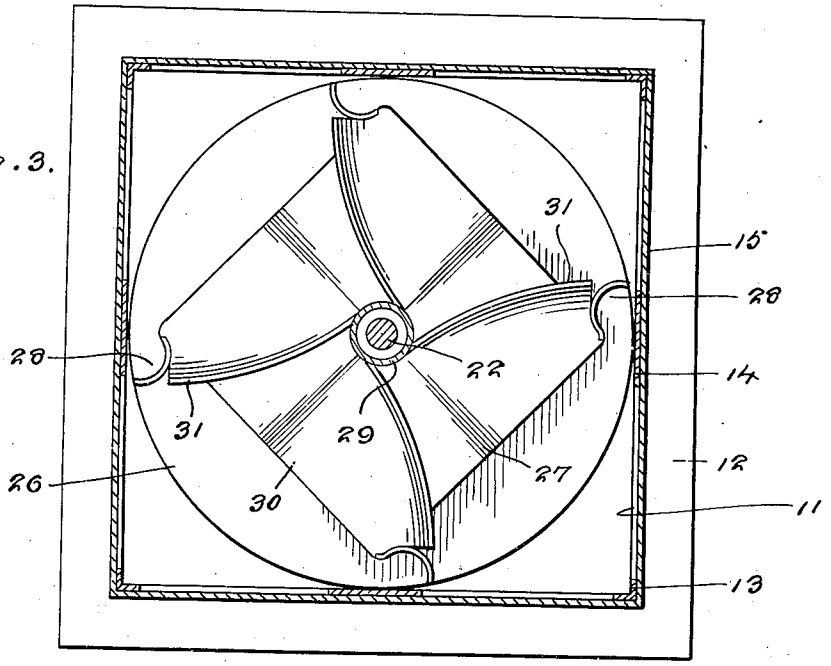
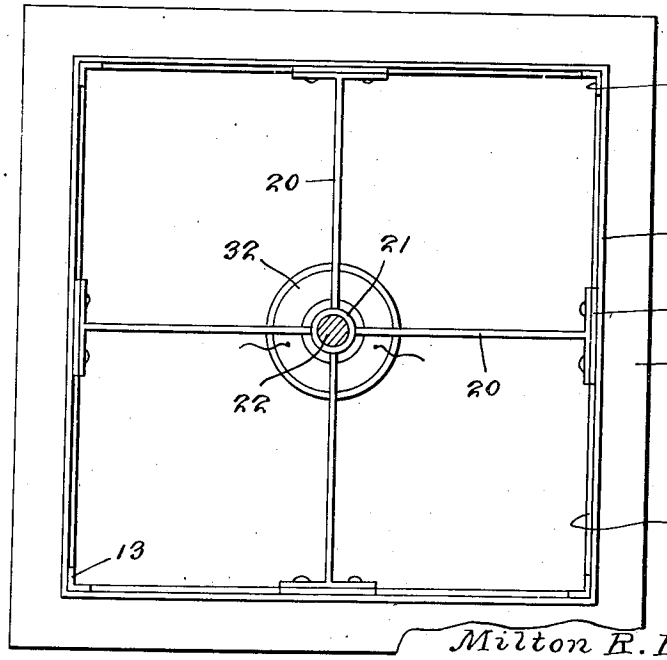


Fig. 4.



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Patented June 18, 1940 2,205,155

UNITED STATES PATENT OFFICE

2,205,155

CIRCULAR SPREADER

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Application November 29, 1938, Serial No. 242,997

8 Claims. (Cl. 198—128)

My invention relates to spreaders, and more particularly to a type of spreader adapted for use in the loading of grain or the like in the hold of a ship.

An important object of my invention is to provide a spreader that will distribute the material to be loaded evenly and efficiently within the hold of the ship.

Another object of my invention is to provide a spreader that will more efficiently receive and dispose of the material to be loaded.

Yet another object of my invention is to provide a spreader that is simple in construction, efficient in operation, and inexpensive to manufacture.

Other objects and advantages of my invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a top plan view of a device embodying my invention.

Figure 2 is a vertical section taken on the line 2—2 of Figure 1,

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 2, and

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 2.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates the deck of a ship and removably positioned in the open hatchway thereof is a substantially square frame 11 formed with an annular flange 12 adapted to rest on the upper surface of the deck around the said hatchway and to hold the frame securely in place. Extending upwardly from the frame 11 is a superstructure comprising upright members 13 at each of the four corners, and upright members 14 riveted or otherwise secured to the frame intermediate its corners. A circumferentially extending frame 15 is secured to the upper ends of the upright members 13 and 14. The superstructure is provided with a horizontally disposed top 16 formed with a centrally positioned annular flange 17 over which is fitted a cover 18 having a substantially key-shaped opening 19 in its top. Extending inwardly from the middle uprights 14 are right angularly disposed supporting members 20 joined at their point of intersection to form a bore 21 in which is mounted a shaft 22, the upper end 23 of which extends upwardly through the smaller portion of the key-shaped opening 19 in the cover 18 and carries thereon a clevis member 24. The upper portion 23 of the shaft is screw threaded to receive a bolt 25 which bears against the supporting members 20 to immovably position the shaft 22 within the bore 21. The lower end of the shaft 22 terminates within the hold of the ship and carries thereon a stationary circular spreading disk 26. Disposed above the disk 26 and spaced slightly therefrom is a rotatable spreading member 27 which is of substantially square formation in plan, and its diagonal width is slightly less than the diameter of the said disk. The spreading member 27 is provided at each of its four corners with arcuated wings 28 which extend outwardly therefrom and align with the periphery of the disk 26, and with substantially V-shaped recesses 30 on its upper surface extending from each corner thereof to the middle of each side. Extending vertically from the spreading member 27 and rotatable therewith is a sleeve member 29 which receives the shaft 22 therein and terminates a substantial distance from the supporting members 20. The upper surface of the spreading member 27 is also provided with arcuated fins 31 which extend from the sleeve 29 to each of the corners of the member 27 and curve rearwardly and upwardly therefrom to form a continuation of the V-shaped recesses 30. Interposed between the upper end of the sleeve 29 and the supporting members 20 is a motor 32 adapted to engage the sleeve 29 and to rotate the said spreading member 27. While I have here illustrated the rotating means as an electric motor, it is to be understood that I do not wish to be restricted to the same, and that any suitable means for rotating the spreader may be used, such as a pulley formed on the sleeve 29 and joined for rotation to any suitable source of power.

The operation of my device is as follows:

Grain or other material is introduced to the spreading member 27 through the large portion 34 of the key-shaped opening 19 in the cover 18, where it falls against the diagonally disposed fins 31 and slides into the V-shaped recesses 30 which then drops the material onto the stationary spreading platform 26 in a manner to permit the vertically disposed sides of the spreading member 27 to deflect the same into the path of the arcuated wings 28, the rapid rotation of which will exert sufficient centrifugal force on the grain particles to distribute them evenly and efficiently within the hold of the ship. It will be seen that due to the rapid rotation of the spreading member 27, my device is capable of disposing of great quantities of grain, or other like material, within a comparatively short time and that due to the unique construction of the same the particles thereof will be spread evenly and efficiently within the hold of the ship. The clevis member 24 secured to the upper end 23 of the shaft 22 provides a means whereby a rope or the like may be attached, and the spreader in its entirety removed or positioned in the hatchway of the ship.

It is to be understood that the form of my in-

vention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of my invention, or the scope of the appended claims.

Having thus described my invention, I claim:

1. A grain loader comprising a frame adapted to engage with the hatchway of a ship; a superstructure forming a part of the frame and extending upwardly therefrom; a shaft immovably carried by the superstructure and depending therefrom into the hold of the ship; a stationary spreading platform secured to the depending end of the shaft; a spreader member rotatably mounted on the shaft, above and spaced from the said spreading platform, comprising a substantially square body portion having arcuated wings at its corners thereof, V-shaped recesses extending from each corner to the middle of each side, and arcuated fins diagonally mounted on the upper surface thereof to direct the grain into the said V-shaped recesses; and means to rotate the said spreader member.

2. In a grain loader, as a sub-combination, a vertically disposed shaft, a stationary platform carried by the shaft, a rotatable spreader mounted on said shaft above and in slight spaced relation with the platform, said spreader comprising a block-like body member having angularly related vertical sides and substantially V-shaped recesses in its upper surface, and dispersing fins projecting laterally from the said sides, the said recesses delivering the grain to the platform and into the path of the vertical sides which sweep the upper surface of the platform to deflect the grain into the dispersing fins.

3. In a grain loader, as a sub-combination, a shaft, a stationary platform carried by the shaft, a rotatable spreader member mounted on said shaft above and in slight spaced relation with the platform, said spreader member comprising a shape having a plurality of circumferential angularly related side walls, and with synclinal formations in the top thereof radiating from the center to the middle of each of the sides, and dispersing fins projecting laterally from the spreader member at the intersections of the said sides the said synclinal formations delivering the grain evenly onto the platform and into the path of the side walls which sweep the upper surface of the platform to initially agitate the grain thereon and to deflect the grain into the said dispersing fins.

4. A grain spreader comprising, as a sub-combination, a stationary support, and a spreader member mounted for rotation relative to said support, said spreader member comprising a substantially square body portion having vertical side walls and lateral fins at its corners thereof, V-shaped recesses in its top radiating from the center and extending from each corner to the middle of each side, and synclastic arcuate fins mounted in the upper surface of the body portion to direct the grain into the V-shaped recesses and onto the said support, the side walls sweeping the said support to initially agitate the grain directed onto the support and to deflect the same into the said lateral fins.

5. In a grain loader comprising a vertical shaft, a spreader member rotatably mounted on the shaft, said spreader member comprising a block-like body member having vertically disposed angularly related sides and substantially V-shaped recesses extending from the center to the middle of each side, arcuate fins positioned in each of the said recesses and extending angularly upwardly from the upper surface of the body portion, and dispersing fins projecting laterally from the body portion at the intersections of the said sides.

6. A grain loader comprising a vertically disposed shaft, means to position the lower end of the said shaft within the hold of a ship, a stationary spreading platform secured to the lower end of the shaft, a spreader member mounted for rotation on the shaft, said spreader member being disposed above and in slight spaced relation with the spreading platform and comprising a substantially square body portion having vertical side walls and laterally extending arcuate dispersing fins at its corners thereof, V-shaped recesses radiating from the center of the body and extending from each corner to the middle of each side, and arcuate fins positioned in the recesses and extending angularly upwardly from the upper surface of the body to direct the grain into the said V-shaped recesses for delivery onto the platform, the vertical side walls of the spreader member sweeping the upper surface of the platform to initially agitate the grain thereon and to deflect the same into the said dispersing fins.

7. A grain spreader comprising a shaft, means to support said shaft centrally in the hatchway of a ship and with the lower portion thereof extending into the hold of the ship, a stationary platform mounted on the lower end of the shaft, a spreader rotatably mounted in the shaft above and in slight spaced relation with the said platform comprising a block-like body portion having angularly related vertically disposed side walls, dispersing fins projecting laterally from the intersections of the said side walls and V-shaped recesses in its top surface for evenly delivering the grain onto the platform whereby rapid rotation of the body portion will cause the side walls to sweep the upper surface of the platform to initially agitate the grain delivered onto the platform and to deflect the same into the path of the said dispersing fins.

8. A rotary spreader comprising a vertical shaft, means to support said shaft centrally in the hatchway of a ship and with the lower end thereof extending into the hold of the ship, a transverse stationary platform carried by the lower end of the shaft, a rotatable spreader member mounted on the shaft above the stationary platform, said spreader member comprising a block-like body portion having angularly related vertically disposed side walls, and V-shaped recesses in its upper surface, said recesses radiating from the center of the body and extending from each corner to the middle of each side, arcuate dispersing fins projecting laterally from the intersections of the sides of the body portion, arcuate fins positioned in the recesses and extending angularly upwardly from the upper surface of the body portion to direct the grain into the recesses, and means to rotate the said spreader in a manner whereby the grain will be directed by the recesses onto the stationary platform where it will be deflected by the side walls of the body portion into the path of the dispersing fins to be jaculated into the hold of the ship.

MILTON R. REED.