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APPLIANCES FOR THROWING WHEAT, SUGAR AND OTHER  
DISCRETE SUBSTANCES AND MATERIALS  
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2,920,746

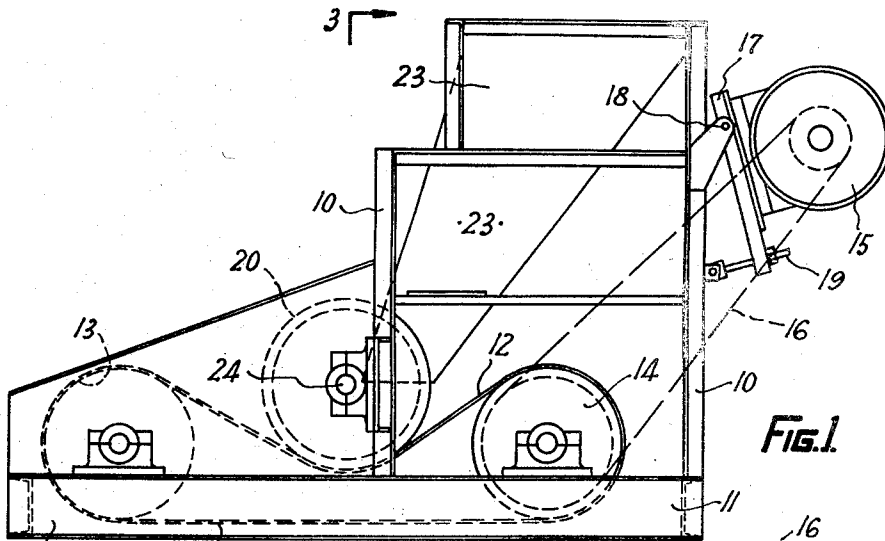


FIG. 1

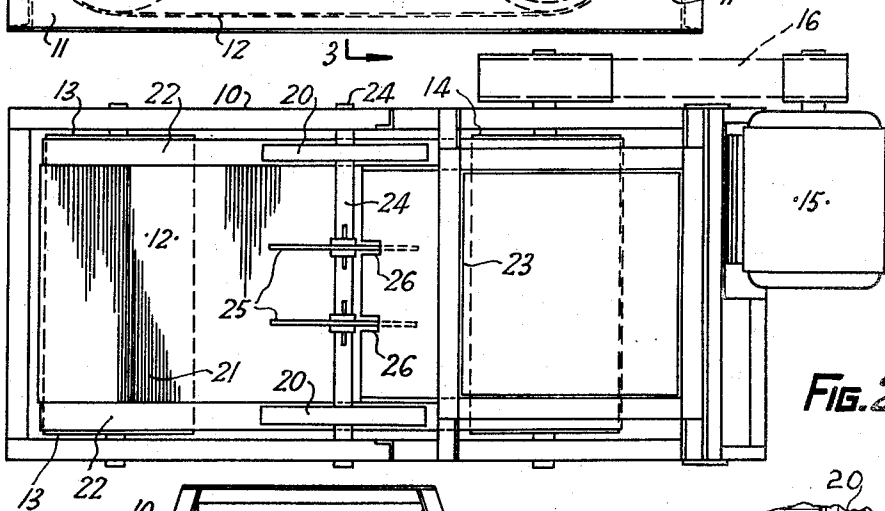


FIG. 2

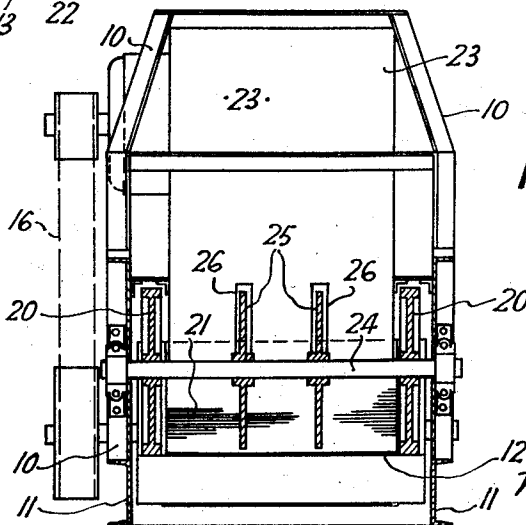


FIG. 3

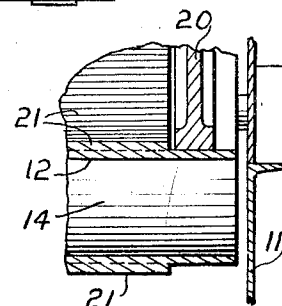


FIG. 4

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## APPLIANCES FOR THROWING WHEAT, SUGAR AND OTHER DISCRETE SUBSTANCES AND MATERIALS

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3 Claims. (Cl. 198—128)

This invention has reference in general to appliances of that nature which are now employed fairly extensively for throwing discrete substances and materials from one point to another as in the filling of a ship's hold or in the establishment of a stock-pile.

More particularly, the invention has reference to that type of appliance which is mobile, or is designed to be supported by a crane hook and is capable of being rotated manually about the extended axis of the rope to which such hook is attached, so that the substances or materials being projected in a stream from the appliance can be conveniently directed to any particular area within its range.

Still more particularly, the invention relates to an appliance of the foregoing general description wherein there is a comparatively short, endless belt, the upper portion of which is constrained to run in an angular path by a pulley and/or rollers, and wherein the discrete substance or material is directed onto the upper portion of the belt so that, when the belt is driven at high speed, the said discrete substance or material will be forcibly projected in a fairly concentrated stream.

The foregoing appliances have proved satisfactory in use, more particularly in the handling of sugar, wheat and other granular material. However, in that type of appliance wherein pulleys or comparatively narrow rollers of large diameter bear on the upper marginal surface of the belt, the belt is inclined to bulge laterally to such an extent that it tends to leave the periphery of said pulleys or rollers. That tendency becomes more pronounced at high speeds and particularly when the belt ages; and consequently the rate at which the belt deteriorates then greatly increases.

The present invention has been devised primarily to prevent the throwing-belt from bulging when running idle, particularly at high speeds. It has also been devised to prevent the material or substances being handled, from forcing the belt out of alignment when that material or substance impinges on the belt at an angle to the vertical.

Another object of the invention is to cause the material or substance to remain in a comparatively concentrated stream throughout the major part of its trajectory.

In order however that the invention may be clearly understood and readily carried into practical effect, reference is now made to the accompanying drawings wherein:

Figure 1 is a somewhat diagrammatic side elevation of a throwing appliance embodying the present improvements, in their preferred form.

Figure 2 is a plan, also somewhat diagrammatic, of the appliance shown by Figure 1.

Figure 3 is a front elevation, partly in section, the sectional portion being taken on the vertical plane 3—3 indicated in Figure 1, and

Figure 4 is an enlarged cross-sectional view of a portion of the invention illustrated in Figure 3.

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The appliance or machine illustrated consists primarily of a frame 10 mounted on a chassis or bed 11. It is capable of being suspended from a crane hook, or being provided with ground wheels to make it mobile.

The throwing belt 12 runs around a front roller or pulleys 13 and a rear roller or pulleys 14. The rear roller or pulleys 14 are driven by an electric motor 15, through the medium of a belt or chain 16. The bed 17 of the motor is pivoted at 18 and has an adjusting bolt 19. At each side of the throwing belt 12 there is a roller or jockey pulley 20. Preferably, the throwing belt is ribbed as indicated by the transverse lines 21 in Figures 2 and 3. Such ribbing serves to facilitate throwing of the discrete material or substance fed to the belt 12. When the belt 12 is ribbed it has plain marginal portions 22 for the rollers or jockey pulleys 20 to ride upon.

A chute 23 is arranged within the frame 10 so that it will direct the discrete material or substance onto the throwing belt 12 at a favourable angle.

In the example illustrated the axle or shaft 24, whereon the rollers or jockey pulleys 20 are mounted, is slotted longitudinally to provide for adjustment on said axle or shaft of a disc 25 or a plurality of such discs which are of a diameter a little less than that of the rollers or jockey pulleys 20. The disc or discs 25 may, if desired, extend into slots 26 formed in the outlet portion of the chute 23.

In use, the disc or discs 25 have the effect of compelling the projected discrete material to remain in a fairly concentrated stream throughout the major portion of its trajectory.

Since the disc or discs 25 are of a smaller diameter than the rollers or jockey pulleys 20 with which they are associated they do not actually ride on the throwing surface of the belt 12 when the appliance is handling the discrete material. However the diameter of the disc or discs 25 is such that when the throwing belt 12 is running without load, the periphery of the disc or discs 25 will ride lightly on the throwing belt 12 and prevent it from bulging.

When the appliance is idle, the disc or discs 25 can be adjusted longitudinally on the axle or shaft 24 to determine the width of the stream of discrete material to be thrown.

It will be understood that, if preferred, the hubs of the disc or discs 25 could be slotted, and the axle or shaft 24 finished with a longitudinal key instead of its being slotted. Other alternative modes of adjusting the disc or discs 25 on the axle or shaft 24 will readily present themselves.

I claim:

1. In an appliance for throwing wheat, sugar and other discrete substances and materials, of the type wherein a pair of narrow rollers of large diameter are mounted on a rotatable shaft and bear upon and are rotatably driven by the upper marginal surface of an endless throwing belt, the improvement which consists of providing at least one disc directly mounted on said shaft and spaced between said pair of rollers, the diameter of said disc being just slightly smaller than the diameter of said rollers, said disc preventing said belt from bulging or being forced out of alignment during use.

2. The invention as claimed by claim 1 characterized in that said disc is arranged for adjustment longitudinally on said axle or shaft.

3. In an appliance for throwing wheat, sugar, and other discrete substances and materials of the type wherein a pair of narrow rollers of large diameter are mounted on a rotatable shaft and bear upon and are rotatably driven by the upper marginal surface of an endless throwing belt, the improvement which com-

prises providing at least one disc mounted on said shaft and spaced between said pair of rollers, a hopper for said substances having its outlet end disposed above said endless throwing belt and between said pair of narrow rollers adjacent said shaft, said hopper outlet end provided with a slot of a size to permit said disc to rotate about said shaft within said slot, the diameter of said disc being slightly smaller than the diameter of said rollers, said disc preventing said belt from bulging or being forced out of alignment during use.

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