April 25, 1944. C. WARREN 2,347,624

DISTRIBUTING MEANS FOR COARSE AGGREGATES

Filed May 12, 1942 2 Sheets-Sheet 1

Fig. 1.

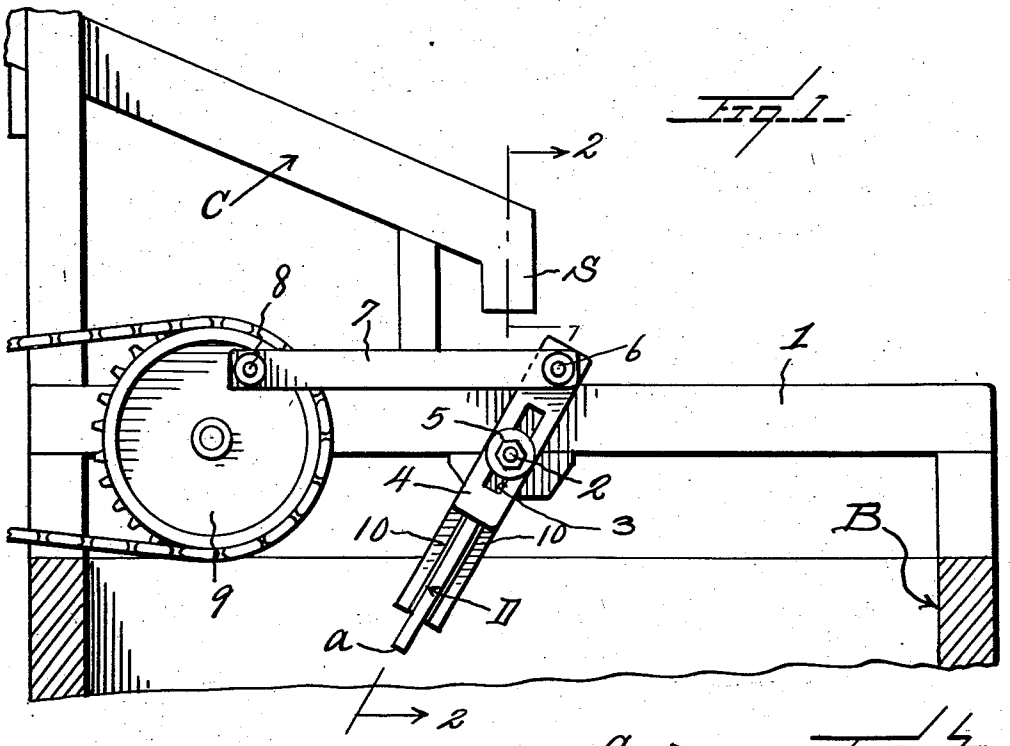


Fig. 2.

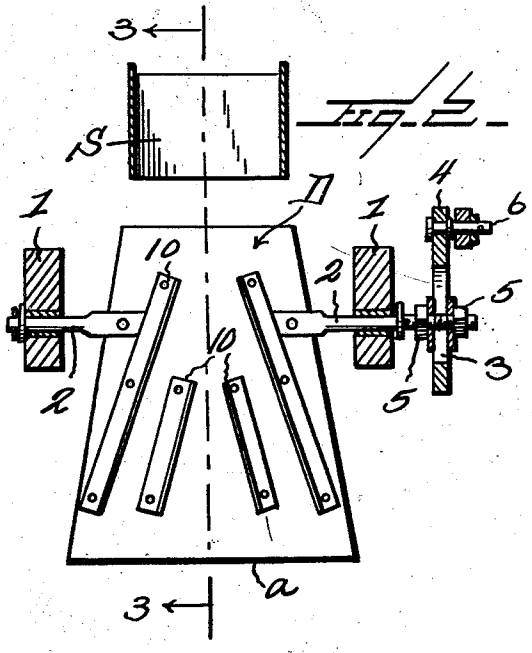
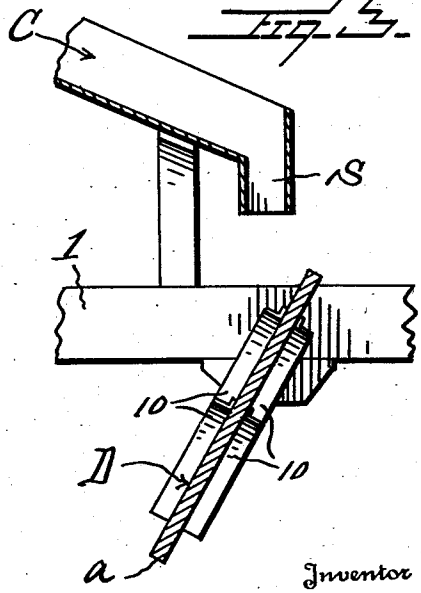


Fig. 3.



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DISTRIBUTING MEANS FOR COARSE AGGREGATES

Filed May 12, 1942 2 Sheets-Sheet 2

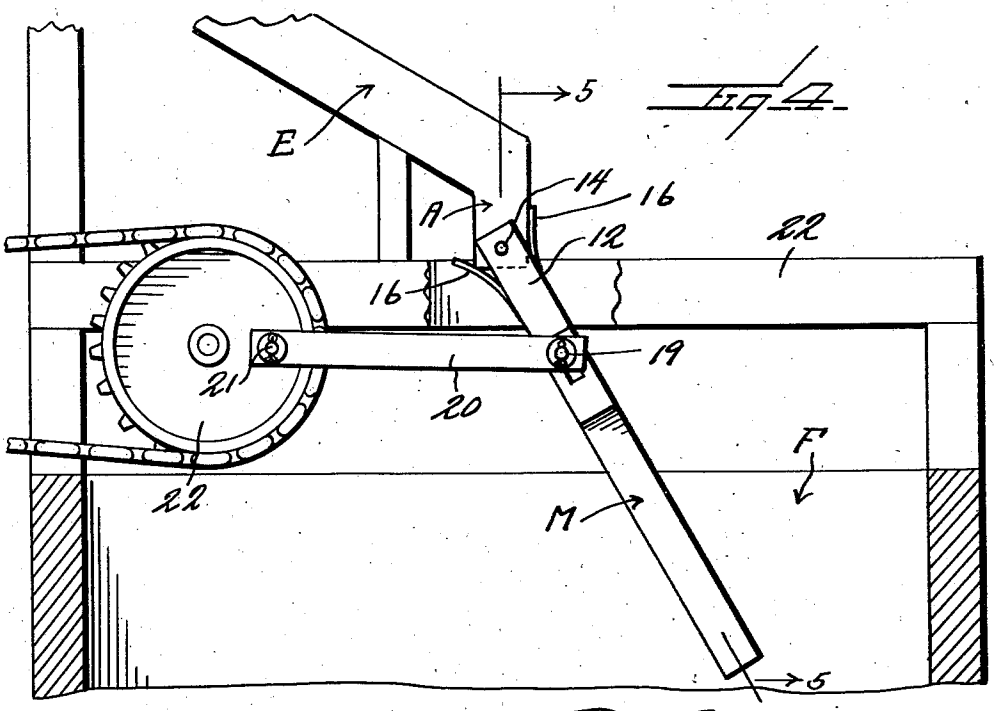


Fig. 4.

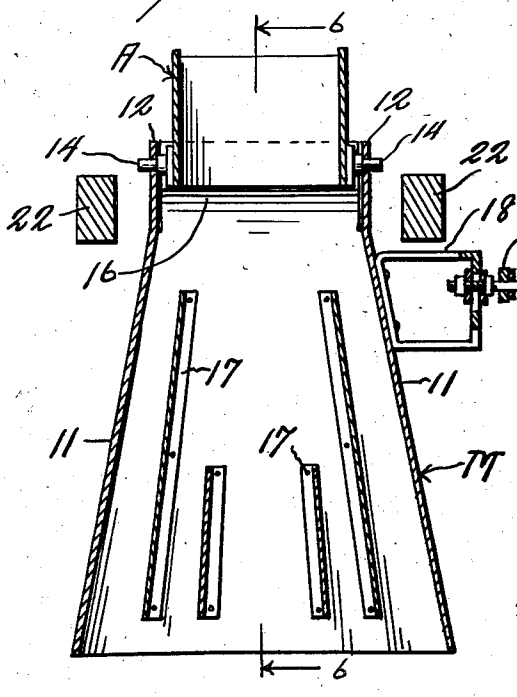


Fig. 5.

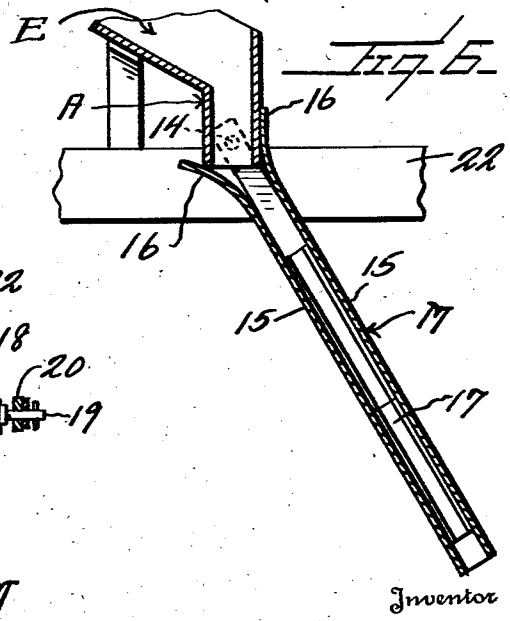


Fig. 6.

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DISTRIBUTING MEANS FOR COARSE AGGREGATES

Carl Warren, Russellville, Ky.

Application May 12, 1942, Serial No. 442,719

4 Claims. (Cl. 193—3)

This invention relates to distributing means for coarse aggregates, and it is primarily an object of the invention to provide a means of this kind for use in stone quarries or the like and which operates to prevent the aggregates, when delivered into bins and other places of storage, from segregating.

Another object of the invention is to provide a means of this kind including an apron supported for rocking movement within the line of flow of the aggregate and which apron operates to effect an even distribution of such aggregate within a bin or other place of storage.

In delivering crushed stone or other coarse aggregates from the separating screens to the desired place of storage, the fine will form a cone in the center just beneath the place of pouring and the coarse, separating from the fine, rolls to the edges of the storage place. While the aggregate may be properly graded as it leaves the screen, yet under this action just mentioned there is that segregation which results in an uneven distribution of the aggregate at the storage place. It is an object of the invention to provide means to eliminate this disadvantage.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved distributing means for coarse aggregates whereby certain important advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a fragmentary view illustrating a distributing means for coarse aggregates constructed in accordance with an embodiment of my invention.

Figure 2 is a detailed sectonal vew taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 2.

Figure 4 is a view similar to Figure 1 but illustrating another embodiment of my invention.

Figure 5 is a sectional view on the line 5—5 of Figure 4, and

Figure 6 is a sectional view on the line 6—6 of Figure 5.

As illustrated in the accompanying drawings, B denotes a storage bin or other place of storage into which is poured from the chute C the aggregate from the usual separating screen, such as used at stone quarries and the like. This chute C at its discharge end is provided with a depending spout S substantially vertically disposed.

As illustrated in the accompanying drawings, the upper open end of the bin B has disposed thereover the spaced parallel beams 1 which have supported therebetween for rocking movement a distributing apron or chute D. As is clearly illustrated in Figure 2 of the drawings, this apron or chute D is elongated and flat, and extending outwardly and laterally from the opposite sides thereof and preferably at a point above its longitudinal center are the trunnions 2 which are rotatably disposed through the beams 1.

As is illustrated in Figure 1 of the drawings, it is to be pointed out that the mounting for the apron or chute D as afforded by the trunnions 2 is directly below and centrally of the spout S. As illustrated in Figure 2, the upper end of the apron D is of a width slightly in excess of the discharge end of the spout S and extends slightly beyond opposite sides thereof while the apron or chute D from its upper end toward its lower end increases in width.

One of the trunnions 2 extends through a slot 3 disposed lengthwise of a crank arm 4, whereby the throw of the crank arm may be selectively adjusted as required within the limits of the slot 3. The crank arm 4 is held in desired adjustment with respect to the coacting trunnion 2 by the conventional holding and clamping nuts 5 threaded upon the trunnion 2 at opposite sides of the crank arm. By endwise adjustment of the crank arm 4, it is believed to be obvious that the extent of rocking of the apron or chute D may be regulated as the requirements of practice may prefer.

The crank arm 4 adjacent to an end thereof carries a laterally disposed crank pin 6 with which is operatively engaged an end portion of a pitman 7 which, in turn, is operatively engaged, as at 8, with an operating wheel 9 herein disclosed as rotatably carried by one of the beams 1. This wheel 9 is adapted to be operatively engaged with any suitable source of power.

It is to be stated at this time that the specific means for rocking the apron or chute D forms no part of the present invention other than the provision of means whereby regulation may be had of the extent of rocking movement of the apron or chute D and that such rocking movement of the apron or chute D is substantially equidistant to opposite sides of the vertical plane of the trunnions 2.

Suitably secured to the opposite flat faces of

the apron or chute D are the outstanding elongated flanges 10, with the flanges 10 at one side of the transverse center of the apron or chute D diverging downwardly with respect to the flanges 10 at the opposite side of the transverse center of the apron or chute D and with the flanges 10 at each side of such transverse center being disposed on downward and outward inclines, with the lower ends of said flanges 10 terminating a material distance inwardly of the lower edge *a* of the apron or chute D. In the present embodiment of the invention this lower edge *a* of the apron or chute D is spread from end to end and substantially at right angles to the transverse center line of the apron.

As the crushed stone or kindred aggregate is carried off from the screen along the chute C and discharged down through the spout S, the apron or chute D will be caused to rock back and forth across the path of flow of the material as delivered from the spout S, with the result that the aggregate will be evenly distributed both lengthwise and transversely within the bin or other place of storage, the distribution in one direction resulting from the rocking or oscillating movement of the apron or chute D while the distribution in a direction transverse to such rocking movement to opposite sides of the apron or chute D will be effected by the flanges 10 and which flanges serve to separate the aggregate as it flows over either of the faces of the apron or chute D into separate streams.

By having the flanges 10 terminate a material distance inwardly of the lower or discharge end of the apron or chute D, a slight spreading of the aggregate is permitted as the same passes beyond the lower ends of the flanges 10 before the aggregate passes beyond the lower or discharge end *a* of the apron or chute D. This spreading eliminates the discharge of the aggregate from the apron or chute D in a manner which would result in the forming of surface ridges on the pile or heap within the bin B or other place of storage.

In the embodiment of the invention as illustrated in Figures 4, 5 and 6 of the drawings, the material or aggregate discharging from the depending spout A of the chute or trough E delivers within a tubular or chute-like distributing member M. This member M is flat and open at its opposite ends and gradually increases in width from substantially its upper end to its lower end, as illustrated in Figure 5.

The member M is shallow and has its side walls 11 provided at their upper ends or at the smaller end of the member M with the parallel extensions 12 between which the depending spout A is received and to which spout A the extensions 12 are pivotally connected, as at 14, whereby the member M is supported for rocking movement below the spout A. It will also be noted that the mounting 14 is centrally of the spout A so that the member M can be caused to rock or swing forwardly and rearwardly of the spout A to assure the desired effective distribution of the aggregate within the bin F.

The front and rear walls 15 of the member M at the upper or smaller end of said member are provided with the upstanding and outwardly curved extension plates 16 which extend upwardly and beyond the lower or discharge end of the spout A but in relatively close proximity thereto to assure the proper delivery of the material or aggregate from the spout A into the upper end of the member M.

The space between the walls 15 of the member M have interposed therebetween and suitably secured thereto the members or flanges 17. These flanges or members 17 at opposite sides of the transverse center of the member M are arranged in downward divergence so that as the material or aggregate passes down through the member M, such material or aggregate will be evenly distributed as it leaves the member M within the bin F or other place of storage.

The member M is to be rocked or oscillated to substantially equal distances at opposite sides of the vertical center occupied by the pivotal mounting 14. As herein disclosed, one of the side walls 11 has fixed thereto at a desired point therealong an outstanding laterally directed bracket 18 with which is operatively connected, as at 19, an end portion of a rigid link or pitman 20 which, in turn, is operatively connected, as at 21, with a driven member 22 herein disclosed as rotatably carried by a beam 22 supported above the bin F.

From the foregoing description it is thought to be obvious that a distributing means for coarse aggregates constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

What I claim is:

1. A means for controlling the segregation of a vertically dropping flow of aggregates, comprising an elongated flat body of greater width at one end than at the other, means for pivotally supporting said body at opposite longitudinal edges for rocking movement across the said flow, said means being disposed adjacent the narrower end of the body and the rocking axis extending across the body inwardly from the adjacent end edge and being disposed in the center of the flow whereby the portion of the body lying above the axis swings to a position across the flow to intercept the entire flow, and means for rocking the body on said axis.

2. A means for controlling the segregation of aggregates as set forth in claim 1, with means extending lengthwise of the opposite faces of the body for effecting movement of the aggregates laterally toward the longitudinal edges of the body.

3. A means for controlling the segregation of aggregates as set forth in claim 1 with a plurality of ribs secured to each of the side faces of the body and extending lengthwise thereof, the ribs upon each face and at one side of the longitudinal center of the body being angularly directed oppositely to the ribs upon the opposite side of the longitudinal center whereby the aggregate flowing across the faces of the body will be caused to flow off of the wider end of the body toward the longitudinal edges.

4. A means for controlling the segregation of aggregates as set forth in claim 1 with a plurality of ribs secured to each of the side faces of the body and extending lengthwise thereof, the ribs upon each face and at one side of the longitudinal center of the body being angularly directed oppositely to the ribs upon the opposite side of the longitudinal center whereby the aggregates flowing across the faces of the body will be caused to flow off of the wider end of the body toward the longitudinal edges, said ribs terminating short of the wider transverse edge of the body whereby to prevent deposition of the aggregate in ridges.

CARL WARREN.