July 30, 1957 P. BASKIN 2,800,993

ORIENTATING MECHANISM

Filed Jan. 27, 1955

FIG.2.

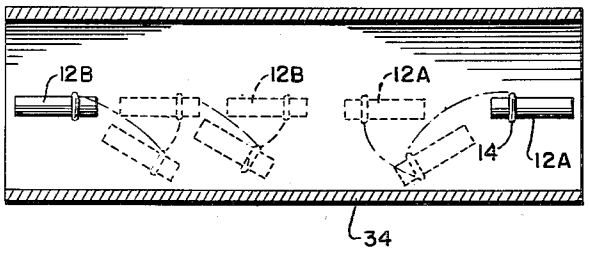


FIG.1.

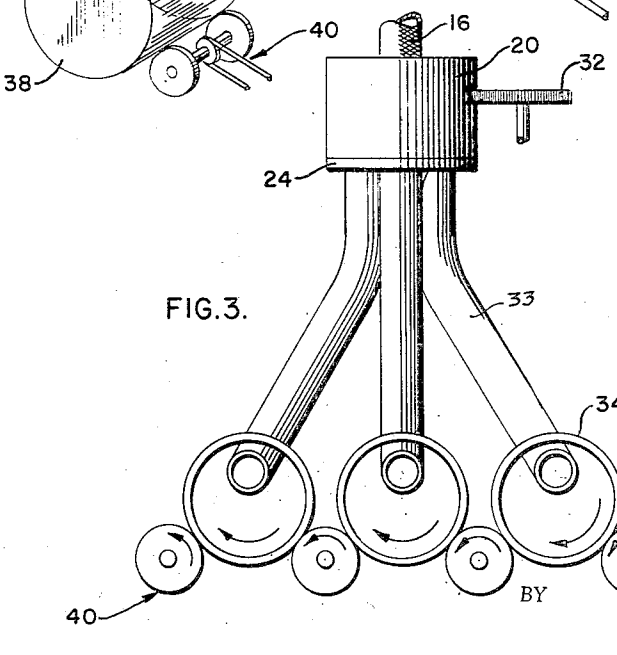


FIG.3.

FIG.4.

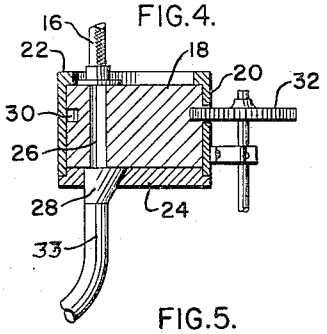
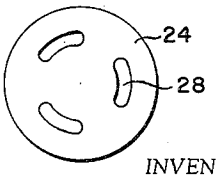


FIG.5.



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ORIENTATING MECHANISM

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6 Claims. (Cl. 198—33)

This invention relates to assorters. Particularly it relates to means for assorting elongated articles which are larger in diameter at one end than another in order to divide the articles into two groups each of which will have the larger ends oriented the same way.

To effect this result advantage has been taken of the fact that when an article, such as a frustum of a cone, revolves on a surface, the larger end will travel a greater distance than the smaller end and if the article be carried up an incline, the article will first roll down the incline and then, at the lower level will align itself with the low portion of the surface, but displaced laterally of its original position and toward the smaller end of the conical member.

A clearer understanding of the invention will be had by referring to the following specification, taken in conjunction with the accompanying drawing in which

Fig. 1 is a view, partly diagrammatic and partly in section, of an apparatus embodying my invention.

Fig. 2 is a diagrammatic view illustrating the principle of operation of the assorter.

Fig. 3 is a view of an assorter showing how a multiplicity of sorting drums may be conveniently related to one another.

Fig. 4 is a detail showing how articles are distributed to different ducts leading to different drums, and

Fig. 5 is a view of the bottom plate of the distributor.

Referring to the figures in greater detail, at **10** there is disclosed a hopper receiving elongated articles which, toward one end, have a larger circumference than toward the other. These articles may be screws, bolts, headed pins, cones, or, as in the illustration, cathode sleeves such as are commonly employed in the electron tube industry.

These sleeves **12** usually have a bead **14** near one end to engage an insulating member, such as a mica disc, to prevent the cathode sleeve moving in one direction with respect to the disc. It is desirable to storage these sleeves in containers with all the beaded ends in one direction.

The hopper **10** has these sleeves fed thereto, seriatim, as through a gating mechanism, and the sleeves may be presented to the hopper either end foremost. The sleeves are then fed via a flexible hose **16**, one at a time, to a rotating plug **18** held in a shell **20** the upper end of which is flanged as shown at **22** and the other end of which is closed by a perforated plate **24**. The plug **18** has an accentric bore **26** therethrough. The hose is connected to the plug in alignment with the bore and the bore communicates with a number of elongated circumferentially arranged holes **28** in the plate through which holes the cathode sleeves will drop in sequence. To rotate the plug **18**, the periphery thereof is provided with gear teeth **30** meshing with a spur drive gear **32** which extends through an opening in the shell **20** for engagement with the teeth **30**.

Each of the openings **28** is provided with a duct **33** leading into a horizontal rotating drum **34**, open at both

ends. The end of each duct is about midway of its respective drum and well above the central axis thereof. The cathode sleeves thus drop out of the conduits near the centers of the drums.

Now consider Fig. 2. This figure may be considered as a horizontal section of the drum with the drum rotating clockwise when viewed from the left hand end. There is illustrated in this drum two sleeves, one each near the open ends of the drums. The right hand sleeve **12A** when it dropped into the drum had its beaded end to the left; the other, **12B**, to the right. On rotation of the drum, the sleeve **12B** initially was carried up the wall of the drum and then rolled downward on the inner surface of the drum with the wider beaded end travelling along the drum wall farther than the narrower unbeaded end. Then near the bottom of the drum, the sleeve slipped bodily thereby effecting a displacement of the sleeve **12B** to the left. Similarly, the sleeve **12A** will have moved to the right. The movement of the sleeves thus continues until finally they fall into inclined chutes **36** leading to inclined receptacles **38**, here illustrated as cylindrical glass containers, with open tops and closed bottoms. The drum and containers are suitably driven, as by the roller and belt arrangement **40**, diagrammatically illustrated in Figs. 1 and 3.

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

1. Means for assorting elongated articles having one portion along the length of greater cross section than another, said means comprising a horizontal drum with an open end rotatable about its horizontal axis, means for feeding in articles to the drum at a point within the drum removed fros aid end and means for rotating the drum about said axis whereby those articles which are directed toward said open end with the greater cross section toward the trailing end are caused to move toward the open end.

2. Means for assorting elongated articles having one portion along its length of greater cross section than another, said means comprising a horizontal drum with open ends rotatable about its horizontal axis, means for feeding in articles to the drum between the ends of the drum and means for rotating the drum about its axis whereby the articles move towards the ends of the drum, each with the portion of greater cross section trailing away from the end toward which it is moving.

3. Means for assorting elongated articles having one portion along its length of greater cross section than another, said means comprising a horizontal drum open at both ends, means for feeding in articles to the drum near the longitudinal center thereof, means for rotating the drum, cylindrical receptacles on inclined axes adjacent the open ends of the drum to receive articles discharged from the drum and means for rotating the receptacles on their inclined axes.

4. Means for assorting elongated articles having one portion of larger cross sectional dimension than another, said means comprising a distributor, a number of drums rotatable on a horizontal axis, each open at both ends, conduit means connecting the distributor to said drums, said conduit means terminating within said drums substantially midway along the lengths thereof, means for rotating the drums to effect movement of the articles toward the open ends of the drums, said articles being separated by rotation of said drums and fed toward respective ends of the drums in accordance with the directions of the larger cross sectional area of the articles with respect to the smaller area, and means for receiving the assorted articles leaving the open ends of the drums.

5. The method of assorting elongated articles in accordance with their orientation and which articles have

one portion along their lengths of greater cross sectional area than another portion, said method consisting in rolling a number of such articles, haphazardly arranged, downwardly on a surface which extends away from the horizontal so that the larger cross sectional portions of the articles roll and travel farther down the surface than the smaller portions and then the smaller portions slip into alignment with the larger portions, then carrying the articles bodily up the surface to new positions, then again rolling the articles down the surface, and repeating the rolling and carrying steps until complete separation of the articles into two groups has been effected.

6. The method of assorting elongated articles in accordance with their orientation and which articles have one portion along their lengths of greater cross sectional area than another portion, said method consisting in depositing haphazardly arranged articles of the character described in the center of horizontal drum and rotating said drum continuously in one direction and separately collecting the articles appearing at each end of the drum.

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