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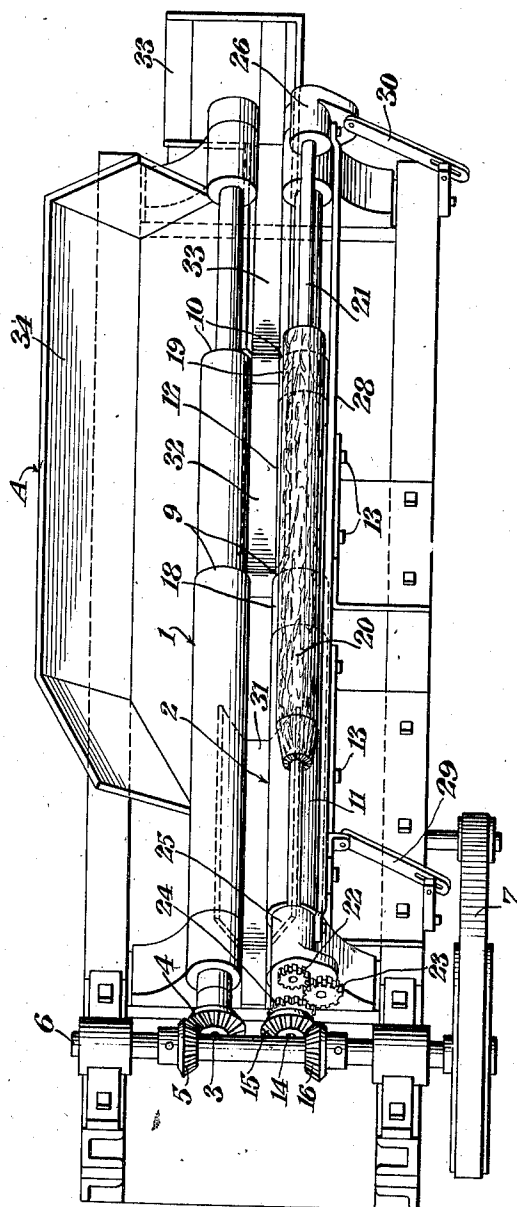
2,168,519

MACHINE FOR ASSORTING CYLINDRICAL ARTICLES BY DIAMETER

Filed Feb. 12, 1937

3 Sheets-Sheet 1

Fig. 1.



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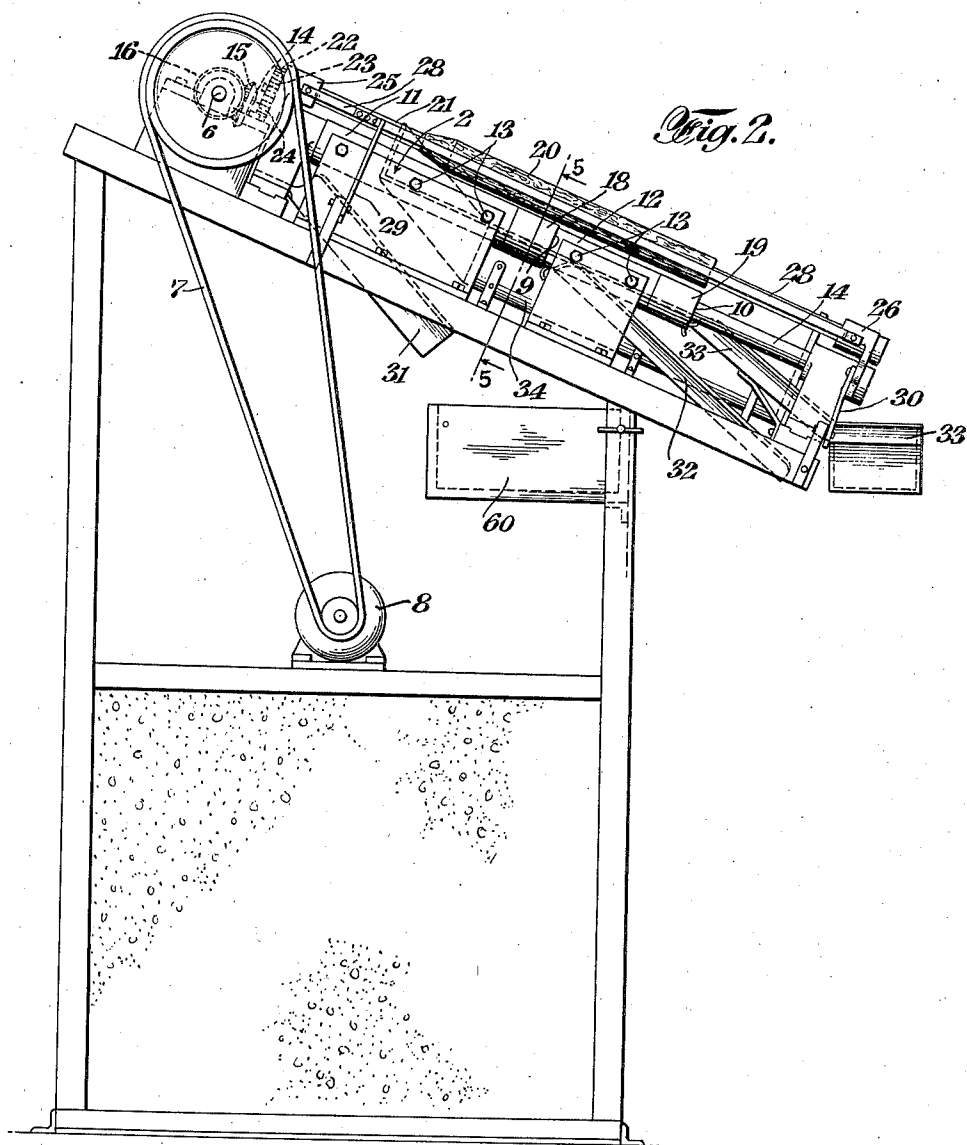
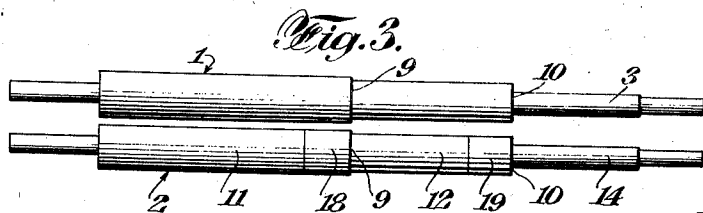
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3 Sheets-Sheet 3

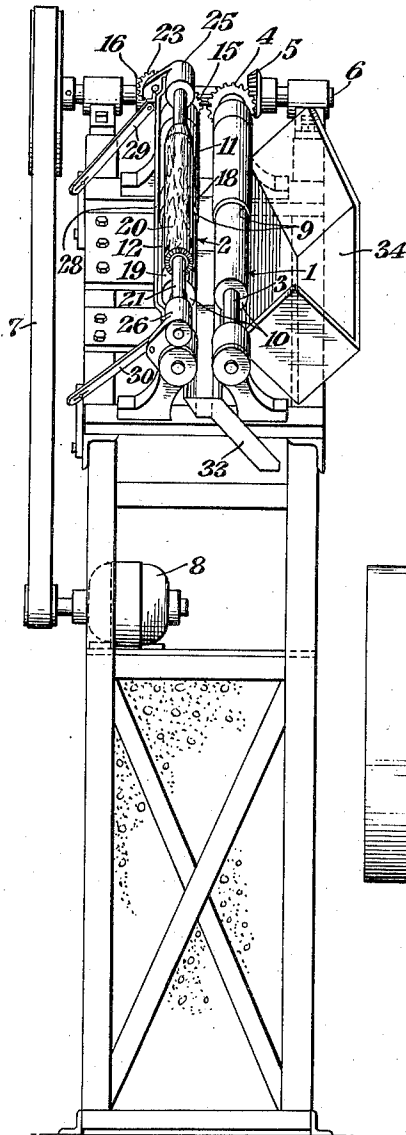


Fig. 4.

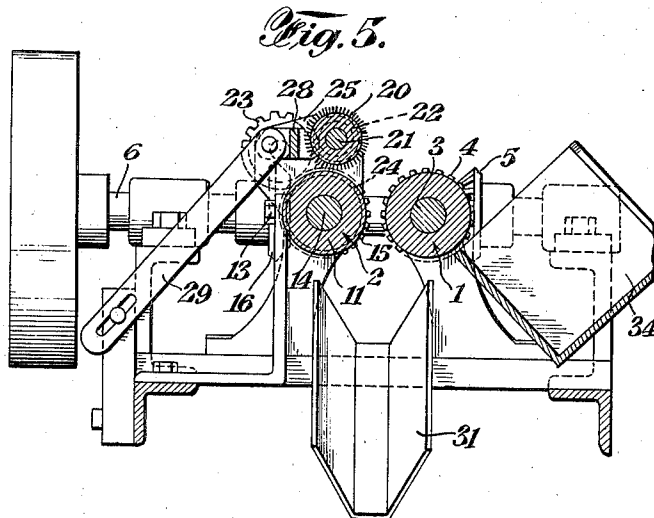


Fig. 5.

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UNITED STATES PATENT OFFICE

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MACHINE FOR ASSORTING CYLINDRICAL
ARTICLES BY DIAMETER

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Application February 12, 1937, Serial No. 125,391

11 Claims. (Cl. 209—107)

This invention relates to a machine for assorting cylindrical articles, its primary object being to carry out an accurate assortment of articles according to diameter and to reject those articles which are not of truly cylindrical shape, but are either tapered or lumpy.

The drawings disclose one illustrative form of the invention.

In these drawings

Fig. 1 is a plan view of the machine;

Fig. 2 is a side elevation thereof;

Fig. 3 is a plan view of the gauging rollers of the machine;

Fig. 4 is a front elevation of the machine, and

Fig. 5 is a cross-section on the line 5—5 of Fig. 2.

The diametral selecting machine comprises a pair of spaced rolls 1 and 2. The roll 1 is fixed upon a shaft 3 which is driven through beveled gears 4, 5, shaft 6, and belt 7 from an electric motor 8. The roll 1 is decreased in diameter at steps 9 and 10, the intermediate portions being cylindrical.

The roll 2 is partly composed of stationary sections 11 and 12 fixed by screws 13 to the frame of the machine. Within these stationary sections is rotatably mounted a shaft 14 driven by beveled gears 15, 16 from shaft 6. Rotating sections 18 and 19 of the roll 2 are fixed upon shaft 14 so as to rotate therewith, for a purpose to be presently described. The roll 2 has steps 9 and 10 corresponding to those of the roll 1.

Above the roll 2 is a third roll 20 fixed upon a shaft 21. This shaft is driven by gears 22, 23, 24, the latter fixed upon shaft 14, in the same direction as sections 18 and 19 of roll 2. Shaft 21 is rotatably mounted in bearings 25, 26 pivotally supported on shaft 14. These bearings are secured together by a bridge piece 28 and are held in adjusted position by braces 29, 30.

The rolls 1 and 2 are inclined downwardly toward the right. The articles to be tested are dropped on to the upper left end of the rolls and usually assume a position parallel to the rolls.

Articles which are of less than standard diameter drop through the slot between the upper ends of the rolls and are carried off by chute 31 into a box 60. Articles of greater diameter are moved by the rotation of roll 1 and gravity toward the right and pass over the shoulders 9 to the next section of the rolls. Here the articles of standard diameter drop through and are conveyed by a chute 32 to any desired point, for instance, to the weighing machine previously referred to. Oversized articles continue their movement along the rolls

and pass over the shoulders 10, where they drop through into chute 33 and are carried off. In the case of substantially cylindrical articles, those which are in part of small enough diameter to drop between the rolls at the upper end, but which are prevented from doing so by a tapered shape or a lump, assume an upright position and are carried down the rolls in that way until they reach section 18 of roll 2. At this point the combined action of the three rotating rolls 1, 18, and 20 lifts the article clear of the rolls and throws it into trough 34. Articles assuming an upright position in the next section of the rolls, because of tapered or lumpy shape, encounter similar treatment at the rotating section 19. The undersized articles, the oversized articles, and the tapered or lumpy articles may be collected separately to give an indication of the proportion of articles having the various defects in the size and shape. The roller 20 can be adjusted toward or away from the slot between the rolls 1 and 2 to insure perfect ejection of tapered and lumpy articles. This roll 20 is preferably provided with a cover of plush, or other suitable material to increase the friction at its contact with the defective articles.

Having described my invention I claim:

1. In a machine for assorting cylindrical articles, a pair of guide members spaced apart to form a downwardly opening gauging slot, means positioned above said guide members and adapted to engage the articles turning to a relatively upright position in said slot to eject them, and means for actuating said engaging means.

2. In a machine for assorting cylindrical articles, a roller guide member, a stationary guide member parallel thereto and spaced therefrom to form a gauge slot, a short roller forming a continuation of said stationary guide member, means for rotating said rollers so that their adjacent surfaces move upwardly, a third roller above said first mentioned rollers, and means for rotating said third roller, said third roller being adapted to engage articles tilting to an upright position in said slot.

3. A machine having the features described in claim 2, in which said third roller is provided with a surface having high frictional properties.

4. A machine having the features described in claim 2, in which said third roller is covered with a piled fabric.

5. In a machine for assorting cylindrical articles, an inclined rotatable roller, a stationary guide adjacent the upwardly moving side of said roller spaced therefrom to form a gauging slot,

and a rotatable section in said stationary guide forming a continuation of the guide surface and rotating in a direction opposite to that of said roller.

- 5 6. In a machine for assorting cylindrical articles, a roller guide member, a stationary guide member parallel thereto and spaced therefrom to form a downwardly opening gauge slot, means for rotating said roller guide member so that its surface adjacent to said stationary guide member moves upwardly, a roller above said guide members, and means for rotating said roller, said roller being adapted to engage the articles tilting to a relatively upright position in said slot.

- 10 7. A machine having the features described in claim 6 in which said upper roller is provided with a surface having high frictional properties.

- 15 8. A machine having the features described in claim 6 in which said upper roller is covered with a piled fabric.

- 20 9. In a machine for assorting cylindrical articles, a pair of guide members spaced apart to form a downwardly opening gauging slot and

means positioned above and coacting with said guide members to remove the articles turning to a relatively upright position in said slot.

10. In a machine for assorting cylindrical articles, a pair of guide rolls mounted with parallel non-vertical axes and spaced apart to form a downwardly opening gauging slot, means for rotating said rolls oppositely so that their adjacent surfaces move upward, and means located above said rolls and coacting therewith to eject articles turning to an upright position in said slot.

- 15 11. In a machine for assorting cylindrical articles, a pair of guide rolls mounted with parallel non-vertical axes and spaced apart to form a downwardly opening gauging slot, a third roll located above and parallel to said guide rolls, and means for rotating said third roll and for rotating said guide rolls oppositely so that their adjacent surfaces move upward, whereby said three rolls coact to eject upwardly articles turning to an upright position in said slot.

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