No. 746,011. PATENTED DEC. 8, 1903.

A. C. BURK.

FRUIT SIZING MACHINE.

APPLICATION FILED APR. 14, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

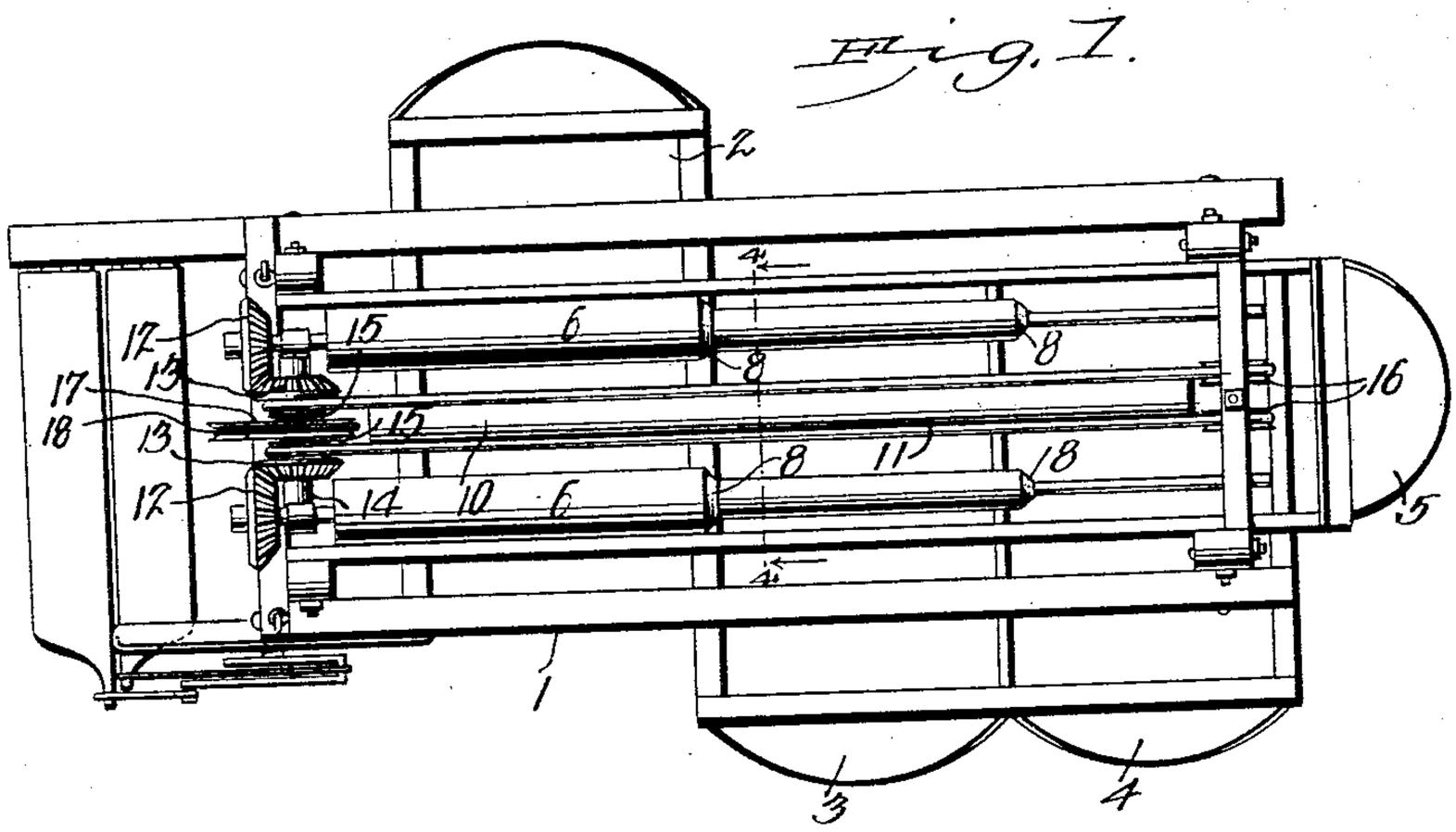
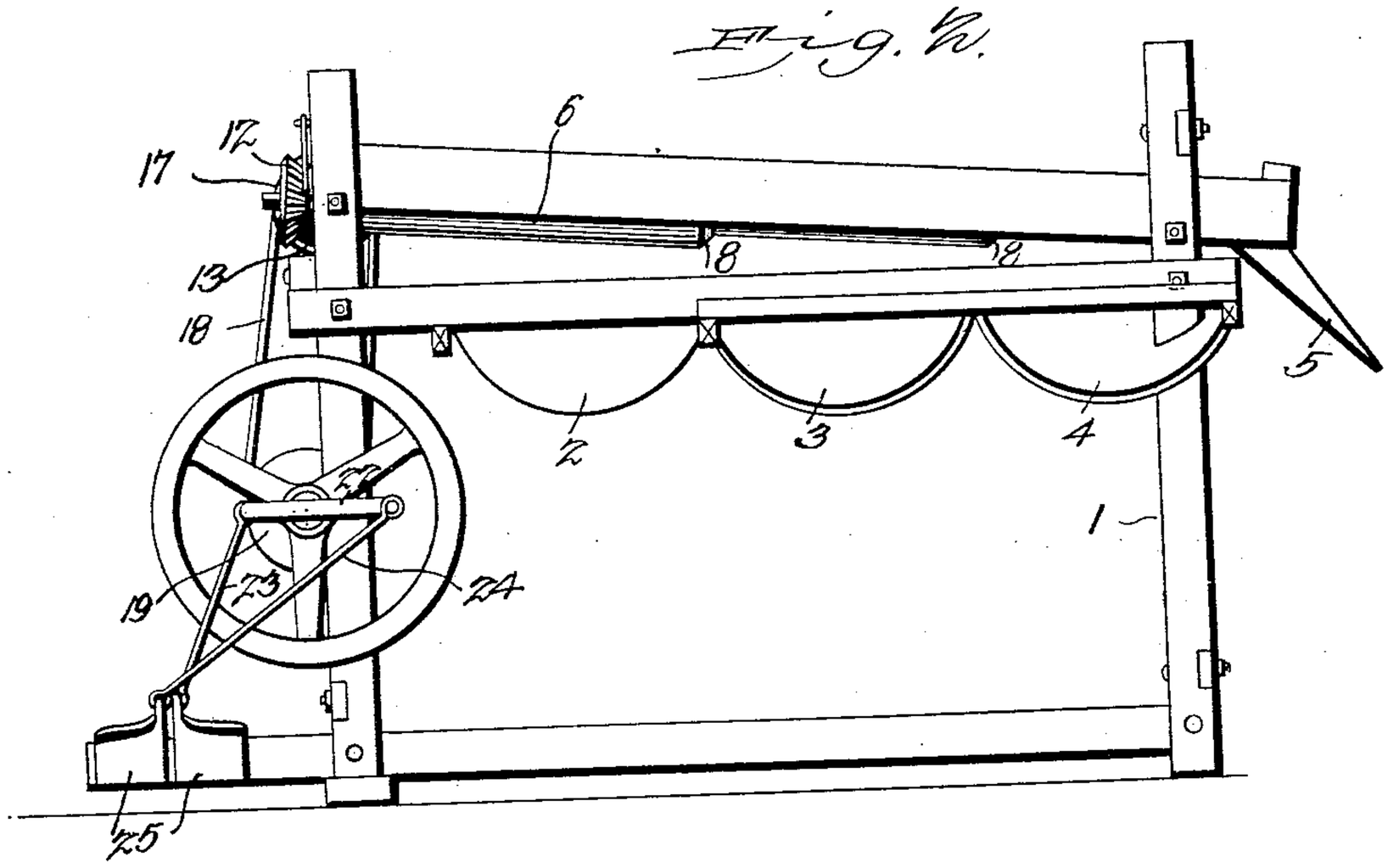


Fig. 2.



Witnesses
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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

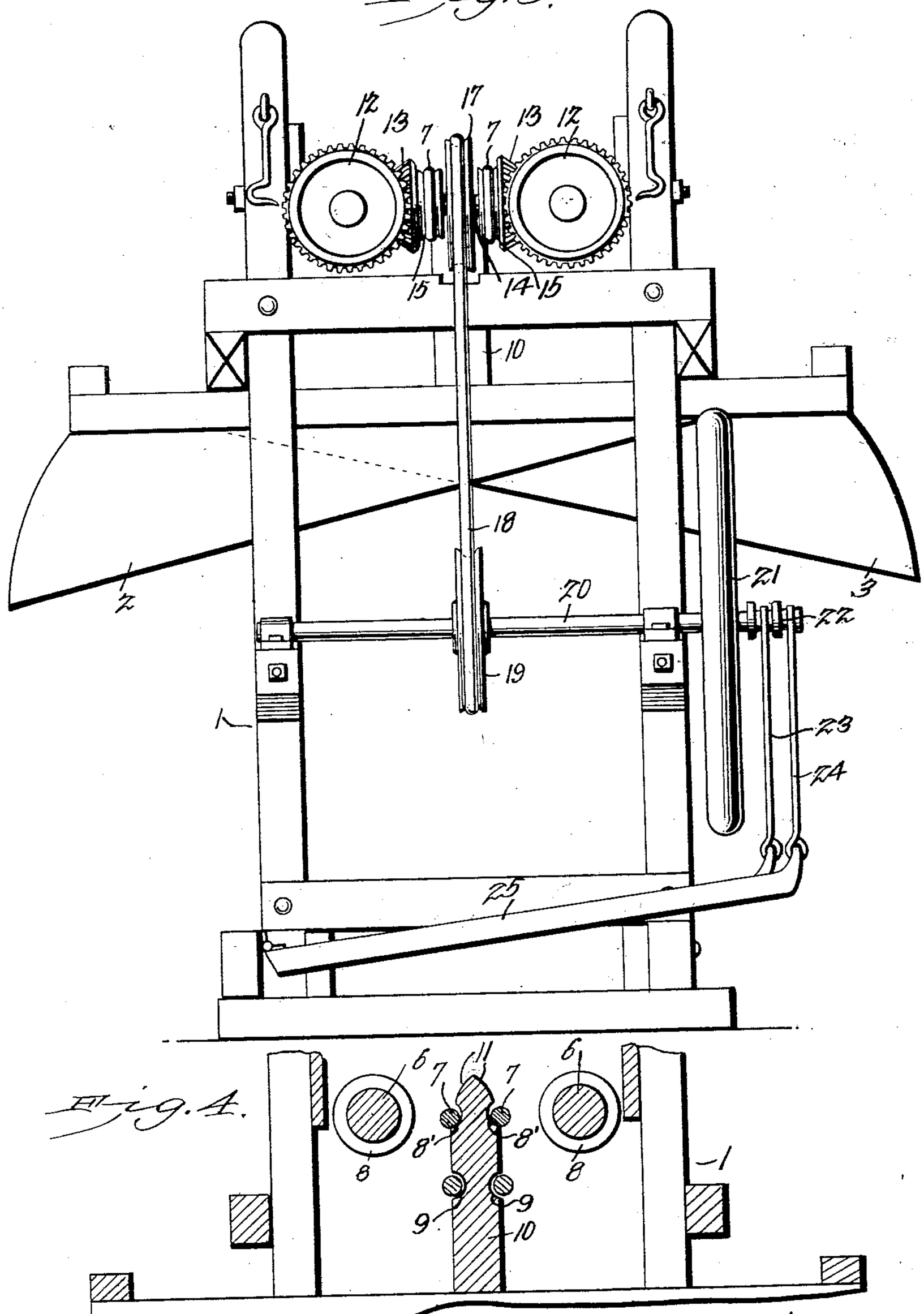

Fig. 4.

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Fig. 3.

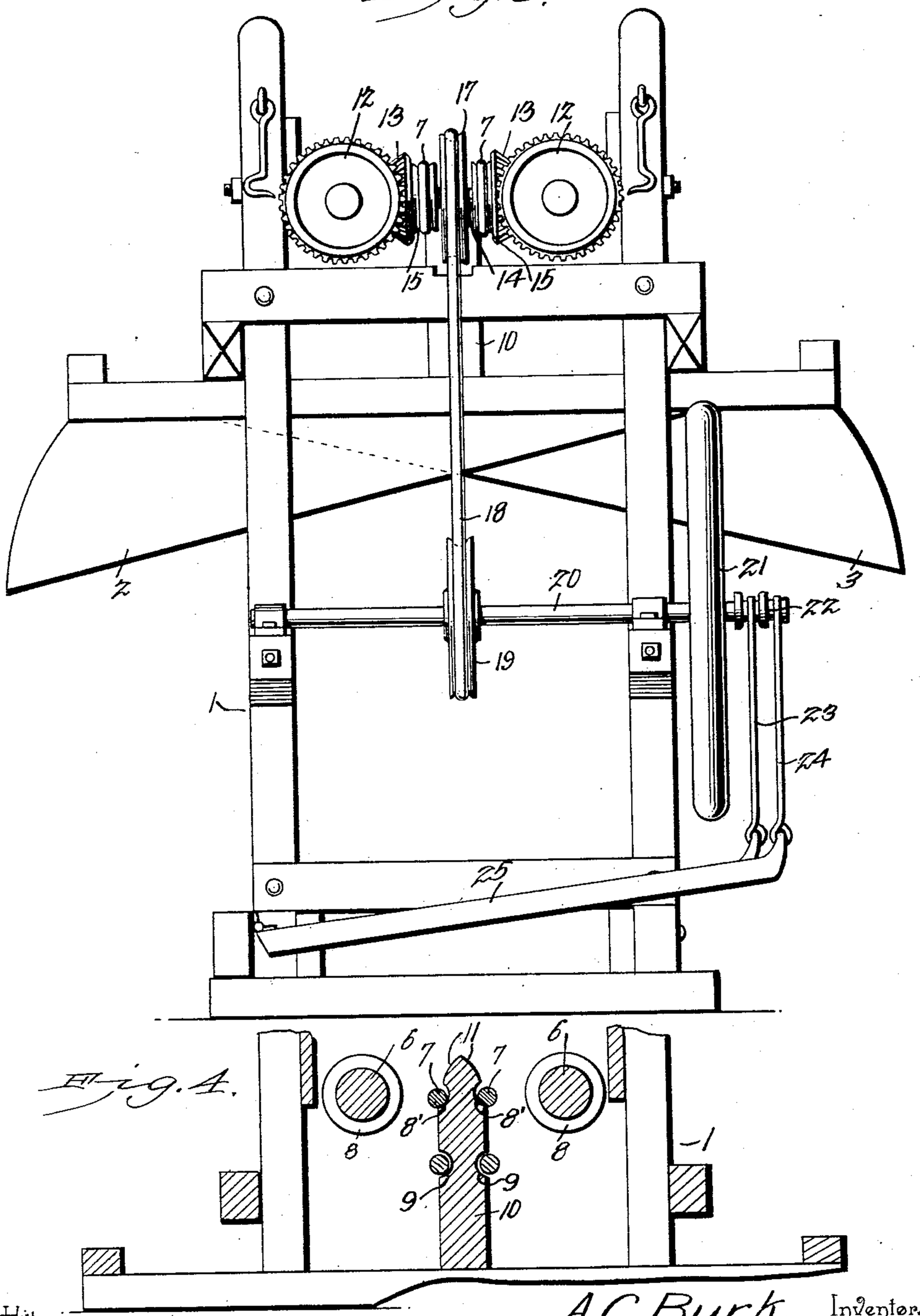

Fig. 4.

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UNITED STATES PATENT OFFICE.

ASHBEL C. BURK, OF GYPSUM, OHIO.

FRUIT-SIZING MACHINE.

SPECIFICATION forming part of Letters Patent No. 746,011, dated December 8, 1903.

Application filed April 14, 1902. Serial No. 102,902. (No model.)

To all whom it may concern:

Be it known that I, ASHBEL C. BURK, a citizen of the United States, residing at Gypsum, in the county of Ottawa and State of Ohio, have invented a new and useful Fruit-Sizing Machine, of which the following is a specification.

This invention relates to fruit-sizing machines.

The object of the invention is in a simple, feasible, rapid, and thoroughly practical manner to effect sizing or grading of fruit without danger of injuring it, even though it be ripe.

A further object is to obviate possibility of any jamming or clogging of the fruit within the machine.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a fruit-sizing machine, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in plan of a fruit-sizer characterizing this invention. Fig. 2 is a view in side elevation. Fig. 3 is a view in elevation, taken from the feed end of the machine. Fig. 4 is a view in transverse section, taken on the line 4 4, Fig. 1, and looking in the direction of the arrow thereon.

Referring to the drawings, 1 designates generally the supporting-frame of the machine, and 2, 3, 4, and 5 the fruit-discharging chutes, and as these parts may be of the usual or any preferred construction detailed illustration thereof is deemed unnecessary. It is to be understood that the frame is to have the usual fruit-receiving tray or picking-table associated with it; but this is omitted in the drawings in order that an unobstructed view may be had of the operating mechanism, which would otherwise be partly hidden.

The present invention resides in the fruit-sizing mechanism *per se*, which comprises, in this instance, two sorting-rollers 6 and two fruit-feeding belts 7, coacting with the sorting-rollers. The rollers are supported in an inclined position, as usual, and are constructed in sections of successively-decreasing diameters toward their discharge ends and are by preference made of a solid bar of steel, the shoulders formed at the meeting-points of the sections being preferably beveled or rounded, as at 8, to obviate any injury to the fruit in its passage through the machine.

The feeding-belts 7, which constitute one of the most important features of the present invention, are circular in cross-section and are made of some yielding material, such as rubber, and are partly housed in pairs of alined grooves or ways 8′ and 9, formed on opposite sides of a partition 10, arranged midway of the sorting-rollers and having its upper edge rounded or beveled at 11 to obviate any mashing or bruising of the fruit and also to act as a guide to deflect the fruit toward the sorting-rollers. As shown in Fig. 4, the feeding-belts are normally free from engagement with the walls of the ways 9, thereby to permit them to have a limited range of lateral movement, thus to yield to the weight of the fruit and to prevent crushing the same against the sorting-rollers.

Each of the sorting-rollers carries at its feed end a beveled gear 12, which are engaged by similar gears 13, carried by a counter-shaft 14, journaled in suitable bearings on the frame, the said shaft carrying two sheaves 15, around which pass the feeding-belts 7, these belts being supported at the discharge end of the machine by sheaves 16, as clearly shown in Fig. 1. Upon the shaft 14 is mounted a sheave 17, around which passes a belt 18 to and around a sheave 19, mounted on a drive-shaft 20, journaled in boxes on two of the end uprights of the frame, the said shaft being provided with a fly-wheel 21. Motion is imparted to the shaft 20 through the medium of a double crank 22, the bend of the crank being engaged by a rod 23 and its terminal by a rod 24, the two rods being connected with pedals 25, disposed at right angles to the plane of rotation of the fly-wheel, and by this arrangement the operator will be enabled to

use both feet for driving the mechanism instead of one foot, as is usual with machines of this character. Under rotation of the shaft 20 the two sorting-rollers are turned toward each other, while at the same time a longitudinal movement is imparted to the feeding-belts, and under this construction it will be seen that the fruit that lodges between the sections of the sorting-rollers and the feeding-belts will be constantly moved upward and at the same time onward, thereby obviating any possibility of the fruit becoming choked or clogged between the rollers and the belts.

The machine of this invention is adapted for sorting or sizing any kind of fruit; but it is particularly adapted for sorting peaches, which is a very difficult matter to accomplish without injury, especially when fully ripe. It will be observed that all of the surfaces with which the fruit contacts are rounded, so that mashing or skinning of the fruit will be positively prevented. The advantage of the round feeding-belts is therefore manifest, and when the feature of providing for lateral yield of the belts is considered it will be seen that the most delicate kinds of fruit may be handled with impunity and be rapidly sorted without danger of injury.

The operation of the machine will be apparent. Fruit being fed down the picker-table to the sorting-rollers has longitudinal onward movement imparted thereto by the feeding-belts and at the same time a rotary or worm motion due to the rotation of the sorting-rollers, which will prevent the machine from becoming clogged, so that the fruit will always be fed onward toward the discharge, the smaller fruit escaping to the chute 2, the next larger to the chute 3, and so on, the largest of the fruit escaping from the chute 5. By providing two feeding-belts, one for each sorting-roller, one side of the machine can be used to the exclusion of the other, or a greater amount of fruit may be fed to one side than to the other. This latter result could not be accomplished if a single belt were used for two sorting-rollers, for the reason that if a larger quantity of fruit were supplied to one chute than to the other the belt would be crowded over to one side, and thus interfere with the operation of the other roller.

While but two sorting-rollers and two feeding-belts are herein shown, it is to be understood that this number may be increased if found necessary or desirable, and as this will be readily understood, detailed illustration thereof is deemed unnecessary.

It is of course well known that, broadly considered, it is not new to employ a belt in connection with sorting-rollers to effect movement of the fruit through the machine; but that which differentiates machines of this character heretofore employed from the present invention is that the belt was disposed between two rollers and moved over a fixed bridge and was therefore not adapted to yield laterally to prevent injury to the fruit, and, moreover, such belts were flat structures with square edges that have a tendency to mash or crush the fruit, objections that are positively overcome by the arrangement of the present invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the class described a longitudinally-disposed sorting-roller constructed in sections of successively-decreasing diameter toward their discharge ends, the shoulders formed at the meeting-points of the sections being beveled, in combination with a feeding-belt disposed parallel to the axis of the roller, said feeding-belt being circular in cross-section and capable of a limited movement laterally in an outward direction from the sorting-roller, and means for rotating the sorting-roller in an upward and outward direction from the upper lead of the feed-belt and for operating the upper lead of the latter in the direction of the discharge end of the roller.

2. In a machine of the class described, a pair of longitudinally-disposed sorting-rollers constructed in sections of successively-decreasing diameter toward their discharge ends, the shoulders formed at the meeting-points of the sections being beveled, a partition disposed between said sorting-rollers and provided with a beveled upper edge and with recesses in the sides thereof, longitudinally-disposed feed-belts parallel to the axis of the sorting-rollers, said feed-belts being of yieldable material, circular in cross-section and partially housed in the recesses in the sides of the central partition, but at a distance from the faces of said recesses which shall permit of a limited expansion of the feed-belts in an outward direction from the sorting-rollers, supporting means for said sorting-rollers and feed-belts, and operating mechanism.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ASHBEL C. BURK.

Witnesses:
JOHN DETLEP,
JOHN ORTH.