

(No Model.)

A. WARR.
ORANGE POLISHING MACHINE.

No. 528,195.

Patented Oct. 30, 1894.

Fig. 1.

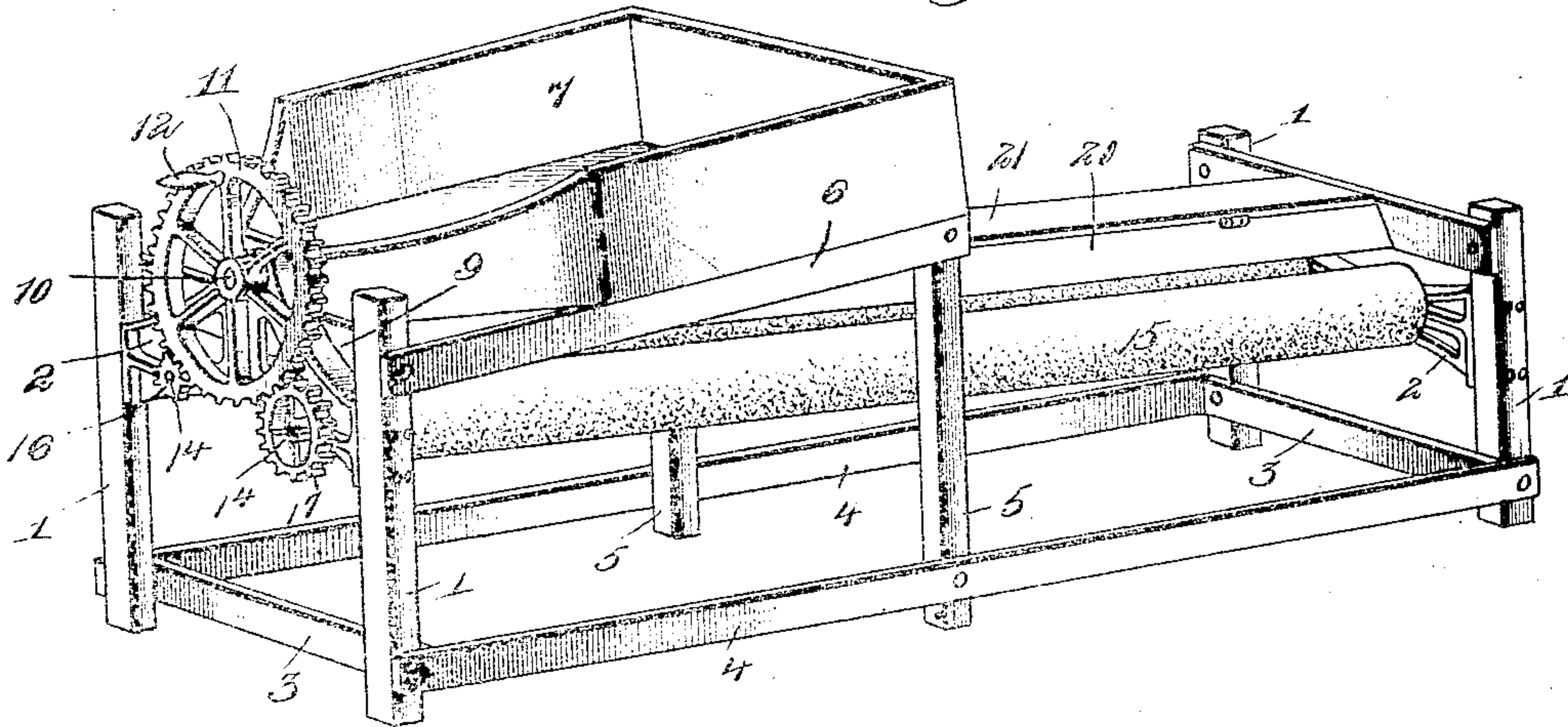


Fig. 2.

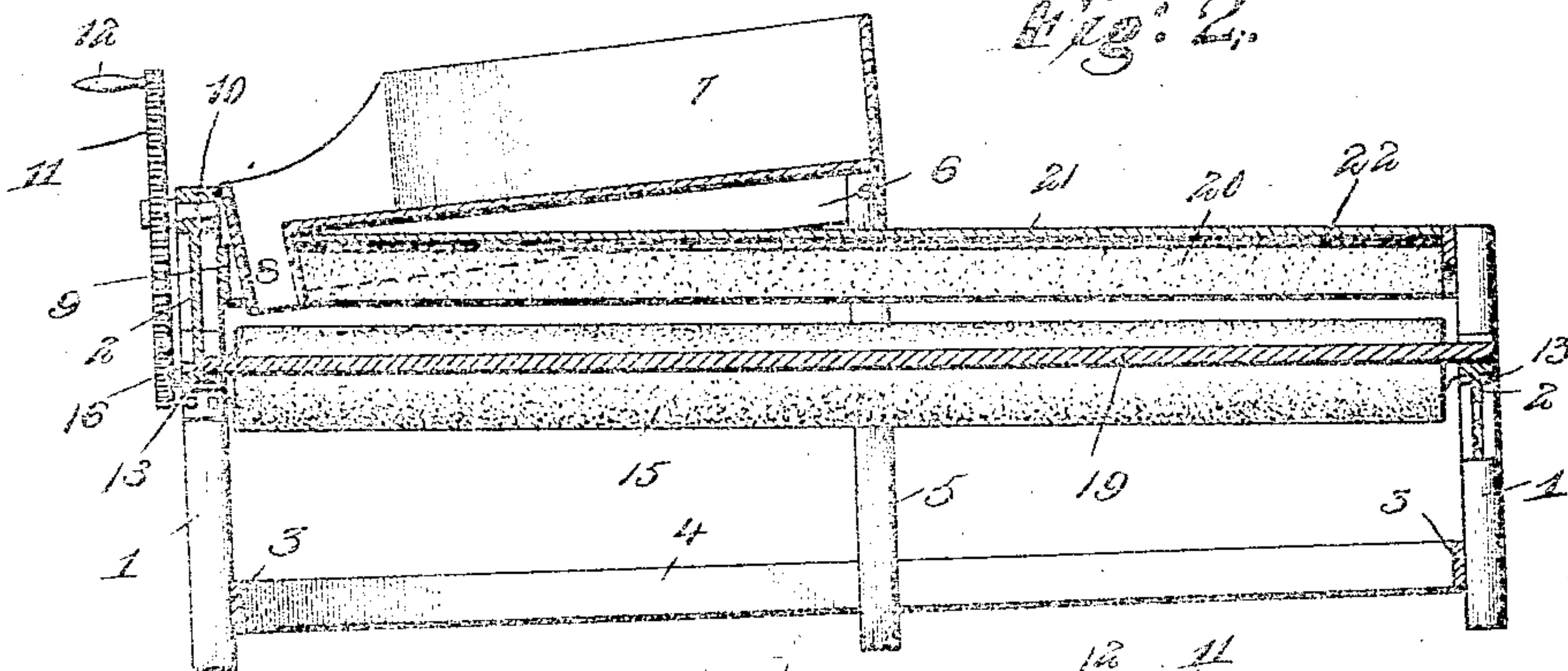


Fig. 3.

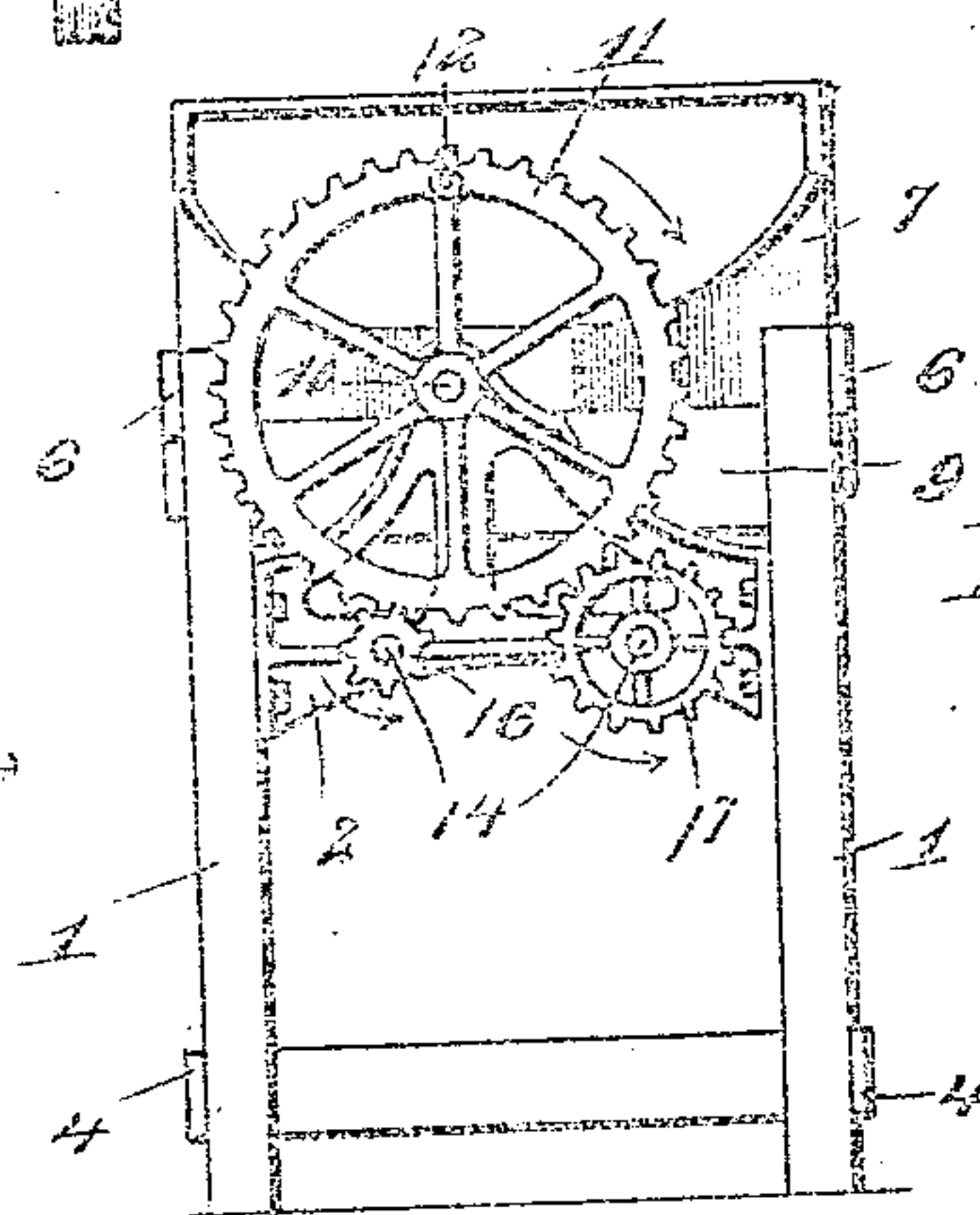
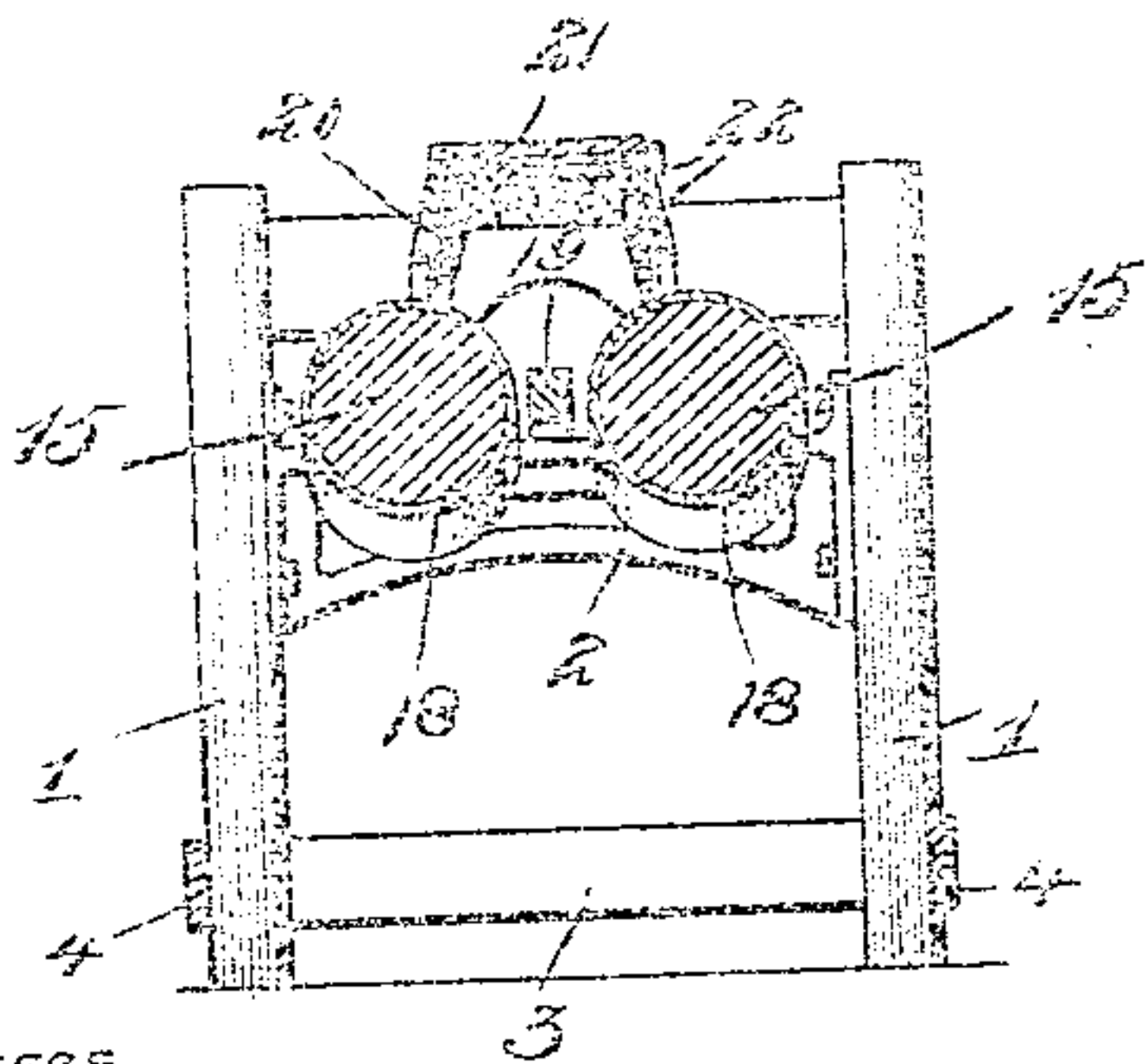


Fig. 4.

Witnesses

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ORANGE-POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 528,195, dated October 30, 1894.

Application filed February 14, 1894. Serial No. 500,174. (No model.)

To all whom it may concern:

Be it known that I, AARON WARR, a citizen of the United States, residing at Georgetown, in the county of Putnam and State of Florida, have invented a new and useful Orange-Polishing Machine, of which the following is a specification.

My invention relates to cleaning and polishing machines for oranges and other fruit; and it has for its objects to provide a simple and efficient construction of machine through which the fruit is fed automatically; to provide means whereby the fruit is rubbed or polished by the differential rotations of co-operating rolls, and to provide a cheap and efficient substitute for the polishing brushes usually employed in devices of this class.

With such general objects as the above in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a transverse sectional view. Fig. 4 is an end view.

Like numerals of reference indicate like parts in all the figures of the drawings.

In the practice of my invention I employ any desired construction of framework, and have herein illustrated one simple form, which I will proceed to describe.

I employ opposite pairs of vertical posts 1, connecting said pairs intermediate their ends by transverse and preferably cast-metal frames 2, and at their lower ends by tie-bars 3, corresponding longitudinally disposed tie-bars 4 serving to connect the pairs of posts or standards 1. Intermediate standards 5 rise at the sides of the frame and are bolted to the tie-bars 4, and the said standards 5 project above their companions 1 and are connected to a pair of said end standards by inclined bars 6. Arranged upon the inclined bars 6 is an inclined hopper 7, into which the fruit is to be introduced, and the said hopper is provided at its lower end with a discharge chute 8 adapted to discharge directly over the center and at one end of the machine. A cross-bar 9 surmounts those posts

or standards 1 adjacent to the lower end of the hopper 7, and from the casting at one side of its center there projects a stub-shaft 10, upon which a spur-gear 11 is located, the same having a handle 12 projecting from its outer face by which it may be manually operated.

The cross-frame 2 at that end of the machine adjacent to the gear 11 is arranged above the plane of the frame 2 at the opposite end of the machine, and each is provided with a plurality of journal-boxes 13, in the present instance two, one at each side of the center thereof, and said journal-boxes receive the axes 14 of as many longitudinally disposed parallel polishing-rolls 15, the same being inclined contrary to the inclination of the hopper 7. One of the rolls has its shaft or axis 14 provided with a small spur-gear 16, while the other has its axis provided with a larger spur gear 17, but each, however, meshes with and is driven by the master-gear 11, so that the rolls are driven in the same direction but at different rates of speed. Each of these rolls is provided with a covering or polishing material 18, of sheepskin, and between the rolls I prefer to locate a longitudinal rest-bar 19, the same having its ends connected to the opposite transversely disposed end castings 2, and therefore partially closing the space between the rolls. Of course any number of rolls may be provided, their functions and operations being substantially the same, but I prefer to employ but two, in that I gain the best results thereby. A bottomless guide-box 20 is arranged over the rolls and connected to the opposite transverse end-bars of the framework, the said guide-box having its opposite side-walls slightly elevated above the rolls, so as to give them free motion. The guide-box is inclined so as to be parallel to the rolls, and is preferably provided with a hinged cover 21, which, together with the interior surfaces of the sides of the box, is covered with a lining 22, also of sheepskin.

This completes the construction of the machine, and the operation thereof is as follows:—The oranges, or other fruit, are fed into the hopper 7, and by the inclination of the same, are caused to seek the discharge 8.

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from which they pass into the guide-box 20, in that the said discharge of the hopper terminates therein at the upper end thereof. Here the oranges, or other fruit, drop upon the rolls, which are revolving in the manner described, and by reason of the inclination of the same are fed by gravity toward the lower ends of the rolls, from which they are discharged into any awaiting receptacle. The revolution of the rolls constantly changes the points of contact between the oranges and the polishing lining of the box and covering of the rolls so that a thorough polishing of all parts of the oranges or other fruit takes place, and yet by reason of the gentle inclination and handling they are subjected to no bruising, abrading, or other injurious effects.

By reason of the rolls being operated at different speeds it will be seen that one roll will have a tendency to hold the fruit while the other passes over it, and yet the fruit will be constantly changing its position.

From the foregoing description, in connection with the accompanying drawings, it will be seen that I have provided a very simple machine, that is easy of operation, may be simply constructed, and which polishes in an efficient, expeditious manner oranges or other fruit that may be subjected to its operation; and that during such operation the fruit is prevented from being bruised or otherwise injured. The filling-strip between the rolls will prevent any small oranges or other fruit from being dragged between the rolls and squeezed, and will consequently support them during their travel down the inclined rolls toward the discharge end of the machine.

The sheepskin, which is described above as forming a lining for the inner surface of the box and for the rolls, possesses sufficient friction to hold the oranges and prevent slipping, and at the same time by the differential rotation of the rolls, rubs the surfaces of the oranges or other fruit and removes therefrom all foreign matter. I have found that the use of brushes in machines of this class is expensive both in the original construction of the machine and subsequently by reason of the wear and injury incident to the use of the machine; and, furthermore, experience has proved that the effect of the brushes in rubbing the surfaces of the oranges is not as satisfactory as that attained by a compact or unbroken rubbing surface.

I do not limit my invention to the precise details of construction herein shown and described, but hold that I may vary the same to any degree and extent within the knowledge of the skilled mechanic; for instance, a greater number of rolls may be employed and substituted, as a means for guiding the fruit, for the guide-box hereinbefore described.

Having described my invention, what I claim is—

1. In a fruit polishing-machine, the combination with a suitable framework, of a plurality of duplicate inclined parallel polishing-rolls of equal diameters, and means for driving the same simultaneously at different rates of speed, substantially as specified.

2. In a fruit polishing-machine, the combination with twin revoluble polishing-rolls arranged side by side, of a superimposed guide-box or trough covering the interval between the rolls to hold the fruit therebetween, and having a hinged cover, and means for operating the rolls, substantially as specified.

3. In a fruit polishing-machine, the combination with a suitable framework, of a pair of parallel inclined polishing-rolls, means for operating the same, and a superimposed guide-box or trough arranged over the rolls, both of the said rolls and the interior of the trough being provided with a polishing-cover and lining respectively, substantially as specified.

4. The combination with the opposite pairs of posts, the connecting-bars, and transverse end-frames having bearings, of the pair of rolls 15 having their shafts 14 arranged in the bearings and provided at one end with the gears 16 and 17, the latter being larger than the former, the stub-shaft 10 extending from the frame above the rolls, the spur-gear 11 arranged thereon and engaging with the gears 16 and 17, the coverings for the rolls, the bottomless guide-box 20 having an interior lining and a hinged cover, the bars 6 inclined contrary to the rolls, the supporting standards 5 for the bars, and the inclined hopper 7 arranged upon the bars 6 and having the lower discharge 8 extending into the box, substantially as specified.

5. In a fruit polishing machine, the combination with a framework, of a plurality of juxtaposed rolls having parallel axes and provided with rubbing surfaces of sheepskin, and means for rotating said rolls simultaneously at different rates of speed, substantially as specified.

6. In a fruit polishing machine, the combination with a framework, of a plurality of polishing rolls, sheepskin coverings for said rolls, and means for operating the rolls and holding the fruit in contact with the same, substantially as specified.

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

AARON WARR.

Witnesses:

ED H. WARR,
W. C. BABBITT.