

H. M. KINGSLEY.

MIXING DRUM.

APPLICATION FILED OCT. 10, 1908.

996,021.

Patented June 20, 1911.

Fig. 1.

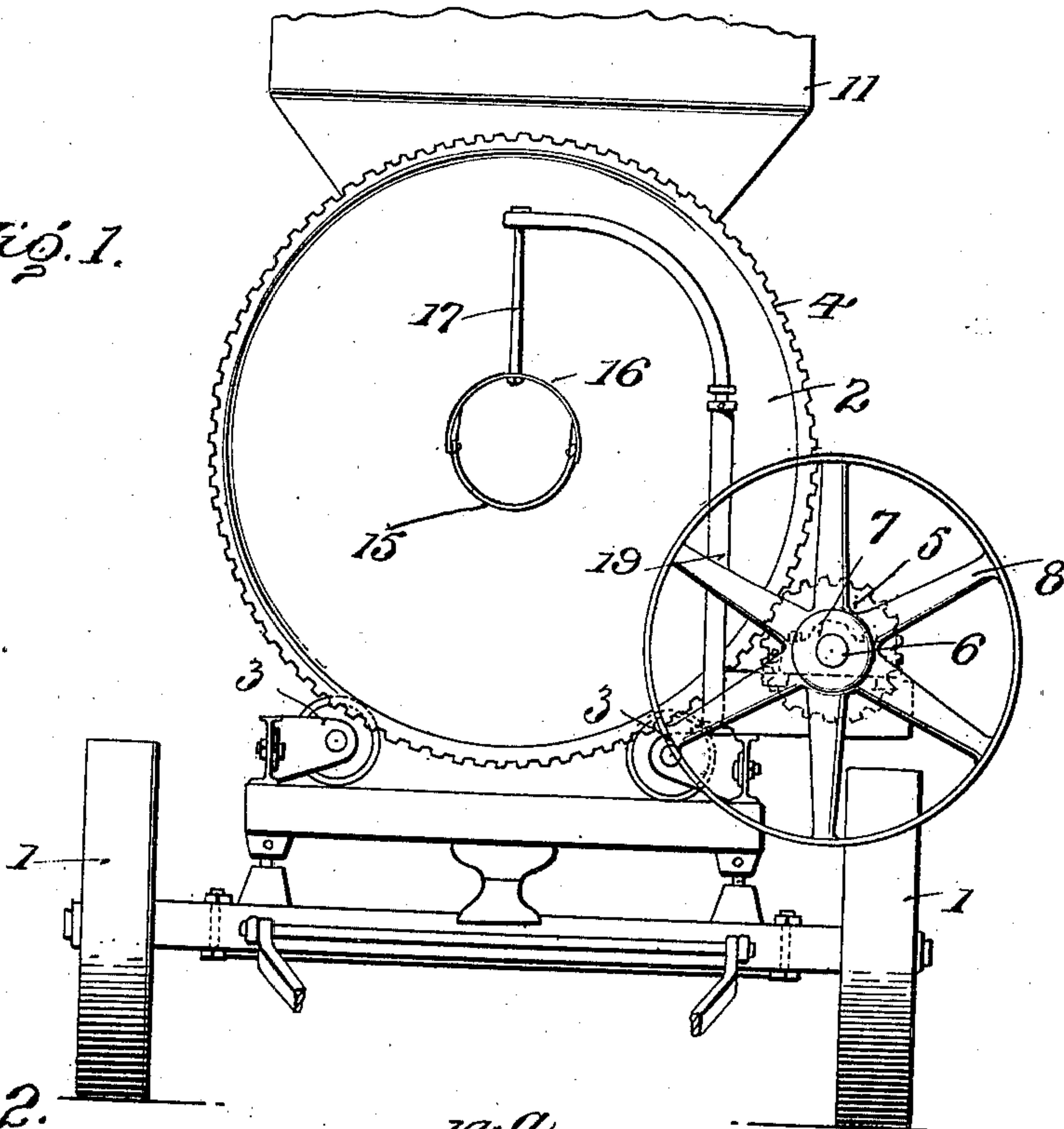


Fig. 2.

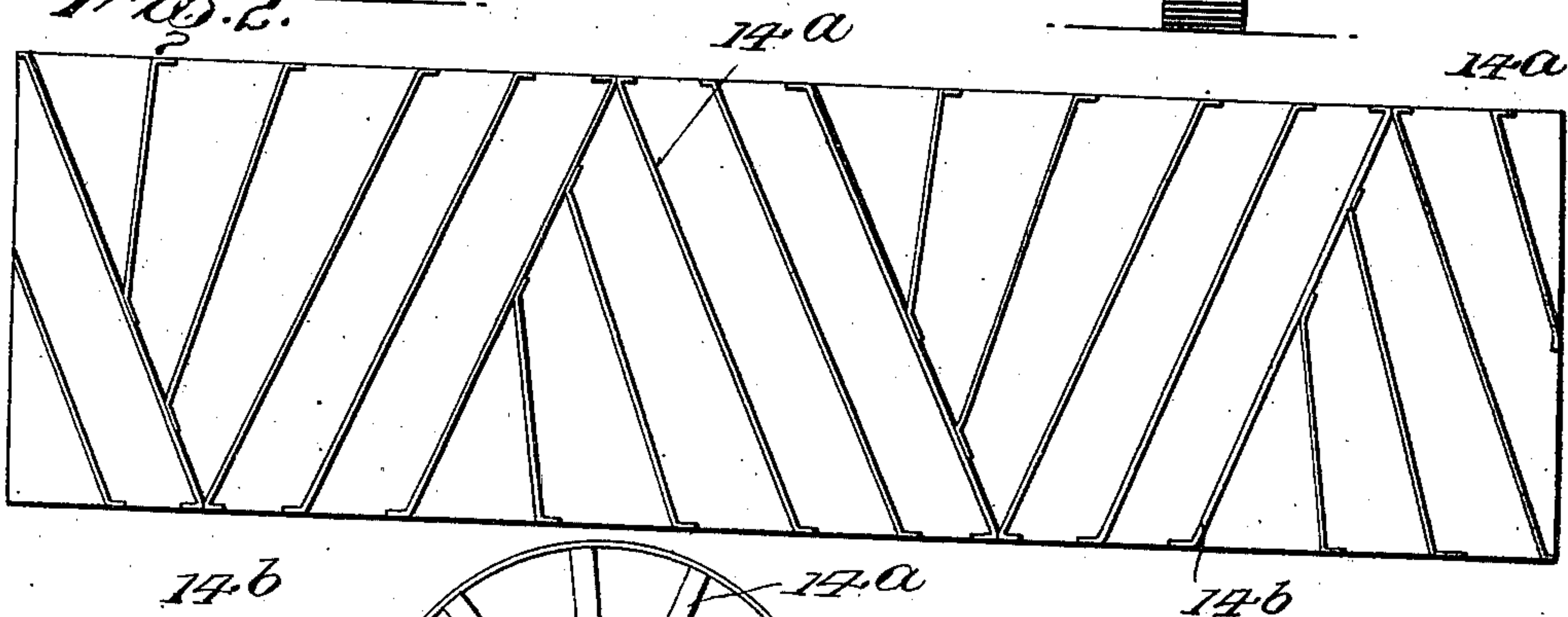
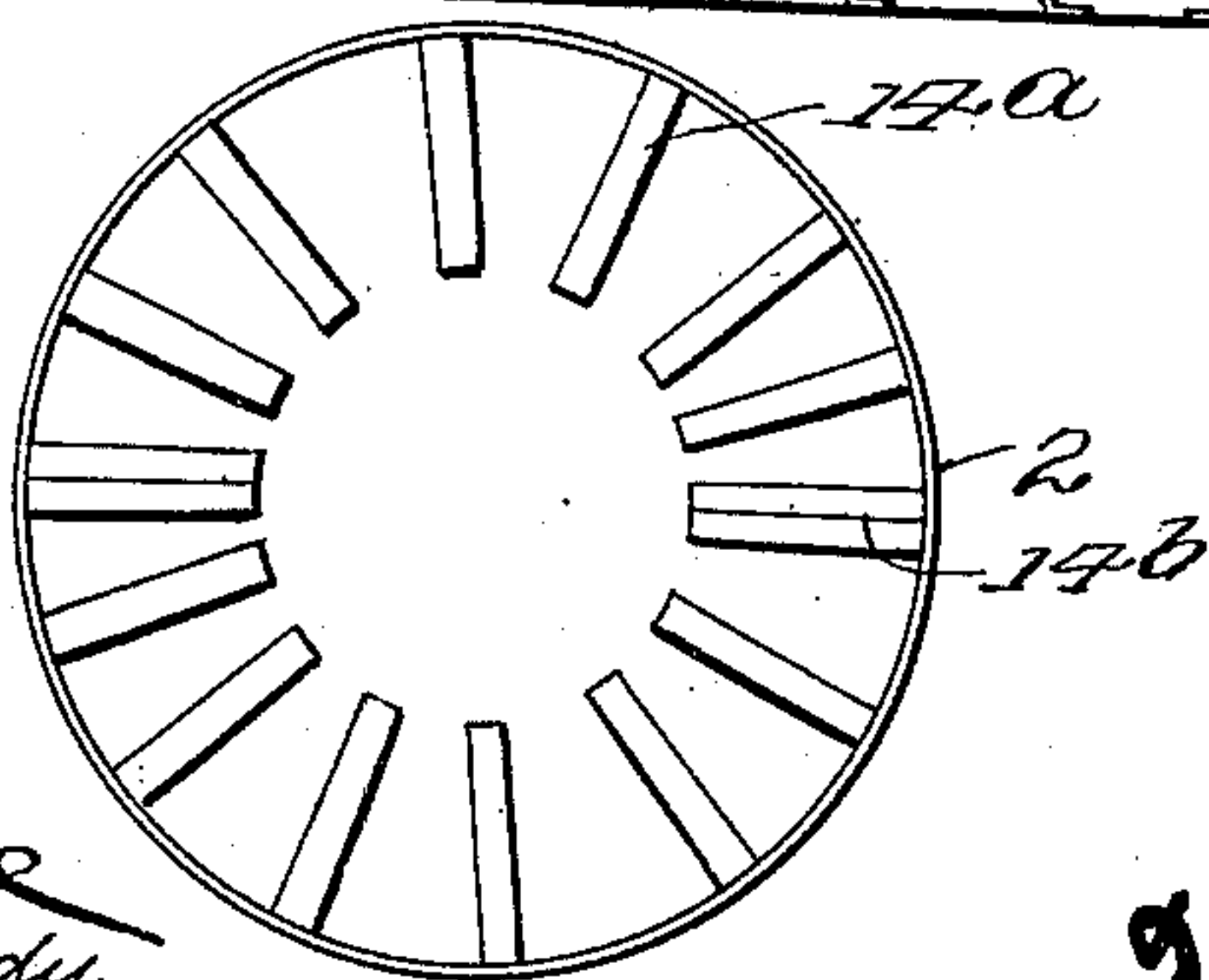


Fig. 3.



Witnesses

John H. Handy
John H. Handy

Inventor

Henry M. Kingsley

Wm. M. Macey, Attorneys

UNITED STATES PATENT OFFICE.

HENRY M. KINGSLEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

MIXING-DRUM.

996,021.

Specification of Letters Patent. Patented June 20, 1911.

Original application filed June 29, 1908, Serial No. 440,990. Divided and this application filed October 10, 1908. Serial No. 457,131.

To all whom it may concern:

Be it known that I, HENRY M. KINGSLEY, citizen of the United States, residing in the city of Washington, in the District of Columbia, have invented certain new and useful Improvements in Mixing-Drums, of which the following is a specification.

My invention relates to improvements in mixing devices which are utilized for mixing a number of ingredients to form a plastic compound and the object of the invention is the provision of a mixing drum with mixing blades so arranged and constructed as to provide for a very thorough mixing of the elements of the compound, and the discharge of the mixture at the mouth of the drum.

The subject matter of this application has been divided out of a co-pending application filed June 29, 1908, Serial No. 440,990, wherein the arrangement and structure of the support of the mixing drums is more fully shown and described.

The invention consists in the detail construction and arrangement of the blades within the mixing drum as will be hereinafter described.

My invention is shown in the accompanying drawings wherein,

Figure 1 is an end view of a drying and mixing mechanism showing one of my drums in position thereon. Fig. 2 is a plan view of the interior of one of the mixing drums when developed or unrolled, and Fig. 3 is a vertical sectional view through the mixing drum.

The mixing drum to be hereinafter described may be mounted upon any suitable support, it being shown in the present instance as mounted upon a truck 1. The mixing drum 2 is made to rotate upon a horizontal axis and rests upon rollers 3 mounted in any suitable manner. The drum is provided with a rack 4 which meshes with a pinion 5 upon a horizontal shaft 6, mounted in journal bearings 7 extending upward from the truck. One end of the shaft is provided with a driving pulley 8 whereby power may be applied to the drum. A hopper 11 is arranged adjacent to the drum and from this hopper material is discharged into the drum. One end of the drum is provided with an inlet opening into which the hopper leads, and the other end of the drum is provided with an outlet opening into which a

chute 15 may be inserted, the chute being supported by a yoke 16 connected by a link 17 to a davit or crane.

The interior of the mixing drum is provided with longitudinally disposed blades which are arranged as will be now described. The blades are arranged in groups which are disposed alternately around the interior of the drum, the blades 14^a of one set of groups being inclined in one direction, while the blades 14^b of the opposite set of groups are inclined in the opposite direction. Each group consists of a plurality of parallel blades some of which extend transversely across the drum from one to the other, while the remaining blades of that group are parallel to the first named blades and shorter than the same and abut against the adjacent blade of the next adjacent group, as shown in Fig. 3. These blades not only serve to successively elevate and drop the ingredients as the drum is rotated, but also tend to deflect the ingredients toward the opposite ends of the drum, thereby insuring a thorough mixing. It will also be observed that the end portions of the blades are extended outwardly at 14^c to the openings in the opposite ends of the drum, the material being received through one of the end openings and discharged through the opposite end opening after being mixed. It will also be observed as shown in dotted lines in Fig. 1, the extremities of the outwardly extended end portions 14^c of the blades are engaged at each end of the drum by a ring 14^d which surrounds the opening therein and is flared inwardly.

It is to be noted that the blades 14^a are inclined blades, set upon and projecting out from a concave surface, and that every portion of the blade projects perpendicularly outward from the inner surface of the drum. It follows then, that each blade will be twisted after the manner of an internal screw blade, the blades of one group being twisted in one direction, while the blades of another are twisted in a reverse direction. Thus, not only the direction of the alternate groups of blades, but their reverse twist will act to carry part of the material toward the entrance end of the drum and the remainder of the material toward the discharge end of the drum, and that thereby material carried up by the blades will be separated, part being directed in one direc-

tion, part in another. As the blades rise, they will carry material up with them, which material will commence to separate and move toward the opposite ends of the drum, and will then fall. The material will fall upon blades which are reversely inclined to the first named blades, and hence material which is moved in one direction will now be moved in the opposite direction, while it is being carried up by the rotation of the drum. The blades are widened at their ends, and hence the material carried toward the discharge end of the drum will eventually rise and be carried upon these widened portions of the blades and will be discharged into the chute to be hereafter described. It will be seen then that unless the chute is placed within the drum, the material will be continually moved not only circumferentially with the rotation of the drum, but in alternate opposite directions from the ends of the drum to the middle thereof.

When it is desired to discharge the ingredients from the interior of the drum, the chute 15 is swung toward the end of the drum and inserted through the opening

therein into the interior of the drum. As the drum revolves, the material therein is elevated by the blades 14^a and 14^b and dropped into the chute which is held in an inclined position so as to deliver the material into any suitable receptacle provided for receiving the same.

Having thus described the invention, what I claim is:

A mixing drum having opposed end openings and inwardly extending blades on the interior of the drum, said blades being arranged in successive groups, the blades of one group being oppositely inclined to the blade of the next adjacent group, each group consisting of a plurality of parallel blades, some of the blades of the group extending entirely across the drum, and the other blades of the group extending partly across the drum and abutting the reversely inclined blades of the next succeeding group.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY M. KINGSLEY. [L. s.]

Witnesses:

XAVIER REGAN,
CHAS. E. REGAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
