

(No Model.)

J. MARKUS.  
MIXING MACHINE.

No. 528,175.

Patented Oct. 30, 1894.

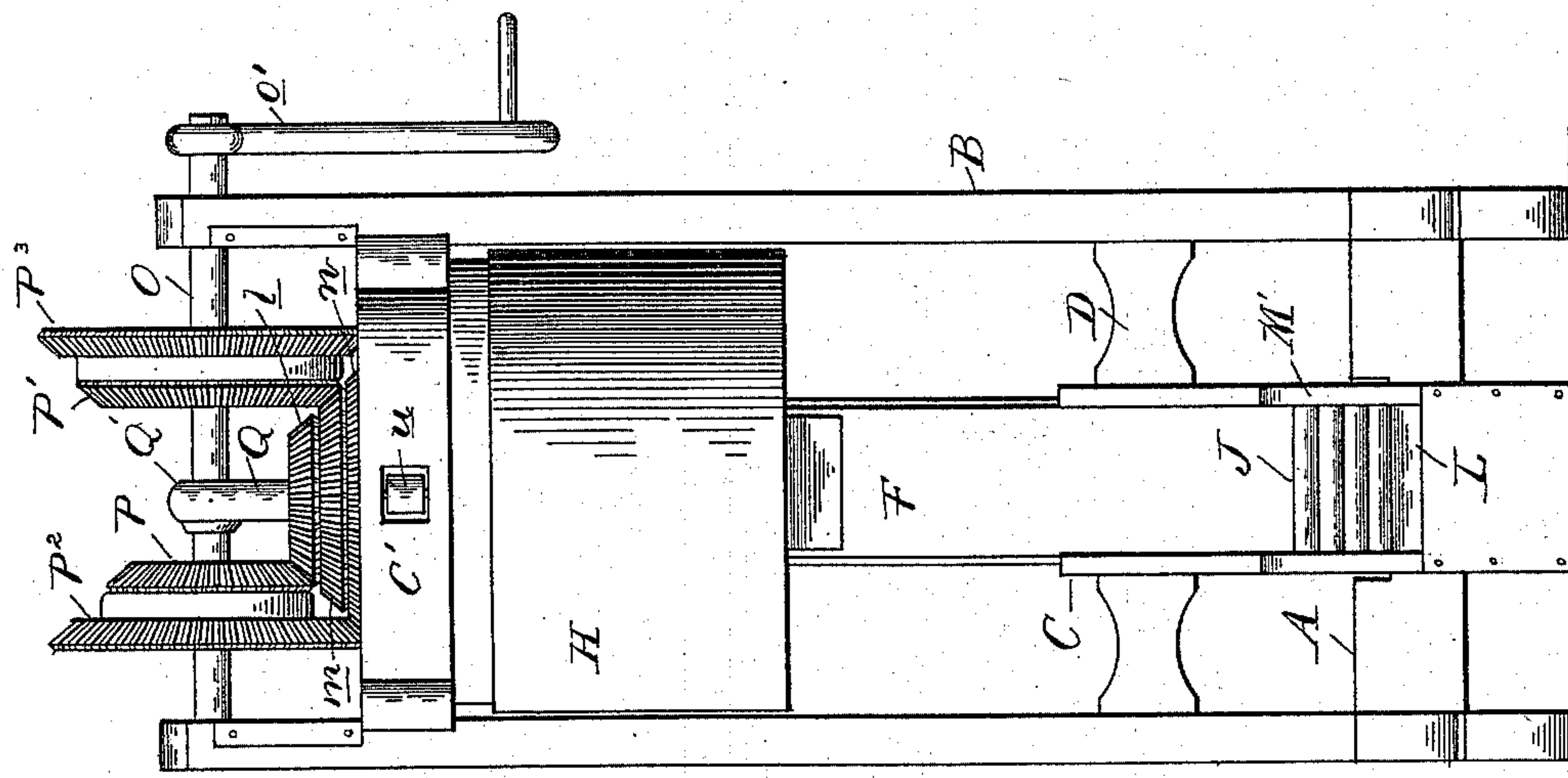


Fig. 1.

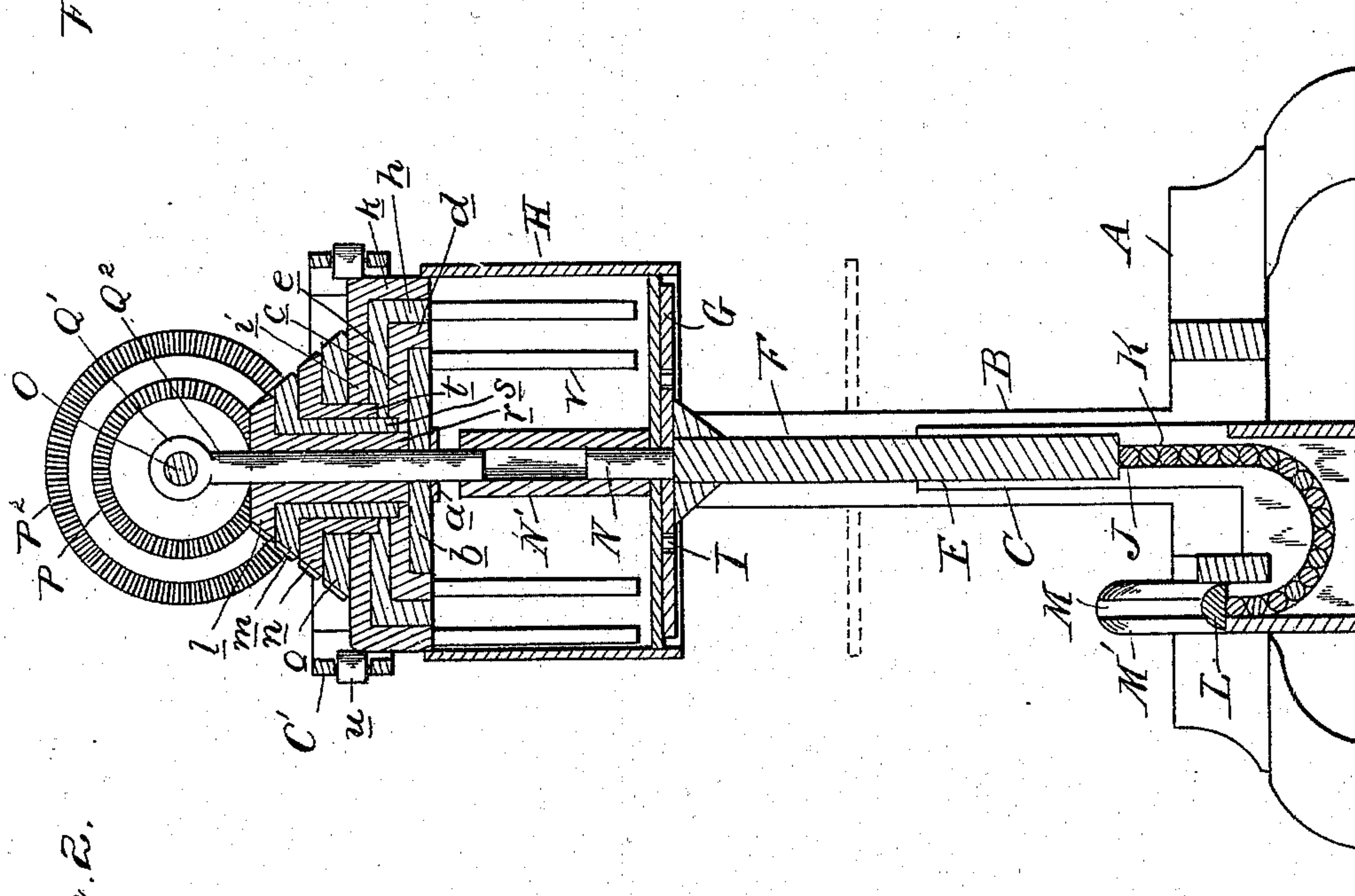


Fig. 2.

Witnesses  
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# UNITED STATES PATENT OFFICE.

JOSEPH MARKUS, OF DETROIT, MICHIGAN.

## MIXING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 528,175, dated October 30, 1894.

Application filed June 4, 1894. Serial No. 513,467. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH MARKUS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the peculiar construction of the actuating devices for the mixer blades, whereby they are simplified in construction, cheapened in cost and made more effectual in operation; further in the construction of the devices for moving the mixing tub or pan to and from the blades, and further in the peculiar construction, arrangement and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a side elevation of my improved machine. Fig. 2 is a vertical central section through Fig. 1.

A is the base, B are standards at the ends thereof, C is a central standard, D is a connecting brace, and C' is a frame at the top connecting the standards, these parts forming the supporting frame for the operating parts.

E are vertical guides in the central standard C in which slidably engages the post F, carrying the cross head G at the top on which is supported the mixing tub or pan H, which is held from rotation by suitable lugs or strips I.

J are series of connected rollers, running in J shaped guideways K at their ends. The roller at one end rests against the under side of the post F, and on the other end is supported the foot block L working in vertical guides M in standards M' formed on the base of the machine so combined that pressing on the foot piece will move the rollers in their guide way and lift the post and the pan, and when the pressure is relieved the weight of the post and pan will cause them to move to their lower position shown in dotted lines Fig. 2.

The bottom of the pan or tub is provided with a centering pin N entering a central socket in the cross head G, and entering a

central tubular sleeve N' which projects upwardly into the pan to near the top.

O is a drive shaft having suitable actuating devices such as the crank o' journaled in bearings in the top of the standards B, and provided with two series of bevel gear wheels on opposite sides of the center. I have shown four such gear wheels P P' P<sup>2</sup> P<sup>3</sup> the wheel P of one series being the smallest. The wheel P' of the other series being next, the wheel P<sup>2</sup> of the first series next in size and wheel P<sup>3</sup> of the other or second series being the largest, or in other words all the wheels form a series of gradually increasing size, every alternate wheel being in the same series.

Q is a vertical shaft, having a bearing Q' at its top engaging over the shaft O, and its lower end adapted to engage in the top of the tubular sleeve N' in the tank. a is a collar secured to this shaft. b is a circular plate or disk journaled on the shaft and supported on this collar a. c is a corresponding disk above the disk b, and having the annular flange d extending down around the edges of the disk b.

e is a third disk having flange h over flange d of disk c and i is a fourth disk having flange k over flange h of disk e. The lower edges of the flanges d and h and k are on the same plane with the lower face of the disk b. These disks are connected with the bevel gear pinions l m n and o by means of inter-engaging sleeves r s and t, the lower pinion o being directly secured to its disk i. The flange of the outer or upper disk engages within the frame C' and against rollers u therein. To the disk b and to the flanges of the disks c e i are attached the stirrer blades v, every other one of which will rotate in opposite direction when motion is imparted to the mechanism by turning the crank shaft O. The disks form a cover for the tub which may be raised and lowered as described and may be removed from the cross-head in the lower position thereof.

What I claim as my invention is—

In a mixing machine, the combination of a pan or tub, a horizontal drive shaft above the same, a series of beveled gear wheels se-

cured on either side of the middle of said shaft, a vertical shaft suspended from a middle bearing on said horizontal shaft, the disks *b c e* and *i* journaled on said vertical shaft, 5 the gear pinions *l m n o* having interengaging collars journaled about said shaft as an axis connected to the disks and engaging with the gear wheels on the horizontal shaft,

and the stirrer blades on said disks, substantially as described. 10

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

JOSEPH MARKUS.

Witnesses:

JAMES WHITTEMORE,  
JOHN HINZ.