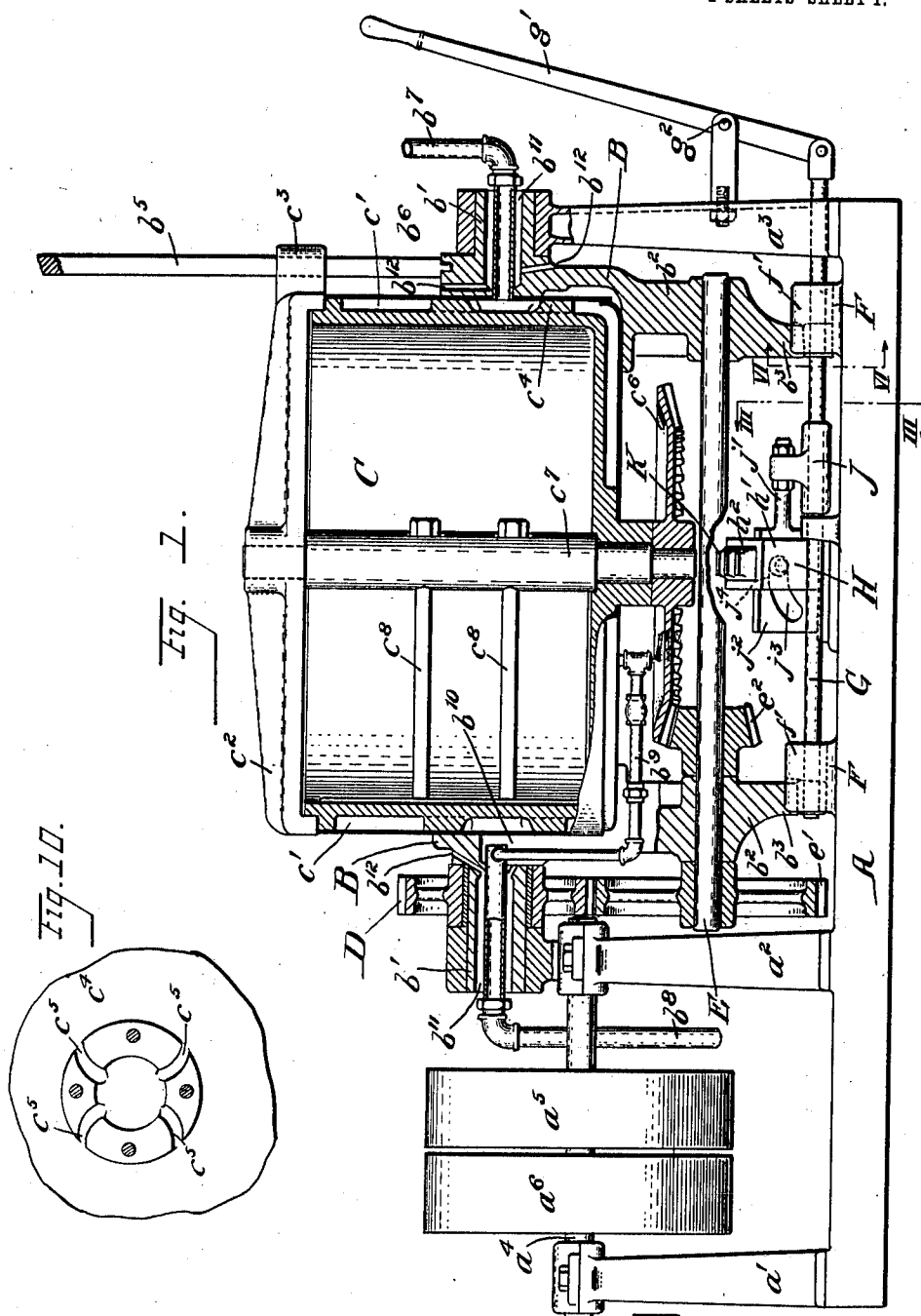


1,021,301.

J. D. CLOUGH.
MIXING MACHINE.
APPLICATION FILED MAY 4, 1911.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.



Witnesses
Herman Esche.
Gust B. Muller.

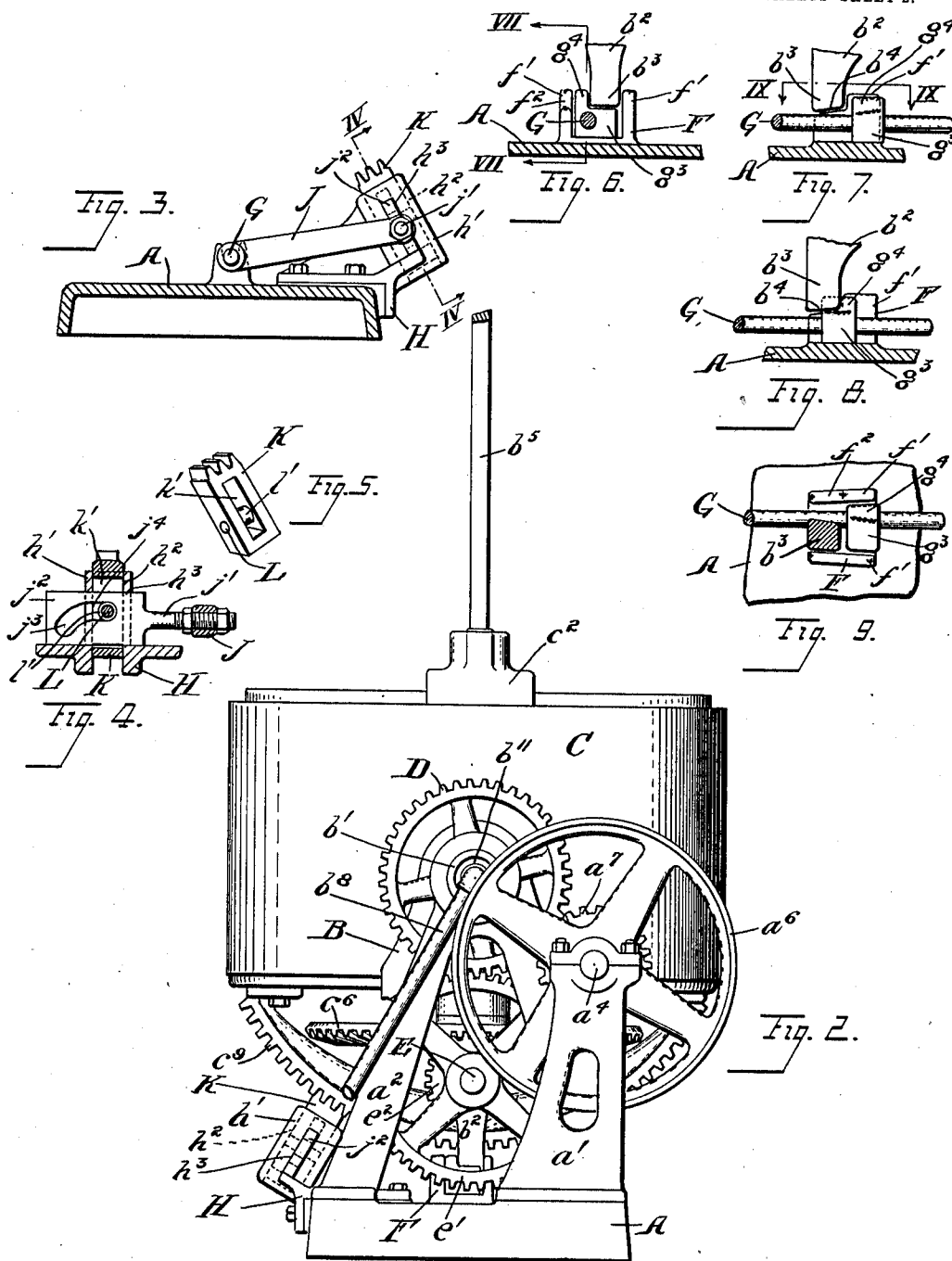
Inventor:
James D. Clough
by W. E. Murrell,
his Attorney

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2 SHEETS—SHEET 2.



Witnesses
Herman Esler.
Spencer B. Mueller.

Inventor:
James D. Clough
By Al. M. M. M.,
his Attorney

UNITED STATES PATENT OFFICE.

JAMES D. CLOUGH, OF LAKEWOOD, OHIO.

MIXING-MACHINE.

1,021,301.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed May 4, 1911. Serial No. 624,980.

To all whom it may concern:

Be it known that I, JAMES D. CLOUGH, a citizen of the United States, resident of Lakewood, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Mixing-Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention has reference to a mixing machine, while more particularly to certain specific improvements in connection therewith.

The object is the provision of a more satisfactory machine by reason both of its increased general efficiency and practical facility of operation.

The said invention consists of means which are hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain means embodying my invention, the disclosed means, however, constituting but one of various mechanical forms in which the principle of the invention may be applied.

In said annexed drawings:—Figure 1 is a vertical section of a mixing machine embodying my invention, a few parts being shown in elevation. Fig. 2 is an end elevation of the same. Fig. 3 is a section on line III—III of Fig. 1, looking in the direction of the arrows. Fig. 4 is a section on line IV—IV of Fig. 3, looking in the direction indicated by the arrows. Fig. 5 is a perspective view of one operative part. Fig. 6 is a section on line VI—VI of Fig. 1. Fig. 7 is a section on line VII—VII of Fig. 6, looking in the direction of the arrows. Fig. 8 is a view similar to Fig. 7, with one part thereof slightly moved to one side. Fig. 9 is a top view on line IX—IX of Fig. 7, looking in the direction of the arrows, one part thereof appearing in section. Fig. 10 is an elevation of a specific improvement in connection with the mixing kettle proper.

Referring to the drawings, the machine comprises a bed-frame A having three upwardly extending standards a' , a^2 , and a^3 .

Mounted upon suitable bearings in the standards a' and a^2 is a driving-shaft a^4 , and in turn mounted upon this shaft are the fast and loose pulleys a^5 and a^6 . The driving-shaft a^4 projects through the bearing in the standard a^3 , and has fixedly mounted upon the extremity thereof, a driving gear a^7 .

Mounted for tilting movement upon suitable higher bearings formed in the standards a^2 and a^3 and specifically through the further medium of integral gudgeons b' , is a saddle B. Supported in any approved manner upon this saddle is the mixing kettle C. This kettle is provided in the usual manner with a steam jacket c' and a removable cover c^2 . The saddle B is provided with two depending portions b^2 , the lowermost extremities of which are of smaller dimensions and indicated clearly in Fig. 1 by the reference letters b^3 . These extremities are furthermore beveled on one side and at the bottom, as most clearly shown in Figs. 7 and 9, and designated each by the reference letter b^4 . A manually operable lever b^5 is secured in an upwardly extending boss b^6 upon the saddle and a side-projecting boss c^3 on the cover, which are alined, as clearly appearing in Fig. 1. By means of this lever, the saddle and hence the kettle may be tilted in the customary manner.

Steam inlet and outlet pipes, designated respectively as b^7 and b^8 , extend through the gudgeons b' , and communicate with the steam jacket. The outlet connects indirectly with the jacket by means of the extension pipes b^9 leading from the bottom of the jacket, as shown in Fig. 1. The gudgeon through which the outlet pipe b^8 extends is slotted surrounding the point where the extension pipes communicate, this slotted portion being indicated by the reference letter b^{10} . This is for the purpose of enabling the kettle to tilt without occasioning an interference between the gudgeon and the connecting pipe, as will be readily understood.

The gudgeons, in accordance with my invention, are furthermore provided with open air-spaces b'' surrounding both the steam inlet and the steam outlet pipes,

whereby an appreciable cooling means is guaranteed. To still further accentuate this feature, however, these air-spaces are provided with a plurality of outlet openings b'^2 , in order that a circulation of air may be established.

Interposed between the inner faces of the saddle and the steam jacket and more specifically between an otherwise direct communication generally established between the steam inlet pipe and the steam jacket, is a distributing member c^4 . This may be an interposed disk, and in the present instance, for the purpose of illustration, is provided with four diametrically positioned curved nozzle-openings. These openings are so curved and arranged that adjacent openings will distribute the steam issuing there-through alternately toward and away from each other, as should be apparent from an inspection of Fig. 10. By this means, it is intended that the steam will be more uniformly and more rapidly distributed throughout the entire area of the jacket, the whirling motion imparted to the jet of steam and the opposition set up between alternately adjacent nozzles, contriving to insure this more efficient distribution.

Mounted upon that gudgeon b' nearest the pulleys a^5 and a^6 , is a loose intermediary gear D, adapted to mesh with the driving gear a^7 , and also with a gear e' which is positioned upon the extremity of the shaft E, which is mounted upon the saddle immediately of the kettle-supporting portions proper and the lowermost extremities of the depending members b^2 . This shaft E is provided immediately opposite the gear e' with a driving pinion e^2 , which is adapted to mesh with a horizontal gear c^6 mounted upon the shaft c^7 which extends through the center of the kettle. A pair of rotary paddles c^8 are secured in any satisfactory manner to this shaft interiorly of the kettle, and are properly designed to effect the mixing. A segmental rack c^9 is secured to the center of the bottom of the kettle, to surround the gear c^6 and depend to within a short distance of the bottom of the frame, as best seen in Fig. 2. It will now be obvious that the rotation on the part of the fast pulley a^5 will be transmitted first to the driving gear a^7 , shown in Fig. 2, then to the intermediary gear D, and thence to the gear e' and pinion e^2 , whereby the gear c^6 and hence the shaft c^7 are caused to rotate and impart such motion to the mixing paddles c^8 .

Fixedly mounted upon the longitudinal center of the upper surface of the bed-plate A, are two members F each comprising two oppositely disposed converging ears f' , one of which and necessarily the similarly positioned one in each case, is fashioned with a cut-out portion f^2 , the purpose of which will presently more clearly appear. These

ears are moreover so positioned that the lowermost portions b^3 of the depending members b^2 are normally adapted to rest between them. A rod G is mounted for sliding movement through these members F, and is manually actuated through the medium of the lever g' and fixed pivot g^2 . Fixedly secured to this rod and at a distance apart approximately corresponding to the location of the members F are two wedge-members g^3 each provided with an upwardly extending portion g^4 . These members are also provided with two bevel surfaces, namely the side and upper surfaces thereof. The upwardly extending portion g^4 is located on that side which is adapted to wedge opposite the cut-out portion f^2 of the member F. The conjunctive relation of these wedge members is such that they are adapted to wedge not only between the sides of the members F, but also underneath the under surfaces of the extremities b^3 of the depending members b^2 . Furthermore, such wedging action is effective when the upwardly extending portion g^4 is precisely opposite the cut-out portion f^2 , and hence locks against oscillation, as well as slightly raises the depending portions b^2 . The operation of these specific parts will be more readily understood from a close inspection of Figs. 6 to 9 inclusive.

Secured to one side of the bed-plate and in the plane of the segmental rack c^9 is a bracket H having one portion h' projecting upwardly at approximately a right angle to the arc of the rack. This portion of the bracket is hollow, through the medium of the upwardly disposed rectangular opening h^2 and is furthermore provided with a longitudinally extending side opening h^3 , the purpose of which will presently appear. Secured to the rod G and extending in the direction of the bracket is an arm J to which is secured the rod j' , to which in turn is connected a block j^2 extending through the opening h^3 in the bracket. The block j^2 is accordingly slidable along with the rod G when the latter is actuated by the lever g' , as previously described. This block is provided with an inclined opening j^3 having an upper horizontal portion j^4 , and this opening intersects the same plane as the side opening in the portion h' through which the block j^2 is adapted to slide. A toothed member K rests in the upper opening h^2 , and is also provided with an opening h' in substantially the same plane as and registering with the longitudinally extending side opening h^3 in the bracket. The block and toothed member may therefore be operatively connected through the medium of the pin L extending through the lateral sides of the member K, and having an interiorly disposed roller l' . As should now be apparent, a sliding on the part of the block j^2 through the por-

tion h' of the bracket causes the pin L to follow the inclination of the opening j^3 , and inasmuch as the toothed member is supported upon this pin, it will be raised or
 5 lowered in the bracket according to the direction in which the block j^2 is slid. In this manner, it may be caused to engage the segmental rack c^9 , effect the locking thereof, and hence serve to prevent the further tilting of the mixing kettle C .
 10

Attention is now directed to the fact that two interdependent locking means are provided to preclude the initial tilting of the kettle, and these operate briefly as follows:
 15 Assuming the kettle to be in its horizontal position, and the depending members b^2 in a substantially vertical position so that their extremities rest between the members F , an outward pull upon the lever g' will necessarily have the result of sliding the rod G in the direction of the other end of the frame. A sliding movement on the part of the wedge-members g^3 through the members F is necessarily coincident therewith, whereby
 25 these may be caused to both lock and raise the depending portions, as previously described. This raising of the depending portions is exceedingly slight, yet all-sufficient to relieve the journals of the kettle during the mixing operation when the kettle is in its normal working position. The sliding of the rod G in the direction now being considered, will simultaneously cause the block j^2 to slide in the same direction through the
 30 bracket H , and consequently the pin L to slide up in the inclined opening j^3 , and rest in its horizontal portion j^4 . With the rising of the pin L , as previously explained, the toothed member K will be raised to engage and fix the segmental rack. A reverse movement on the part of the lever g' will, of course, serve to draw the wedge-members g^3 and block j^2 in the reverse direction, whereby the toothed member K slips out of engagement with the segmental rack, and at the same time the lowermost extremities b^3 are released and permitted to oscillate over the cut-out portions f^2 when the tilting movement is imparted to the lever b^5 . This
 40 double locking feature is intended not only to effect the more rigid but the more uniform support of the mixing kettle during the mixing operation, and though the support is more rigid, the journals are actually relieved.
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Having fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. A mixing machine comprising the combination of a frame, a mixing kettle mounted thereon, a steam jacket associated with said kettle, a steam inlet communicating with said jacket, and an interposed distributing member having diametrically positioned
 60 curved openings, adjacent openings being

arranged to distribute the steam alternately in different opposite directions.

2. A mixing machine comprising the combination of a frame, a mixing kettle mounted thereon, a steam jacket associated with said kettle, a steam inlet communicating with said jacket, and an interposed distributing member having diametrically positioned curved openings, adjacent openings being arranged to alternately distribute the steam toward and away from each other.
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3. A mixing machine comprising the combination of a frame provided with bearings, a jacketed mixing kettle journaled upon said bearings, and a steam pipe extending through said journal and communicating with said jacket, said journal being provided with a permanently open air-space extending therethrough and surrounding said pipe whereby a circulation is permitted.
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4. A mixing machine comprising the combination of a frame, a kettle mounted for tilting movement thereon, a segmental rack fixedly associated with said kettle, and means comprising a plurality of cooperating members slidable each within another, one such member adapted to lock said rack against oscillatory movement.
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5. A mixing machine comprising the combination of a frame, a mixing kettle pivotally mounted thereon, and a plurality of different locking means movably connected independently of each other with said frame, and means for simultaneously operating said locking means.
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6. A mixing-machine comprising the combination of a frame having a bearing, a mixing kettle provided with a journal and mounted for tilting upon said bearing, and movable means for raising said journal with respect to said bearing.
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7. A mixing machine comprising the combination of a frame including a pair of standards forming bearings, a mixing kettle provided with gudgeons adapted for said bearings and having depending portions, and wedge members movably mounted upon said frame and adapted to engage said depending portions to simultaneously raise and fix said gudgeons.
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8. A mixing machine comprising the combination of a frame, a mixing kettle journaled for tilting upon said frame, a segmental rack secured to said kettle, a depending member secured to said journal, separate locking means including respectively a toothed member and wedge movably connected with said frame, and means for simultaneously operating each of said locking means whereby said rack and depending member are fixed against oscillatory movement.
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9. A mixing machine comprising the combination of a frame provided below with oppositely disposed ears, a mixing kettle jour-
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naled for tilting upon said frame, a depending member secured to said kettle and extending between said ears, and means for locking said member between said ears.

5 10. A mixing machine comprising the combination of a frame provided below with oppositely disposed ears, a mixing kettle journaled for tilting upon said frame, a depending member secured to said journal and
10 extending between said ears, a wedge member for locking said depending member between said ears, and means for actuating said wedge member into or out of its locking position.

15 11. A mixing machine comprising the combination of a frame provided below with oppositely disposed ears, a mixing kettle journaled for tilting upon said frame, a depending member secured to said journal and
20 extending between said ears, a rod slidably mounted upon said frame, means for actuating said rod, and a wedge secured to the latter and adapted to lock said depending member between said ears.

25 12. A mixing machine comprising the combination of a frame provided at each end with oppositely disposed ears, standards upon said frame and provided with bearings, a mixing kettle provided with journals
30 adapted for said bearings and having depending portions, said portions extending between said ears, a rod movably mounted upon said frame and extending between said ears, means for actuating said rod, a block
35 having two bevel surfaces secured to said rod and movable between said ears, said block being adapted to raise and lock said member between said ears.

40 13. A mixing machine comprising the combination of a frame, provided at each end with oppositely disposed converging ears, standards upon said frame and provided with bearings, a mixing kettle provided with journals adapted for said bearings
45 and having depending portions, said portions extending between said ears, a rod slidably mounted upon said frame and positioned between said ears and under said depending portions, means for reciprocating
50 said rod, blocks having upper and lateral bevel surfaces secured to said rod and slidable between said ears, said blocks being adapted to simultaneously fix against oscillation and raise said member.

55 14. A mixing machine comprising the combination of a frame, a mixing kettle journaled for tilting upon said frame, a segmental rack secured to said kettle, a bracket secured to said frame, locking means
60 associated with said bracket and including a toothed member mounted for movement in the plane of and perpendicularly to said rack, and means for actuating said locking means.

65 15. A mixing machine comprising the

combination of a frame, a mixing kettle journaled for tilting upon said frame, a segmental rack secured to said kettle, a rod slidably mounted upon said frame, means
70 for actuating said rod, a toothed member adapted to engage and fix said rack, and means operatively connecting said toothed member with said rod.

16. A mixing machine comprising the combination of a frame, a mixing kettle journaled for tilting upon said frame, a segmental rack secured to said kettle, a rod
75 movably mounted upon said frame, means for actuating said rod, a guiding bracket secured to said frame, a block connected with said rod and movable relatively to said bracket, a toothed member for engaging
80 said rack, and means operatively connecting said block and member.

17. A mixing machine comprising the combination of a frame, a mixing kettle journaled for tilting upon said frame, a segmental rack secured to the bottom of said kettle, a rod slidably mounted upon said
85 frame and transversely of said rack, means for actuating said rod, a toothed locking member supported upon said frame and slidable in the plane of said rack, said member being provided with a transverse opening, a block connected with said rod and
90 slidable in said opening, said block itself provided with an inclined opening intersecting the same plane as said first-mentioned opening, and a pin secured to said member and extending through each of said openings
95 whereby the movement of said block may be transmitted to said member.

18. A mixing machine comprising the combination of a frame, a mixing kettle journaled for tilting upon said frame, a segmental rack secured to the bottom of said kettle, a rod slidably mounted upon said
100 frame transversely of said rack, means for actuating said rod, a bracket secured to said frame in the plane of said rack, a block connected with said rod and slidable upon said bracket, a toothed member supported by said block and movable in the plane of said bracket, said member being adapted to engage
110 said rack, and means operatively connecting said block and member, whereby the movement of the former effects the transverse movement of the latter.

19. A mixing machine comprising the combination of a frame, a mixing kettle journaled for tilting upon said frame, a segmental rack secured to the bottom of the kettle, a rod slidably mounted upon said
120 frame and transversely of said rack, means for actuating said rod, a bracket secured to said frame in the plane of said rack, a block connected with said rod and movable through said bracket, a toothed locking
125 member having a transverse opening mounted in said bracket and movable in the plane

of said rack, said block itself provided with
an inclined opening intersecting the same
plane as the opening in the toothed member,
and a pin extending through each of said
5 openings, whereby an operative relationship
between said block and member is estab-
lished.

Signed by me, this 26th day of April,
1911.

JAMES D. CLOUGH.

Attested by—

CURT B. MUELLER,
WINIFRED WALTZ.

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