

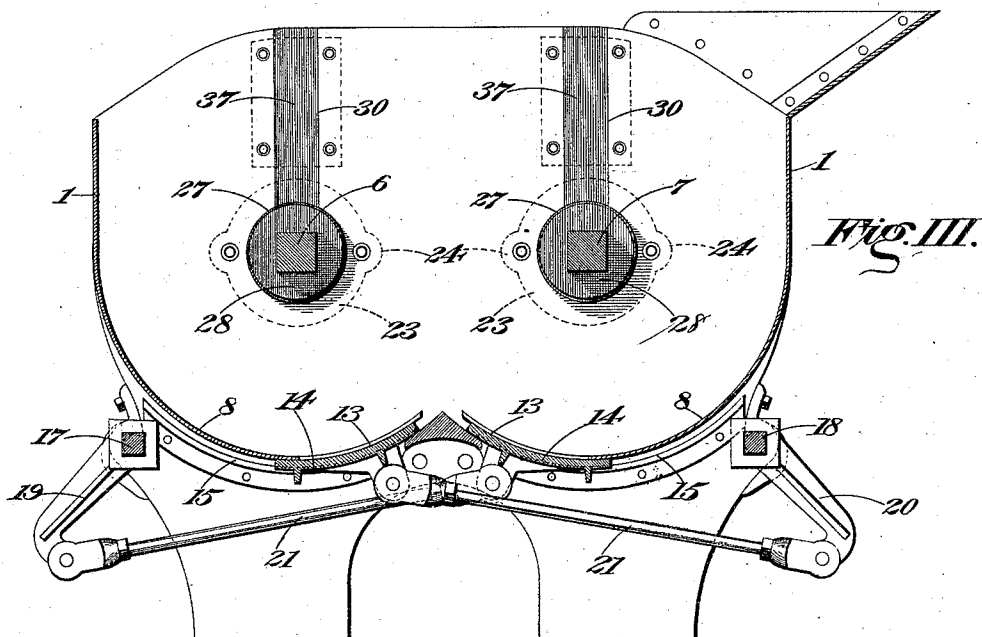
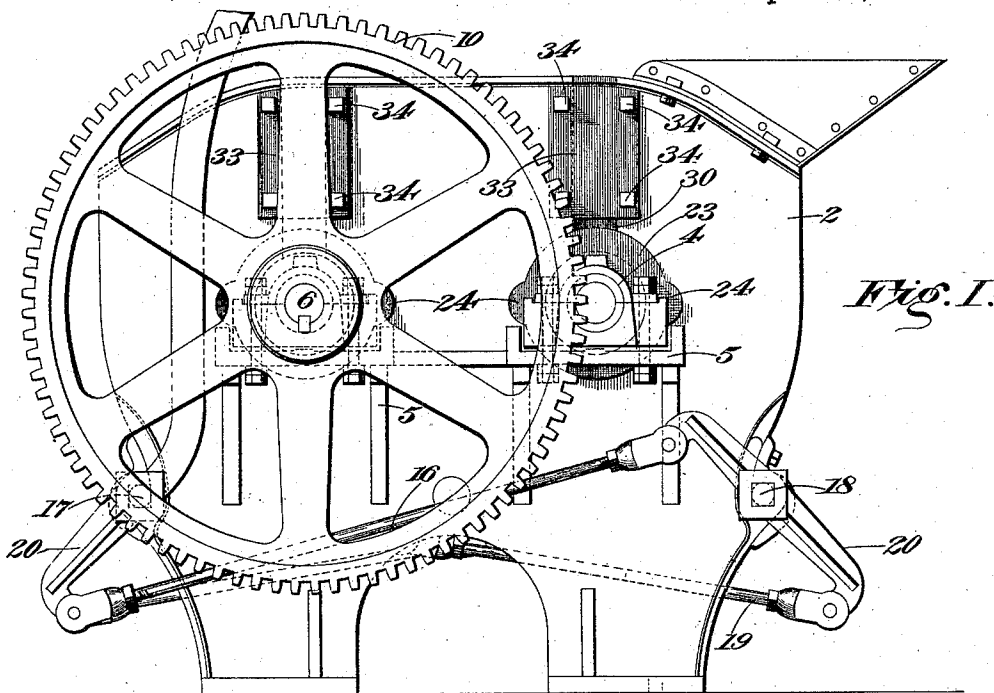
(No Model.)

4 Sheets—Sheet 1.

W. M. JENNINGS.
MIXING MACHINE.

No. 558,876.

Patented Apr. 21, 1896.



Witnesses
M. Fowler
M. Macker

Inventor
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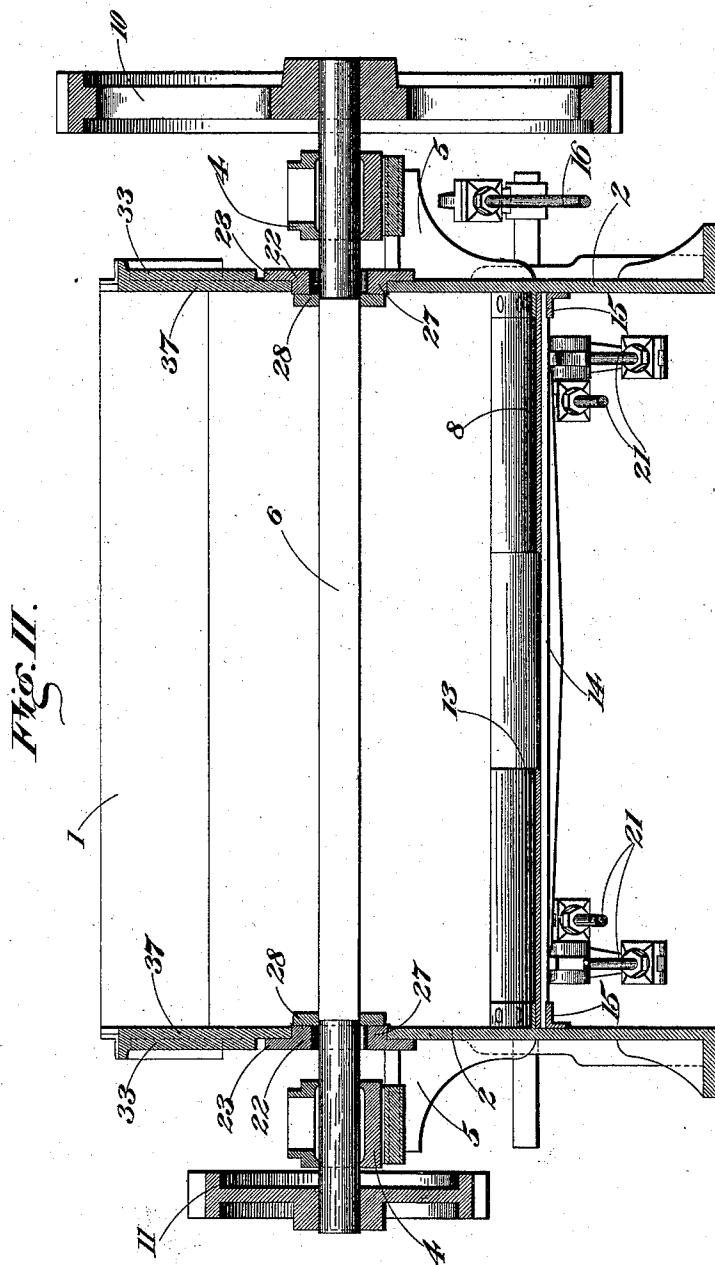
(No Model.)

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Fig. IV.

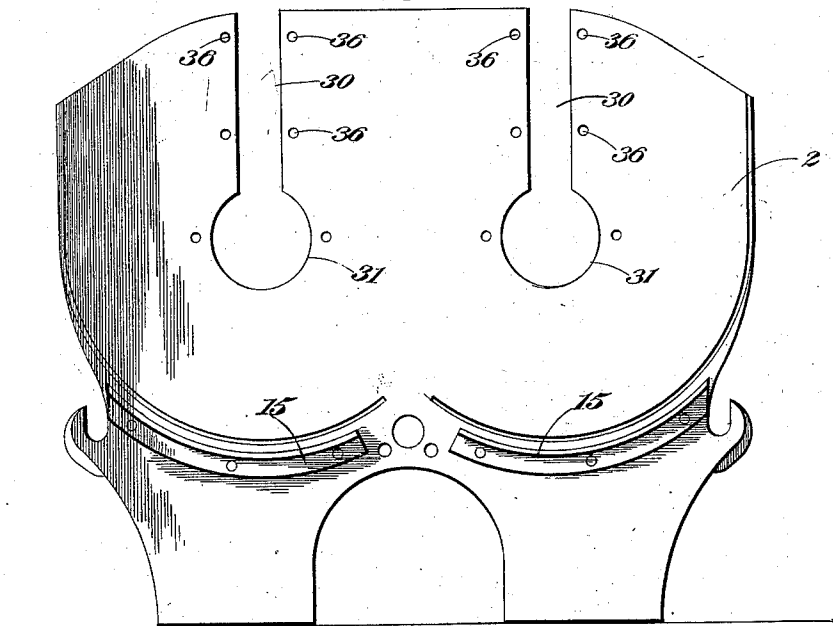


Fig. VI.

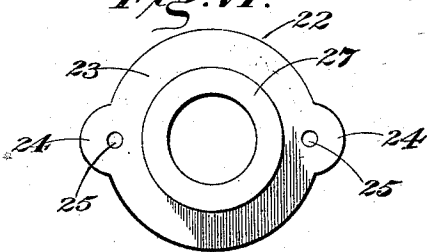


Fig. VIII.

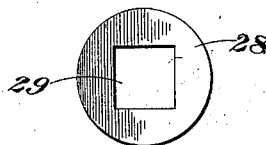


Fig. VII.



Fig. IX.



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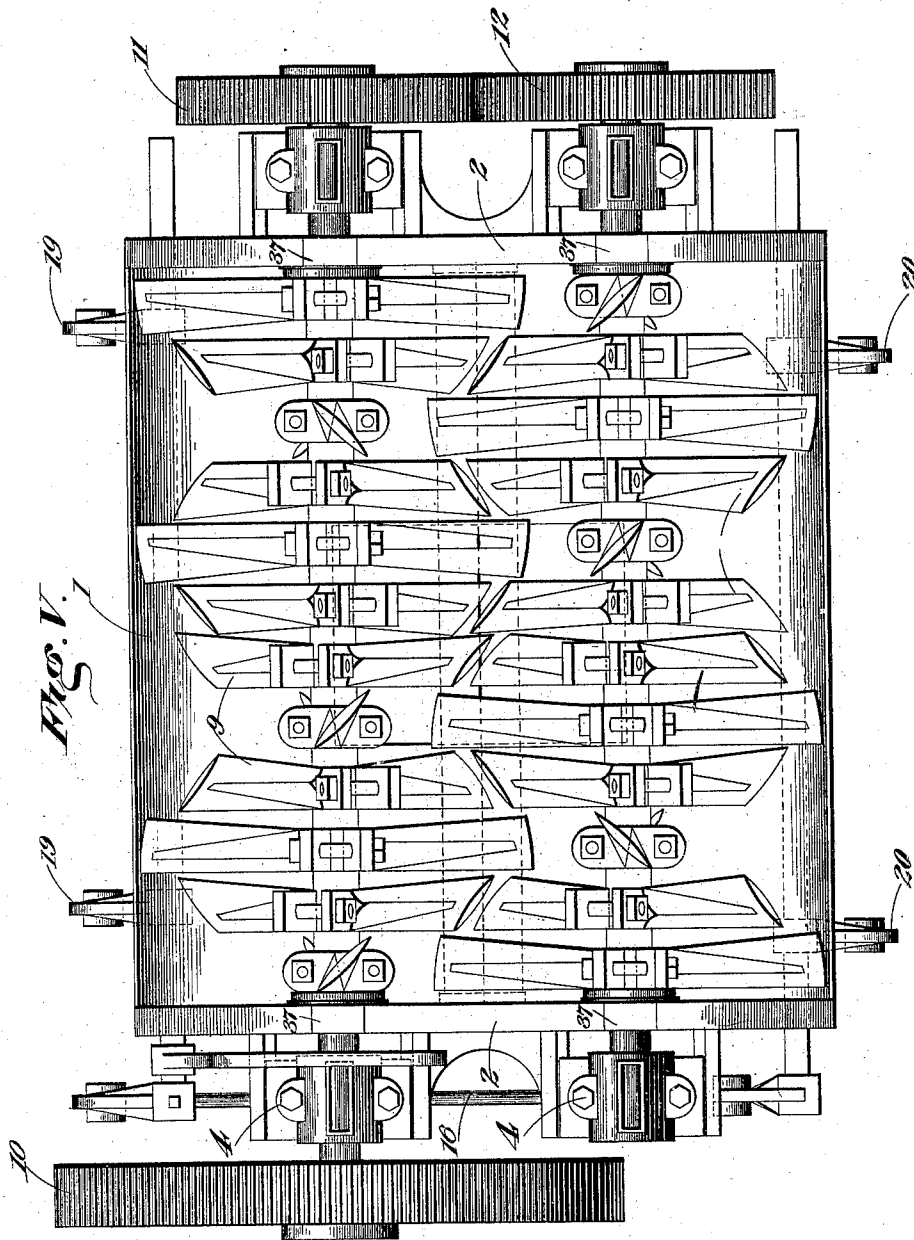


Fig. V.

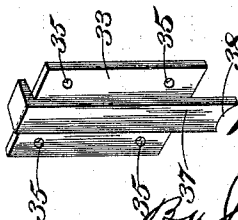


Fig. X.

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UNITED STATES PATENT OFFICE.

WELLINGTON M. JENNINGS, OF BUFFALO, NEW YORK, ASSIGNOR TO THE
BARBER ASPHALT PAVING COMPANY, OF NEW YORK, N. Y.

MIXING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,876, dated April 21, 1896.

Application filed April 26, 1895. Serial No. 547,227. (No model.)

To all whom it may concern:

Be it known that I, WELLINGTON M. JENNINGS, of Buffalo, county of Erie, State of New York, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce certain improvements in that general class of mixing-machines adapted for thoroughly mixing asphalt compositions for pavements or other plastic compounds that is shown and described in United States Patent No. 196,882, issued November 6, 1877, to Augustus Dietz, whereby certain parts of the machine which are subject to special wear may be conveniently and at small cost renewed from time to time, and by which the shafts of the machine may be conveniently unshipped for repairing the paddles, for example, or for other purposes.

In the accompanying drawings, Figure I is an end elevation of a mixing-machine embodying my invention. Fig. II is a longitudinal section of the same. Fig. III is a transverse section thereof. Fig. IV is a view similar to Fig. III, showing the frame stripped of the mixing mechanism. Fig. V is a plan view of the machine complete. Fig. VI is a side elevation of my wearing-collar detached. Fig. VII is an edge view thereof. Fig. VIII is a side elevation of the bearing-collar detached. Fig. IX is an edge view thereof. Fig. X is a perspective view of a closing-plate.

Referring to the figures on the drawings, 1 indicates the outside shell of a mixer that is secured by any suitable means to the end frame-pieces 2, which support it. The shell 1 and the end pieces 2 constitute the frame of my machine. (See Fig. IV.) The end pieces are designed to support (as in boxes 4, carried on brackets 5 on the end pieces) shafts 6 and 7, two being shown in the drawings, and the bottom of the shell being curved, as indicated at 8, to provide suitably-shaped basins for the paddles 9 to revolve in. The paddles are suitably shaped, constructed and arranged upon the shafts to produce the best results, and the shafts are preferably made square in cross-section (see Fig. III) as affording convenient means for holding the

paddles. One end of the shaft 6 carries a driving-gear 10 and the other end a gear-wheel 11, which meshes with and drives a similar gear 12, secured to the shaft 7.

13 indicates the discharge-ports located in the bottom of the shell 1, and which are closed by slides 14, that are confined between the bottom and curved angle-irons 15, secured to the end pieces. Both slides may be operated by a single lever connected to one of a pair of shafts 17 and 18, provided respectively with depending levers 19 and 20, operatively connected to the slides by pitmen 21, the shafts 17 and 18 being interdependently connected by a pitman and lever connection 16.

The foregoing description explains briefly features of mechanism which are well understood in the art and which, constituting no part of my invention, do not appear to require exact specification, but such as I deem necessary to clearly illustrate the applicability of my invention proper to the machine and consequently the utility of the invention.

Having premised so much, I shall now proceed to describe the details of that which properly constitutes my invention.

The frame of a machine to which my invention is applicable, consisting usually, as aforementioned, of the shell and end pieces, is large and ponderous, and is expensive to manufacture and repair. Heretofore in machines of this class considerable wear has been occasioned by friction of the shafts against the edges of the end pieces where the shafts pierce them, thereby rendering the end pieces short-lived. By my invention I prevent wear upon the end pieces by journaling the shaft in boxes 4, supported outside of the shell. The apertures in the end pieces are of such a size that the shaft does not come into contact with the said pieces at any point. Inasmuch, however, as the mixing chamber or shell must be entirely closed around the shaft, provision must be made for closing the space between the shaft and the walls of the apertures and at the same time permitting the easy removal of the shaft from the machine when desired. My invention in this respect comprehends a wearing-collar 22 of a somewhat greater interior diameter than the diameter of the

shaft, (see Figs. V and VI,) and provided with a flange 23, having lugs 24 that are pierced with bolt-apertures 25, by which the collar may be secured (as through the use of bolts and corresponding apertures in the end pieces) around the shaft-apertures in the end pieces. The collars 22 may be provided, respectively, with bearing-rings 27, which project slightly beyond the inner surfaces of the end pieces and afford bearing-surfaces for bearing - collars 28, which, being provided with square bores 29, may be fitted to the squared part of the shaft which carries them, and, resisting the endwise movement of the shaft, hold the latter in the proper position in its boxes 4. The interior diameters of the bearing-rings 27 are correlative with the internal diameters of the wearing-collars, so that their interior faces, like the interior faces of the wearing-collars, are out of contact with the shaft. The rings 27 rotate, respectively, smoothly against the faces of the bearing-collars 28. Each bearing-collar 28 and each wearing-collar 22 and its wing 27 are preferably made of hard metal so as to endure the abrasive force of the wearing parts, but when worn are readily renewable at small expense. The collars 28 serve not only to prevent longitudinal movement in either direction of the shaft but completely close the space between the shaft and wearing-collar, while the wearing-collar completely closes the space between the bearing-rings and the shell and prevents the escape of viscous liquid around the shaft.

The other feature of my invention consists, as previously suggested, in means for readily removing the shafts of the machine.

Heretofore it has been necessary to strip the shafts of the paddles in order to remove them, which is a laborious and expensive operation. My invention in this respect consists in providing in the end pieces vertical gateways 30, which communicate with the shaft apertures 31, respectively. They are of a little greater width than the diameter of the shafts, which are accommodated in the apertures 31.

In practice the gateways are closed, as by

a plate 33, that may be secured to the end pieces by bolts 34, passing through apertures 35 and 36 in the plate and end pieces, respectively. Each plate is provided with a tongue 37, which fits into and closes the gateway, its lower end 38 being curved to complete the circle of the aperture 31.

In practice, if it is desired to remove the shafts, all that is necessary is to separate the collars 22 and its rings 27 from the opposite end pieces, remove the plates 33 and lift the shaft through the gateways which communicate, respectively, with its apertures 31.

What I claim is—

In a mixing-machine, the combination with a shaft and a shell provided with apertures in its ends, wearing-collars surrounding the shaft and detachably secured to the outside of the shell and having a greater internal diameter than the diameter of the shaft, bearing-rings projecting from the wearing-collars through the apertures in the ends of the shell and of a greater internal diameter than the diameter of the shaft, and bearing-collars fixed upon the shaft within the shell and bearing against the faces of the bearing-rings, said bearing-collars entirely closing the space between the shaft and the bearing-rings, and said wearing-collars entirely closing the space between the bearing-rings and the shell, journal-boxes removed from the shell and adapted to support the shaft and prevent contact between the shaft and shell, said shell being provided with gateways, open at their upper ends and having their lower ends closed and curved to conform to the contour of the bearing-rings, and plates secured to the end pieces of the shell and provided, respectively with tongues fitting closely within the gateways and provided with curved extremities conforming to the contours of the bearing-rings, substantially as specified.

In testimony of all which I have hereunto subscribed my name.

WELLINGTON M. JENNINGS.

Witnesses:

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M. B. SPENCER.