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G. J. STAFFORD.

CONCRETE MIXER.

APPLICATION FILED AUG. 13, 1907.

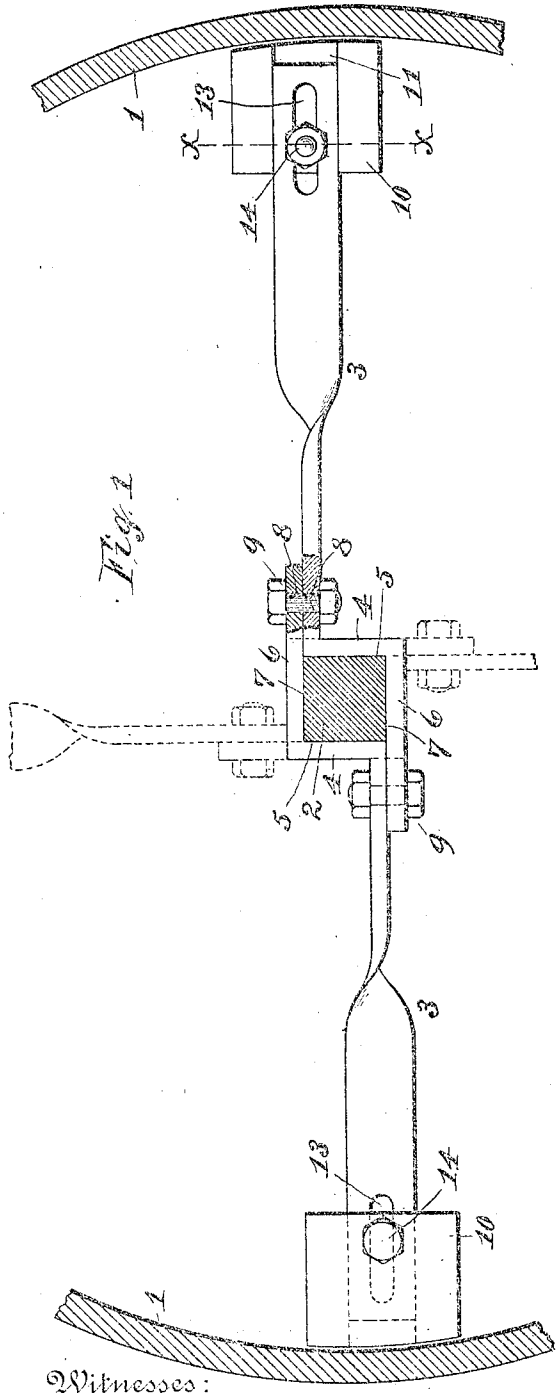


Fig. 1

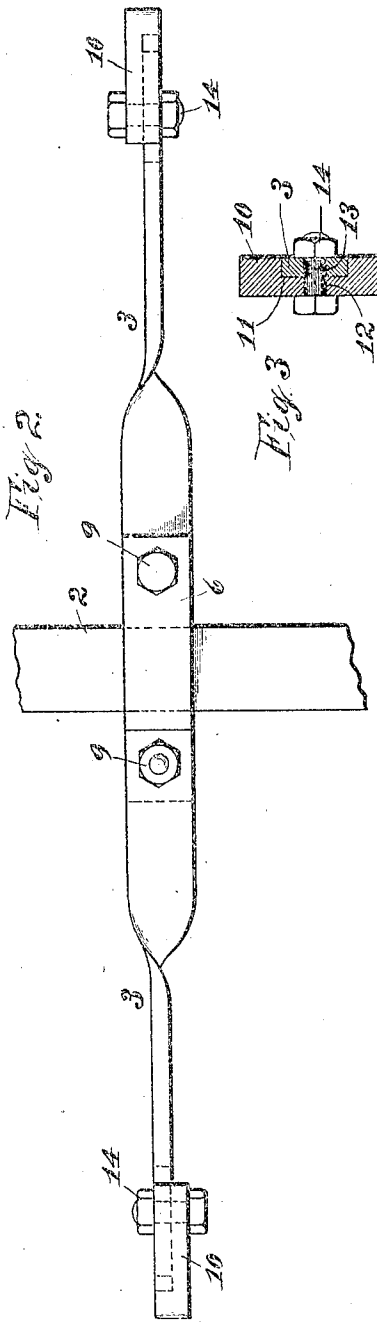


Fig. 2

Fig. 3

Witnesses:
J. J. Laass.
W. H. Meier Jr.

Inventor
George J. Stafford
By his Attorney
E. Laass

UNITED STATES PATENT OFFICE.

GEORGE J. STAFFORD, OF McGRAW, NEW YORK.

CONCRETE-MIXER.

No. 888,199. Specification of Letters Patent. Patented May 19, 1908.

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To all whom it may concern:

Be it known that I, GEORGE J. STAFFORD, a citizen of the United States, and resident of McGraw, in the county of Cortland, in the State of New York, have invented new and useful Improvements in Concrete-Mixers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention pertains to machines which are designed more particularly for mixing concrete, and it relates to the class of machines comprising a set of blades or paddles consisting of metal bars mounted on a revoluble shaft and arranged in pairs within a cylindrical drum into which the materials are introduced to be subjected to the action of the said blades, the blades of each pair being disposed radially in relation to the shaft and extending in opposite directions therefrom.

The present invention resides in the construction of the mixing-blades and in the manner of attaching the same to the shaft, one object being to provide a mixing-machine of the aforesaid character with blades arranged in pairs which can be easily and conveniently, and at the same time independently, detached from the shaft and replaced thereon when required for repairs or the renewal of parts.

Another object of the present invention is to provide the outer or free ends of the blades with means adapted to be adjusted so as to cause the ends to travel at the required distance from the inner periphery of the cylindrical drum, and whereby the blades may be extended to take up wear on the said ends.

To that end the invention consists in the novel arrangement and combination of parts hereinafter fully described and set forth in the claims.

In the accompanying drawings Figure 1 is a sectional view of a portion of a mixing-machine illustrating a pair of blades constructed and supported in accordance with my invention; Fig. 2 is a plan view; and Fig. 3 is a transverse section on the line —X—X— in Fig. 1.

Referring to the drawings —1— represents a stationary cylindrical drum which is commonly used in concrete-mixing machines, and —2— denotes the usual revoluble shaft extending axially through the drum, which parts may be supported in various ways. (Not necessary to be shown.) This shaft is formed angular in cross-section, preferably square, and may be driven by any suitable mechanism.

—3—3— denote the mixing-blades each formed preferably from a metal bar which is rectangular in cross-section or consisting of a casting of any suitable metal. Said blades are arranged in pairs, those of each pair extending radially and in opposite directions from the shaft —2— and rigidly secured thereto by means of a clip which comprises two members formed integral with the respective blades.

The clip-members are produced by primarily providing the inner end portions of the blades with corresponding right-angled offsets —4—4— forming shoulders abutting against two opposite faces —5—5— of the square shaft —2—, and secondarily deflecting the blades at right angles to the off-sets to form straps —6—6— lying across the other two faces —7—7— of the shaft, the strap of each blade extending beyond the shaft so as to lap onto the main portion of the other blade.

The lapping portions of the two blades are provided with coinciding apertures —8—8— through which are inserted bolts —9—9— which firmly clamp the parts to the shaft as clearly shown in Fig. 1. Each of said blades is preferably provided intermediate its ends with a quarter-twist which tends to stiffen the same, and whereby the blade is caused to present an edge to the concrete materials during the operation of mixing.

On the free end of each blade is mounted a plate —10— which is adapted to be adjusted longitudinally thereon so as to permit the plate to be set in proper position in relation to the inner periphery of the drum —1— incident to wear on the plate, and it also serves as an extension whereby the blade may be made to accommodate drums of different diameters. These plates also effectually assist in the operation of mixing the concrete or other materials. To effect this adjustment, I preferably form the plate with a rectangular groove —11— receiving the blade, and provide the grooved portion with an aperture —12— coinciding with a longitudinal slot —13— provided in the blade, through which aperture and slot passes a bolt —14— serving to clamp the plate in its position.

In machines of this type, each pair of mixing-blades is usually formed integral and se-

cured to the shaft by means of a key or set-screw, and in order to remove a pair of blades, it is necessary to slide the same off the end of the shaft. This requires the removal of other blades and consumes a great deal of time and labor and is very inconvenient.

It will be apparent in the present construction, that each pair of blades can be independently, and at the same time quickly and easily, detached from and attached to the shaft, thus permitting repairs or renewal of parts to be readily made when required.

What I claim as my invention is:—

In a machine of the character specified, the combination with a cylindrical drum, a revoluble shaft extending axially therethrough, and a set of mixing-blades fastened at one end to the shaft and arranged in separable pairs extending substantially radially from the shaft, said blades consisting of thin metal bars formed rectangular in cross-section and each bar provided with a quarter-twist intermediate of its ends to present an edge to the concrete-materials, and the outer end portion provided with a longitudinal slot, of a set of wear-plates mounted on the free ends of the blades, each plate having a groove of rectangular form in cross-section to receive the blade and provided with an aperture coinciding with the slot in the blade, and each plate having its outer edge curved in conformity with the inner periphery of the drum, and clamping-bolts passing through the said slots and apertures for securing the plates adjustably in relation to the periphery of the drum as and for the purpose set forth.

GEORGE J. STAFFORD. [L. S.]

Witnesses:
GEORGE W. SWIFT,
D. B. TRIPP.