A. J. BATES.

JOGGER.

APPLICATION FILED DEC. 1, 1911.

Patented Aug. 5, 1913.

1,069,656.

2 SHEETS—SHEET 1.

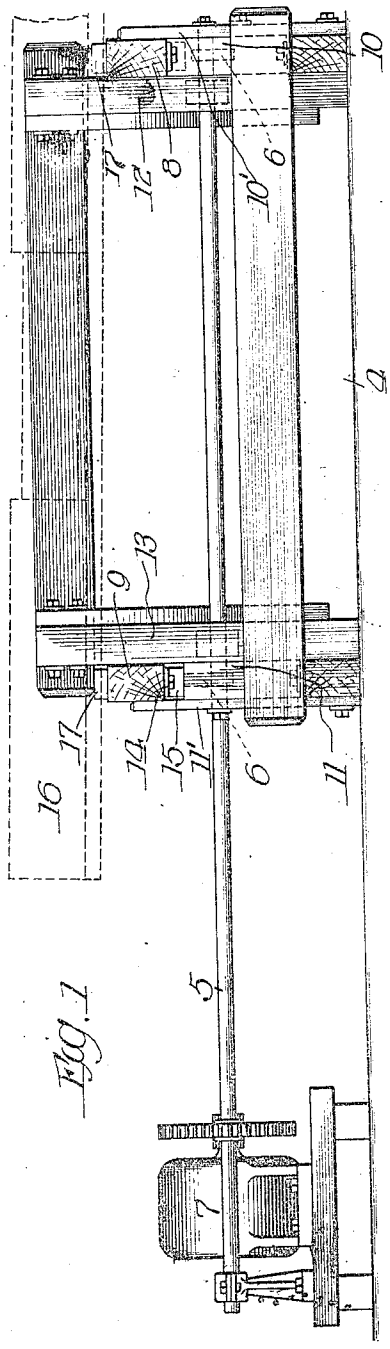

Fig. 1

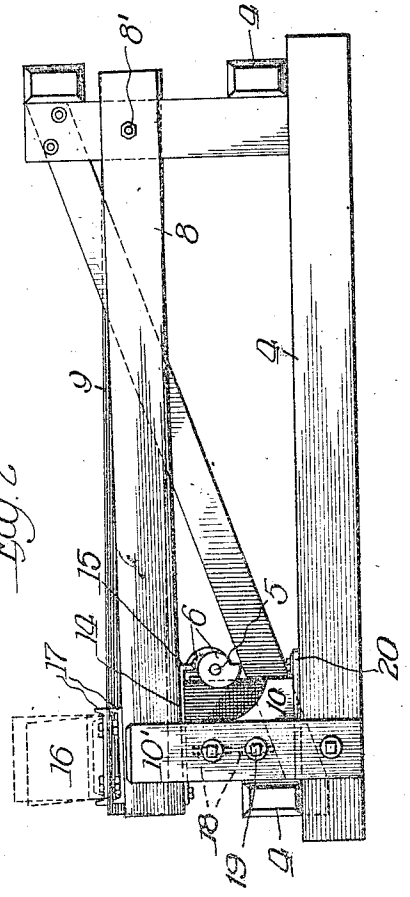

Fig. 2

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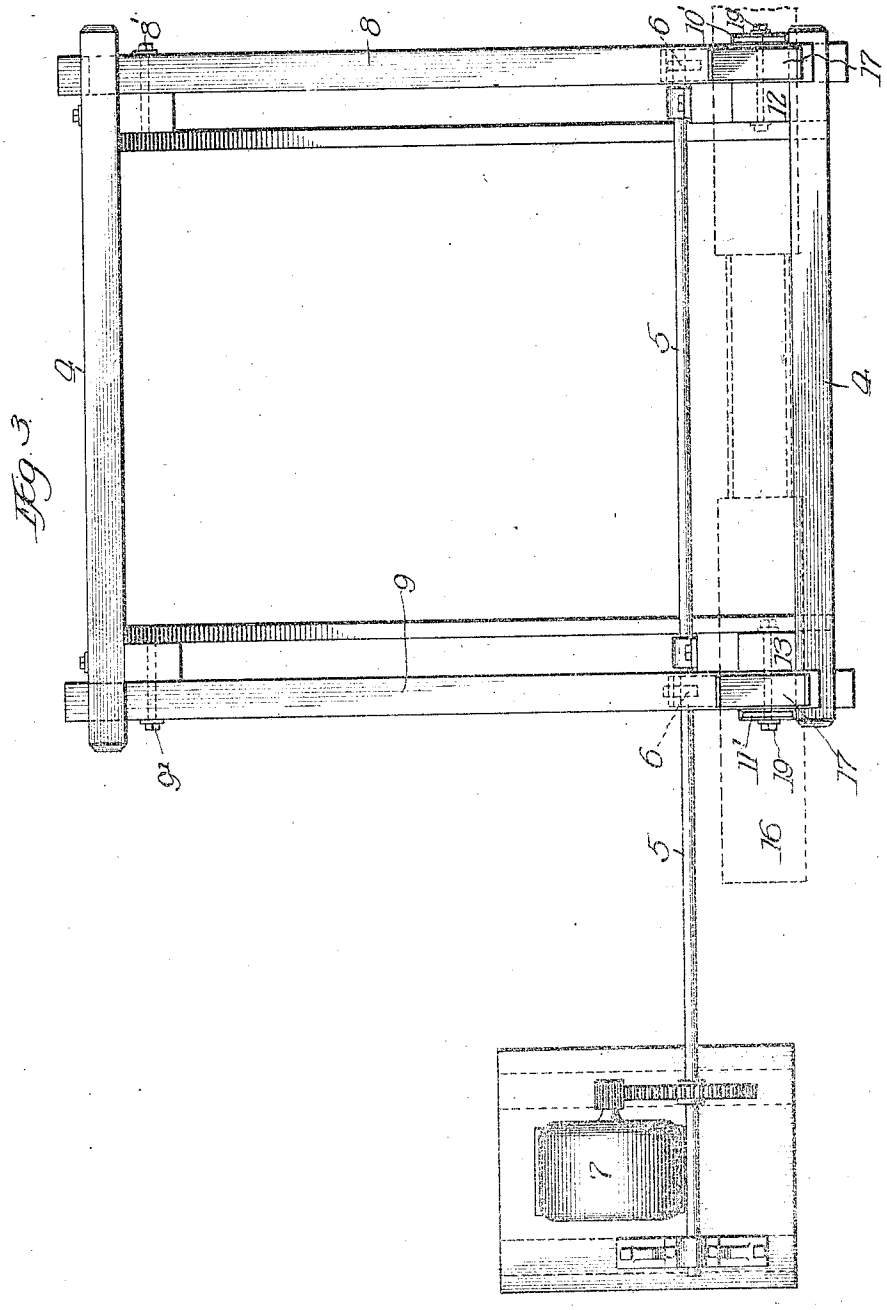

Fig. 3

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UNITED STATES PATENT OFFICE.

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JOGGER.

1,069,656. Specification of Letters Patent. Patented Aug. 5, 1913.

Application filed December 1, 1911. Serial No. 663,297.

To all whom it may concern:

Be it known that I, ALBERT J. BATES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Joggers, of which the following is a specification.

In making railway ties and other articles of concrete it is desirable to secure the best results, to completely fill all the voids between the stones with a mortar consisting of cement and sand, and in order to lessen the cost of manufacture it is further desirable to use as much of the broken stone as possible, thereby decreasing the quantity of cement required.

The object of the present invention is to provide a jogger for settling, precipitating and solidifying the freshly mixed concrete in the mold by subjecting the mold to a succession of violent jars and at the same time imparting to the mold oscillations which cause the mortar to slush lengthwise and sidewise within the mold.

In the accompanying drawings illustrating a simple embodiment of the invention. Figure 1 is a front elevation of the jogger showing in broken lines a railway tie mold mounted thereon. Fig. 2 is an end elevation of the jogger. Fig. 3 is a top plan view.

The jogger comprises a frame 4 in which is mounted a cam shaft 5 carrying cams 6 and driven by a motor 7. Two oscillating arms 8, 9, are pivotally mounted at the rear end of the main frame on pivot pins 8′, 9′, and these arms project forwardly to engage the upper ends of the posts 10, 11, being guided between the posts 12, 13, and the plates 10′, 11′, fastened to the posts 12, 13, and the frame. On the underside of each of the oscillating arms, near the forward end thereof, plates 14 are fastened and each of these plates has a downwardly extending projection 15 at its rear end. The cams 6 are fastened on a drive shaft 5 so that when the high point of one cam is up the high point of the other cam will be down and these cams are arranged to engage the projections 15 on the plates 14.

The mold 16, which may be of any suitable size and shape for making any desired article, is rested in suitable guide plates 17 on the oscillating arms 8, 9, at the forward ends thereof, and it may be filled with the concrete mixture before or after its is placed in position on the jogger.

In practice, the cams engage the projections 15 and raise and lower the arms 8, 9, alternately, thereby imparting an oscillating movement to the arms. When the high point of the cam passes beyond the projection 15 the arm falls until it engages the post, thereby imparting a violent jar to the mold, especially at that part thereof immediately above the arm which falls. This is repeated in rapid succession, first at one end of the mold and then at the other end and I have found that good results are obtained by driving the shaft at the rate of two hundred revolutions per minute, thereby imparting four hundred jars per minute to the mold. This violent jarring of the mold causes the stone aggregate therein to settle in a compact mass with the mortar intimately distributed throughout the mass.

It will be observed that during the jarring movement of the mold it is also subjected to an endwise and a sidewise oscillation, as indicated in broken lines in Fig. 2, and this double oscillation causes the mortar to slush endwise and sidewise of the mold whereby it is thoroughly distributed through the mass of stone and completely fills all the voids between the stones. The jarring causes the stone aggregate to precipitate through the mortar until it comes in contact either with the bottom of the mold or with stone which has already reached a fixed position in the mold. This movement of the stone displaces its equivalent in volume of the mortar and the latter rises in the mold until finally the mold is filled with stone and all the voids are filled with mortar. The jarring also breaks any air bubbles which may exist in the concrete and forces the air to escape upwardly through the mortar to the atmosphere.

My improved machine is simple in construction and easy to operate and it works the concrete mass in a novel manner and produces at comparatively low cost a molded concrete article, such as a railway tie, of great strength and solidity having the stone aggregate compacted therein in a solid mass and the voids between the stones completely filled with the cement mortar.

The posts 10, 11, may be adjusted vertically to vary the limit of the downward movement of the arms 8, 9, and thereby

control the degree of the jar imparted to the mold and its contents. For this purpose slots 18 are provided in the posts 10, 11, to accommodate the bolts 19 which fasten the plates 10′, 11′ to the posts 12, 13, and shims 20 of various sizes are placed on the frame beneath the posts 10, 11. Thus the posts 10, 11, can be moved vertically and relatively to the posts 12, 13 and the plates 10′, 11′ and the shims will sustain the posts 10, 11 in their adjusted position.

I claim:

1. In a jogger of the character described, the combination of a pair of arms capable of movement about a point remote from their front ends and a mold containing a concrete mixture resting upon their forward ends, stops for the forward ends of the arms, and cam devices operating to oscillate said arms alternately and permit them to drop from their highest position into engagement with the stops with a violent jar.

2. In a jogger of the character described, the combination of a pair of arms capable of movement about a point remote from their front ends, a mold containing a concrete mixture resting on the forward ends of the arms, and means for oscillating said arms alternately to impart to said mold an endwise oscillation and a movement in the arc of a circle.

3. In a jogger of the character described, the combination of a pair of arms capable of movement about a point remote from their front ends, a mold containing a concrete mixture resting upon their forward ends, supports and guides for the forward ends of the arms, and cam devices operating beneath the arms to raise the arms alternately above their supports and permit them to drop with a violent jar against the supports.

4. In a jogger of the character described, the combination of a pair of arms capable of movement about a point remote from their front ends, a mold containing a concrete mixture resting upon their forward ends, supports and guides for the arms at their forward ends, projections beneath the arms, cams arranged to engage said projections to lift the arms alternately and permit them to drop with a violent jar against their supports, and means for operating the cams.

5. In a jogger of the character described, the combination of a pair of arms capable of movement about a point remote from their front ends, a mold containing a concrete mixture resting upon their forward end, cam devices operating beneath the arms to raise the arms alternately above their supports and permit them to drop with a violent jar against their supports, and means for raising and lowering the said supports.

6. In a jogger of the character described, the combination of a pair of arms capable of movement about a point remote from their front ends, a mold containing a concrete mixture resting upon their forward ends, means disposed adjacent the forward ends of the arms for retaining the mold loosely in position thereon, and means for oscillating said arms alternately to impart to said mold an endwise oscillation and a movement in the arc of a circle.

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Witnesses:
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