

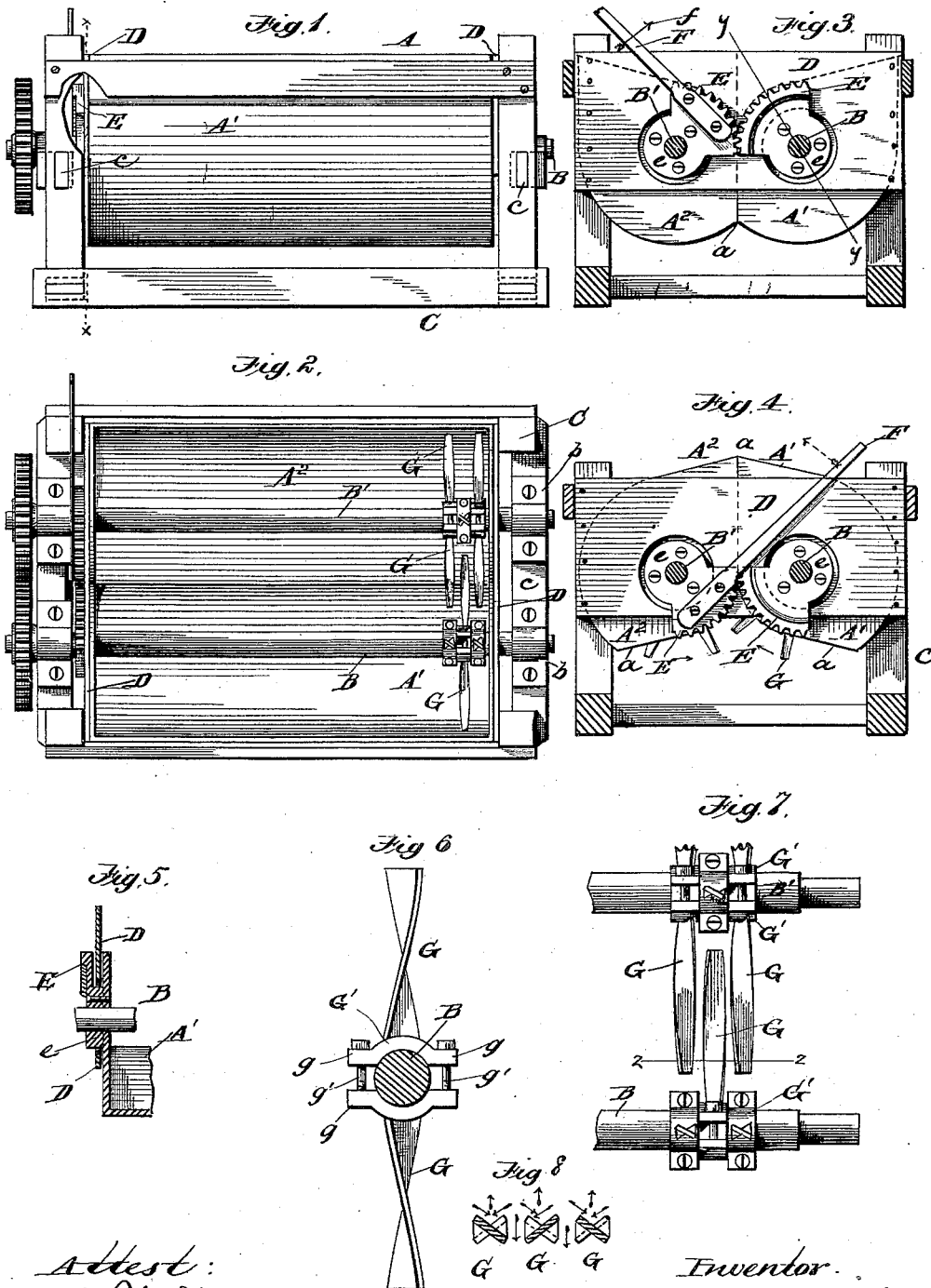
(No Model.)

W. H. H. KNIGHT.

MIXING MACHINE FOR ASPHALT, CONCRETE, &c.

No. 307,471.

Patented Nov. 4, 1884.



Attest:  
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# UNITED STATES PATENT OFFICE.

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ASSIGNOR TO GEORGE B. ABRAMS, OF SAME PLACE.

## MIXING-MACHINE FOR ASPHALT, CONCRETE, &c.

SPECIFICATION forming part of Letters Patent No. 307,471, dated November 4, 1884.

Application filed March 20, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. H. KNIGHT, of the city of Washington, in the District of Columbia, have invented certain new and useful Improvements in Machines for Mixing Asphalt, Concrete, &c.; and I do hereby declare the following to be a full, clear, and exact description of my invention, sufficient to enable others skilled in the art to which it appertains to make and use the same, reference being had to the drawings, forming a part of this specification, and to the letters of reference marked thereon.

My invention relates to mixing-machines for asphalt, concrete, and other similar material, and has for its object the provision of means whereby the said material may be quickly and thoroughly mixed and made ready for use, and when so ready for use may be readily discharged downward and into the proper receptacles placed beneath the machine.

To the accomplishment of this end it consists in the construction, arrangement, and combination of the various parts, substantially in the manner hereinafter described and claimed.

In the drawings, which form a part of this specification, Figure 1 is a side elevation of my improved mixing-machine. Fig. 2 is a top plan view thereof, in which the shafts are shown free from the blades for nearly their entire length. Fig. 3 represents an end view of the machine, the drive-gear, and end timbers removed, the machine closed, and in position for mixing asphalt, &c. Fig. 4 represents a similar end view, the machine open for the purpose of discharging the mixed material. Fig. 5 represents a detail sectional view on the line *yy* of Fig. 3. Fig. 6 is a detail view showing the form of blade used and the manner of attaching them to the shafts. Fig. 7 represents an enlarged detail view of a portion of the shafts and blades connected thereto, and shows the interlapping of said blades. Fig. 8 is a detail sectional view on the line *zz* of Fig. 7, the arrows in said figure showing the direction taken by the material when the blades are in motion.

Similar letters of reference in the several drawings denote similar parts.

In said drawings, A represents the body of the machine, in which the mixing of the material takes place. The body A consists of two similar castings, A' A<sup>2</sup>, hung upon and supported by the shafts B B', that are journaled in boxes *b* upon the end timbers, *c*, of the frame C. The walls of the shell-castings A' A<sup>2</sup> are concentric each with the shaft upon which it is hung, and said shell-castings abut upon a vertical line equidistant from the centers of the shafts and between said shafts, the abutting edges *a* having any desired shape in cross-section, for the purpose of preventing leakage of the joint between said castings. The end edges, from a point lying on a line drawn through the centers of the shafts, are concentric with said shafts, such concentric portions extending to points directly above each of the shafts, from which points the edges extend to the upper outer edges of the side walls, said side walls being vertical to points lying on a line drawn through the centers of the shafts, and thence concentric with the shafts, as before described.

The above description of the shell-castings is taken from Fig. 3, the position of the parts in that figure admitting of a ready description.

D represents plates secured to the end timbers of the frame C, and against which the ends of the shell-castings bear. Said plates are provided with apertures *d* about the shafts, through which pass bosses *e* upon the sides of gear-segments E. The segments E are in the form of quadrants, and are secured one to each of the shell-castings A' A<sup>2</sup> about the shafts B B'. The teeth of said gear-segments E engage one with the other, as shown.

F represents a lever attached to one of the gear-segments E, or to any convenient point of one of the castings A' A<sup>2</sup>, whereby the castings may be opened or closed, as shown in Figs. 3 and 4.

The operation of my invention so far as described will be readily understood, it being apparent that force applied to the lever F in the direction of the arrow *f*, (see Fig. 3,) will operate to swing the lower portions of the shell-casting away from each other and into the position shown in Fig. 4, and when so away from each other force applied in the direction of the

dotted arrow in the latter figure will operate to close the shells together, as shown in Fig. 3.

In lieu of the lever F the geared rim of one of the segments may be extended, and the teeth upon said rim may engage with a gear-pinion mounted on a suitable stud on the plate D, said pinion being rotated by a crank or other suitable means; or said pinion may engage with geared arms extending from each of the shell-castings A' A<sup>2</sup>. In practice, however, I prefer the construction shown in the drawings, as such construction is simpler and less liable to get out of order than any other, and fulfills the end sought—to wit, the simultaneous movement of the shell-castings A' A<sup>2</sup> toward or from each other. I preferably use shafts round in cross-section, as shown in Figs. 2, 6, and 7, and to said shafts I secure mixing-blades G in any convenient manner, but preferably in the manner shown in Fig. 7. The blades G consist of thin plates of metal having a quarter-twist in their length, as shown in said figure. The blade is provided with a flanged head, G', curved to fit the outside surface of the shafts. The heads G' are provided with lateral flanges g, perforated to receive bolts g', by which they are held in position upon the shafts. As will be seen, the blades G at their junction with the heads G' are at an angle with said heads, by reason of which, when the blades are passed through the mass of material in the body A, said material will be more thoroughly mixed than by any form of blade in use, inasmuch as the particles of material acted upon by the blades will be caused to move in different directions, as indicated by the arrows in Fig. 8, thus insuring better results.

Any desired form of fastening the blades to the shafts may be employed without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a mixing-machine for asphalt, concrete, &c., a vessel wherein the material is mixed, said vessel formed of two sections similar in form and size, and hung upon and sup-

ported by the mixing-shafts, substantially as herein described.

2. In a mixing-machine for asphalt, concrete, &c., a vessel wherein the material to be mixed is placed, said vessel made in two sections similar in form and size, hung upon and supported by the mixing-shafts, and provided with means whereby said sections may be swung away from or toward each other simultaneously, substantially as herein described.

3. In a mixing-machine for asphalt, concrete, &c., a vessel wherein the material is mixed, said vessel made in two sections similar in size and form, and hung upon and supported by the shafts, the lower portions of each of said sections concentric with the shafts, said sections having their abutting edges made non-leaking, and said sections further provided with gear-segments E the teeth of which engage one with the other, in combination with shafts B B', provided with blades, substantially as herein described.

4. In a mixing-machine for asphalt, concrete, &c., the combination of the two-part vessel A, provided with gear-segments E the teeth of which engage one with the other, whereby the sections A' A<sup>2</sup> are simultaneously moved toward or from each other with the plates D, lever F, and mixing shafts and blades, substantially as described.

5. In a mixing-machine for asphalt, concrete, &c., mixing-blades G, formed of thin metal plates having a quarter-twist in their length, whereby the particles of the material under treatment move at different rates of speed when the blades are in motion, in combination with mixing-shafts, and a two-part vessel hung on said shafts and adapted to be swung apart, wherein the material to be mixed is placed, substantially as herein described.

In testimony that I claim the foregoing I have hereunto subscribed my name this 19th day of March, 1884.

WILLIAM H. H. KNIGHT.

Witnesses:

H. I. BERNHARD,  
JOSEPH FORREST.