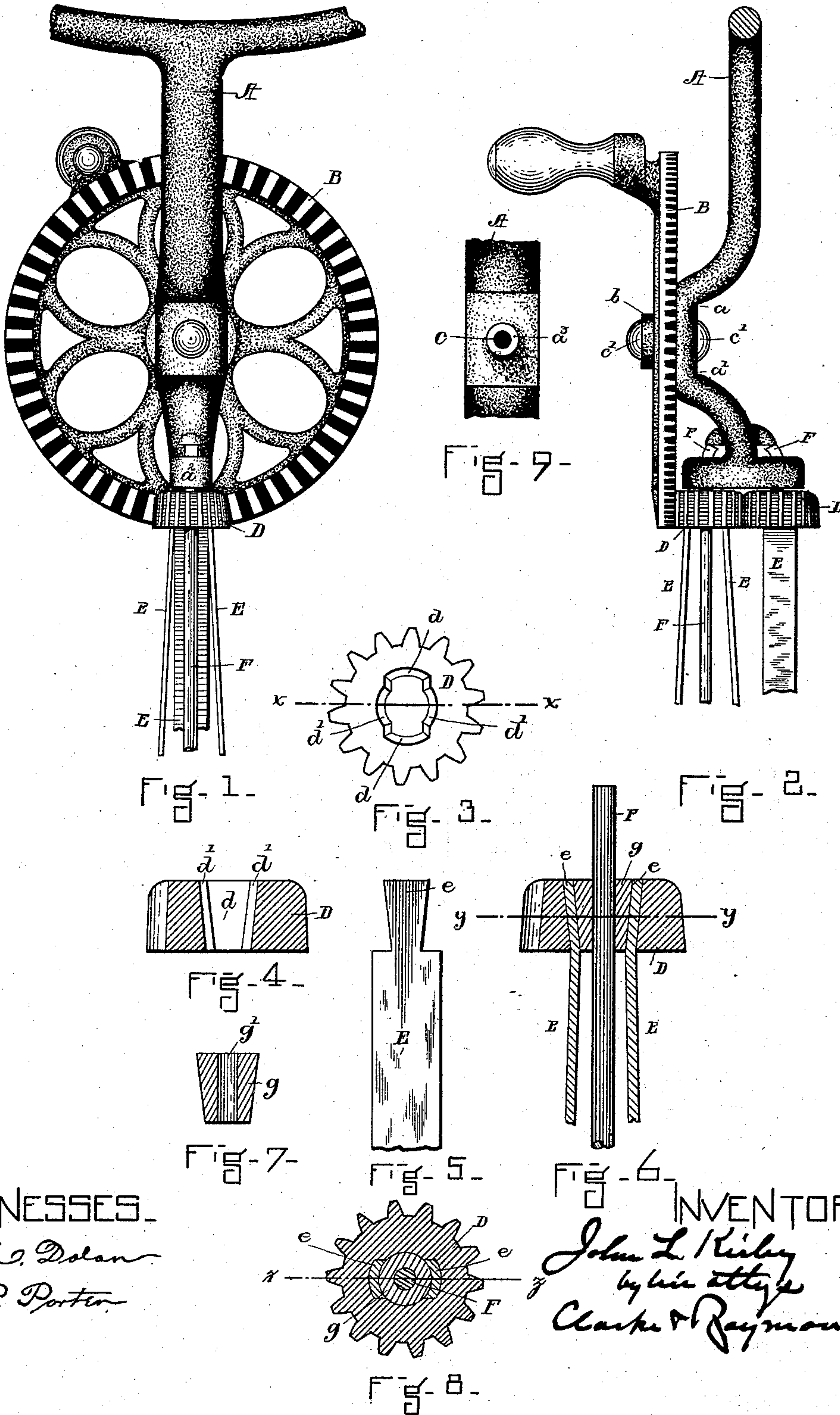


(No Model.)

J. L. KIRBY.
EGG BEATER.

No. 406,653.

Patented July 9, 1889.



WITNESSES.

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EGG-BEATER.

SPECIFICATION forming part of Letters Patent No. 406,653, dated July 9, 1889.

Application filed January 19, 1889. Serial No. 296,812. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. KIRBY, of Cambridge, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Egg-Beaters, of which the following is a full, accurate, and complete description, reference being had to the accompanying drawings, forming a part of this specification.

The improvement consists in the combination and construction hereinafter described and claimed. It is illustrated with reference to the Dover egg-beater, which is a well-known form.

In the drawings, Figure 1 is an elevation of the handle, gear, pinion, and upper part of the floats of an egg-beater from the handle side. Fig. 2 is an elevation of similar parts transverse to Fig. 1. Fig. 3 is a top plan of the pinion to which the floats are attached. Fig. 4 is a section of the same pinion on the line xx of Fig. 3. Fig. 5 is a side elevation of the upper part of one of the beating-floats, showing the formation of the part which engages with the pinion. Fig. 6 is a section of the float, pinion, bushing-plug, and frame-wire as assembled together, taken on a line transverse to the line xx of Fig. 3, and shown as the line zz of Fig. 8. Fig. 7 is a section of the conical bushing-plug. Fig. 8 is a horizontal section taken on the line yy of Fig. 6; and Fig. 9 is an elevation from the wheel side of the handle of the beater, showing the method of forming the wheel-seat with a boss.

The most difficult problem hitherto encountered in the construction of mechanical egg-beaters which are operated by gears and pinions is the attachment of the beating-floats to the driven pinion. One of the best methods hitherto employed has been that of making the cavity in the pinion comparatively large, and setting the floats in it and fastening them there with easily-fusible metal—such, for instance, as the metal called “Babbitt metal.” Another was to cast loops upon the bottom of the pinion and bend the flat wires of the floats at right angles to each other at their upper extremities, and pass them through these loops, and then, having

perforated the ends of these flat wires where they lap over each other, pass the pinion over the round wire of the frame. These modes of attachment involve considerable expense, and are not completely satisfactory in practice. Some people prefer one, some another; but the preference is given rather as a choice of the least undesirable structure than as a selection of the most desirable structure.

Like letters indicate like parts in each of the drawings where used.

A is the handle.

B is the beating-wheel. The handle is flattened, as shown in Fig. 2, at the place indicated between the letters $a a'$, and the driving-wheel B is placed upon that flattened portion of the handle and fastened with a rivet.

The pinions which drive the beating-floats are lettered D, the beating-floats are lettered E, and the wire-supporting frame attached to the handle is lettered F. The plan of the pinion D is as shown in Fig. 3. It has a tapering cavity in the center. The central part of this cavity is substantially of double segmental conical form, and two comparatively broad segmental recesses, also of conical form, are made upon opposite sides of this cavity. These recesses are marked in Fig. 3 d , and the smaller conical segments placed between them are marked on the same figure d' . The section of the pinion upon the line xx of Fig. 3 is shown at Fig. 4. The floats E have at their tops dovetails larger at the top than at the bottom, and shaped to fit the recesses d of the pinions D, and adapted to be compressed into them when the conical plug g of Fig. 7 is driven to its place. This conical plug g is in reality a bushing of a comparatively hard metal, such as brass or bronze. It is made to accurately fit the segmental conical cavity d' of the pinion D, and the depth of the segmental conical recesses d of the said pinion D is about as much greater than the radius of the plug g of any given horizontal section-line as the thickness of the flat wires of the beating-floats E. The beating-floats E being put in their places within the recesses of the pinion D, the plug g is forced home and bends the flat dovetail e

into the recesses d of the pinion D, and very firmly holds them to place. The supporting-wires F are now passed through the central hole g' of the bushing, Fig. 7, and into the 5 holes at the splay of the handle A, and are there riveted in the manner now usual with the Dover egg-beater, and as shown in Fig. 2. It will be seen now that the pinion D cannot descend without displacing the beating-floats 10 E vertically, which, as they are supported at their lower ends, cannot be done without deforming them, because these pinions D rest upon a shoulder at the bottom of the dovetail e , (represented in Fig. 5;) nor can the floats 15 be displaced from the pinion without the removal of the plug g , which cannot be effected because it is in contact with the lower face of the splay a^2 of the handle A. It is therefore a very efficient method of assembling, and 20 avoids the complicated coring necessary to make loops upon the lower surface of the pinion D, as already described, and also the use of melted metal in the assembly of the pinions and floats; and, in addition, it makes 25 a very smooth bearing, and one which, if hard metal be used for the plug, is susceptible of very little wear.

In order to give a more graphic representa-

tion of the form of plug and cavity employed, I have somewhat exaggerated the taper of 30 this plug g and cavity d' from that which is probably desirable in practice. A comparatively slight taper is quite sufficient for the purpose; probably not more than half as much 35 as that shown in the drawings will be desirable in practice; but such a taper would not show sufficiently well as a purpose of illustration, and therefore, as is usual in representations of grades in railroad engineering, the scale of inclination is different from the 40 scale of length.

I claim as my invention and desire to secure by Letters Patent—

The combination of the beating-floats E, formed at their upper ends into dovetails, 45 with the pinion D, formed with a cavity in its center composed of two pairs of conical segments d d' , the pair d being of greater transverse diameter than the pair d' , and with the conical bushing-plug g , substantially as and 50 for the purpose described.

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Witnesses:

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