(No Model.)

J. H. BIGELOW.

WIRE AGITATOR FOR FLOUR SIFTERS.

No. 486,576. Patented Nov. 22, 1892.

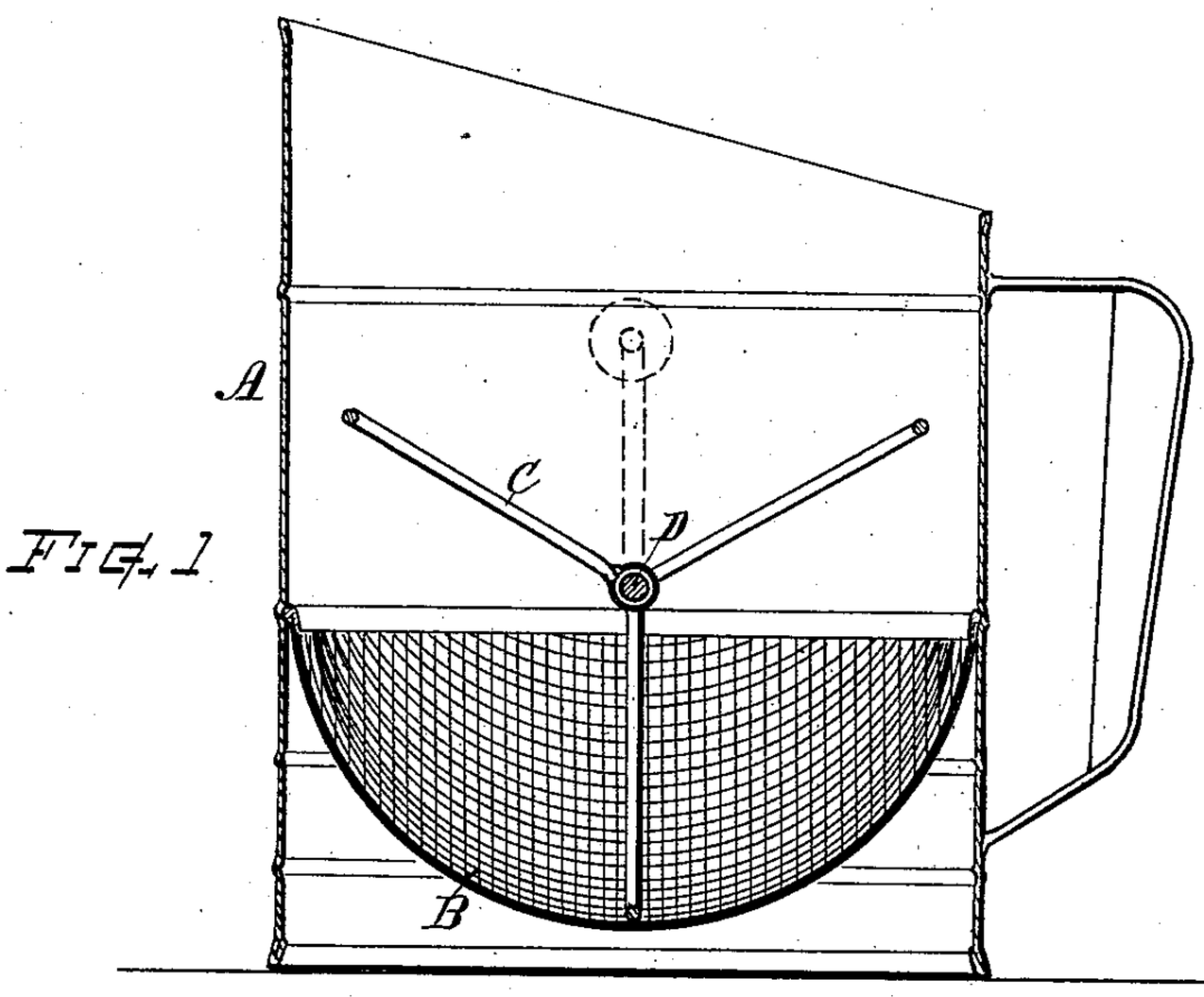

FIG. 1

FIG. 3

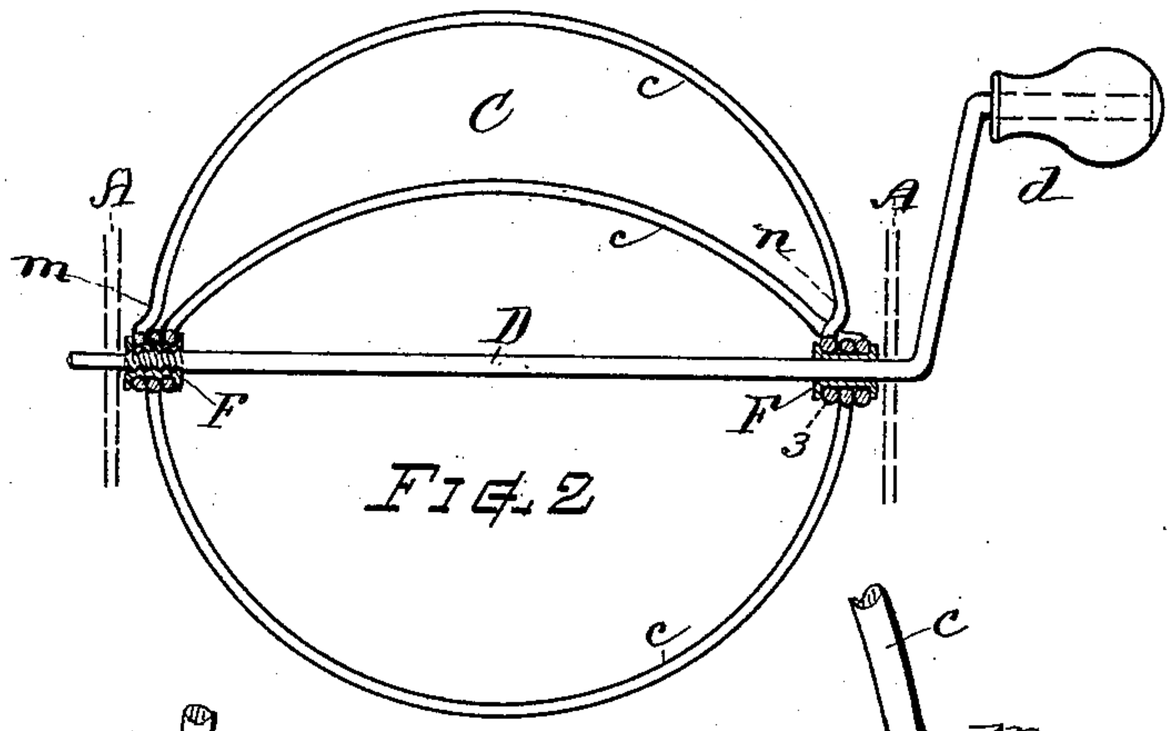

FIG. 2

FIG. 4

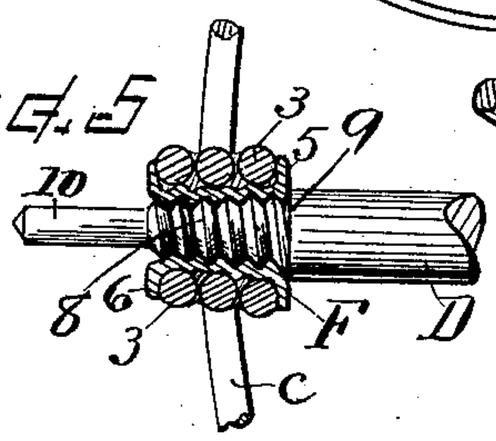

FIG. 5

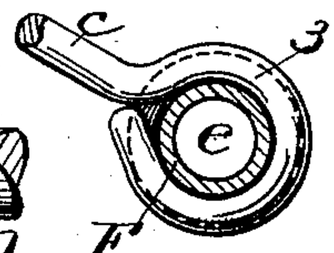

FIG. 6

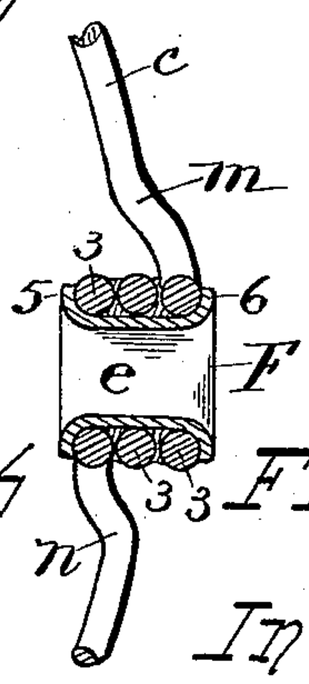

FIG. 7

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UNITED STATES PATENT OFFICE.

JONAH H. BIGELOW, OF WORCESTER, MASSACHUSETTS.

WIRE AGITATOR FOR FLOUR-SIFTERS.

SPECIFICATION forming part of Letters Patent No. 486,576, dated November 22, 1892.

Application filed February 6, 1892. Serial No. 420,566. (No model.)

To all whom it may concern:

Be it known that I, JONAH H. BIGELOW, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Wire Agitator for Flour-Sifters, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

In the manufacture of flour or meal sifters of that well-known kind comprising a cylindrical sheet-metal body, a hemispherical sieve supported therein, and a revoluble beater or agitator, composed of a series of bows mounted on a transversely-disposed shaft and rotated by means of a crank at the exterior of the body, for sweeping the interior of the sieve. In the manufacture of this type of sifter it has heretofore been the general practice, when making the agitators of wire, to introduce a previously-threaded nut into a suitable mold, insert the plain cut-off ends of the wire bows into said mold, and then pour the mold full of molten lead or solder, thereby casting a hub or bearing-boss upon the ends of the wires, and embracing the threaded nut in the mass thereof. With this practice it has been found that after the agitators have been in use the wire bows become loose or detached from the hub, and are thus frequently a source of annoyance and objection. The object of my present invention is to provide a wire agitator for the purpose named, of such construction as shall obviate the objection above noted, avoid the necessity of introducing the threaded nut, and which can be manufactured with greater facility and economy than those heretofore employed, while affording a more durable and desirable structure; also, to afford a simple and efficient means for uniting the bows of sifter-agitators, which shall give sure and permanent connection for the ends of the wire bows and also form a desirable bearing for receiving the shaft or axis. These objects I attain by an agitator having the several parts thereof constructed, combined, and connected in the peculiar manner illustrated and described, the particular features claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a vertical section of a flour-sifter of usual form, having my improved agitator therein. Fig. 2 is a longitudinal sectional view of the agitator. Fig. 3 shows the side and end of the tubular joint-eye. Fig. 4 shows one of the wire bows before it is curved to the circle of the sieve; and Figs. 5, 6, and 7 are sectional views on an enlarged scale, showing in detail the improved construction and manner of combining the parts at the junction of the bows and axis.

Referring to parts, A denotes the rim or body-cylinder, and B the sieve fabric, both of well-known form.

C indicates the agitator, supported on the axis or bent-wire shaft D, to be rotated within the sifter B by the crank *d* in usual manner. In the construction of this agitator the bows *c* are provided at each of their respective ends with a circular bend or loop 3, of sufficient dimension to surround or partially surround the axial shaft D. The bow is then curved to correspond to the interior contour of the sieve B, so that the loops 3 will stand in planes perpendicular to the axial line. The ends of the series of bows are then placed together, so that the loops or bend will lie together flatwise or adjacent side to side and there united to form the bearings for the introduction of the axial shaft at junction of the bowed wires, from which bearings the bows radiate and round outward in proper manner to sweep the inner surface of the sieve. As a preferable means for uniting the looped ends of the bows a flanged tubular eye F is inserted through the bends 3 of the several bows which are successively assembled thereon, as shown, and the end of said tubular eye F expanded and upset, so as to securely embrace the loop-rings 3 between the flanges 5 and 6, thus binding the ends of the several agitator-bows together while leaving a clear central opening *e* for the introduction of the shaft D. One of the bearing-eyes is formed with a plain opening, as in Fig. 7, and the other with an impressed screw-thread, as in Fig 5, for engaging the thread 8 on the end of the shaft when the parts are assembled. After fastening the loops at the ends of the bows together with the bows in the desired positions these parts are surface-coated and firmly united by dipping the same in molten metal, as is the usual processes of tinning small articles. The wire

bows thus arranged and attached together stand out of alignment equal to the thickness of the wire, and in order to bring the curves of the several bows into position, so that they will all revolve in the same relation to the curve of the sifter B, the outer bows are by aid of suitable dies offset, as indicated at *m* and *n*—one to the right and one to the left—so that the main curve of each of the bows will sweep through the same space when the agitator is rotated. The end of the shaft D is fitted, as shown, with a shoulder 9, the screw-threaded portion 8 outwardly tapered or conical, and a non-threaded extension 10 on its end that serves as a journal in the shell A, the opposite end of the shaft being provided with the usual crank or handle. When the shaft is inserted through the eyes F, it can be turned into the thread of the left-hand eye until the shoulder 9 meets the end of the eye, but no farther. This forms a connection, so that further motion of the crank revolves the agitator, as will be understood by inspection of the drawings. In the present instance the agitator is shown composed of three wire bows; but it will be understood that any other number of bows combined in like manner of construction can be employed when desired.

I claim as my invention, to be herein secured by Letters Patent—

1. In a wire agitator for flour or meal sifters, a series of curved wire bows, each having both of its ends respectively bent to form a loop or eye for surrounding the axial shaft and said loops placed adjacent to each other and united side to side at the junction of the bows to form the bearings for sustaining the wire bows in their relative positions and supporting the agitator in connection with its shaft, substantially as and for the purpose set forth.

2. The combination, in an agitator for flour-sifters, of the series of outwardly-curved wire bows, each provided with a circular bend or loop at its ends, and the tubular eyes arranged through the looped ends of the respective bows and upset or flanged for attaching the several bows together and forming a bearing for the axial shaft, as set forth.

3. The combination of the wire bows having their ends bent to form a loop or eye thereon, the tubular flanged bearing-eyes inserted through the several looped ends and upset for fastening the bows together, the impressed screw-thread formed within one of said bearing-eyes, and the axis-shaft having the threaded tapered end for worming into said eye, substantially as and for the purpose set forth.

4. An agitator for flour-sifters of the class specified, composed of the wire bows *c*, having their ends bent into loops 3, the said loops placed together flatwise adjacent to each other and united to form bearings for the axial shaft, which is passed through the said loops, the said parts tin-coated and the outer bows offset, as at *m* and *n*, to bring the main curves of the several bows into coinciding relation with each other, substantially as set forth.

5. In a sifter having a cylindrical body, a hemispherical sieve located therein and a rotary beater or agitator, the cranked shaft D, having the shoulder 9, the conoidal screw-threaded portion 8, and non-threaded outer extension 10, in combination with the agitator-bows *c* and the tubular connecting-eyes, one of which has a tapered opening threaded for fitting said shaft, substantially as shown and described.

Witness my hand this 2d day of February, A. D. 1892.

JONAH H. BIGELOW.

Witnesses:
CHAS. H. BURLEIGH,
ELLA P. BLENUS.