No. 646,037. Patented Mar. 27, 1900.

D. F. RICHARDSON.

GATHERING IRON.

(Application filed Nov. 24, 1897.)

(No Model.)

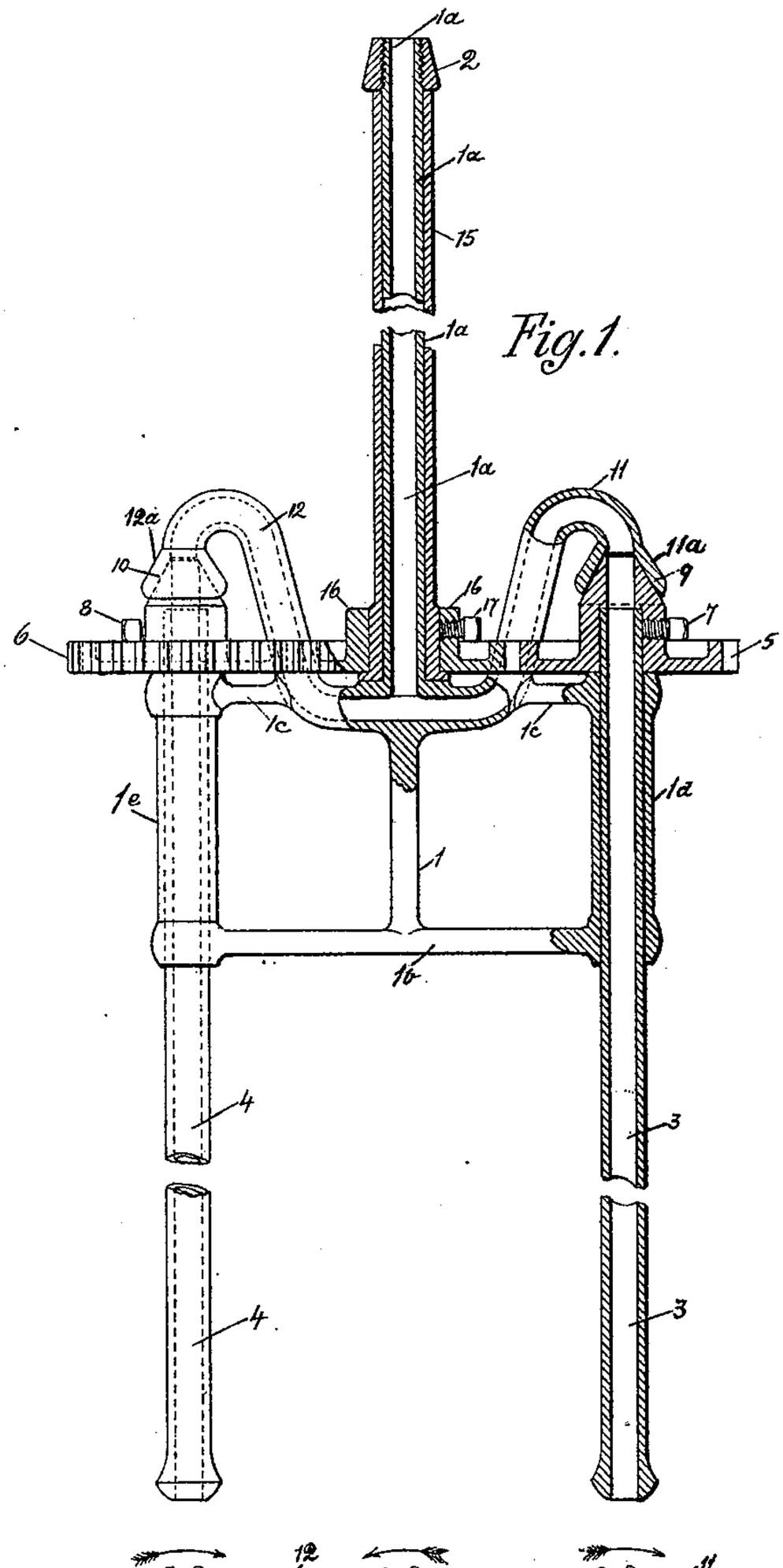

Fig. 1.

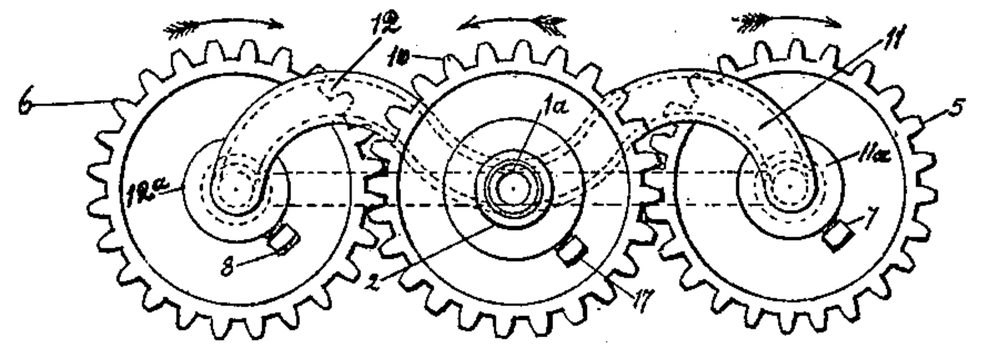

Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

DANA F. RICHARDSON, OF TOLEDO, OHIO.

GATHERING-IRON.

SPECIFICATION forming part of Letters Patent No. 646,037, dated March 27, 1900.

Application filed November 24, 1897. Serial No. 659,720. (No model.)

To all whom it may concern:

Be it known that I, DANA F. RICHARDSON, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Gathering-Irons, of which the following, with the accompanying drawings, is a full, clear, and exact specification.

My invention relates to gathering-irons used by glass-blowers to collect glass thereon from glass pots or tanks to be worked either free or into molds into desired forms.

The object of my invention is to so improve such glass-gathering irons as to secure greater efficiency and economy by gathering from the molten glass two or more articles at the same time and being able, if desired, to finish the articles thus gathered simultaneously by the same operation, also to produce ware of greater uniformity.

The invention consists in the construction and combination of the parts herein described, and defined in the claims.

In the drawings, Figure 1 is a vertical section and part view of my improved gathering-iron, and Fig. 2 is a top view thereof.

Like characters of reference designate like parts throughout the drawings and specification.

As these gathering-irons are in more common use in blowing glass than in other kinds of glass-working, I describe herein a form adapted to the work of glass-blowing.

1 is a light metal frame with a tubular central rod 1^a fixed thereto, which serves as a blowpipe and which has its free end so shaped or to which is screwed a conical mouthpiece 2, adapted to turn easily between the lips of an operator. In this frame cross-bars 1^b and 1^c carry hollow casings 1^d and 1^e. Through these casings pass two hollow gathering-irons 3 and 4, that turn easily in the casings. The gathering-irons 3 and 4 are held firmly in two spur-gears 5 and 6 by means of set-screws 7 and 8. The spur-gears 5 and 6 have central openings corresponding to the openings of the hollow gathering-irons, and the tops of the gears at 9 and 10 are shaped conically either inwardly or outwardly.

Two hollow pipes 11 and 12, forming parts of the frame, open from the central rod 1^a and are carried outside of and over the gears 5 and 6 and have their end pieces 11^a and 12^a make an air-tight connection with the conical tops 9 and 10 of the gears 5 and 6. The opening of the central rod 1^a is in communication with the hollow gathering-irons 3 and 4 through the pipes 11 and 12 of the frame 1. A hollow spindle 15 is loosely fitted over the blowpipe 1^a and is held thereon by the mouthpiece 2. To the lower part of the spindle 15 is fastened a spur-gear 16 by means of the set-screw 17 or otherwise. The gears 5, 6, and 16 I make preferably of the same diameters and with the same number of teeth. The gears are so located relatively to each other that the teeth of the central gear fit accurately into the teeth of the outer gears and that all gears may revolve freely. The outer gears turn in the same direction oppositely to that of the central gear, as shown by the arrows in Fig. 2. Thus by turning the spindle 15 by hand while the frame is held stationary the two gathering-irons 3 and 4 are revolved simultaneously.

In operating with my improved gathering-iron the ends of the iron 3 and 4 are thrust into the molten mass of glass, the tool resting with the hollow casings 1^d and 1^e on the usual dogs placed in the openings of the furnace. Now revolving the spindle 15, and thereby steadily turning the two gathering-irons, the molten glass is collected upon the ends of the irons until a desired quantity shall have been gathered. The tool is then removed from the pot or tank, and by blowing into the central pipe-rod 1^a of the frame 1 at the mouthpiece 2 air is carried simultaneously into the two gathering-irons 3 and 4 by way of the pipes 11 and 12 and through the centers of the gears 5 and 6. A ground air-tight joint between the cones of gears 9 and 10 and the cones 11^a and 12^a of pipes 11 and 12 prevents the escape of air. When working the glass collected upon the gathering-irons, said irons may have their ends hanging freely in the atmosphere and the article blown into what is commonly called "offhand" ware, or may be held over molds in the usual manner, in which single gathering-irons are used and freely manipulated. The turning of the gathering-irons by the means described gathers the glass with uniformity. It will thus be seen that the product is improved and that more than one article can be

blown at the same time and with the same ease as one is now blown with the ordinary gathering-iron.

I have described my improvement as embodying two separate gathering-irons combined with one central blowpipe or rod. It is obvious, however, that not only two but any number of gathering-irons may be connected with and operated simultaneously from a central blowpipe or rod.

The gathering-irons 3 and 4 may be easily detached from the gears 5 and 6 by loosening the set-screws 7 and 8 and the gathering-irons then removed by pulling them out of the gears and casings and gathering-irons of other form and length substituted therefor.

Any other arrangement than that shown by which a number of gathering-irons may be simultaneously revolved and their openings brought in connection with one central blowpipe or rod may be adopted without departing from the spirit of my invention. Where gathering-irons are used for working glass and blowing is not done, the central rod 1^a and the gathering-irons may be solid instead of hollow, as described. The words "central rod" in the claims are intended to cover said central rod whether tubular or solid, and the word "gathering-irons" in the claims is intended to cover such irons whether hollow or solid.

What I claim as my invention is—

1. In a gathering-iron for glass-working, a central rod, a hollow rotatable spindle fitted over the central rod, rotatable gathering-irons supported from the central rod, and operative connection between the hollow spindle and the gathering-irons whereby the said irons may be turned simultaneously by turning the hollow spindle, substantially as described.

2. In a gathering-iron for glass-working, a frame having fixed thereto a central rod, two or more gathering-irons carried by said frame and adapted to be rotated relatively thereto, a hollow rotatable spindle fitted over said central rod, and operative connection between the hollow spindle and the several gathering-irons whereby said irons are rotated simultaneously by turning the hollow spindle, substantially as described.

3. The combination of a frame having two or more tubular gathering-irons carried thereby, each gathering-iron being rotatable upon its own axis, a central tubular rod, suitable connections between the central rod and each of the tubular gathering-irons whereby air blown into the central tubular rod will pass simultaneously out of the tubular gathering-irons, and means for simultaneously rotating the gathering-irons.

4. The combination of a frame, a blowpipe, hollow gathering-irons, and hollow connections between the blowpipe and the gathering-irons to admit air therethrough, substantially as described.

5. The combination of a frame, a blowpipe, rotatable hollow gathering-irons, hollow connections between the blowpipe and the gathering-irons, gears fixed upon the gathering-irons, and a central gear meshing with the gears upon the gathering-irons whereby the gathering-irons are simultaneously rotated by turning the central gear, substantially as described.

6. The combination of a central rod, a rotatable spindle thereon, a central gear on said spindle, gathering-irons, and gears upon the gathering-irons meshing with the central gear, substantially as described.

7. In a gathering-iron for glass-working, a frame having fixed thereto a central rod, two or more rotative gathering-irons carried by said frame, a gear fixed to each of the gathering-irons, a hollow rotatable spindle fitted over the central rod, and a gear fixed to said hollow spindle and meshing with the several gears fixed to the several gathering-irons, substantially as described.

8. In a gathering-iron for glass-working, a frame having fixed thereto a tubular central rod, two or more rotative hollow gathering-irons carried by the frame, pipes making connection between the tubular central rod and the hollow gathering-irons, gears fixed to each of the hollow gathering-irons, a hollow rotatable spindle fitted over the tubular central rod, and a gear fixed to the hollow spindle and meshing with the several gears fixed to the gathering-irons whereby the said gathering-irons may be turned simultaneously by turning the hollow spindle, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

DANA F. RICHARDSON.

Witnesses:
J. A. OSBORNE,
A. M. POLLEY.