

(No Model.)

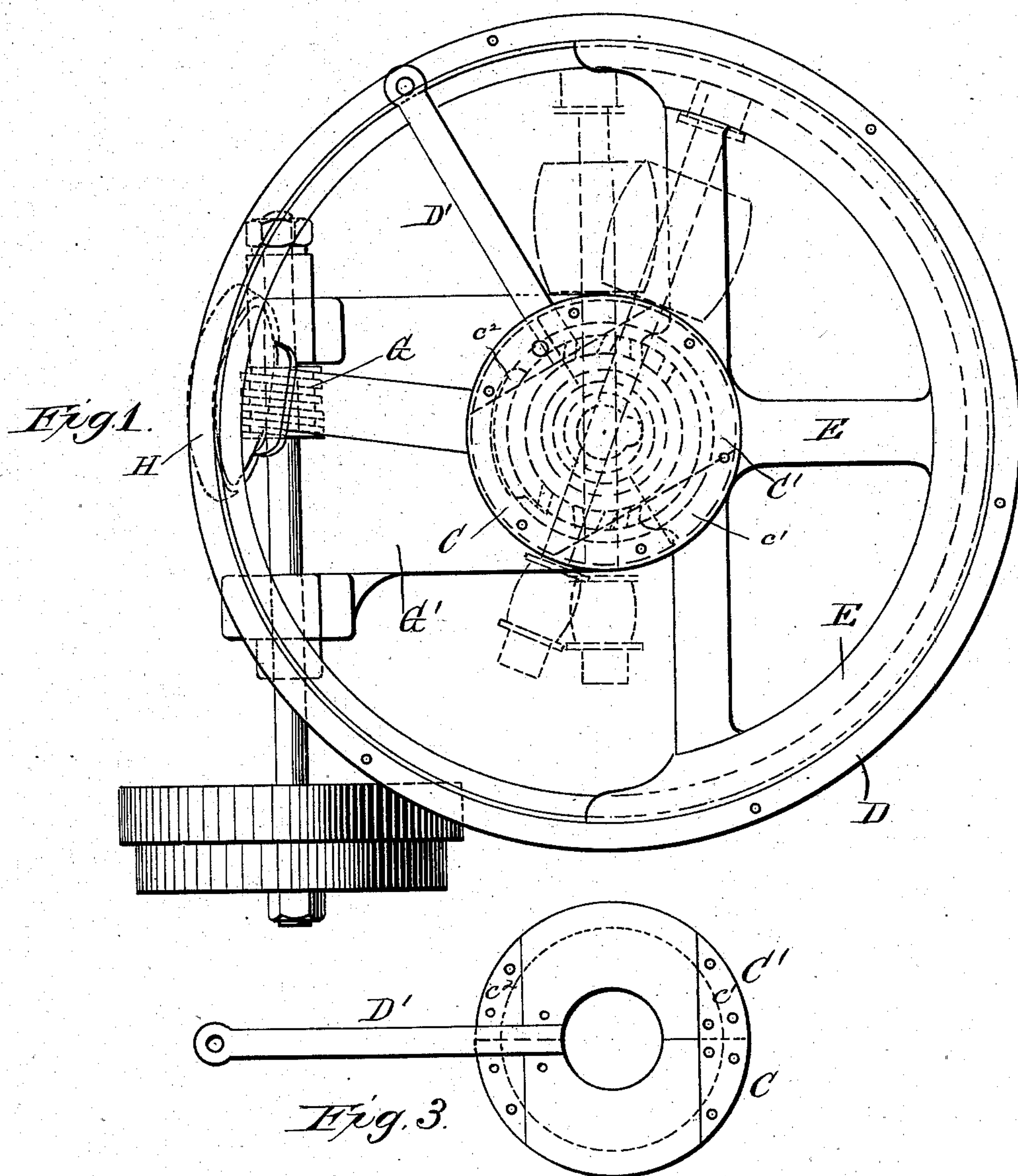
3 Sheets—Sheet 1.

W. H. DOANE & G. W. BUGBEE.

SPOKE THROATING MACHINE.

No. 258,031.

Patented May 16, 1882.



Witnesses.
W. H. Doane
G. W. Bugbee

Inventors
William H. Doane
George W. Bugbee
by their attorney
C. E. Eick

(No Model.)

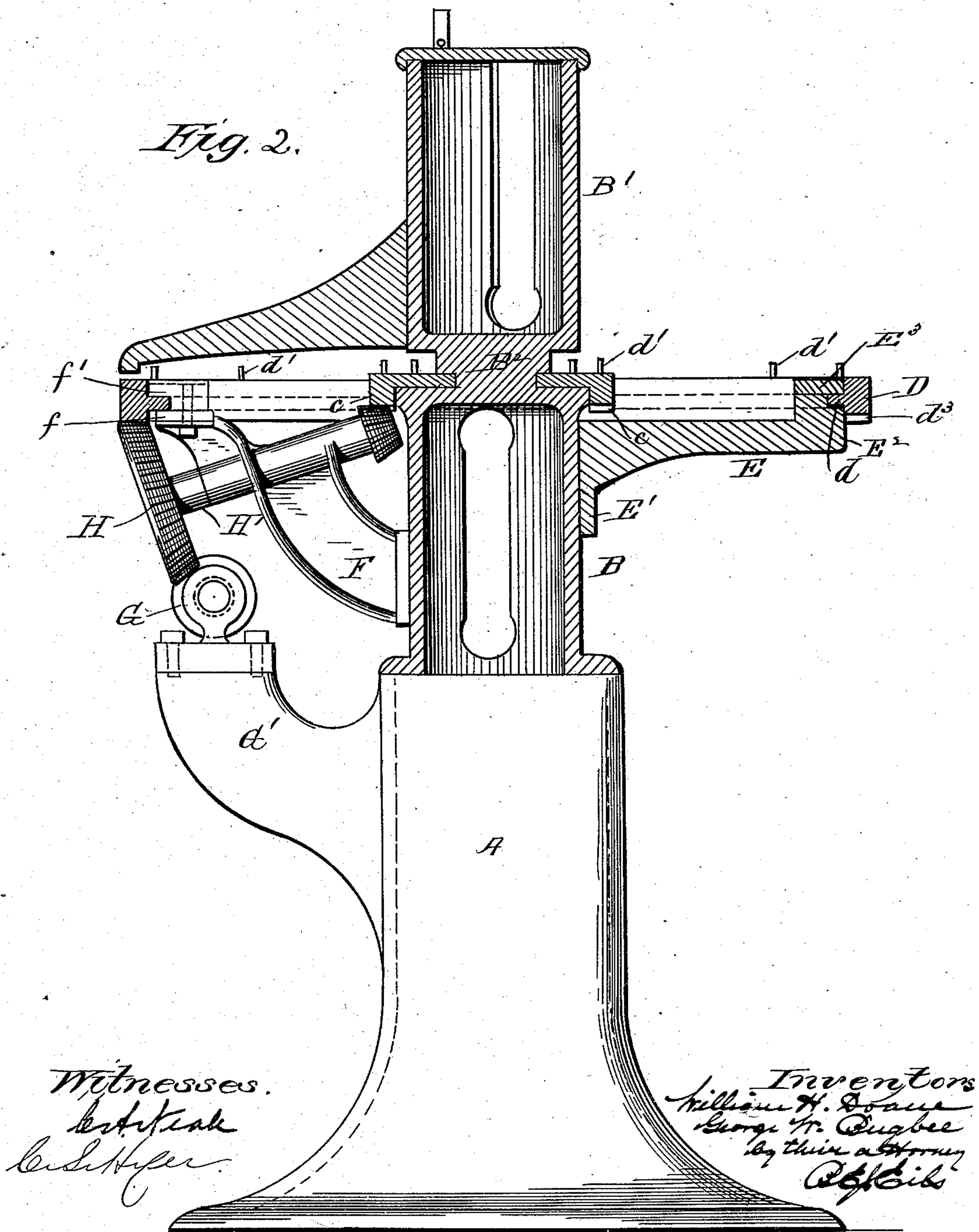
3 Sheets—Sheet 2.

W. H. DOANE & G. W. BUGBEE.

SPOKE THROATING MACHINE.

No. 258,031.

Patented May 16, 1882.



(No Model.)

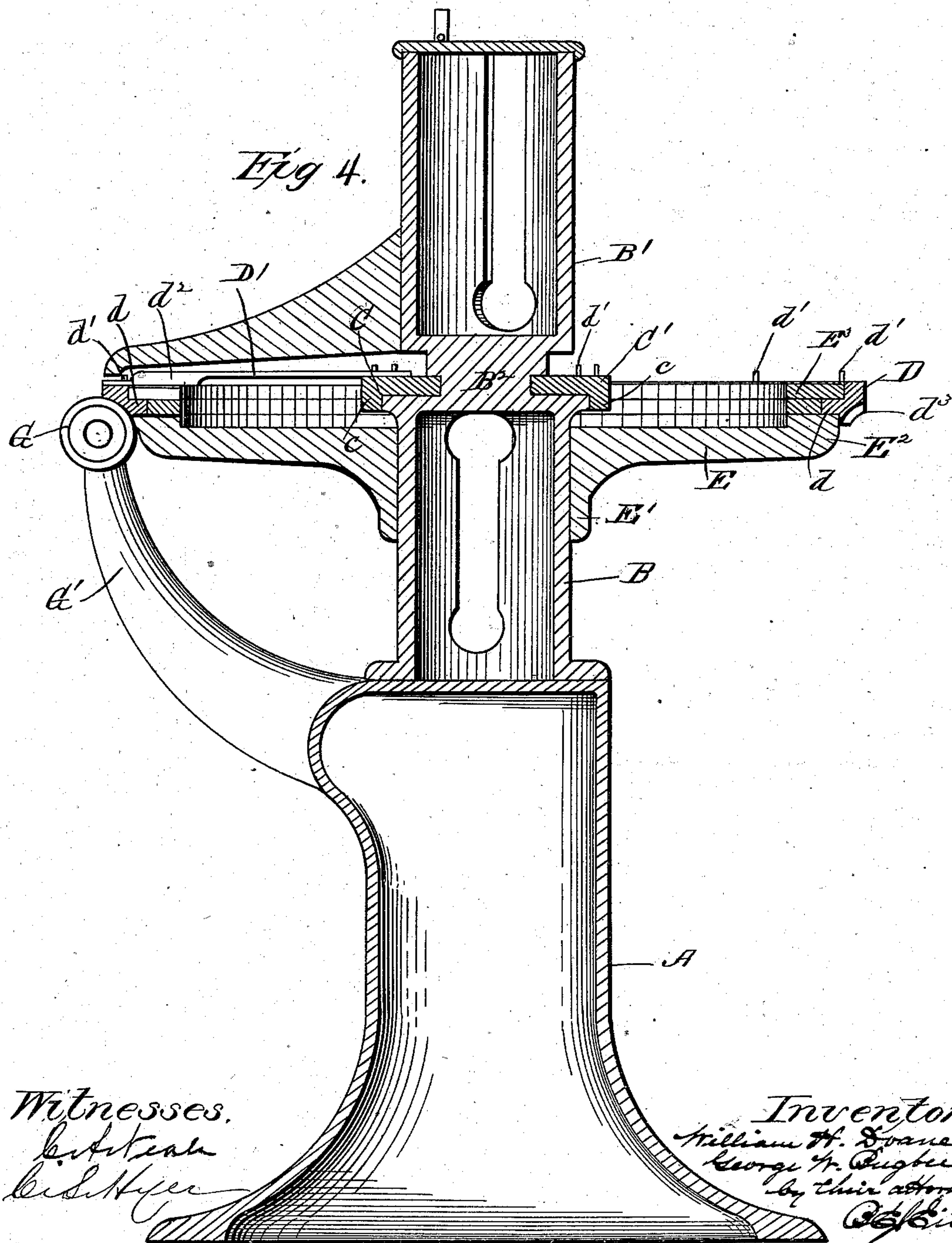
3 Sheets—Sheet 3.

W. H. DOANE & G. W. BUGBEE.

SPOKE THROATING MACHINE.

No. 258,031.

Patented May 16, 1882.



UNITED STATES PATENT OFFICE.

WILLIAM H. DOANE AND GEORGE W. BUGBEE, OF CINCINNATI, OHIO,
ASSIGNORS TO J. A. FAY & CO., OF SAME PLACE.

SPOKE-THROATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 258,031, dated May 16, 1882.

Application filed February 17, 1882. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. DOANE and GEORGE W. BUGBEE, citizens of the United States, and both residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Spoke-Throating Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a machine organized to throat spokes on both sides, without reversal, by means of two rotary cutter-heads supported in oscillatory hangers, which, in the operation of the machine, are automatically oscillated by the spokes to adapt the form of the throats to the cross-sectional contour of the spokes, such a machine, for instance, as is described in United States Letters Patent No. 225,355, granted to W. H. Doane and G. W. Bugbee, March 9, A. D. 1880.

This improvement consists in the combination, with a central housing for the support of the two oscillatory cutter-head hangers, of a horizontally-revolving feed-carriage composed of two concentric rings, the inner one of which is made in sections bolted together after they have been laterally applied to and fitted around that part of the housing on which said inner ring is supported and turns, in consequence of which construction of the inner ring of the rotary feed-carriage the housing can be cast in a single piece.

It further consists in so connecting the rings of the rotary feed-carriage that the inner ring must turn in unison with the outer ring.

It further consists of specially-devised gearing for driving the rotary feed-carriage.

In order that the invention may be clearly understood, we have illustrated in the annexed drawings and will proceed to describe the best embodiment thereof at present known to us.

Figure 1 is a plan view of so much of a machine for throating spokes as will clearly illustrate the improvements stated in the claims at the close of this specification. Fig. 2 is a vertical axial section thereof. Fig. 3 is a plan view of the sectional inner ring and the arm

by which it may be connected to the outer ring of the rotary feed-carriage. Fig. 4 is a vertical axial section, illustrating a modification of the gearing for driving the rotary feed-carriage.

The same letters of reference indicate similar parts in all the figures.

A refers to the bed or column on the top of which the housing is mounted. The housing—a single piece of casting, preferably cylindrical—consists of tubular or hollow trunks B and B', connected by a solid neck, B².

At the top of the lower trunk, B, and in a circular seat around the neck B² of the housing, the inner ring of the circular rotary feed-carriage is fitted and supported. This inner ring is constructed of two semicircular sections, C C', fitting the seat around the neck of the housing, and provided with a downwardly-projecting flange, c, to embrace the top of trunk B. Across the division-line of these sections C C' depressed seats are formed for the reception, after the sections have been fitted around the housing, of the splices c' and c², by which the sections are rigidly joined. When thus applied the splices should be flush with the upper surface of the ring. In lieu of this mode of connecting the sections of the ring other modes—such as scarfing, for instance—may be used.

The outer ring, D, of the rotary feed-carriage is concentric with the inner ring. In this instance it is supported along about one-half of its circumference upon the segmental rim E² of the spider E, the flange E' of which is bolted to the trunk B of the housing. The outer ring, D, is constructed with an inwardly-projecting tongue, d, fitted in a guideway formed by a recess in the rim E², in which the tongue d of said ring is confined by an overlying plate or gib, E³, secured upon the rim E² of the spider. At the side opposite to the spider the tongue d of the outer ring of the rotary feed-carriage moves in a guideway formed by a recess on the top plate, f, of the bracket F and the overlying gib f'. When the inner ring of the feed-carriage is to be driven by the outer ring it is rigidly connected to the outer ring by the arm D', as shown in Figs. 1 and 4.

Each ring is provided with upwardly-projecting pins d' , against which the spokes are placed to be moved along with the feed-carriage, and past the throating cutter-heads.
 5 The arm D' is thinner than an ordinary spoke, but is provided with an enlargement, d^2 , near its outer end for the purpose of separating the oscillatory hangers, so that the knives of the cutter-heads may clear the arm when it passes
 10 through between them.

On the under side, and all around the outer ring, D , beveled cogs d^3 are formed, by means of which the required rotary motion may be imparted to the feed-carriage by a worm, G ,
 15 through the intervention of the bevel-wheel H on shaft H' . The worm is fixed on a horizontal shaft mounted in bearings on a bracket, G' , cast or secured on the column A . The worm-shaft is somewhat nearer the center of the machine than the cogged rim of the outer ring,
 20 D , so that the bevel-wheel H stands on a slant. Its axis is arranged slantingly in a vertical plane parallel to a line intersecting the axis of the worm at the angle of the pitch, as shown
 25 in Fig. 1, so that the teeth of bevel-wheel H may properly mesh with both the worm and the cogged rim of the outer ring of the feed-carriage. The axle of bevel-wheel H is journaled in a bearing on bracket F .

30 The worm-shaft is provided with suitable pulleys for driving it by means of a belt from a counter-shaft or line-shaft.

According to the modification shown in Fig. 4 the rotary feed-carriage is driven directly
 35 by the worm G , suitable teeth being cut on the outer ring of the carriage to that end.

The arm D' may be dispensed with and the inner ring of the feed-carriage driven by a bevel-gear, H^2 , on shaft H' , meshing with bevel-teeth
 40 formed on the under side of the inner ring, all as clearly shown in Fig. 2.

The positions of the respective cutter-heads in the complete machine are indicated by dotted lines in Fig. 1, one being mounted on trunk
 45 B to operate on the under side of the spoke, and the other on the trunk B' to operate on the upper side of the spoke. Pressure-bars adjustably mounted on the upper trunk, B' ,

are also used in the complete machine for holding the spokes firmly down on the rings of the feed-carriage where they pass the cutter-heads.
 50 As we do not propose to make claims in this patent for any features relating to these parts it was deemed unnecessary to illustrate them.

The rim E^2 of the spider for supporting the outer ring of the feed-carriage may be made
 55 an entire ring, and the gib E^3 may also be an entire ring, in which case the plate f and gib f' would fall away.

Having thus described our invention, what
 60 we claim as new is—

1. The circular rotary feed-carriage composed of connected inner and outer rings, the inner ring being made of sections, in combination with the central housing having a neck
 65 to support the inner ring of said carriage, substantially as before set forth.

2. The combination, substantially as before set forth, of the central housing composed of an upper and a lower trunk cast in one piece
 70 with a solid connecting-neck and the circular rotary feed-carriage, of which the inner ring is made of sections laterally applied to and fitted around the solid neck of the housing.

3. The combination, substantially as before set forth, of the circular rotary feed-carriage, the central housing having a neck to support the inner ring of the carriage, the spider for supporting the outer ring thereof, and the gib
 75 for confining said outer ring to a recess in the rim of the spider.

4. The combination, substantially as before set forth, of the inner and outer rings of the circular rotary feed-carriage, the cogs on the outer ring thereof, and the worm for driving
 85 the outer ring through an intermediate bevel-wheel the axis of which lies in a vertical plane parallel to a line intersecting the axis of the worm at the angle of the pitch.

In testimony whereof we affix our signatures
 90 in presence of two witnesses.

WM. H. DOANE.
 GEO. W. BUGBEE.

Witnesses:

A. N. SPENCER,
 SIMEON HARRIS.