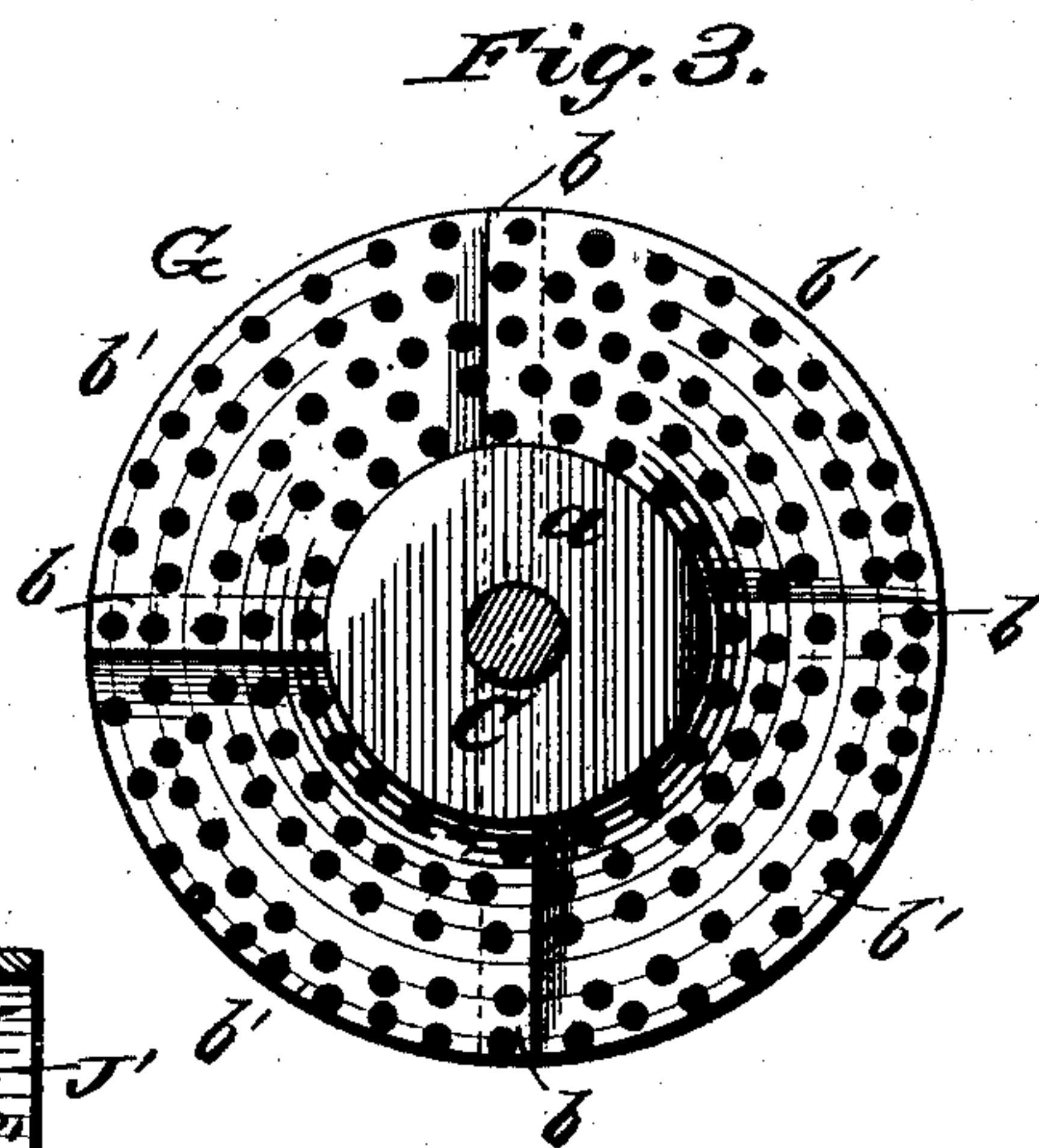
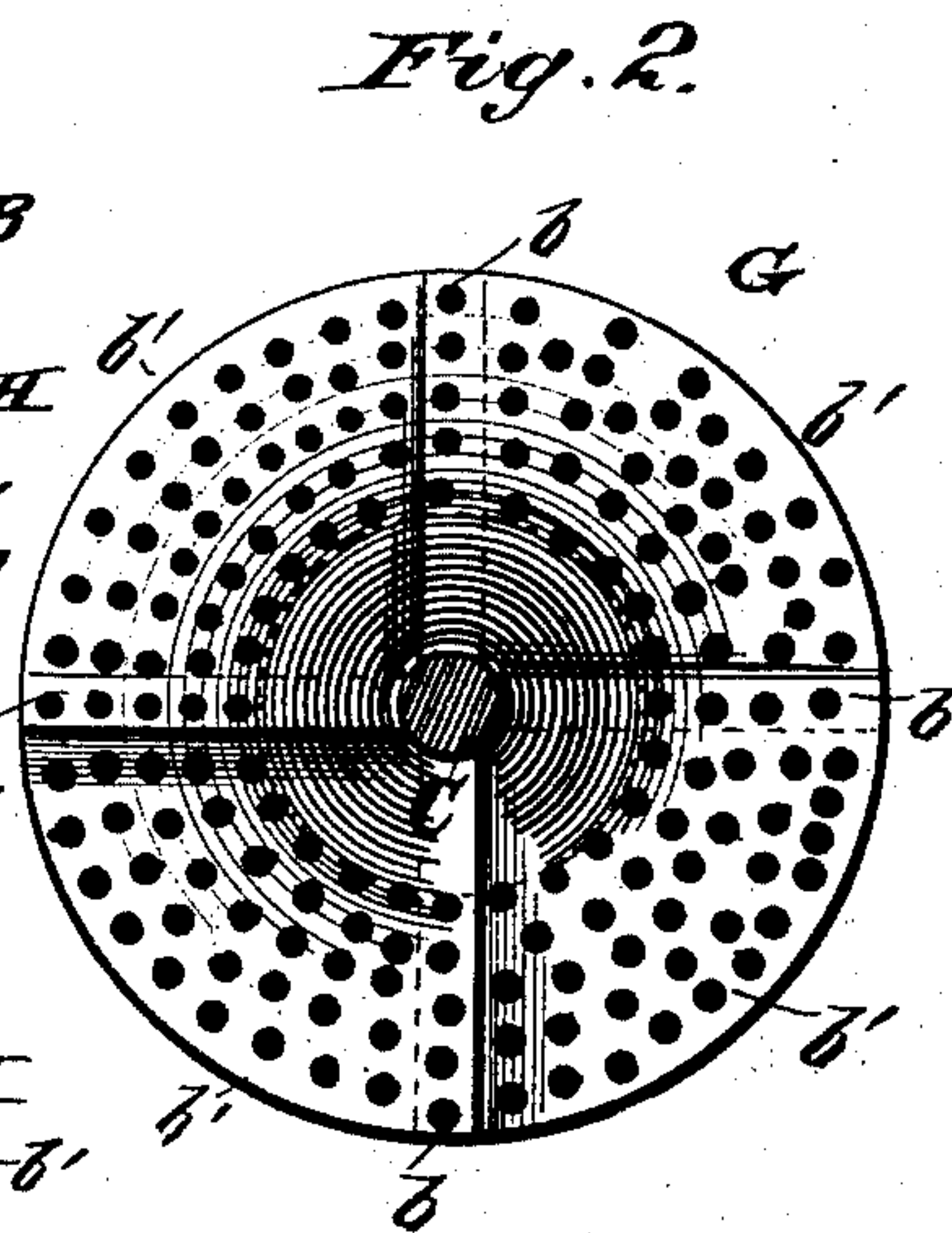
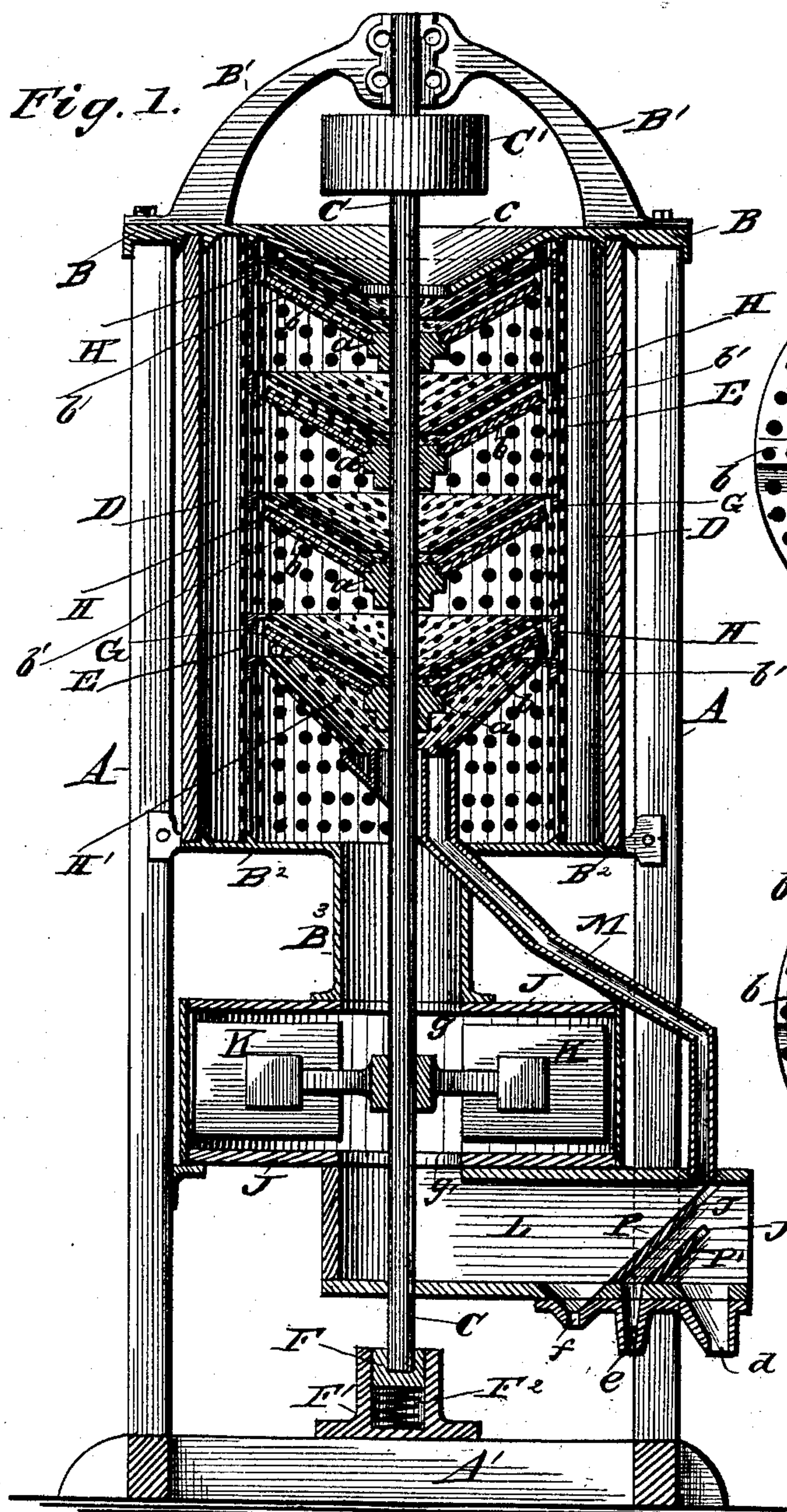


(No Model.)

G. B. GRAY.  
GRAIN SCOURER.

No. 327,390.

Patented Sept. 29, 1885.



WITNESSES

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# UNITED STATES PATENT OFFICE.

GARDNER B. GRAY, OF CARDINGTON, OHIO.

## GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 327,390, dated September 29, 1885.

Application filed March 19, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, GARDNER B. GRAY, of Cardington, in the county of Morrow and State of Ohio, have invented certain new and useful Improvements in Grain-Scourers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a vertical section taken centrally through my improved grain-scouring machine. Fig. 2 is a top view of one of the dished scourers. Fig. 3 is a bottom view of the same.

The invention relates to machines for scouring grain and separating the same from the cheat, dust, and other light impurities; and it consists in the construction and novel arrangement of parts hereinafter described and pointed out in the appended claims.

A A designate the uprights of the main frame of the scourer, which rise from a base, A', and are rigidly bolted to a cast-metal cap, B, having a funnel-shaped hopper, c, formed centrally in it, through which the grain to be treated is fed into the machine. On top of the head B a spider, B', is bolted, which affords the upper journal-bearing for a vertical shaft, C. The lower end of this shaft is stepped upon a block, F, which is free to move up and down, but not to turn, and which is supported upon a spring, F<sup>2</sup>, of metal or rubber, and inclosed in a socket-piece, F', rigidly secured to the base A'. The object of thus supporting the shaft C upon a step which is allowed to yield will hereinafter appear. Near the upper end of shaft C a pulley, C', is keyed to it for receiving a driving-belt.

D designates an imperforated cylindrical case, which may be made of wood or metal, and which is confined between the cap B and a cast-metal base, B<sup>2</sup>, having a central tube, B<sup>3</sup>, which is secured to the top of a fan-case, J, arranged around an opening, g, made through this top.

Inside of the case D, and concentric with it and also with the vertical axis of the shaft C, is a perforated cylindrical shell or jacket, E, which is preferably made of thin sheet steel, the perforations being circular or of any other

suitable shape and of proper size. This shell E is rigidly confined between the cap B and base-plate B<sup>2</sup>, as clearly shown in Fig. 1 of the drawings. To the inner side of this shell E, and arranged at suitable distances apart, are a number of inverted frusta of cones, H, which are preferably made of thin sheet steel and which are rigidly secured by their peripheral edges to the shell E. The lowest frustum, H', is deeper than the others, and is designed for discharging the scoured grain into the upper end of a spout, M, which latter conducts it into a horizontal air-trunk or separator, L, hereinafter described. On the shaft C, just below the central outlets of the several conical frusta H, hubs a are rigidly secured, from which radiate four or more arms, b, which are directed upward so as to be in planes parallel to the said frusta H, as shown in Fig. 1. Upon these arms b are suitably secured sections b', of perforated sheet metal, preferably sheet steel, one edge of one section overlapping the adjacent edge of another section, as shown in Figs. 2 and 3. The arms b of the hubs are riveted to the sections b', between the overlapping edges. These revolving disks G are arranged near enough to the frusta H to thoroughly scour but not break the grain as it is thrown outward by centrifugal force. It will be observed that the rotating scouring-disks G are of less diameter than the stationary frusta or disks H. This is for the purpose of allowing the grain to freely escape from their peripheral edges and to fall upon the next lower disk H, and finally to fall upon the deepest disk, H'.

Inside of the fan-case an exhaust-fan, K, is secured on the shaft C, and below the fan-case and communicating with it by a passage, g', is the separator. This separator consists of a horizontal trunk, L, the outer end of which is open, as shown in Fig. 1, near which end the spout M, above referred to, enters. Inside of the trunk L are two cheat-boards, P P', which are of different lengths and are inclined, as shown in the drawings, and which are adjustable in the inclined grooves J J', respectively, made in the sides of the said trunk. The upper ends of these boards P P' are just within the plane of the flow of grain from the spout M, across the trunk L, into a discharge-spout, d, so that they will not arrest any or



the heavy grain. The shortest board, P', conducts the light grain and some cheat, &c., out through the spout e, and the board P conducts the cheat and other very light foreign matters off through the spout f. The fan carries off the dust from spout L, and also from the interior of the case D and shell E.

The operation of the machine is as follows: The grain is fed into the machine at its top through the opening of the dished portion of the cap B, and successively falls upon the conical frusta H, and is by them fed to the centers of the scourers G, which remove the "end dirt" from the wheat-berry. The spring F<sup>2</sup>, at the lower end of the shaft, causes the scourers G to press the grain gently against the conical frusta H, thus insuring a thorough scouring. The grain, &c., finally passes through the spout M to the trunk L, and in falling across the mouth thereof it is subjected to a strong inflowing air-current which separates the dust, cheat, and light grain from the good grain, as above described.

Having described my invention, what I claim is—

1. In a grain-scourer, the combination of the dished cap B<sup>c</sup>, the base-plate B<sup>2</sup>, having a central tube, B<sup>3</sup>, the fan-casing, the fan, the stationary center discharge, inverted conical frusta, the revolving perforated inverted conical frusta, the perforated shell,

and the imperforate case surrounding the same, substantially as specified.

2. In a grain-scourer, the combination of the stationary and revolving inverted conical frusta with the central discharge dished cap to feed the machine, the base-plate opening centrally into the fan-case, the fan secured to and turning on the shaft to which the revolving frusta are secured, and adapted to draw the impurities out of the case of the machine, and the central discharge-frustum, H', provided with a discharge-spout, M, substantially as specified.

3. The combination of the inverted conical frusta secured to and rotating with the shaft C, and each consisting of a central hub, a, four upwardly-inclined radial arms, b, and four perforated quadrants overlapping at their edges and having the arms b between them, with the stationary center discharge, inverted conical frusta having their outer edges secured to the case of the machine, substantially as specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GARDNER B. GRAY.

Witnesses:

THEO. S. WHITE,  
CLINTON GALLEHER.