

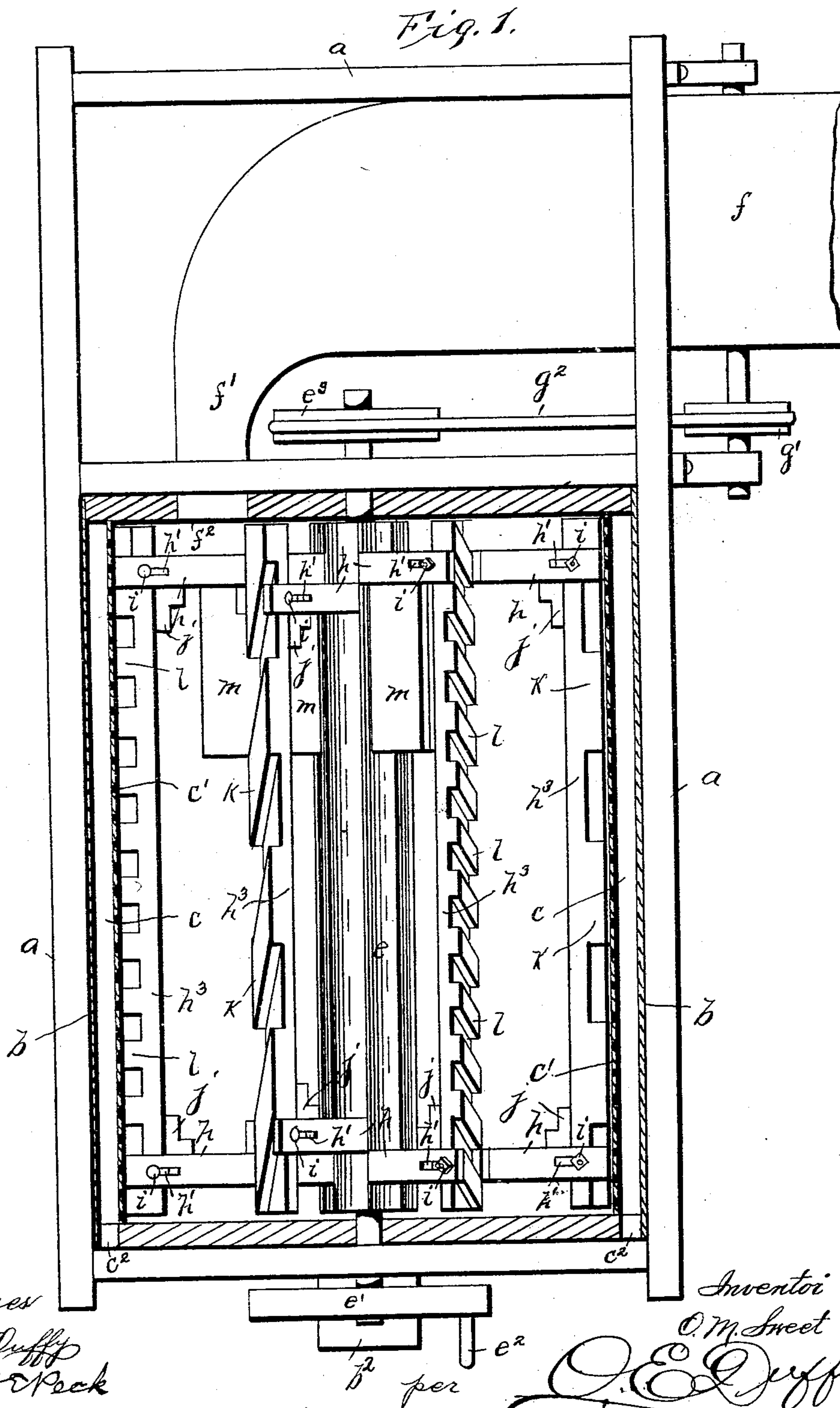
(No Model.)

2 Sheets—Sheet 1.

O. M. SWEET.  
GRAIN CLEANER.

No. 551,238.

Patented Dec. 10, 1895.



(No Model.)

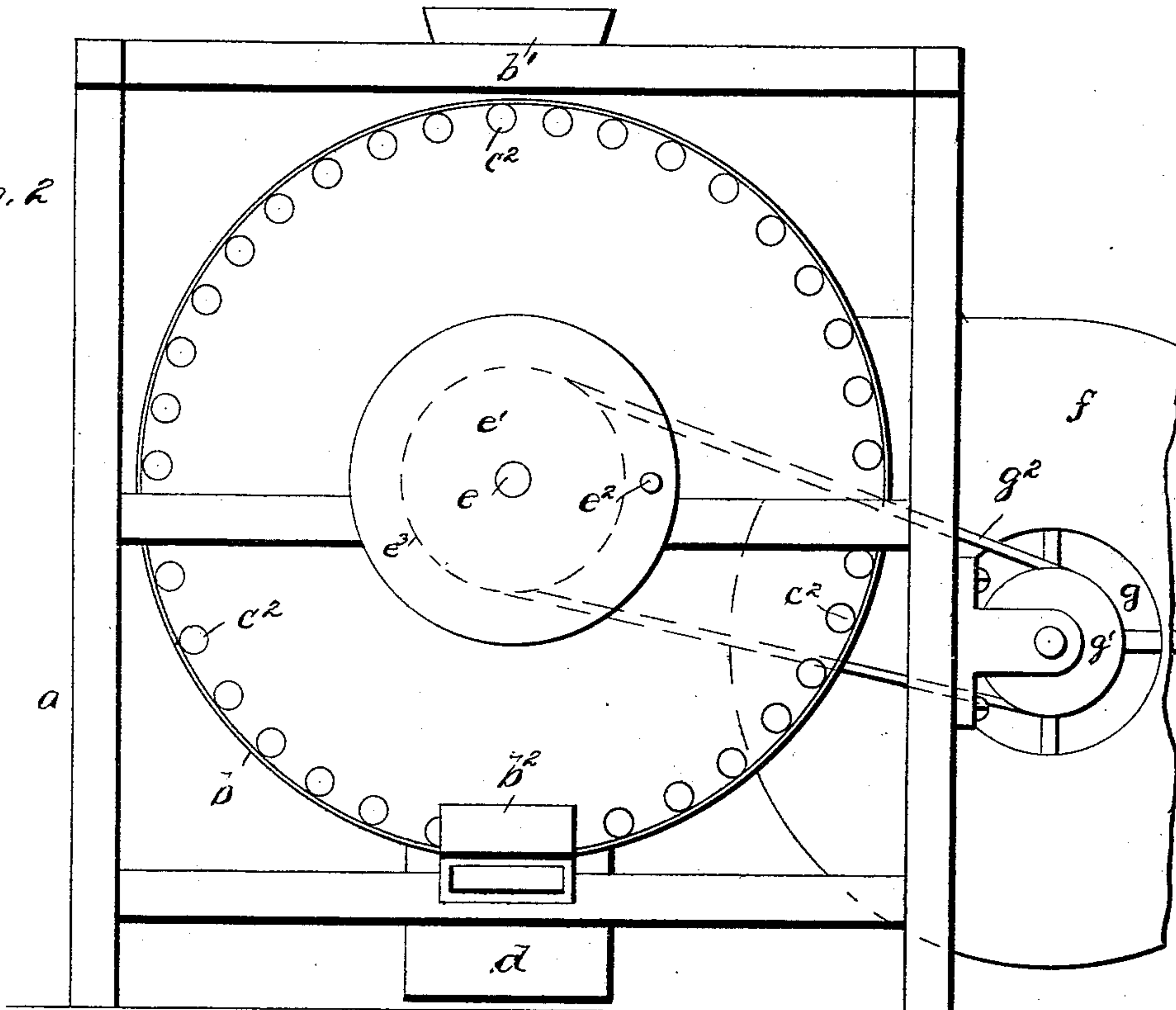
2 Sheets—Sheet 2.

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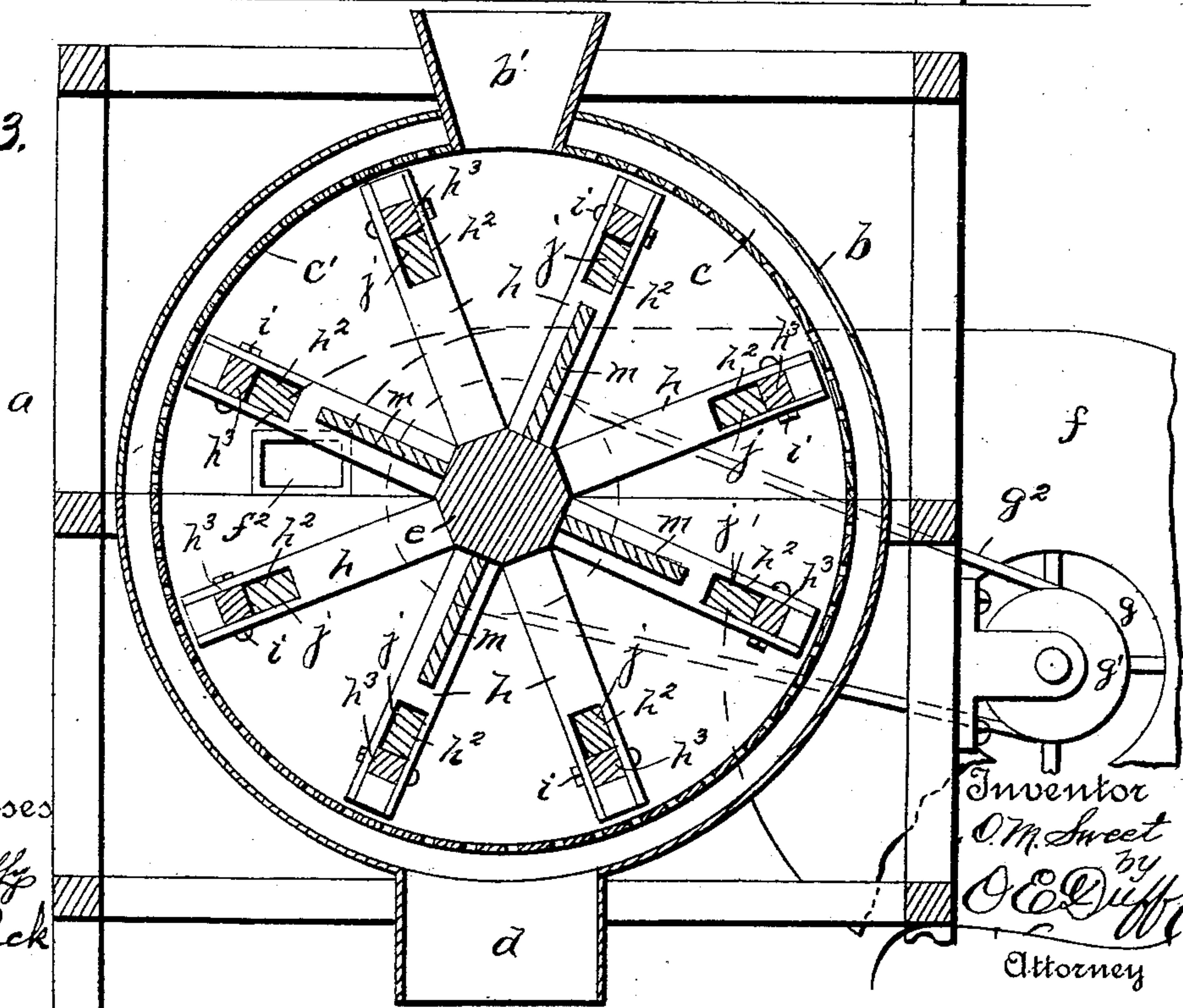
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*Fig. 2*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

ORANGE M. SWEET, OF SILVER CREEK, NEW YORK.

## GRAIN-CLEANER.

SPECIFICATION forming part of Letters Patent No. 551,238, dated December 10, 1895.

Application filed July 25, 1895. Serial No. 557,152. (No model.)

*To all whom it may concern:*

Be it known that I, ORANGE M. SWEET, of Silver Creek, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Grain-Cleaners; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in grain scourers and separators.

The object of the invention is to provide an improved machine for cleaning grain and separating foreign materials and seeds therefrom, which shall be exceedingly efficient in action, and simple and very durable in construction.

A further object of the invention is to provide certain improvements in details of construction and arrangements of parts whereby a highly efficient and advantageous grain-cleaner is produced.

The invention consists in certain novel features of construction and in combinations and arrangements of parts more fully and particularly pointed out and described hereinafter.

Referring to the accompanying drawings, Figure 1 is a top plan of the machine with the upper half of the cylinder removed. Fig. 2 is a rear end elevation. Fig. 3 is a cross-section.

In the drawings, *a* is the main supporting-frame of the machine constructed in any ordinary or suitable manner, usually of uprights and side beams or sills.

*b* is a horizontally-disposed cylindrical casing arranged longitudinally in the frame and supported thereby a distance above the ground or floor. At the top of one end this casing has the feed-opening and hopper *b'* to receive the grain to be cleaned. At the bottom of its opposite end the casing has the cleaned grain discharge-pipe *b''*. This casing has a surrounding air-space *c*, formed by the inner perforated wall *c'*, secured to the heads of the casing in a suitable manner. This air-space is closed at its front or feed end of the casing, and at the tail end has the

plurality of dust and air discharge openings *c''* through the rear casing-head. At its under side the casing has the inclined discharge *d* from the air-space for the dust and foreign seeds passing through the perforated wall.

*e* is a shaft passing centrally and longitudinally through the casing and journaled in suitable bearings carried by the frame. This shaft is provided with suitable driving means, as a pulley *e'* or a handle *e''*, at its rear end, and its front end is provided with a driving-pulley *e'''* at the exterior of the front end of the casing.

*f* is a fan-casing arranged, usually, at one side of the front end of the frame, with the air-duct *f'* extended transversely of the frame and then longitudinally thereof, with the discharge-nozzle *f''* opening through the front head of the casing at one side of the center thereof and so as to direct the air-blast longitudinally through the interior of the casing. A fan *g* is arranged in the casing, with a pulley *g'* on its shaft connected by belt *g''* with the pulley *e'''*, so that the fan is driven from shaft *e*.

The shaft *e*, within the casing, carries suitable grain distributing, scattering and agitating devices arranged to scatter the grain transversely across and through said blast and to work and spread the grain back and forth over the perforated interior lining or wall of the casing. To this end the shaft usually has radial arms *h* within the casing, having longitudinal slots *h'* through the longitudinally-bifurcated outer ends *h''*.

*h'''* are bars fitted longitudinally in the bifurcated outer ends of these arms and capable of radial adjustment in said arms by means of nuts and bolts *i*, through the bars and slots *h'*, or by means of any other suitable clamping means so that the bars can be adjusted toward or from the inner surface of the casing—the perforated lining in the present instance.

*j* are gage blocks or stops removably arranged between the bars and the inner ends of the bifurcations in the radial arms and each provided with differently-graduated steps or stops, so that in adjusting the bars the bars will be held at all parts at the same distances from the shaft *e*, by resting against said gage-blocks. These bars *h* extend longitudinally



of and approximately throughout the interior length of the casing, and on their longitudinal outer edges have blocks or projections  $k$  with inclined edges arranged to throw the grain on the perforated lining longitudinally of the casing. Every alternate bar has the inclined blocks  $k$ , with their edges, to throw the grain toward the front end of the casing, while the intervening bars have the projections  $l$ , with their edges inclined toward the tail end of the casing. There are preferably a greater number of the inclined projections  $l$ , which move the grain toward the tail of the casing, than there are projections  $k$ , which move the grain toward the front, so that the grain is gradually fed through the casing to the tail-end discharge after being alternately thrown forwardly and rearwardly over the perforated lining, so that the dust and cockle-seed, &c., mixed therewith is thoroughly separated and dropped through the perforated lining. The adjustment permits movement of the bars with their inclined conveyers toward and from the perforated lining when acting on grain-kernels of different sizes.

The front end of the shaft  $e$  has the radial wings  $m$ , arranged beneath the feed-opening into the casing and beside the blast-nozzle, so that the grain falling into the casing strikes said wings and is thrown and scattered thereby through the blast of air entering the casing, so as to separate the light particles as the grain falls through the blast to the bottom of the casing. The air has to pass through the perforated casing in seeking its outlet at the rear and thus carries the dust, &c., foreign to the grain, into the surrounding air-chamber and effectually separates it from the grain, which leaves the casing thoroughly scoured and cleaned.

It is evident that various slight changes might be made in the forms, constructions, and arrangements of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the exact construction herein set forth, but consider myself entitled to all such changes as fall within the spirit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of a frame, a casing therein having end heads, a perforated cylindrical lining within the casing and between the heads, air outlet openings in the rear head into the space between the casing and lining,

a grain inlet through the upper part of the casing and lining at the front end thereof, an air forcer having a discharge nozzle through the front head within the circle of the lining, and a rotary reel within the lining having conveyers to rub and move the grain over the surface of the lining and wings, such as  $m$ , beneath the grain inlet to scatter the grain across the incoming air blast, substantially as described.

2. In a grain separator the combination of a casing having air outlets, having a cylindrical perforated lining therein, and a top grain inlet, a blast fan having its discharge nozzle into the lining beneath the plane of the grain inlet, and a rotary reel within the lining formed to move the grain thereon and having wings arranged beneath the grain inlet to scatter the grain across the intruding air blast, substantially as described.

3. In a grain separator, the combination of a perforated casing, a rotary reel therein comprising radial arms, longitudinal end bars secured to said arms, clamping means, substantially as described securing said bars to the arms to permit adjustment of the bars toward and from the surface of the casing and securing of the bars in the desired positions, each bar having a series of rigid inclined conveyer projections at its outer edge, all the projections of a bar inclined in the same direction, the projections of alternate bars being inclined in the opposite direction to those of intervening bars, and the projections feeding toward the tail of the casing being greater in number than those feeding in the opposite direction, substantially as described.

4. In a grain separator, the combination of a casing, and a rotary reel therein having the radial arms bifurcated at their outer ends with slots through the legs formed by the bifurcations, the longitudinal bars fitted and radially adjustable in said bifurcations, clamping bolts passing through the bars and said slots to lock the bars in the desired adjustment, gages to hold both ends of each bar in the proper position, and the inclined conveyer projections on the outer edges of the bars, substantially as described.

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

ORANGE M. SWEET.

Witnesses:

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EDGAR TOPP.