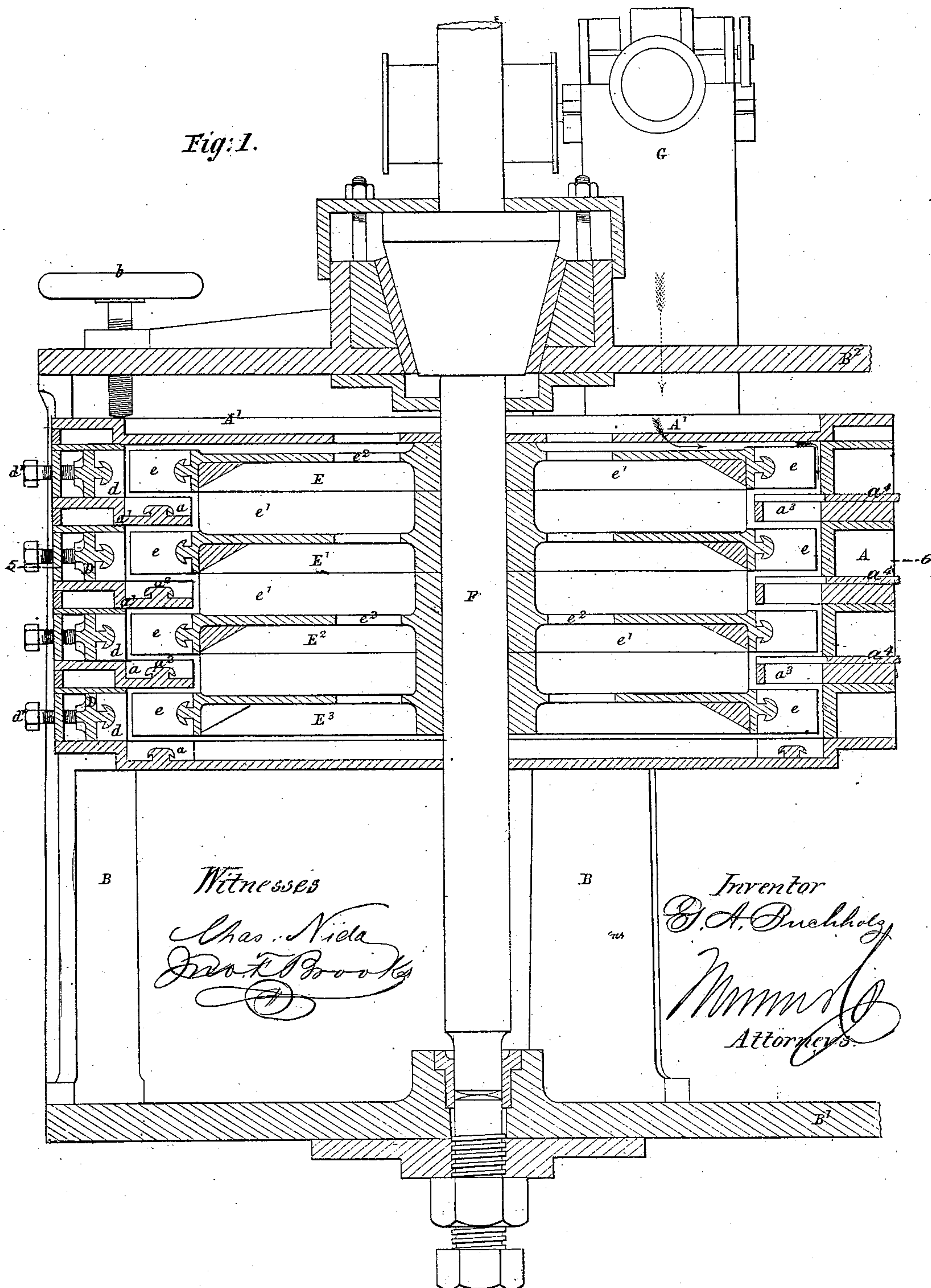


G. A. BUCHHOLZ.

Hulling Machine.

No. 97,039.

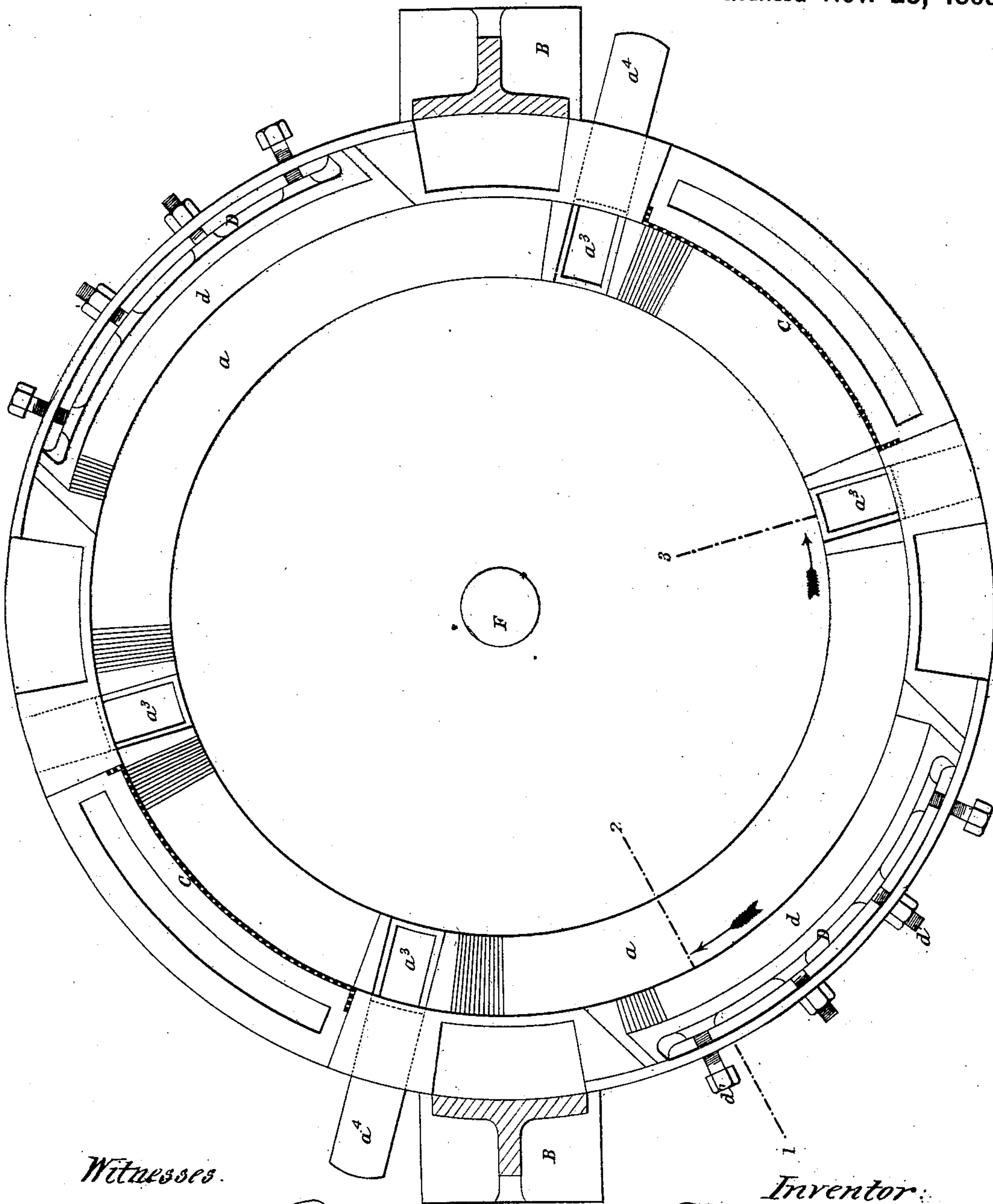
Patented Nov. 23, 1869.



Hulling Machine.

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Witnesses.

Chas. Nida
Jno. P. Brooks

Inventor:

Wm. C. Buckholz
Attorneys

G. A. BUCHHOLZ.

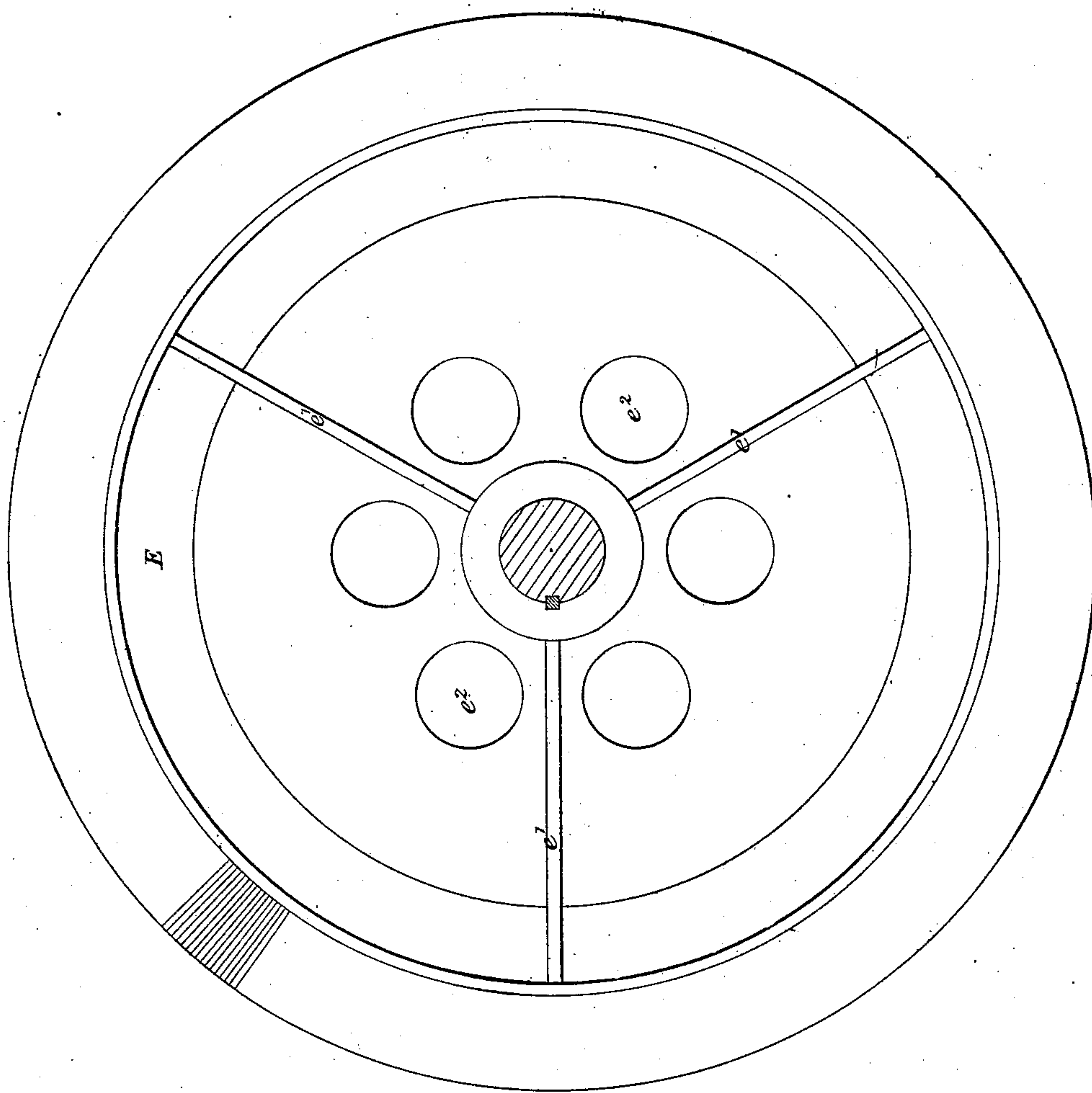
Hulling Machine.

3 Sheets—Sheet 3.

No. 97,039.

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Fig: 3.



Witnesses.

Chas. Nida
Wm. F. Brooks

Inventor:

G. A. Buchholz
for
Wm. F. Brooks
Attorneys.

United States Patent Office.

GUSTAV A. BUCHHOLZ, OF SHEPHERD'S BUSH, ENGLAND.

Letters Patent No. 97,039, dated November 23, 1869; patented in England, August 12, 1868.

IMPROVEMENT IN HULLING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GUSTAV A. BUCHHOLZ, of Shepherd's Bush, county of Middlesex, England, have invented a new and useful Improvement in Hulling-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements upon the hulling-machine for which I have applied for Letters Patent, in application (No. 1) filed simultaneously with this, the objects being to economize the power required to work the machine, to reduce the cost of its construction, and to render it less liable to derangement than heretofore.

The hulling-machine consists of a cylindrical case, fitted at its opposite sides with panels of wire gauze or pierced metal, to facilitate ventilation within; and armed on its inner periphery, at the parts not occupied by the panels, with sets of steel blades fixed radially in segmental groups.

Within the cylindrical case is mounted a series of drums, (say four, the number preferred for ordinary working,) which is keyed upon a central rotating shaft.

These drums are armed on their peripheries with blades made like those on the case of flat steel plates.

The drums are cast with radial wings extending from the boss to the periphery, and holes are formed through the drums to allow of a down draught being created and distributed through the case by the wings as the drums are rotated.

The drums, instead of being enclosed, as heretofore, in separate cylindrical chambers, have interposed between them horizontal rebated ring-plates, which form part of the case.

These ring-plates, and also the bottom plate of the case, are cast with annular flanged projections, which are intended to receive steel blades rebated at the back to fit the flanged projections.

In the accompanying drawings—

Figure 1, Sheet I, represents an irregular sectional elevation of the improved hulling-machine, the left-hand side of the figure being taken in the line 1 2, and the right-hand side in the line 3 4 of the sectional plan view.

Figure 2, Sheet II, the sectional plan is taken in the line 5 6 of fig. 1.

Similar letters of reference indicate corresponding parts.

The hulling-machine consists of a vertical cylindrical case, of cast-iron, A, supported on cast-iron standards B B, which are bolted at foot to a bed-plate, B¹, and at top to a strong cast-iron head-plate, B².

The bed-plate is cast with a foot-bearing to receive the central shaft of the machine, and the head-plate is also provided with a bearing for that shaft.

The cylindrical case A is composed of several castings, piled one above the other, and held fast between the standards by means of binding-screws *b b*, which pass down through tapped holes in the head-plate B².

The drawing shows four of these castings, 1, 2, 3, 4, but less or more may be used, if thought desirable.

These castings form separate sections of the hulling-machine, and they are each intended to receive a rotary drum armed with blades, as will be presently explained.

The lowest casting 4 of the series has a closed bottom, but all the others have a central opening about equal in diameter to that of the drum-casting.

The case is covered at top by a plate, A', which has openings made in it to allow of the grain being fed into the case, and also of air entering freely therein.

The case is fitted at its opposite sides with panels of wire gauze or pierced metal, C C, to facilitate ventilation within, and the sections 1, 2, 3, 4, are armed on their inner periphery, at the parts not occupied by the panels, with sets of steel blades, *d*, fixed radially in adjustable segmental plates D, in the manner hereinafter described; and similarly, the bottoms of these sections are fitted with radial blades *a*.

E E¹ E² E³ is a series of drums, (four being the number preferred for ordinary working,) armed at their periphery with radial blades *e*.

These drums are keyed upon a central vertical shaft, F, and are cast (see the inverted plan view of one of these drums detached at Figure 3, Sheet III,) with radial wings *e¹ e¹* extending from the boss to the periphery and on opposite sides of the disk, which serve as arms to the drum.

In the topmost drum E, the upper set of wings is wanting, and, in all the disks, holes *e²* are formed to allow of a down draught being created and distributed through the case by the wings as the drums are rotated.

The drums, it will be seen, are not severally enclosed in their respective cylindrical chambers, but there are simply interposed between them the horizontal flanges *a¹*, forming the bottoms of the sections, and serving to carry the blades *a*.

This arrangement avoids a considerable amount of unnecessary friction as compared with my former hulling-machine; and besides this, the upper compartments are effectually prevented from being choked by an over-supply of grain, for the tendency, when the supply is in excess, is for the grain to escape into the compartment below, by passing over the edge of the flange, or ring-plate, as well as through the proper discharge-opening, notwithstanding the counteracting

tendency created by the centrifugal action of the drums upon the grain.

These horizontal flanges a^1 , and also the bottom plate of the case, are cast with annular projections, a^2 , which are round-headed in cross-section, and are undercut to receive the steel blades a , and hold them firmly in position, the blades being rebated at the back, to fit the flanged annular projections.

Between every two blades a filling-piece, of cardboard or other suitable material, is interposed, so that the square working-edges of the adjacent blades may stand apart.

The continuity of the stationary rings of blades a , thus formed, is broken by openings a^3 , (see fig. 2,) made in the ring-plates or flanges; to allow for the discharge of the grain to the section immediately below.

The discharge-openings are fitted with sliding shutters a^4 , the closing or opening of which will, by regulating the rate of discharge of the grain from section to section, determine the duration or amount of action of the blades upon the grain.

I have stated that the blades with which the inner periphery of the case is armed, are fitted to segment-plates D.

These plates fit into openings made in the sides of the case to receive them, and they are adjustable, by means of screws and nuts d' , to advance the blades to their work as they wear away, and retain them in position.

Upon the face of these segment-plates are cast flanged ribs (similar to those on the horizontal flanges and bottom of the case) to receive the blades d , which are rebated at back to admit of their being strung on and brought into position.

The like arrangement is also adopted in the fixing of the blades in the periphery of the drums, cross-cuts being made in the ribs to allow of the blades being brought to a proper position for being slid sideways on to the ribs.

It should be stated that the blades of the horizontal flanges a^1 , and of the bottom plate of the lowest section of the cylinder A, lie immediately under the blades of the drums, and extend only as far inward as the drum-blades, and that the lower horizontal edges of the blades e , as well as these vertical edges, are used to act upon the grain.

The central shaft F revolves in a conical bearing carried by the head-plate B², and its lower end is supported in a foot-bearing by an-adjustable steel screw-plug.

G is a hopper, fitted with adjustable slides, and

mounted on the head-plate A¹, for supplying the machine with grain, which falls in the direction of the arrows, fig. 1, into the case A.

By means of the tightening-screws b that bear upon the head-plate of the case, the several sections forming the case A are held firmly together.

Rotary motion being communicated to the shaft F, and a supply of grain admitted to the case, the grain will be carried round by the top drum E, and subjected to the action of the blades a & e , (whereby the hull or outer skin of the grain will be partially removed,) until it escapes through one or other of the openings a^3 into the section of the case next below the top drum.

Here the grain will, in like manner, be subjected to the action of a second set of rotating and fixed blades, and escaping therefrom by other and similar openings a^3 , (fitted with slides, as before stated, for regulating the passage of the grain,) it will pass under the action of the third set of blades, and finally will be acted upon by the blades in the last section, from which it will escape, together with the bran, by two openings fitted with regulating-slides in the bottom of the case A, into a suitable receptacle.

During the hulling of the grain throughout its downward passage, currents of air will follow it, drawn in by the action of the wings e' of the rotating drums, the tendency of which currents will be to carry off the dust created by the action of the blades upon the grain, and discharge the same through the pierced or wire-gauze panels C.

The grain, as it leaves the hulling-machine, is to be separated from the bran by subjecting the grain to the action of a dressing-machine of the ordinary construction.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

The combination of a series of radial rotating blades, e , and a series of corresponding stationary blades, d & a , arranged as set forth, with ring-plates, having discharge-holes a^3 therein, each set of said hulling-tools being located one above another, and operating successively upon the grain, in the manner described.

The above specification signed by me, this 12th day of July, 1869.

G. A. BUCHHOLZ.

Witnesses:

FRED. WALKDEN,
66 Chancery Lane, London.

DAN. FORSHAW,
24 Royal Exchange, London.