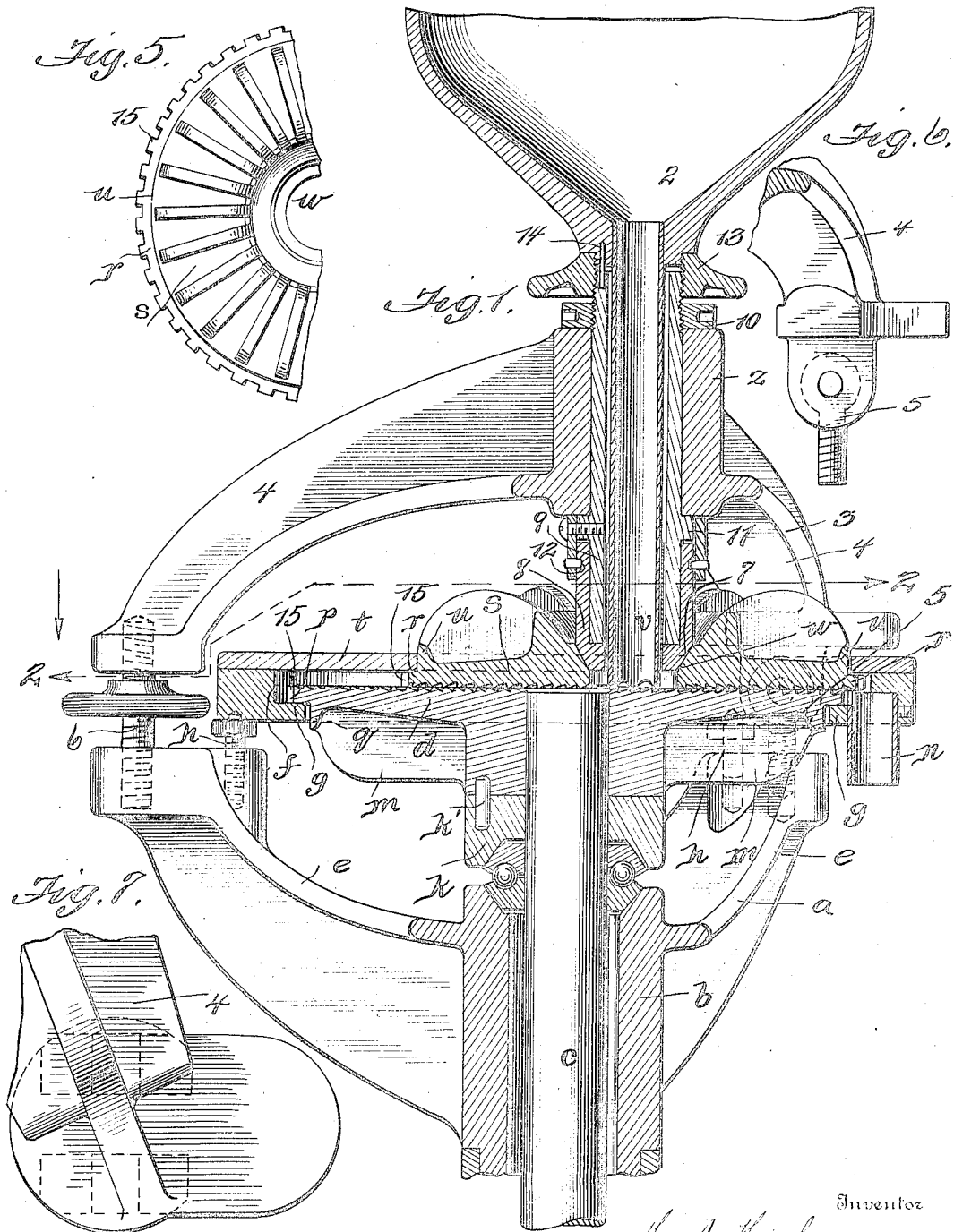


H. A. HIGBEE.
GRINDING MACHINE.
APPLICATION FILED FEB. 12, 1906.

1,057,427.

Patented Apr. 1, 1913.

2 SHEETS—SHEET 1.



Witnesses

R. A. Brownell
George M. Anderson

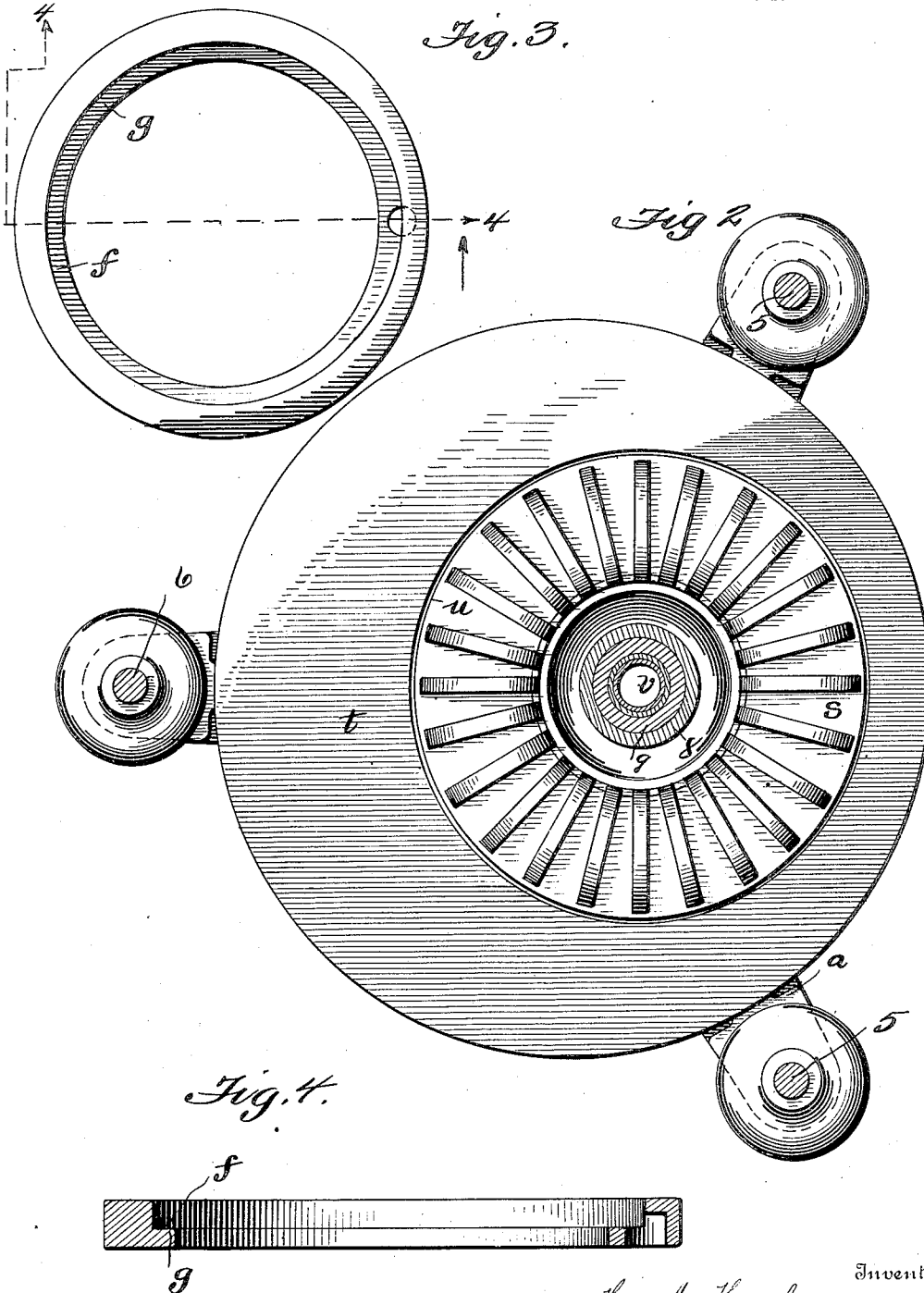
By

C. W. Anderson

per

Attorney

1,057,427.



Witnesses
R. A. Bissell.
George M. Anderson.

H. A. Higbee Inventor

By *E. W. Anderson*
 Attorney

UNITED STATES PATENT OFFICE.

HARRIET A. HIGBEE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO HENRY D. PERKY, OF NIAGARA FALLS, NEW YORK; LABAN SPARKS ADMINISTRATOR OF SAID PERKY, DECEASED.

GRINDING-MACHINE.

1,057,427.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed February 12, 1906. Serial No. 300,739.

all whom it may concern:

Be it known that I, HARRIET A. HIGBEE, a citizen of the United States, and resident of Worcester, in the county of Worcester and State of Massachusetts, have made a certain new and useful Invention in Grinding-Machines; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1, is a central vertical section. Fig. 2, is a horizontal section. Fig. 3, is a top view of the race way. Fig. 4, is a sectional view of the same. Fig. 5, is partial top view of upper grinding plate. Fig. 6, is a detail of hinge. Fig. 7, is a detail of frame arm.

The invention has relation to grinding machines, chiefly designed for the purpose of reducing grain, and the invention consists in the novel construction and combinations of parts as hereinafter set forth.

In the accompanying drawings illustrating the invention, the letter *a*, designates the lower or main supporting frame, having a vertical central bearing *b*, for the shaft *c*, of the lower grinding disk or plate *d*. This portion of the frame is also provided with arms *e*, having threaded bearings for the reception of adjusting and leveling screws.

A race-way *f*, of annular form, and having an inner annular bearing flange *g*, is supported by the leveling screws *h*, of the arms of the main frame, said screws having, at their upper ends, axial lugs which engage bearings of the race-way, and prevent it from turning.

The lower grinding plate is of flat or disk form, and is provided with a strong hub portion which is supported by the collar *k*, secured to the upper end of the main shaft, and connected thereto by the dowel pin at *k'*. Interspaced radial fins *m*, are disposed around the bottom of this grinding plate, and serve to set up a circulation of air, when the plate is rotating, this serving to aid in keeping the plate cool. The dress of this plate is radial, and is designed to dis-

charge at the perimeter, the discharge tube *n*, being connected to the race way. This grinding plate is provided with an annular peripheral discharging portion *p*, which moves over the guard flange *q*, of the race-way; and with a guide flange *q*, which directs the current of air under said guard flange. The race-way is provided with a cover *t*, having an eccentric opening for the reception of the top of the upper grinding disk or plate *s*, which is provided with a peripheral guard portion *r*, and an annular guide flange *u*, designed to move near the marginal portion of the eccentric opening of the cover *t*.

The upper grinding plate is provided with a central eye *w*, and a feed tube *v*, extends upward therefrom, and is connected to the hopper 2. The axial center of the upper grinding plate is therefore eccentric to that of the lower grinding plate. The upper portion of the frame which supports the hopper and fixes the position of the feed tube and upper grinding plate is indicated at 3. It is provided with arms 4, which correspond to the arms *e*, of the main frame, and serve to receive the upper ends of the adjusting screws. Usually, however, I prefer to utilize two of these screws as hinge screws, indicated at 5, as one screw 6, having its upper and lower ends provided with threads of opposite inclination, will serve all purposes of adjustment.

The eye of the upper grinding plate is provided with a bevel bearing 7, to engage in a frictional manner the beveled lower end of the bearing socket 8, in which is received the lower end of the tube shaft 9, which bears in the hub *z*, of the upper frame, and is supported in position thereon by means of the nut 10. Below the hub, the tube shaft 9, is provided with a collar 11, which takes the thrust of the grinding plate through the bearing socket 8. The latter is provided with an annular groove 12, to engage a holding pin connected to the tube shaft, and serving to prevent the bearing socket from falling off the tube shaft, when the grinding plate is removed, and allowing the oil to escape.

The upper end of the tube shaft is threaded to engage an adjusting nut 13, which bears against the hopper, and serves to raise

or lower the same in adjusting the feed. A guide pin 14, is placed in engagement with the tube shaft and hopper to prevent relative rotation.

- 5 In the operation of this mill, the lower grinding plate is positively rotated by means of its central shaft and suitable gearing in connection therewith. At the same time the upper eccentric grinding plate to which the lower grinding plate is adjusted
10 by means of the raceway turns slowly under the grinding pressure, its rotation being eccentric to that of the lower grinding plate. The diameter of the upper plate, in the construction shown, is less than that of the
15 lower plate, the difference being a little less than the eccentricity, so that the upper plate will have a slight over lap, whereby the grinding surface is extended without enlarging the lower plate. The edges of these
20 grinding plates are usually provided with corrugations or teeth, as at 15, in order to move and gather under the centrifugal action any particles of grain which may fall
25 on the bearing flange of the race way, between said edges and the wall thereof.

Having described the invention what I

claim, and desire to secure by Letters Patent is:

1. In a grinding machine having an upper adjustable frame-portion, the combination with a peripheral-discharge lower grinding plate, of an eccentrically mounted upper grinding plate, a raceway engaging the circumferential portion of the lower grinding plate, a cover for said raceway having an eccentric opening for the upper grinding plate, and means for adjusting the raceway.

2. In a grinding machine, the combination with a two-part frame, a peripheral-discharge grinding plate, its operating shaft, an upper eccentrically mounted grinding plate and its axial tubular shaft, of an adjustable feed-tube, a raceway engaging the peripheral-discharge grinding plate, means of adjustment for said raceway, and a raceway cover having an eccentric opening.

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

HARRIET A. HIGBEE.

Witnesses:

WM. C. BREED,
MARY A. CAREY.