

(No Model.)

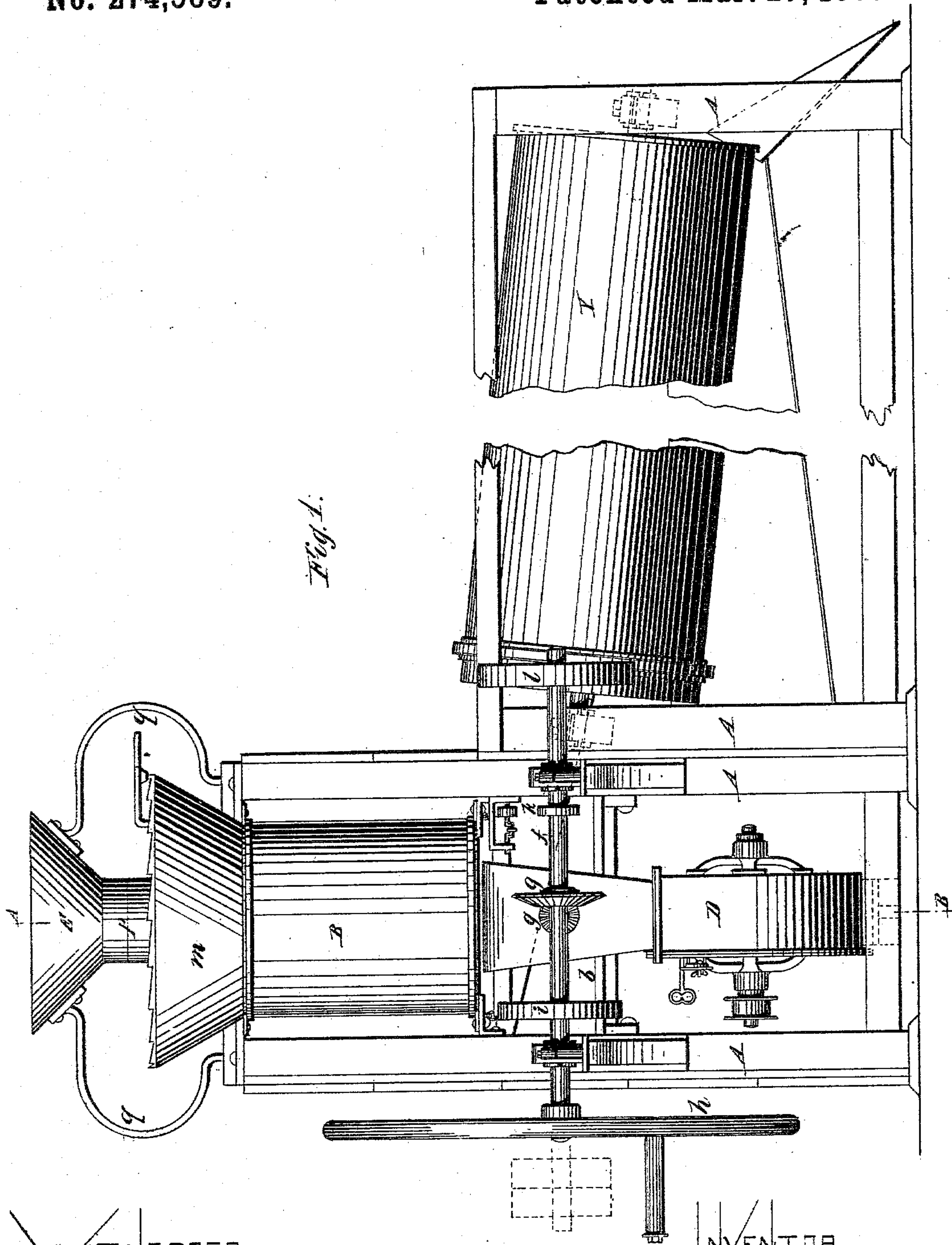
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C. F. A. GRAMKE.

GRAIN PURIFIER AND SEPARATOR.

No. 274,589.

Patented Mar. 27, 1883.



WITNESSES

Edw. D. Stafford
Charles H. Searle,

INVENTOR

C. F. A. Gramke
by his attorney, J. D. Sutton

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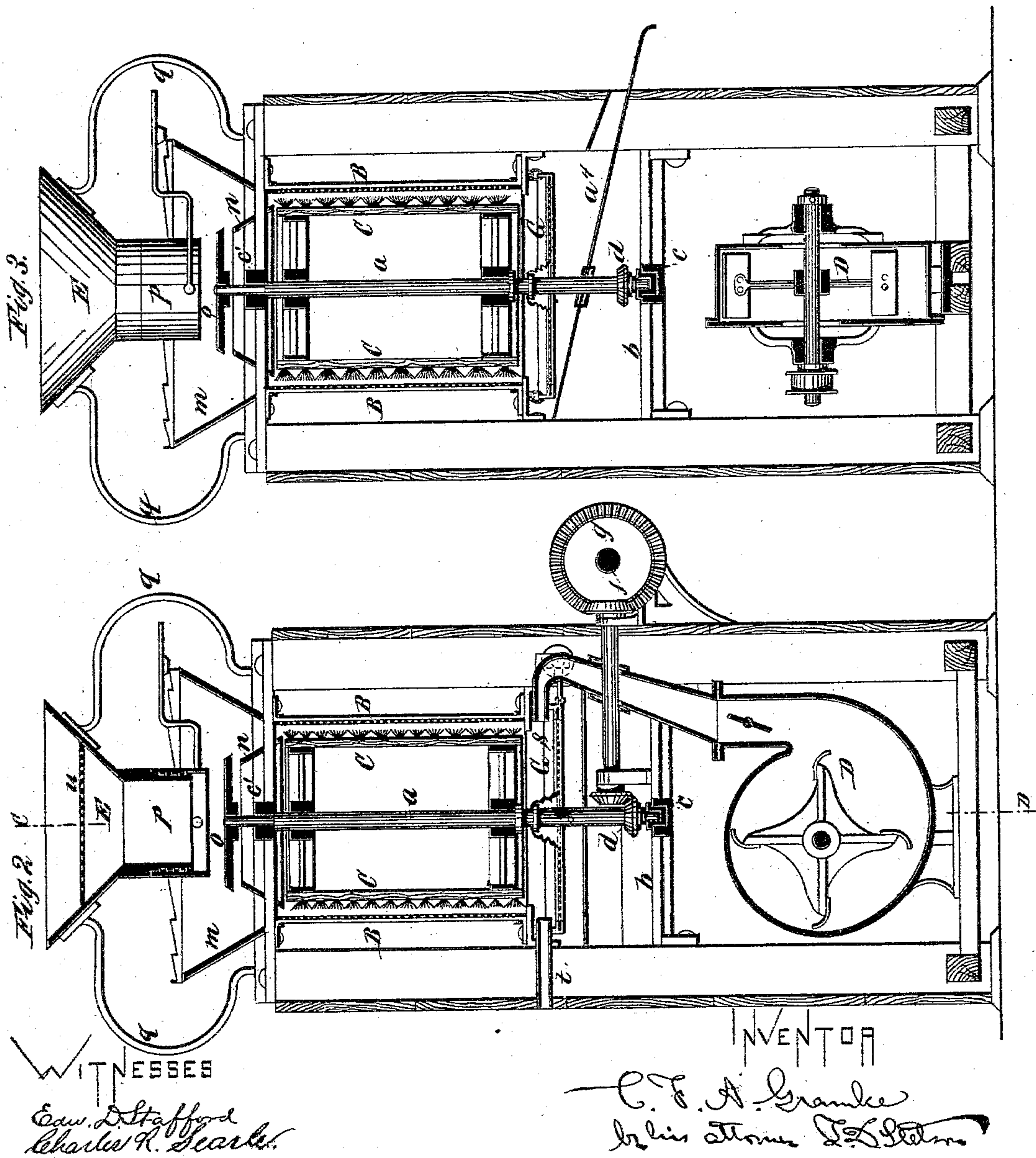
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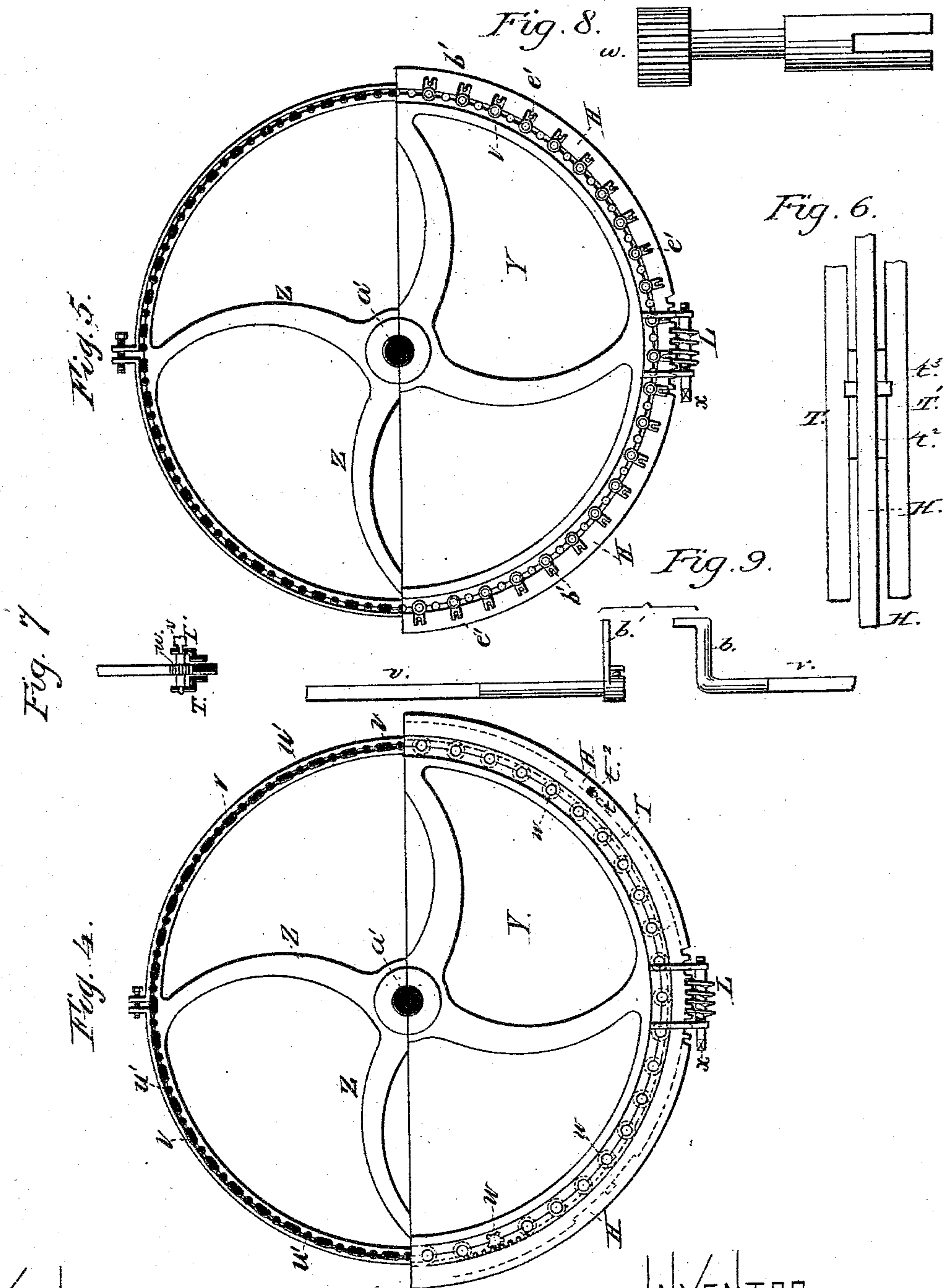
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UNITED STATES PATENT OFFICE.

CARL F. A. GRAMKE, OF STETTIN, PRUSSIA, GERMANY.

GRAIN PURIFIER AND SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 274,589, dated March 27, 1883.

Application filed November 1, 1880. (No model.) Patented in Germany July 25, 1880, No. 13,856; in France September 22, 1880, No. 138,198; in Belgium September 30, 1880, No. 52,525, and in Austria October 25, 1880, No. 29,790.

To all whom it may concern:

Be it known that I, CARL FRIEDRICH AUGUST GRAMKE, of the city of Stettin, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Grain Purifiers and Separators, of which the following is a specification.

The invention relates to machines for cleaning, purifying, and separating grain, beans, peas, coffees, lentils, &c.; and it consists in the peculiar construction of the separator and feed device. It will be understood as set forth in the following specification and claims.

The accompanying drawings form a part of this specification, and illustrate what I consider the best means of reducing the invention to practice.

Figure 1 is a side elevation of the entire machine. Fig. 2 is a vertical section on line A B, Fig. 1. Fig. 3 is a vertical section on line C D, Fig. 2. Fig. 4 is a front view of the separating-cylinder, partly in section. Fig. 5 is a similar view of a modified form of adjusting means for the separating-cylinder. Fig. 6 is a view of the guide of the separating-cylinder in elevation. Fig. 7 is a cross-section of the angle-irons and toothed rim of the separating-cylinder. Fig. 8 is a detail of the turning device for the rods of the separating-cylinder. Fig. 9 shows details of the cranks used in connection with the flat rods of the separating-cylinder.

Similar letters of reference indicate corresponding parts in all the figures.

A is the frame or housing of the machine, made preferably of wood or iron. In the upper portion of the frame is fastened the vertical cylinder B. It is constructed of sheet metal or wire-cloth, and is open at the bottom and top. The vertical shaft *a* revolves in the center of the cylinder and bears the brush C, of bristles, metal wires, or other suitable material. It is formed to fit the cylinder B. The shaft *a* has its lower bearing in the step *c* on the cross-beam *b*, and has an upper bush, *c'*, in a suitable framing. It is revolved by means of bevel-gear *d*, connecting-shaft *e*, and bevel-gear *g* on the main shaft *f*. On the shaft *f* are mounted the pulley *i* to drive the fan D, the pulley *k* to move the sieve, and the pulley *l* of

the separating-cylinder. The cylinder B and its revolving interior brush are fed with grain from above by means of the hoppers *m* and *n*, which, with the bushing *c'*, are readily removable from the frame A in order to allow the removal of the shaft *a*. The hoppers *m* and *n* are so constructed and placed as to form a ring-opening between their bases, which guides the grain directly down between the brush and cylinder. On the top of the shaft *a*, above the inside hopper, *n*, and within the outer hopper, *m*, is placed the circular disk *o*, which is fastened to and revolves with the shaft *a*. Above it is placed the upper hopper, E, on supports *q*. The hopper E is provided with the sieve *u* and an adjustable cylinder, *p*. The cylinder *p* is provided with a handle, *p*², having a lug which works on a ratchet, *p*³. The cylinder *p* may thus be rotated. It is preferably screw-threaded upon the lower end of the hopper E. The grain passing down through the hopper E falls on the revolving disk *o*, the cylinder *p* being adjusted at any suitable or desired distance from said disk, and is fed round in the hoppers *m* and *n* regularly, and then passes down between the brush and cylinder. As the grain is poured into the hopper E it has to pass through the sieve *u*, where it has the coarser impurities separated from it. The disk *o* is continually revolving with the shaft upon which it is mounted when the machine is in operation, and as the grain falls down upon it is whirled off around the edge in an even stream and passes down between the hoppers *m* and *n*. The cylinder *p* is adjusted at a short or greater distance from the disk *o*, and thus serves to regulate the feed. A sieve, G, receives the grain as it comes from the brush, and is shaken by the pulley *k* on the main shaft.

D is a fan conveniently located to throw a draft of air across the sieve through the opening S, carrying off the light worthless material and dust through the spout *t*. The good grain passes through the sieve G and along the inclined spout *a*⁴ into the separating-cylinder Y. The shell of the cylinder Y is composed of alternately round and flat bars *v'* and *v*. The flat bars *v* are made to turn by having a small pinion, *w*, mounted on the front end, which

gear into the toothed rim H. The rim H is moved by means of the screw L by turning the square head X of the shaft. By turning the rim H the flat bars are caused to rotate a quarter-way round, and the distance between them and the round bars *u* is increased. By turning the rim back again the distance between the bars is diminished to its normal width. The rim H is guided between two angle-irons, T T', as seen in Fig. 6. These angle-irons encircle the end of the cylinder, and have the depressions *t*², into which the lugs *t*³ on the toothed rim H work. These lugs in the depressions limit the movement of the rim, allowing sufficient action to turn the flat bars. All the grains smaller than the spaces between the bars will fall through them when the machine is in operation, and the larger ones will pass down the inclined cylinder Y, and can be collected from its lower end. The cylinder Y is secured on the shaft *a*', and has arms Z, reaching out and fastened to the stationary round bars *u*', and provided in their connecting-segments with bearings for the adjustable flat bars *v*. The shaft *a*' is set in an inclined position in the framing A.

I attach importance to the fact that the turning of the bars *v* uniformly by the means shown contracts or enlarges the spaces between the bars uniformly.

A different means for moving the flat bars *v* in the cylinder Y may be used. Instead of the pinions *w*, the lever shown in Figs. 5 and 9 may be used. On the ends of the flat bars

v are fixed small slotted cranks or levers *b*', which engage with pins *e*' on the face of the rim H; or the cranks on the ends of the bars *v* are provided with pins working in oval holes in the rim H.

Having thus described my invention, I desire to claim—

1. In a grain-cleaning apparatus, the hopper E and adjustable cylinder *p*, in combination with the handle *p*², the funnel-feed *m* and *n*, the portion *m* being provided with the ratchet *p*³, and with the disk *o*, substantially as set forth.

2. The combination of the flat bars *v* of a separating-cylinder, and pinions *w*, with the toothed rim H, angle-irons T T', in which said rim operates, and the screw L for manipulating the rim, substantially as set forth.

3. In a grain-cleaning machine, a separating-cylinder having in its circumference a series of longitudinal flat bars capable of being revolved in their bearings, pinions attached to the outer ends thereof, a toothed rim engaging with the pinions, and a screw or worm engaged with the said rim, by which it may be operated to turn the flat bars more or less, and thereby increase or diminish the opening between them, substantially as and for the purpose set forth.

This specification signed by me this 8th day of June, 1880.

CARL FRIEDRICH AUGUST GRAMKE.

Witnesses:

FRANZ SCHULTZE,
BERTHOLD ROI.