(No Model.) 2 Sheets—Sheet 1.

J. CRAIK.

MACHINE FOR BOLTING AND PURIFYING FLOUR AND MIDDLINGS.

No. 255,419. Patented Mar. 28, 1882.

FIG. 1

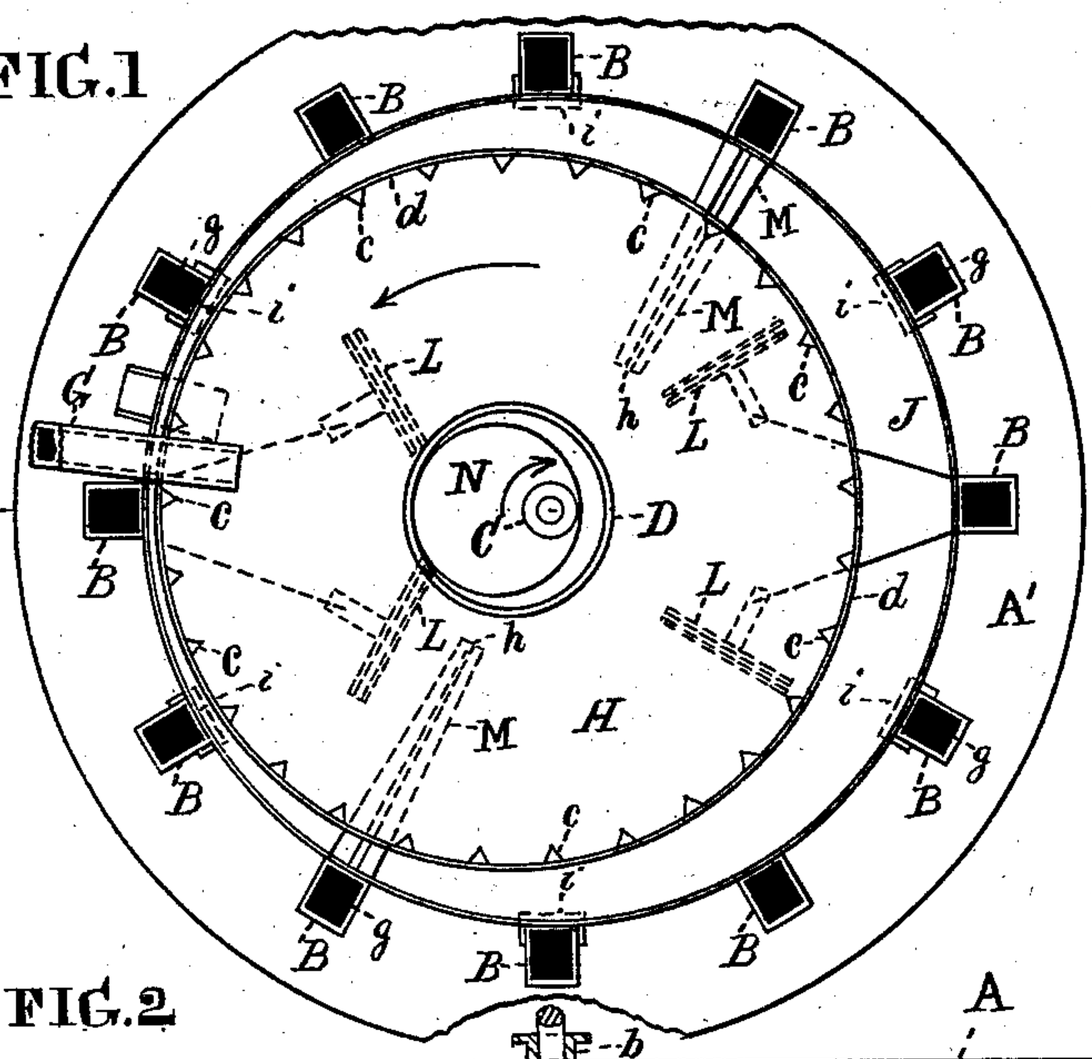
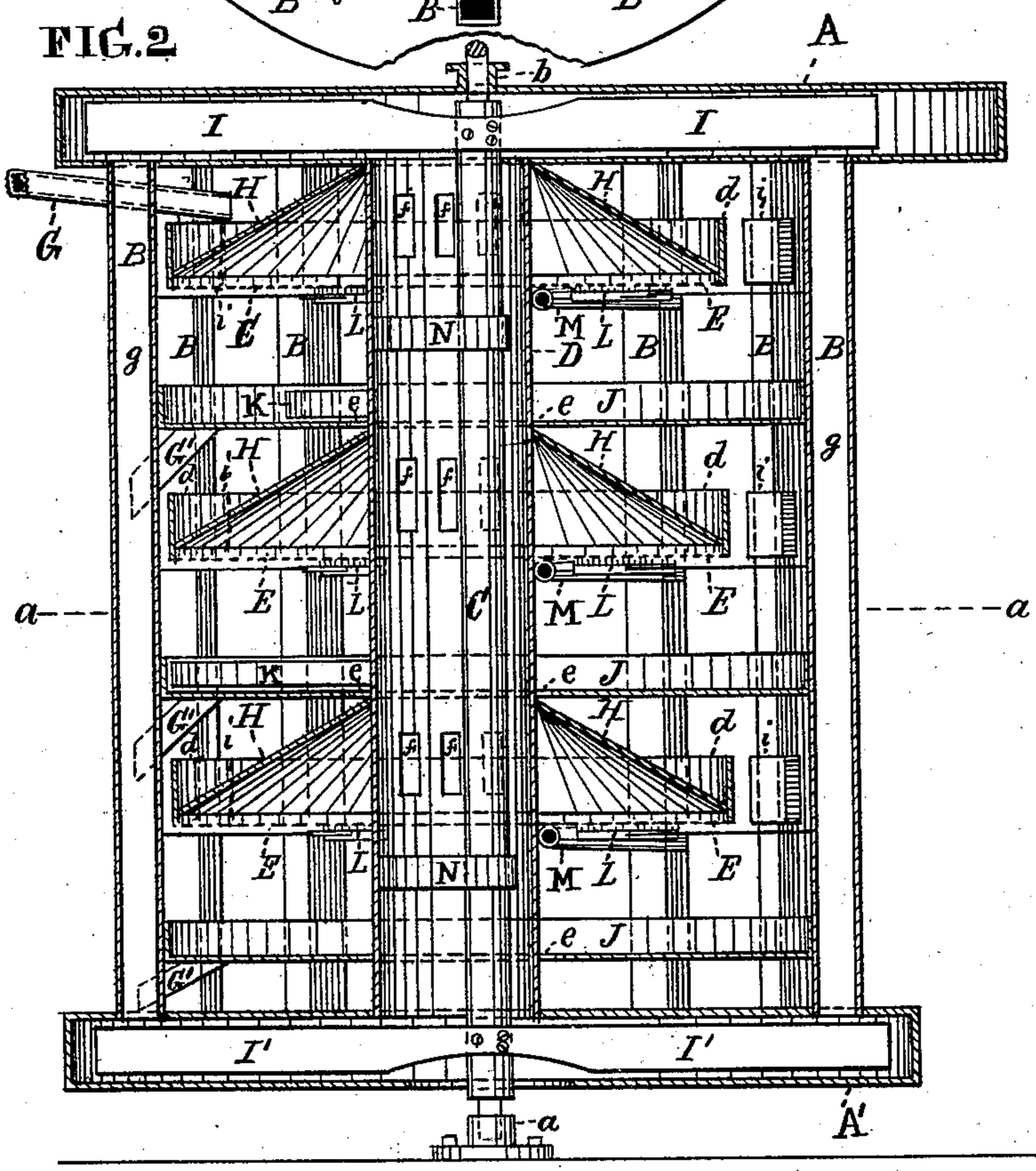


FIG. 2



Witnesses

Thomas J. Bewley.

Chas. A. Dey.

Inventor.

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per Stephen Ustick, atty

(No Model.) 2 Sheets—Sheet 2.

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FIG. 3

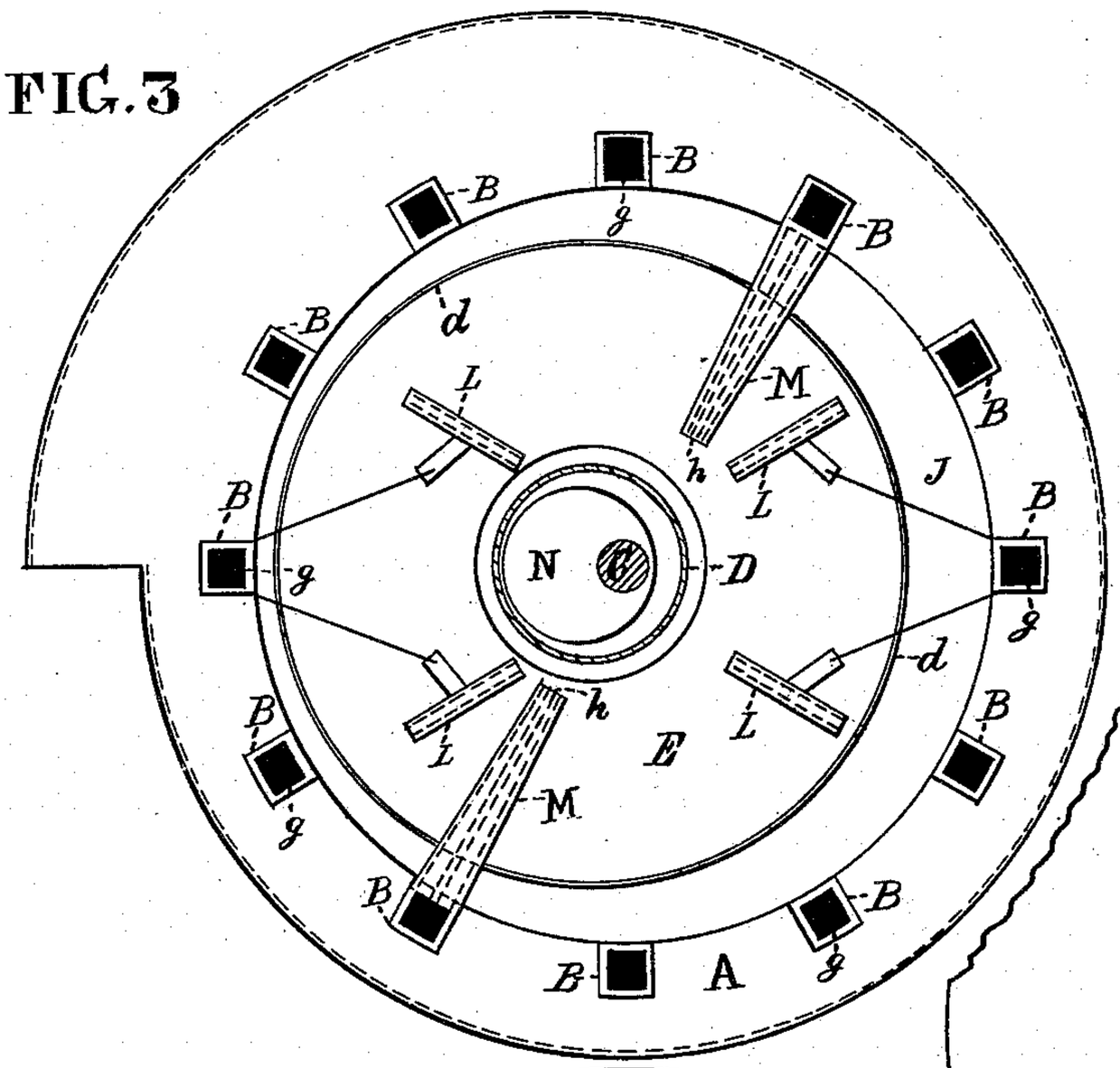


FIG. 5

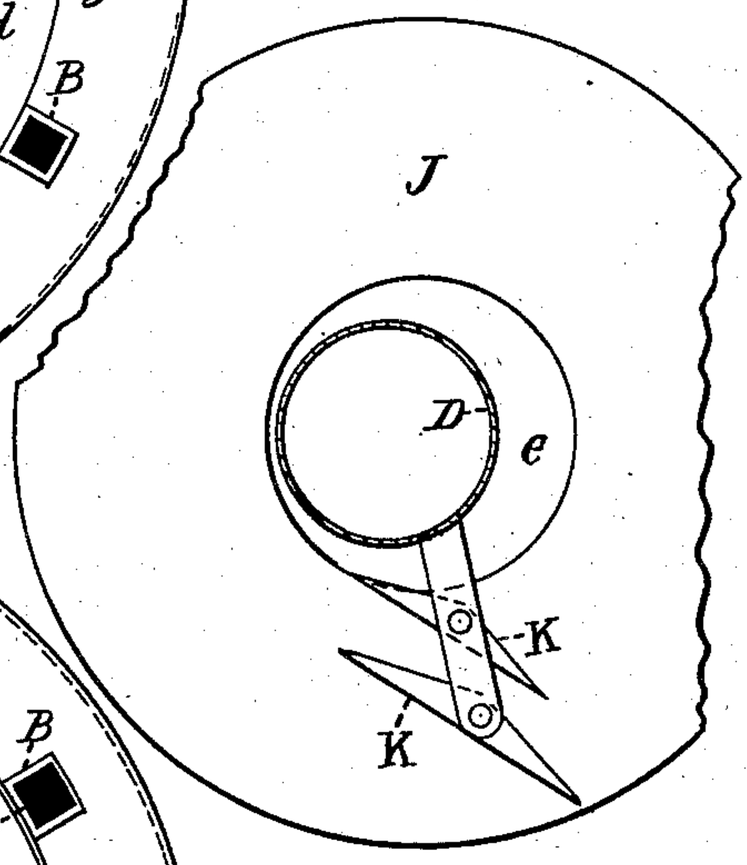


FIG. 4

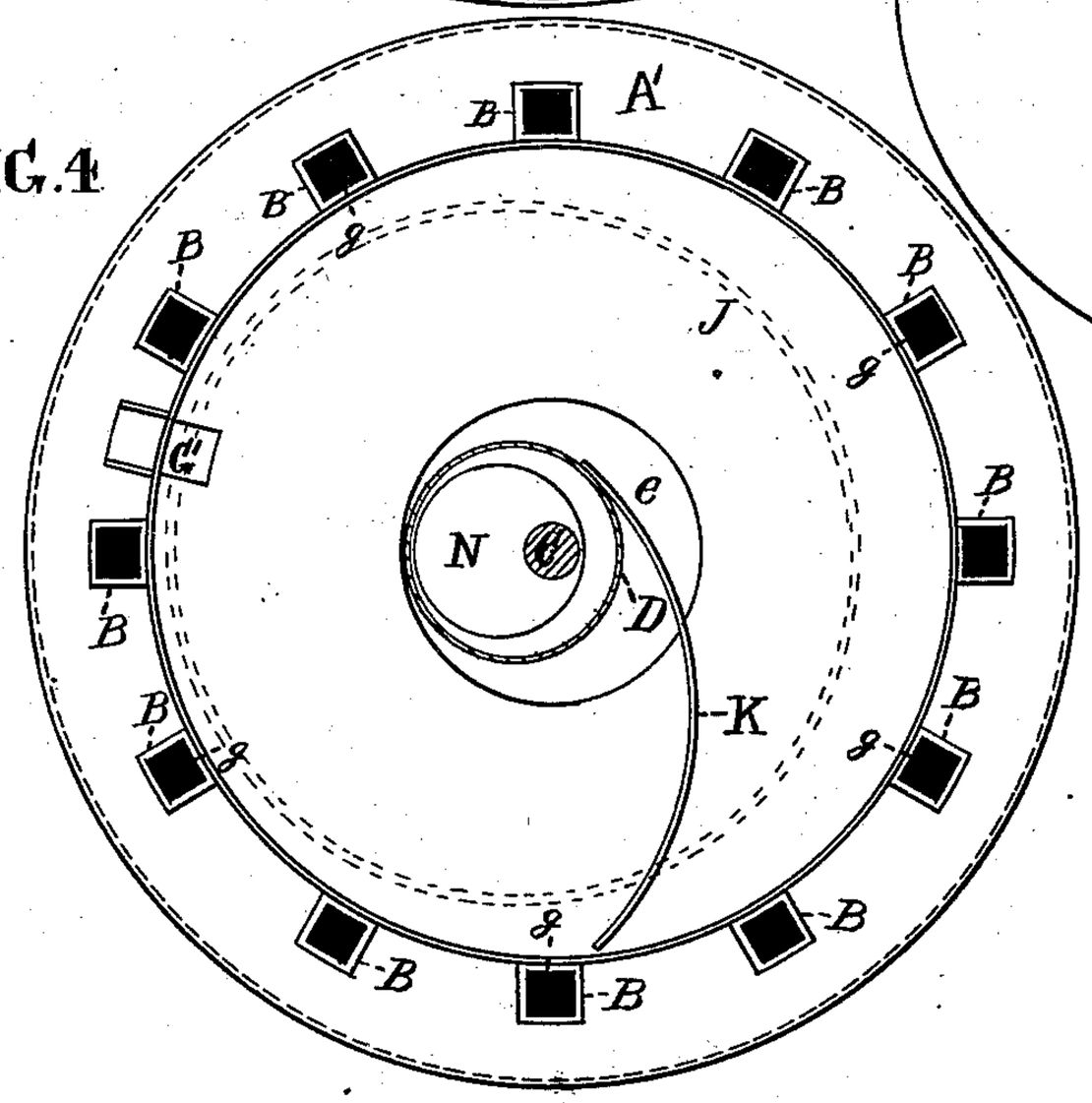
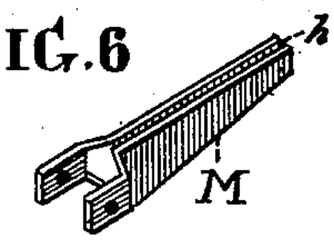


FIG. 6



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES CRAIK, OF HAWLEY, MINNESOTA.

MACHINE FOR BOLTING AND PURIFYING FLOUR AND MIDDLINGS.

SPECIFICATION forming part of Letters Patent No. 255,419, dated March 28, 1882.

Application filed December 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES CRAIK, a citizen of the United States, residing at Hawley, in the county of Clay and State of Minnesota, have invented a new and useful Improvement in Machines for Bolting and Purifying Flour and Middlings, of which the following is a specification.

The nature of my invention will be understood by the following description:

In the accompanying drawings, which make a part of this specification, Figure 1 is a plan view of the bolting and purifying mill, the upper fan-case, A, being removed. Fig. 2 is a section in a central vertical plane through the mill. Fig. 3, Sheet No. 2, is a horizontal section at the line *a a* of Fig. 2, looking upward, whereby the arrangement of the brushes L and air-tubes M is seen. Fig. 4 is a like section at the line *a a* of Fig. 2, looking downward, bringing into view the disk J, upon which the flour falls from the sieve, and showing parts combined with said disk. Fig. 5 is a top view of a portion of the bottom disk, J, and a modified form of the scraper K. Fig. 6 is a perspective view of one of the air-jet tubes M.

The same letters of reference in all the figures indicate the same parts.

A represents the fan-case, which is the top of the standing frame of my improved mill; and A′, a like case, which forms the base thereof. With these cases are connected the ends of the columns B, which are hollow to form passages for currents of air, as hereinafter described.

C is the driving-shaft, the lower end of which rests in the step *a*, and its upper end revolves in the bearing *b*, as seen in Fig. 2.

D is a tube, which surrounds the shaft C, and is rotated by it, as hereinafter described, for revolving the sieves E, which are concentric therewith and permanently connected thereto. Three sieves are shown in the drawings; but it will be understood that any other desirable number may be used. The stock is fed into the mill through the chute G, and passes onto the conical plate H above the upper sieve, and slides into the sieve through the openings *c* inside of the rim *d* of the sieve, and the stock passes successively into all the sieves from the highest to the lowest, passing from one to another through the central outlets, *e*, and over the conical plates H in its passage in the same manner as above described.

I is a suction-fan on the upper end of the driving-shaft C, revolving in the case A. It draws air through the port-holes *f* of the tube D, and thence through the sieves E for purifying the flour. The port-holes are provided with adjustable valves *f′* for regulating the draft. As the purified flour or middlings passes through the meshes of the sieves it falls onto the stationary disks J, and is discharged by means of the scrapers K through the chutes G′.

Beneath the sieves E, I arrange any desirable number of brushes L, which clean the lower surfaces of the sieves as the latter revolve over them, and to keep the meshes of the sieves open I force currents of air by means of the blast-fan I′ (on the lower end of the driving-shaft C and running in the case A′) through the bores *g* of the columns and the connected tubes M upon the lower surface of the sieves. These tubes have contracted openings *h* from end to end, as seen in Fig. 6, or a series of small perforations for concentrating the force of the jets of air which pass through them. The scraper K may be adjustable to cut off returns, as shown in Fig. 5.

The shaft C is provided near its ends with eccentrics or cams N N, as seen in Figs. 1 and 2, which press against the inner surface of the tube D, and as the shaft revolves in the direction of the arrow *a* (seen in Fig. 1) cause the middle sieve, E, to roll against the track formed by the stops *i* on the columns B in the direction of the arrow *a′*, thereby producing a vibrating motion of all the sieves from side to side of the mill in conjunction with their rotatory motion, the vibration being equal to the difference between the diameter of the track and that of the sieve. The circumference of the sieve being less than that of the track against which it rolls, causes it to lose a little at each revolution, and thus to produce a retrograde movement of all the sieves, whereby their revolutions are reduced about one to forty or fifty of the driving-shaft C.

It will be manifest that by the vibratory movement of the sieves above described each part of them is brought slowly over the brushes

and air-jets for cleaning their under surfaces and meshes more completely than it could otherwise be accomplished.

O is the driving-pulley on the upper end of the shaft C. It may be expedient sometimes, however, to arrange it on the lower end; and under some circumstances it may be proper to transpose the location of the fans I and I′.

In the drawings, in Figs. 1 and 2, I have shown a single track formed of stops *i* to be borne against by one of the sieves E; but it will be understood that two tracks may be used, in which case it is better to combine them with sieves equidistant from the eccentrics or cams N N.

I claim as my invention—

1. The combination of the central tube, D, sieves E, mounted thereon, shaft C, arranged within said tube, and eccentrics upon the shaft, substantially in the manner and for the purpose set forth.

2. The combination of the tube D and sieves E with the driving-shaft C, eccentrics or cams N N, and the track formed of stops *i* at suitable distances apart, substantially in the manner and for the purpose set forth.

3. The combination, with the columns B, formed with bores *g*, fans I and I′, and sieves E, of the air-tubes M for injecting currents of air upon the lower surfaces of the sieves, substantially in the manner and for the purpose set forth.

4. The combination of the stationary brushes L, air-tubes M, bores *g*, and fan I′ with the sieves E, substantially as and for the purpose set forth.

JAMES CRAIK.

Witnesses:
GEO. I. WATERMAN,
JOHN COSTAIN.