

(No Model.)

J. J. HENDRICKSON & G. W. BERSTLER.
Middlings-Purifier.

No. 228,070.

FIG. 1. Patented May 25, 1880.

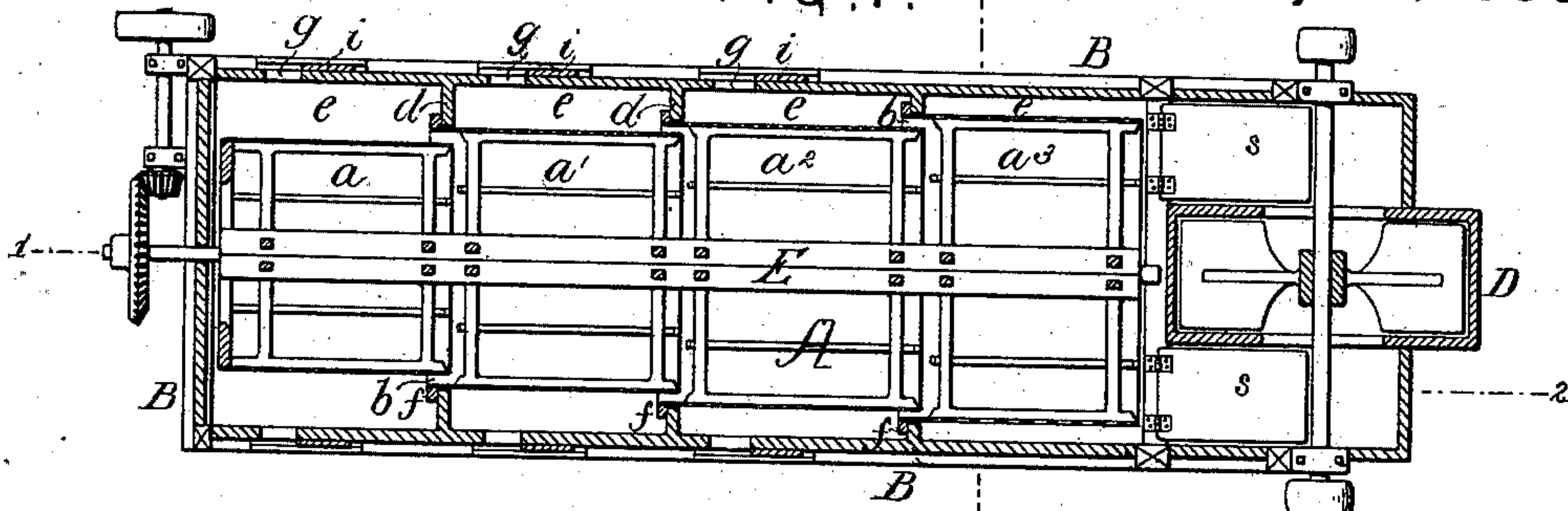


FIG. 2.

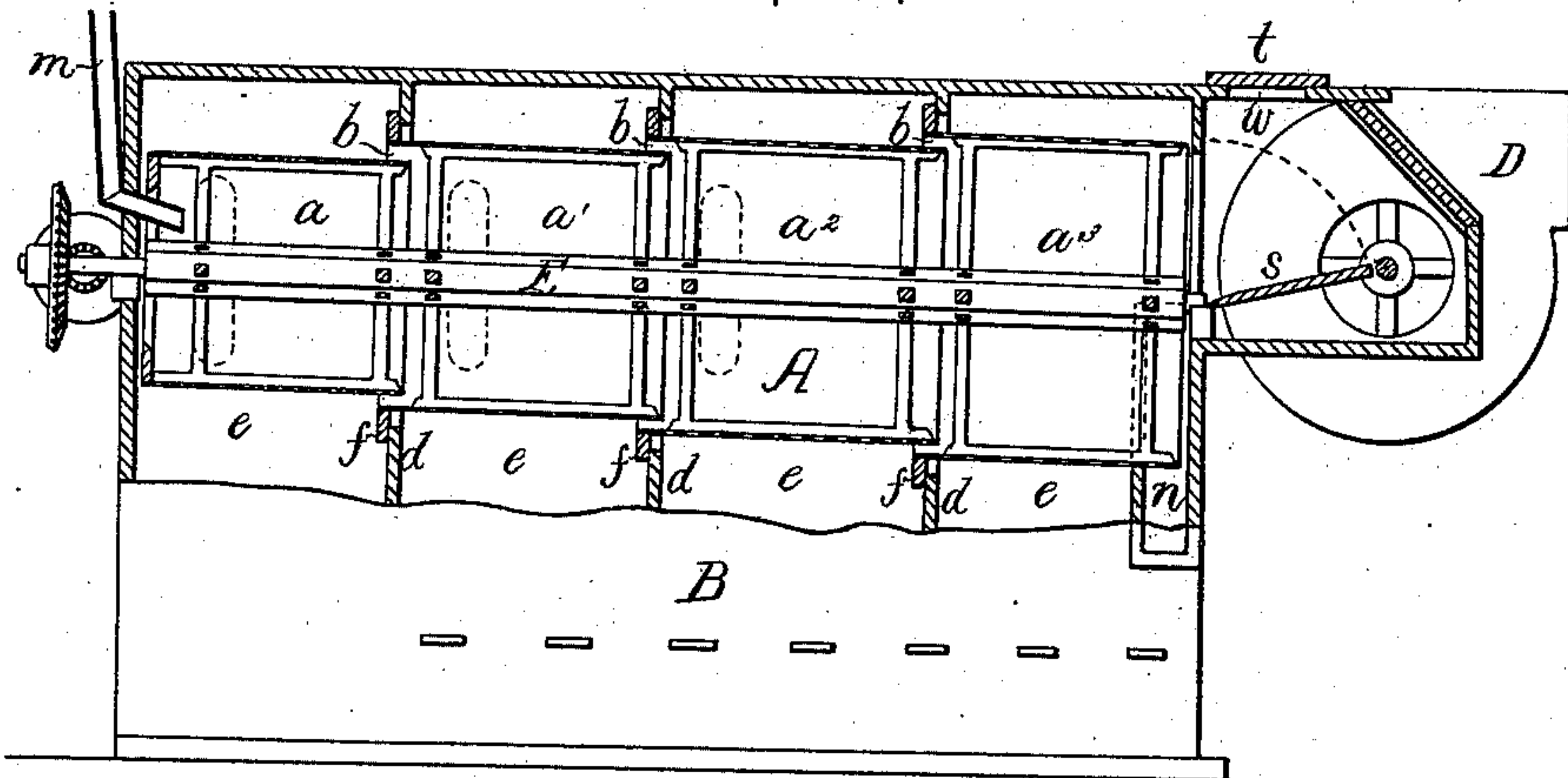


FIG. 5.

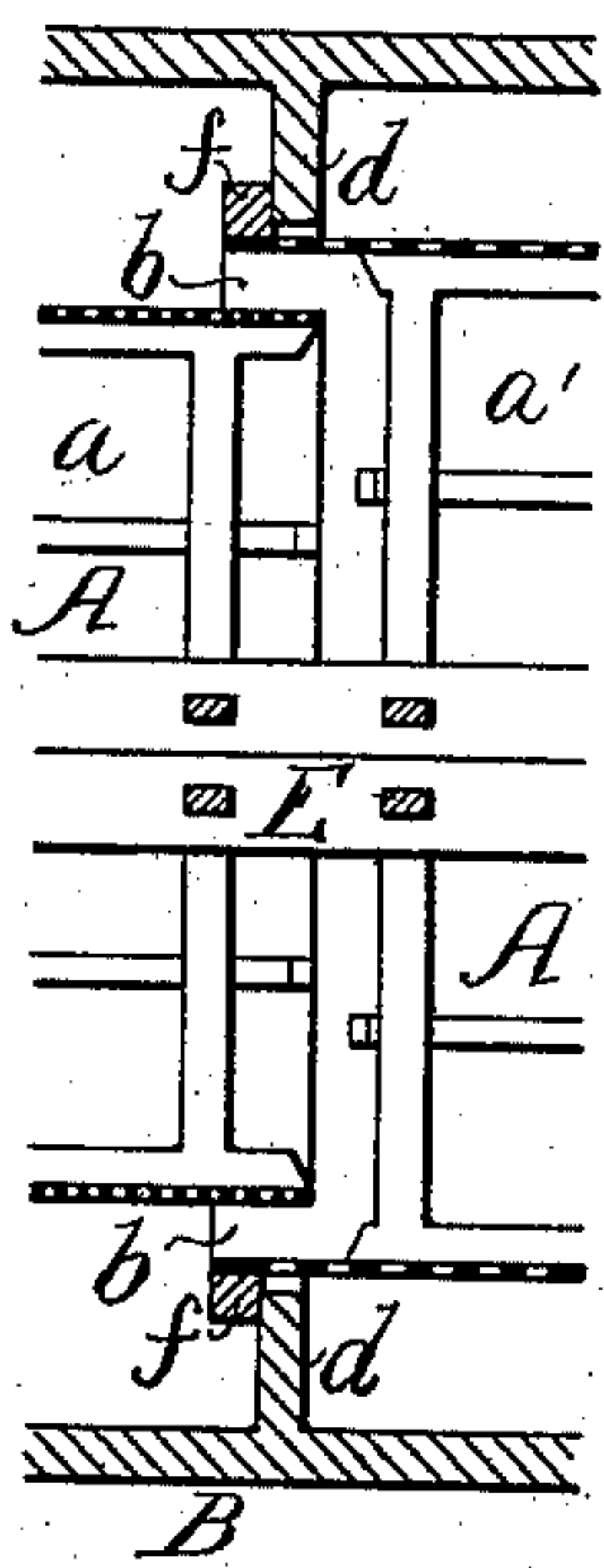


FIG. 4.

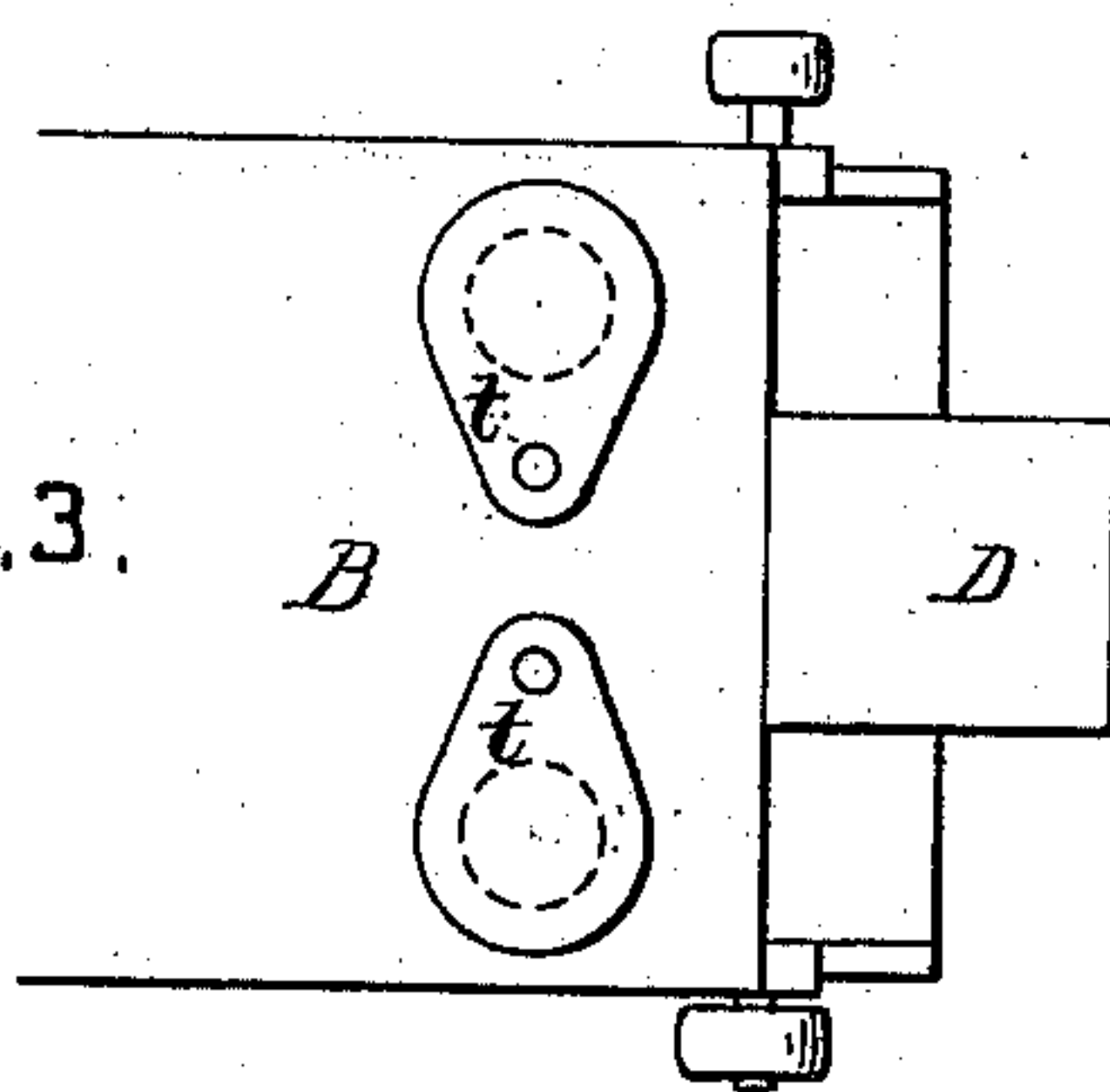
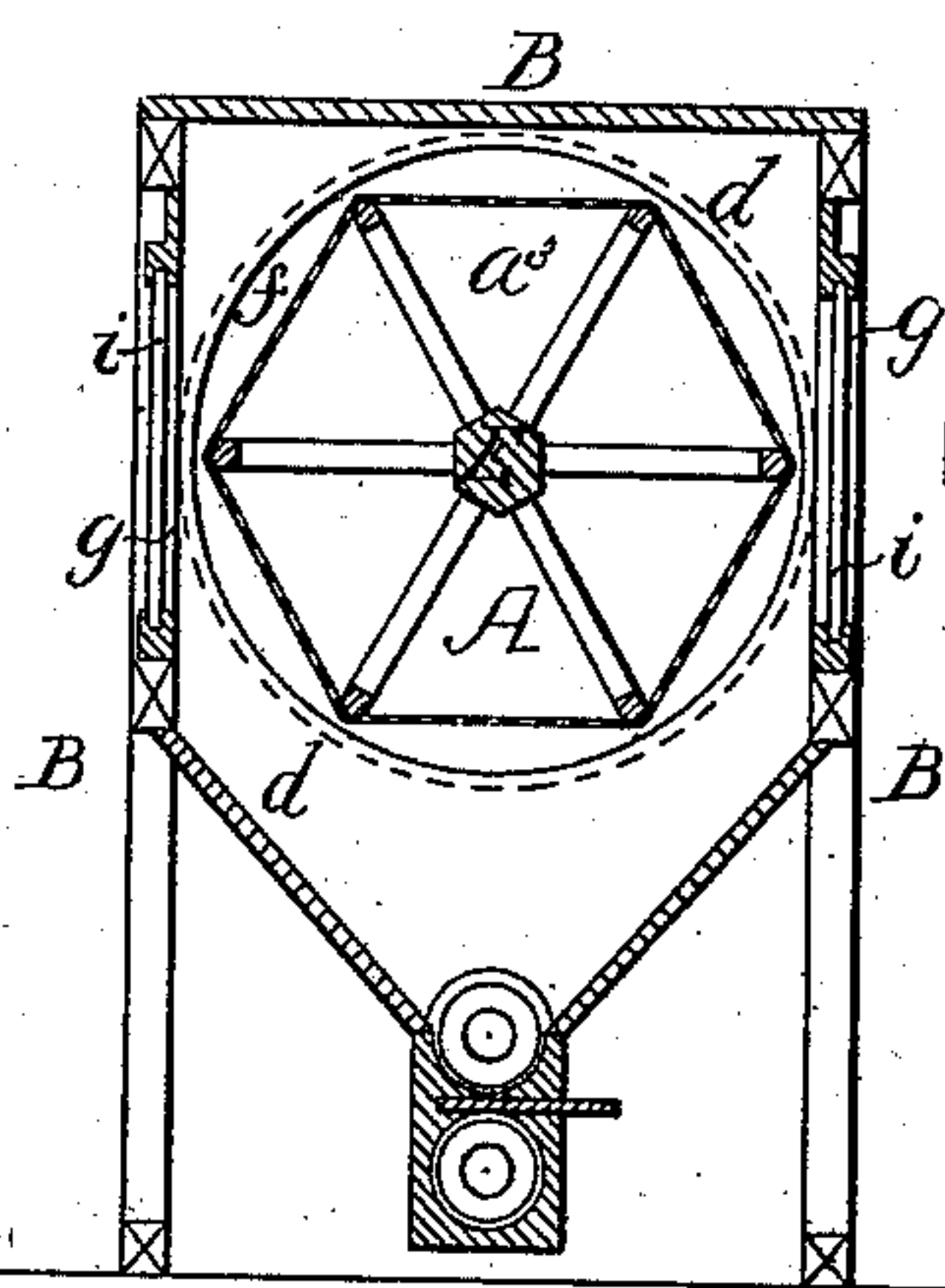


FIG. 3.



WITNESSES

Harry Smith
Henry Howson Jr.

INVENTOR.

Justus J. Hendrickson
and George W. Berstler.
by their Attorneys
Howson & Son.

UNITED STATES PATENT OFFICE.

JUSTUS J. HENDRICKSON AND GEORGE W. BERSTLER, OF NORRISTOWN,
PENNSYLVANIA.

MIDDLINGS-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 228,070, dated May 25, 1880.

Application filed March 11, 1880. (No model.)

To all whom it may concern:

Be it known that we, JUSTUS J. HENDRICKSON and GEORGE W. BERSTLER, both citizens of the United States, residing in Norristown, Montgomery county, Pennsylvania, have
5 invented certain Improvements in Middlings-Purifiers, &c., of which the following is a specification.

The object of our invention is to so construct
10 a machine for purifying middlings or like substances, or for both purifying and separating the same, that the effective action of the currents of air will be insured and the force of said currents regulated with nicety. These
15 objects we attain in the manner which we will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional plan view of our improved machine; Fig. 2, a longitudinal section on the line 1 2; Fig. 3, a transverse section on the line 3 4; Fig. 4, a plan view of one
20 end of the machine, and Fig. 5 a section of part of Fig. 2 drawn to an enlarged scale.

The machine belongs to that class in which
25 a rotating screen is employed, A representing the screen, B the box or casing inclosing the same, and D the fan-box. The screen is, in the present instance, of the usual hexagonal form; but, instead of being continuous, as
30 usual, it is composed of a number of independent sections, four of which are shown in the drawings. These sections are all carried by the shaft E, which turns in suitable bearings, and is driven by any desired system of gearing,
35 the sections of the screen, however, differing in diameter. Thus the section *a* at the inlet end of the machine is the smallest, the section *a'* somewhat larger, the next section, *a''*, still larger, and so on, the discharge end of one
40 section projecting slightly into the mouth of the adjoining section, so as to form annular passages *b* between the two. (See Fig. 5.)

The interior of the casing B is divided by a series of partitions, *d*, into a number of chambers, *e*, one for each section of the screen.
45 These partitions have openings for the reception of the screen, that portion of each opening not occupied by the screen being closed by a flange, *f*, formed on or secured to the end
50 of that section of the screen adjacent to which the partition is arranged, so that the direct

passage of air from one of the chambers *e* to another is prevented.

Each chamber *e* communicates with the interior of two sections of the screen. Thus the
55 chamber *e* at the inlet end of the machine communicates with the interior of the section *a* of the screen through the wire-cloth or other covering thereof, and also, through the annular passage *b*, with the interior of the section *a'*, the
60 second chamber, *e*, in like manner communicating with the sections *a'* and *a''*, and so on.

Air enters the chambers *e* through openings *g g* in the sides of the casing B, these openings being provided with suitable valves *i*, by
65 the adjustment of which the admission of air to any one of the chambers may be readily governed.

The machine has the usual feed-spout *m* and tailing-box *n*, and in the lower portion of the
70 casing B are the ordinary endless screws for conveying and discharging the screened and purified middlings. The shaft E is also inclined slightly, as usual, so as to impart the proper degree of pitch to the screen A.
75

The operation of the machine is as follows:
The screen being rotated and the fan put in operation, a supply of middlings is permitted to flow through the spout *m* into the first section, *a*, of the screen, in which the middlings
80 are agitated and subjected to the action of the air, which enters the screen through the wire-cloth or other covering of the same. As the middlings pass from the section *a* into the section *a'* of the screen they are subjected to
85 the action of a strong current of air from the annular passage *b* between the sections *a a'*, and this treatment is repeated as the middlings pass from the section *a'* into the section *a''*, and thus to the end of the machine,
90 where the tailings are discharged into the box *n*. The fluff and other light impurities are separated from the flour by the agitation and the repeated currents of air to which the middlings are subjected in their passage through
95 the screen, the flour or purified middlings being sifted through the screen, and the impurities being drawn off by the fan and discharged into a suitable receptacle.

The strength of the current of air through
100 the meshes of each section of the screen and through each of the passages *b* is regulated

by adjusting the valves *i*, and thereby governing the admission of air to each of the chambers *e*.

The sectional screen might be used in connection with a casing, B, the interior of which was not divided into a series of chambers, the latter construction, however, being of course preferred, for by thus localizing the supplies of air, and regulating the force of each supply independently of the others, the attendant may regulate the supplies of air with such nicety that the best possible effect on the middlings will be insured.

If the blast is of such strength that some of the heavier or valuable portions of the middlings are carried off with the light impurities, pivoted plates *s*, arranged within the casing B on each side of the fan-box, may be adjusted so as to present an obstruction to the direct passage of material to the interior of said fan-box, the heavier particles being thus arrested and directed back into the tailing-box *n*.

When it is desired to lessen the force of the draft through the machine, valves *t t* on the top of the casing B may be adjusted so as to uncover, to a greater or less extent, openings *w* in said casing, thereby permitting a direct passage of air to the fan.

When it is desired to separate as well as purify the middlings the coverings of the different sections of the screen may be of varying degrees of fineness, and where it is not desired to screen the middlings, but merely to remove the impurities therefrom, a cylinder having imperforate sections may take the place of the sectional screen, the currents of air through the passages *b* being in this case wholly relied upon to effect the carrying off of the impurities.

The invention may be adopted with advantage in flour-bolts or other machines analogous to middlings-purifiers.

Although we have shown in the drawings a screen composed of four sections, the screen may be composed of but two sections, or any number greater than two.

We claim as our invention—

1. The combination, in a middlings-purifier or analogous machine, of an outer box or casing, a draft apparatus, and a rotating screen or cylinder made in sections of different diameters, said sections being arranged in respect to each other as described, whereby annular air-passages are formed between the sections, as set forth.

2. The combination of a rotating cylinder or screen made in sections, arranged in respect to each other so as to form air-passages *b*, with a draft apparatus and with an outer box or casing, the interior of which is divided into a series of non-communicating chambers, each having a valved air-supply opening or openings, all substantially as specified.

3. The combination of the box B, having partitions *d*, with a screen made in sections adapted to openings in the partitions, and having flanges *f* for closing those portions of the openings not occupied by the screen, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JUSTUS J. HENDRICKSON.
GEO. W. BERSTLER.

Witnesses:

JAMES F. TOBIN,
HARRY SMITH.