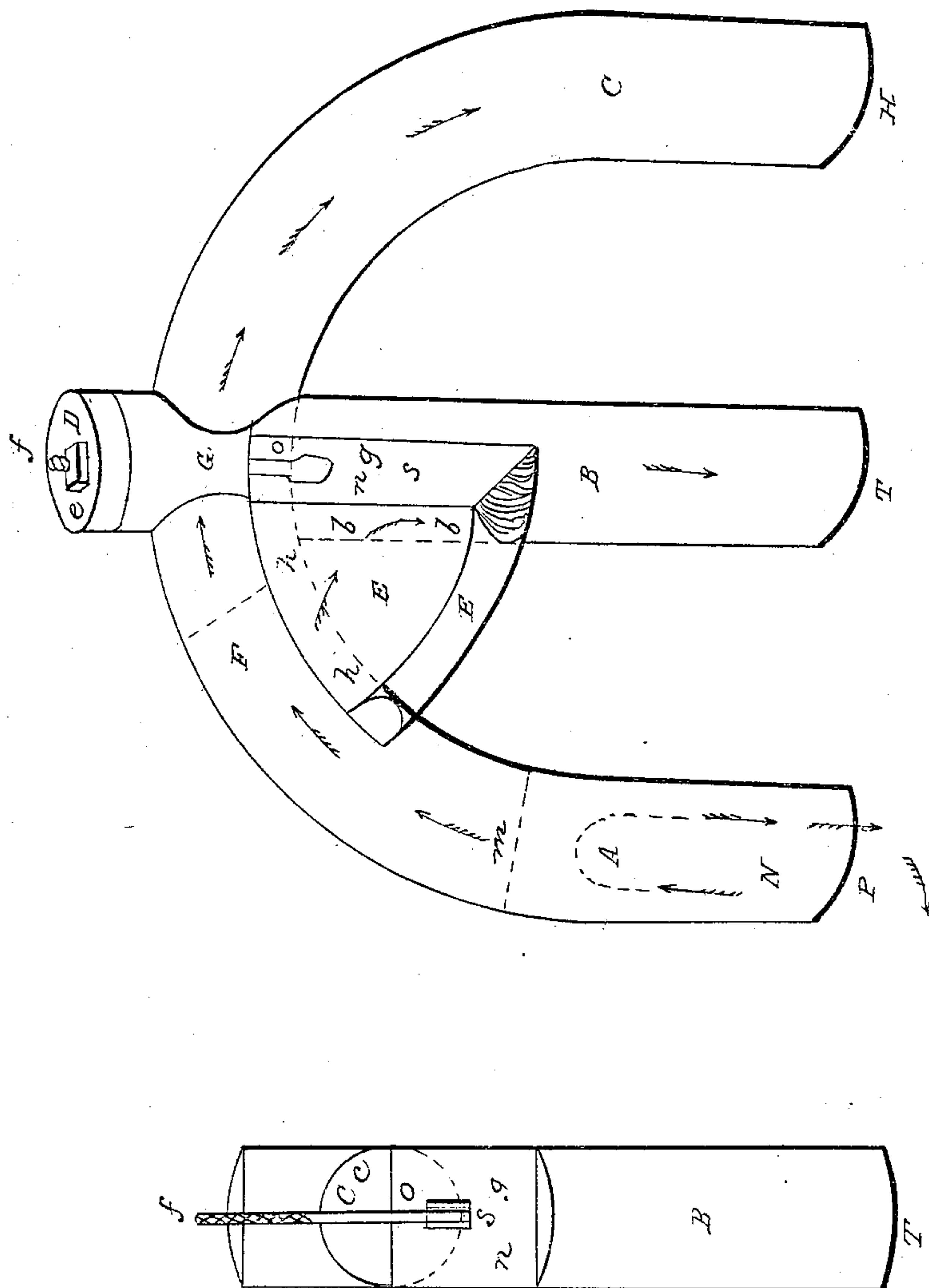


R. MOHLER.

Arch for Smut Machines and Grain Separators.

No. 29,297.

Patented July 24, 1860.



WITNESSES:

Adrian V. B. Jr.
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RICHARD MOHLER, OF LANCASTER, PENNSYLVANIA.

SMUT-MACHINE.

Specification of Letters Patent No. 29,297, dated July 24, 1860.

To all whom it may concern:

Be it known that I, RICHARD MOHLER, of the city of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Improvement in the Arches of Smut-Machines and other Grain-Separators; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in placing in the upper part of the arch of a smut machine or other grain separator, a chamber so constructed and arranged that the screenings shall be separated from the scourings, dust and other impurities, with which they are at present mixed by ordinary machines, when separated from the grain.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings Figure 1 represents a perspective view of the arch of smut machines, with my improved chamber added; Fig. 2 a transverse section of the center spout, showing its connection with the improved chamber, and spout C.

The same letters refer to like parts in both figures.

I construct my arch out of any suitable material, and of any given size required, making it consist of three portions or spouts, represented by the letters A, B, C. Between the ascending portion of the arch A, and the central spout B, is placed my improved chamber E, E, S, which enlarges the size of the opening between these portions of the arch and that enlargement is regulated by the strength of suction or desired size of arch for any given machine. The opening between the central spout B, and the descending spout C, of the arch is no larger than the internal capacity of the tube forming the arch, as seen at C, Fig. 2, and is regulated by the movable slide *n*, *g*, by means of the attachment *o*, screw *f*, and nut *e*, on the top D of the arch. The chamber of the arch in the drawing is left open in front to show its construction; but when in operation it has no opening only through those portions with which it is connected. The arch thus constructed and arranged, is placed in connection with the smut machine, or other separator for which it was intended, in the usual manner; that is to say the as-

ending portion A, is connected at P, with the scoured grain as it passes from the machine; the central spout B, unites at T, with the spout carrying off the screenings, and the descending spout C, is connected at H, with the suction fan of the machine, through which pass the scourings, dust and other impurities, there being no difference in the mode of attachment to the machine between my arch, and those in common use.

When the arch thus constructed and arranged is attached to a machine, and that machine set in motion; the following operation will be the result: The fan of the machine acting on the descending spout C at the point H, produces a vacuum in the arch and chamber E, E, S, and causes a current of air to pass through the descending scoured grain at the point P, of the ascending portion of the arch A. The intensity of this current of air is graduated to any desired degree by the slide *n*, *g*, through the attachment *o*, and screw *f*. The descending grain thus acted on is separated from its impurities, the perfect portions from their greater specific gravity obeying the action of the current in the direction of the first series of arrows and dotted lines N, while the imperfect and broken grains, cockle, cheat, chaff, and dust, being lighter are carried in the direction of the second series of arrows F, when the heavier portions, the broken grains, the cockle, the cheat, &c., are again separated and fall through the chamber E, E, S, into the spout B, of the arch and are discharged at the point T, into their appropriate receptacle. The scouring, dust, and chaff being lightest of all continue their course in the direction of the 3d series of arrows G, and are discharged by themselves through the descending spout C, of the arch, thus separating with unerring certainty the various portions of the descending grain as it leaves the machine and keeping each portion by itself.

In order that the distinctive characteristics of my improvement may be easily recognized let it be observed that in the arches of smut machines now in use the construction is as represented by the dotted lines *h*, *h*, and *g*, *g*. It is therefore evident that while the action on the grain is the same in either case, in the ascending portion of the arch at N, the difference becomes manifest as soon as we cross the dotted lines *m*. In the ascending portion A, in the old arch

any portion of broken grain or cheat whose specific gravity permitted its rising above the dotted lines *m* would have to continue to rise to the center of the arch, at G, before
 5 it could reach any outlet through which it could escape. The suction therefore which would raise such portions of grain from the dotted line *m* to the dotted line *p* would be very likely to carry those portions over
 10 the slide *n*, *g*, (which in the case of the old arch occupied only the diameter of the tube) and discharge them with the scourings, chaff, dust, &c., through the spout C, instead of B, as intended, and such has been found to be
 15 the practical result. With my improved chamber added this difficulty is at once removed for the lighter portions having passed *m* are not required to rise to F, but pass through the chamber E, E, S, into their
 20 proper spout, B, and are discharged at T, while the scourings and dust continue through G, into the spout C, being kept separate and distinct.

25 The advantages of my improved chamber are not alone confined to the simple act of cleaning grain, but may be used with the

greatest success in the separation of the various qualities, where quality depends on specific gravity. Experiment has demonstrated that the separation may be so nicely
 30 graduated as to effect qualities differing but a few pounds to the bushel. Such results must necessarily be valuable to those engaged in the manufacture of the extra varieties of family flour and unattainable by
 35 the means now generally employed.

I am aware that arches differing from mine only in the construction of the chamber (as in the case of C. R. Barnes) have heretofore been employed on smut machines and
 40 separators. I therefore make no claim to such arches, but

What I do claim as my invention and wish to secure by Letters Patent is—

Placing in the arches of smut machines
 45 or other grain separators a chamber constructed as described and when operating substantially as specified.

RICHARD MOHLER.

Witnesses:

ADRIAN V. B. ORR,
 WM. B. WILEY.