H. L. JOHNSTON.

GRINDING AND REFINING MILL.

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1,166,597.

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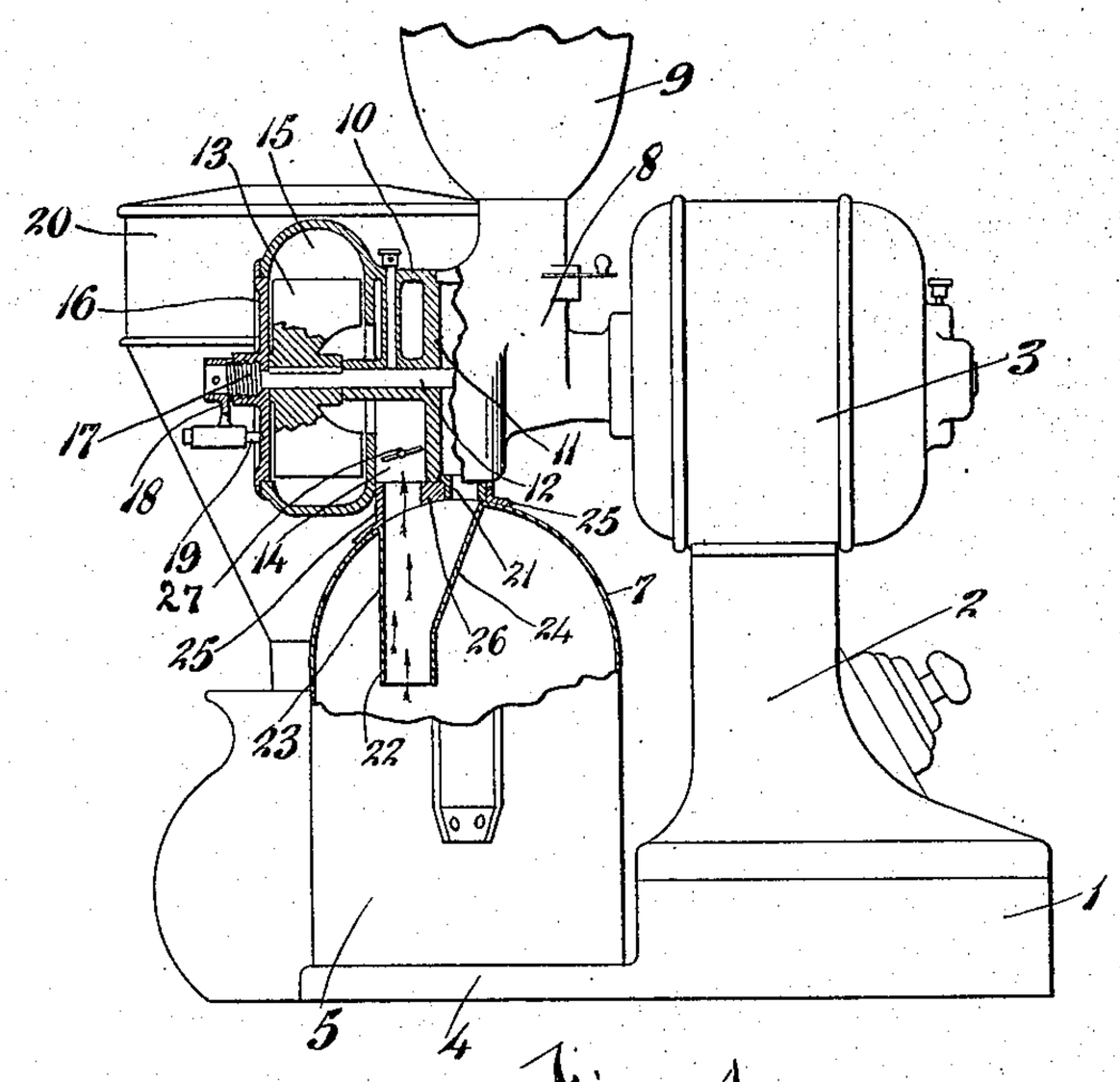

Fig. 1

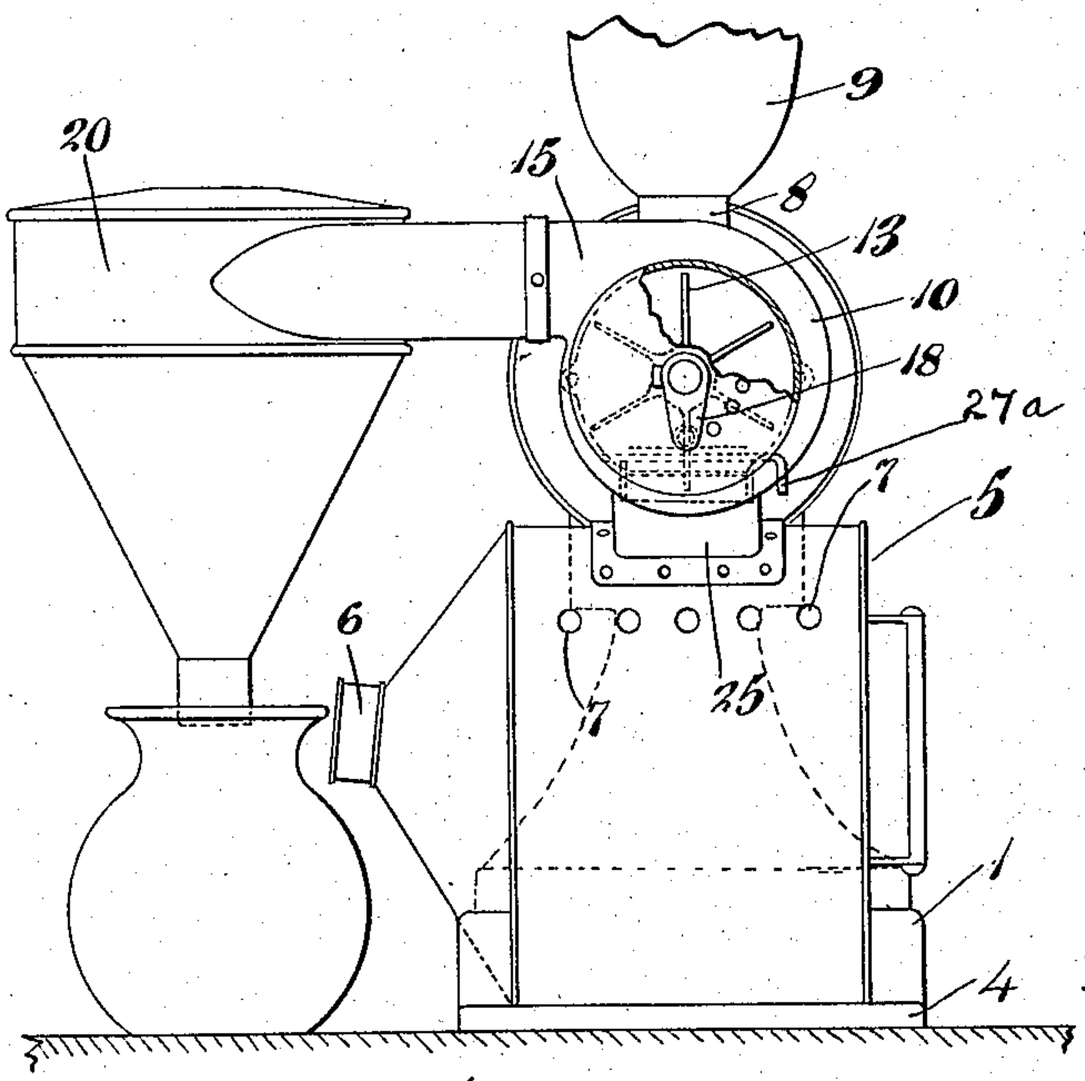

Fig. 2

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GRINDING AND REFINING MILL.

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To all whom it may concern:

Be it known that I, HERBERT L. JOHNSTON, a citizen of the United States, and a resident of the city of Troy, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Grinding and Refining Mills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to grinding and refining mills particularly for the grinding and refining of coffee, wherein the coffee is ground and then subjected to the action of a current of air to remove the chaff therefrom for the refining of it.

It is the object of this invention to provide a grinder and refiner which has the refining devices arranged in the receiving can for the finished coffee, instead of secured to the air suction device, and this object, with the attendant advantages to be hereinafter mentioned, is accomplished by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawings, Figure 1 is a side elevation of the grinder and refiner with the blow fan and refining devices in section. Fig. 2 is a front elevation of the machine.

Mounted on the base 1 is the pedestal 2 for the driving motor 3. The base extends forwardly at 4 and forms a support for the receiving can 5. This can has a mouth 6 which is positioned on the end of the can as it stands on the base portion 4, when in use. Also located in the sides of the can are a series of air apertures 7, the use of which will be hereinafter mentioned.

Mounted on the motor is the grinder case 8 of the machine, which has a hopper 9 and proper burs and a wiper of any desired design. Mounted on the bur or grinding case 8 is the casing 10 for the blower. The inner wall 11 of this casing has a journal for the blower fan shaft 12, and this inner wall forms a closure for the bur case already designated. The fan 13 is mounted on this shaft 12 and driven by it, and draws a current of air up through an inlet 14 in the said casing and forces it out through the outlet 15. The blower casing has a removable end plate 16 which journals the blower fan shaft. It also has the adjusting screw 17 that adjusts the position of the shaft 12 for the purposes therein described. Said adjusting screw likewise has the operating arm 18 carrying the spring plunger 19. When the air drawn up through the blower casing is forced out through the outlet 15 it passes into a "cyclone" 20, wherein the dust and chaff will be collected as is familiar in practice. The ground coffee passes out of the bur case through an outlet fitting 21 which is suitably secured in the mouth of the bur case, and the chaff passes up into the blower through the inlet 14 therein. The passageways through which the coffee must fall while being subjected to a counter draft from the blower are located in the receiving can 5 above mentioned, and the air for creating the suction draft is admitted to the can through the openings 7, 7, and the mouth 6 of the can.

Set into and suitably secured in any desired manner in the top of the can is a semi-funnel shaped portion having the vertical-walled mouth 22, a vertical wall 23 and a sloping wall or deflector wall 24. This portion is so placed that the coffee when falling from the bur case will strike the deflector wall 24, and fall toward the mouth 22. The suction from the blower will then draw away from the falling coffee all of the chaff, raising it up into the blower casing.

Suitably mounted on the outside of the can around the upper end of the semi-funnel shaped portion is a neck 25 for fitting over the outlet of the bur case and registering with the inlet to the blower casing. This neck is a casting having a dividing wall 26 and formed so as to fit over the outlet fitting 21 of the bur case and also to register with the mouth of the blower casing.

In setting up the machine, the empty receiving can is put into place with the two portions of its neck in proper position as now described; the motor is caused to operate and coffee poured into the hopper 9. The coffee will then be ground and the ground coffee together with the chaff will

fall down against the deflector wall 24 and thence down through the passageway in the semi-funnel shaped portion of the can. It will be there opposed by the current of air generated by the fan, which will draw upwardly the chaff into the blower case. Mounted in the mouth 14 of the blower case is a valve 27 operated by a handle 27[a] which can be adjusted to regulate the strength of the air current, or can be employed to shut off the air altogether when it is desired to use the machine as a grinder only. When a grinding is completed, the can is removed and the coffee poured out. At this time the can may be shaken up or tapped to cause the chaff, which may have collected in the passageways in the top of the can, to fall off. The great difficulty with combination grinders and refiners and with refiners of coffee in general is that the electrically charged particles of chaff have a tendency to clog up the exhaust passageways and then fall after a large accumulation has taken place, thereby mixing up chaff with the cleaned coffee in the receiving vessel. The expedient of locating the exhaust passageways in the mouth of the receiving vessel enables the operator to surely and easily clean them out after the end of each operation, and is an improvement of no small importance in the art for this reason, as well as for the reason that this design practically insures that the operator will see the collected chaff if there is any when he is pouring out a charge of ground coffee.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a device of the character described, the combination with a grinding mechanism having an outlet, a suction mechanism having an inlet, said inlet and outlet being adjacent to each other, and a receiving can freely removable from said device, said can having a passageway forming member therein to register with the outlet and inlet of the said two mechanisms, for the purpose described.

2. In a device of the character described, the combination with a grinding mechanism having an outlet, a suction mechanism having an inlet, said inlet and outlet being adjacent to each other, and a receiving can freely removable from said device, said can having a passageway forming member therein to register with the outlet and inlet of the said two mechanisms, and a neck portion for said can to fit said outlet and inlet, for the purpose described.

3. In a device of the character described, the combination with a grinding mechanism having an outlet, a suction mechanism having an inlet, a receiving can, a neck portion for the can to fit said outlet and inlet, and a passageway forming member in the can communicating with the neck whereby the ground material will enter said can at one point and be subjected to a current of air from the suction device at another.

4. In a device of the character described, the combination with a grinding mechanism having an outlet, a suction mechanism having an inlet, a receiving can, a neck portion for the can to fit said outlet and inlet, and a passageway forming member in the can communicating with the neck whereby the ground material will enter said can at one point and be subjected to a current of air from the suction device at another, said can having a series of apertures for the admission of air.

5. In a device of the character described, the combination with a grinding mechanism and a suction mechanism, an outlet and an inlet for the two mechanisms respectively, a receiving can freely removable from said device, means on the can for fitting the said inlet and outlet, and a passageway forming member in the can communicating with the neck, for the purpose described.

6. In a device of the character described, the combination with a grinding mechanism having an outlet, a suction mechanism having an inlet, a valve in said inlet to regulate the suction, a receiving can freely removable from said device, a neck portion for the can to fit said outlet and inlet, and a passageway forming member in the can communicating with the neck whereby the ground material will enter said can at one point and be subjected to a current of air from the suction device at another.

7. In a device of the character described, the combination with a grinding mechanism having an outlet, a suction mechanism having an inlet, a valve in said inlet to regulate the suction, a receiving can freely removable from said device, a neck portion for the can to fit said outlet and inlet, and a passageway forming member in the can communicating with the neck whereby the ground material will enter said can at one point and be subjected to a current of air from the suction device at another, said can having a series of apertures for the admission of air.

8. In a device of the character described, the combination with a grinding mechanism and a suction mechanism, an outlet and an inlet for the two mechanisms respectively, a valve in said inlet to regulate the suction, a receiving can freely removable from said device, means on the can for fitting the said inlet and outlet, and a passageway forming member in the can communicating with the neck, for the purpose described.

9. In a device of the character described, the combination with a grinding mechanism and a suction mechanism, an outlet and an inlet for the two mechanisms respectively, a receiving can freely removable from said de-

vice, means on the can for fitting the said inlet and outlet, and a passageway forming member in the can communicating with the neck, said member having a deflecting surface located so as to receive the ground material as it falls from the grinding mechanism, and a vertical conduit communicating with the suction inlet, for the purpose described.

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Witnesses:
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