

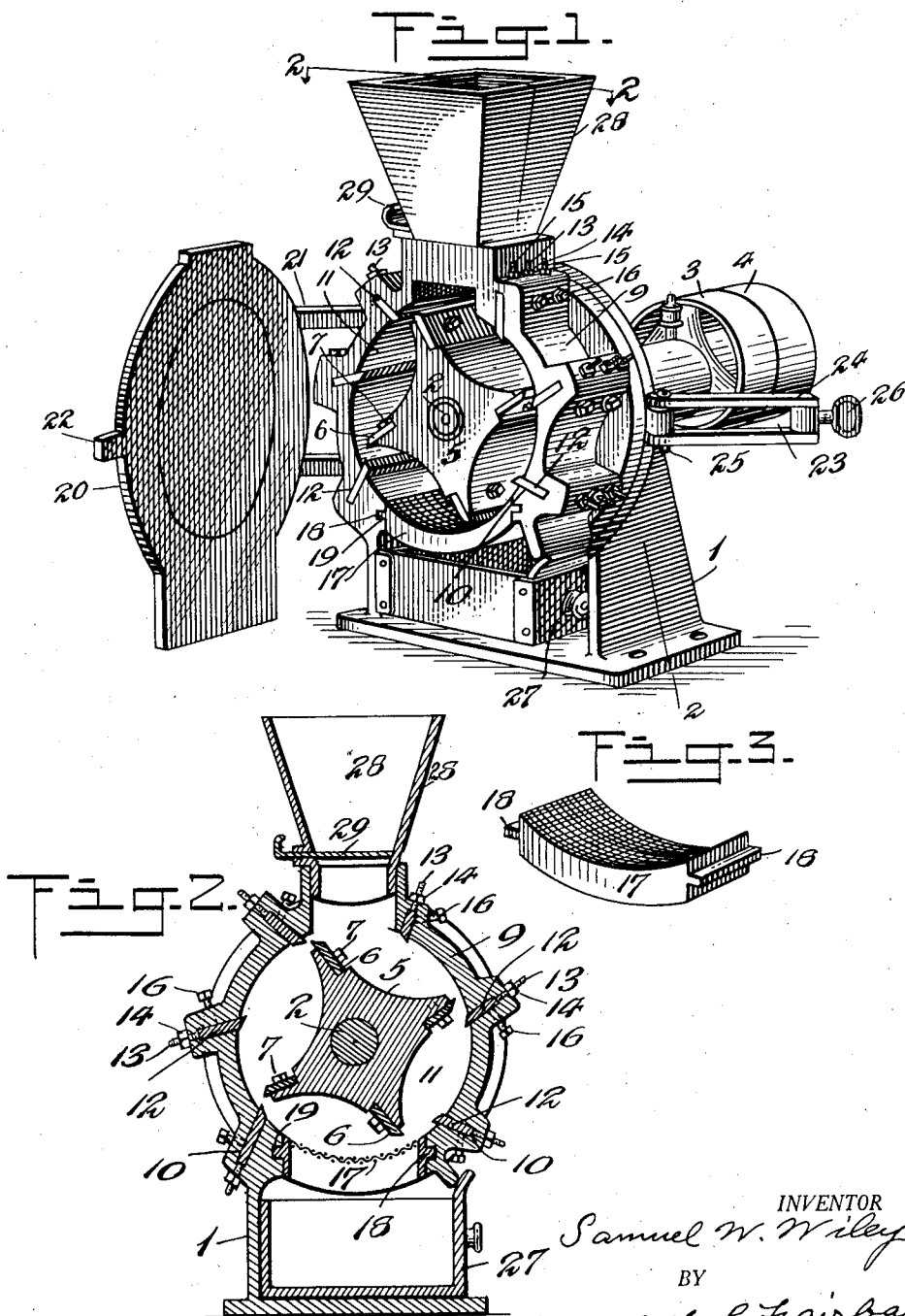
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LABORATORY MILL

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LABORATORY MILL.

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The object of this invention is to devise a novel construction and arrangement of a mill which is adapted for the grinding of laboratory samples of any desired character and which is especially adapted for the proper preparation for chemical analysis of commercial products such as drugs, fertilizers and feed stuffs, without loss of moisture from heating during preparation of the samples.

With the above and other objects in view as will hereinafter more clearly appear, my invention comprehends a novel construction and arrangement of a laboratory mill.

It further comprehends a novel mill wherein a portion of the grinding chamber is formed by a mesh screen, so that screens of different mesh can be interchanged. This prevents the product being treated from leaving the grinding chamber until it is reduced to a desired degree of fineness.

It further comprehends a novel construction of a mill, the casing of which is provided with adjustable stationary knives which co-operate with fixed knives removably carried by the rotor.

Other novel features of construction and advantage will hereinafter more clearly appear in the detailed description and the appended claims.

For the purposes of illustrating the invention, I have shown in the accompanying drawing a typical embodiment of it, which, in practice, will give reliable and satisfactory results. It is, however, to be understood that this embodiment is typical only and that the various instrumentalities of which my invention consists can be variously arranged and organized, and the invention is not, therefore, limited to the precise arrangement and organization of these instrumentalities as herein set forth.

Figure 1 is a perspective view of a laboratory mill, embodying my invention.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a perspective view of one of the interchangeable screens, in detached position.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:—

1 designates a mill housing in which is

journalled a shaft 2 which is provided with a tight and a loose pulley 3 and 4, respectively, thereby adapting it to be driven by any desired source of power.

The shaft 2 has fixed to it, in any desired manner, a knife carrying head 5. 6 designates knives carried by the head 5 and secured thereto by means of fastening devices 7. Between the knives, the head is recessed, as at 8, in order to provide a clearance for the knives, which latter are bevelled.

9 designates a grinding casing within which the knife 6 revolves. This casing 9 is provided with slots 10 which open into the grinding chamber 11, and in these slots are adjustable knives 12 which are provided with threaded rods 13 passing through the casing and having nuts 14. Screws 15, in threaded engagement with the casing 9, bear against the inner faces of the knives in order to secure them in fixed position. All of these screws are preferably provided with lock nuts. The stationary knives 12 are bevelled, and, in practice, I preferably employ six stationary knives which have a shearing action with four rotatable knives.

The casing is preferably cut away to provide access to the adjusting and locking screws.

The bottom of the grinding chamber is formed by means of a removable screen 17, the inner face of which conforms to the curvature of the grinding chamber 11 and the frame of this screen is provided with ribs 18 which are received in the slots 19 of the casing 9.

Interchangeable screens are employed, and, in practice, three screens of different mesh are employed and three different sized screens are furnished with the mill, for example a screen of one millimeter, a screen of two millimeters, and a screen of three millimeters, mesh.

The casing forms a closure for the rear wall of the grinding section 11 and the front section is closed by means of a door 20 in the form of a flat plate which comes into close contact with the juxtaposed wall of the casing 9.

This door is hinged to the casing by straps 21 and is provided with a lug 22 which is adapted to be received in the slot 23 of a

locking arm 24 pivotally connected to the casing at 25 and having a set screw 26 in order that it may be tightly closed.

Beneath the screen 17, is a sliding drawer 5 27 to receive the sample which has been ground. 28 designates a hopper communicating with the grinding chamber 11 and into which the material to be ground is placed.

The operation of my novel laboratory mill 10 will be apparent to those skilled in the art and is as follows:—

The screen of the proper mesh is inserted and the door 20 closed and locked. The material to be ground is then inserted into the 15 hopper and passes to the grinding chamber. As soon as material is reduced to the desired degree of fineness to pass through the screen, it is received in the drawer and the sample is then ready for testing.

20 It will now be apparent that I have devised a new and useful laboratory mill which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and that 25 while I have, in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that this embodiment is susceptible of modification in various particulars without de-

parting from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:— 35

1. A laboratory mill, comprising a casing having a grinding chamber, one end of which is open, adjustable stationary knives carried by said casing and extending into said chamber, a laterally movable screen slidably engaging said casing and forming the lower wall of said chamber, a rotor in said chamber, knives carried by said rotor, and a door 40 hinged to said casing to close the open end of said chamber and prevent the removal of said screen when the door is closed. 45

2. A laboratory mill comprising a casing having a grinding chamber one end of which is open, adjustable stationary knives carried 50 by said casing, said casing having slots, a screen forming a wall of said chamber and having a frame with ribs to engage said slots whereby screens of different mesh are interchangeable, a knife carrying rotor within 55 said chamber, and a door closing the end of said chamber and preventing the removal of said screen when the door is in closed position.

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