

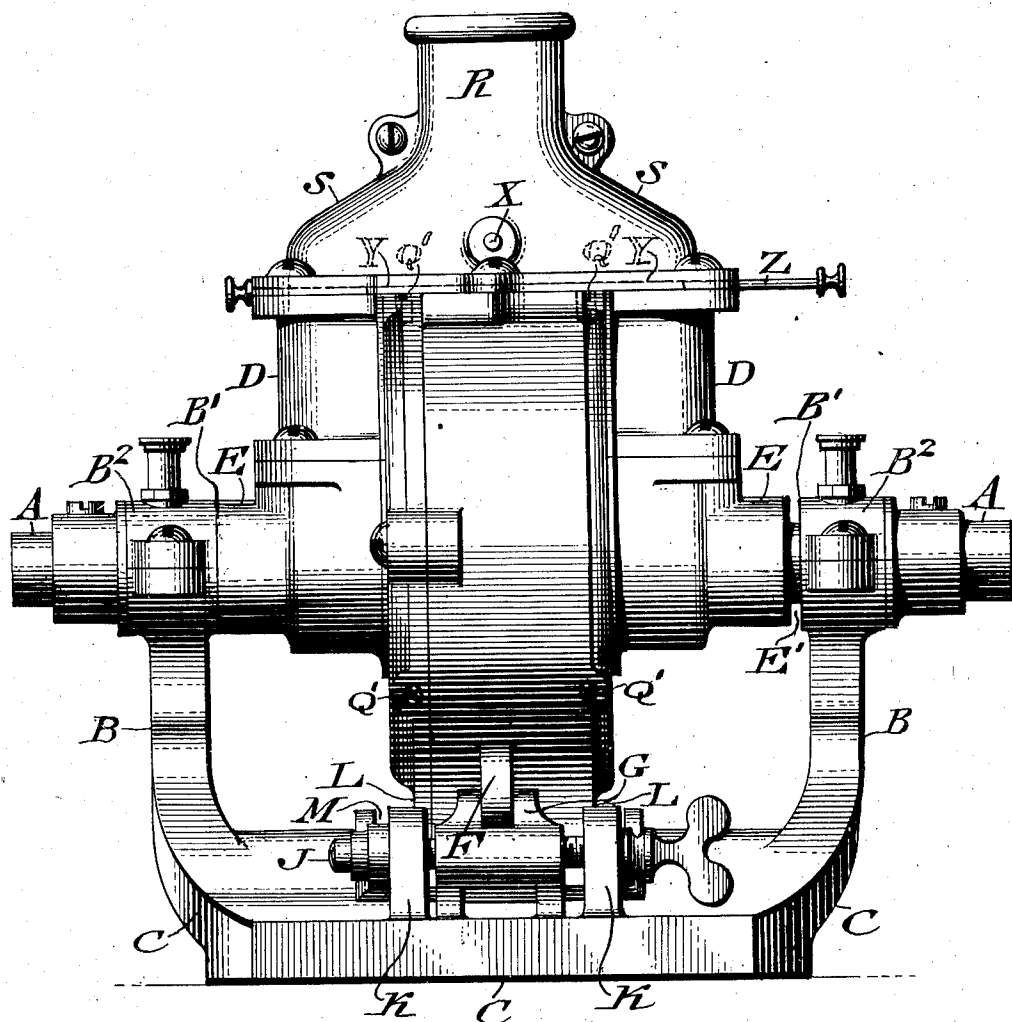
J. C. DELL.
GRINDING MILL.
APPLICATION FILED JAN. 25, 1912.

1,043,513.

Patented Nov. 5, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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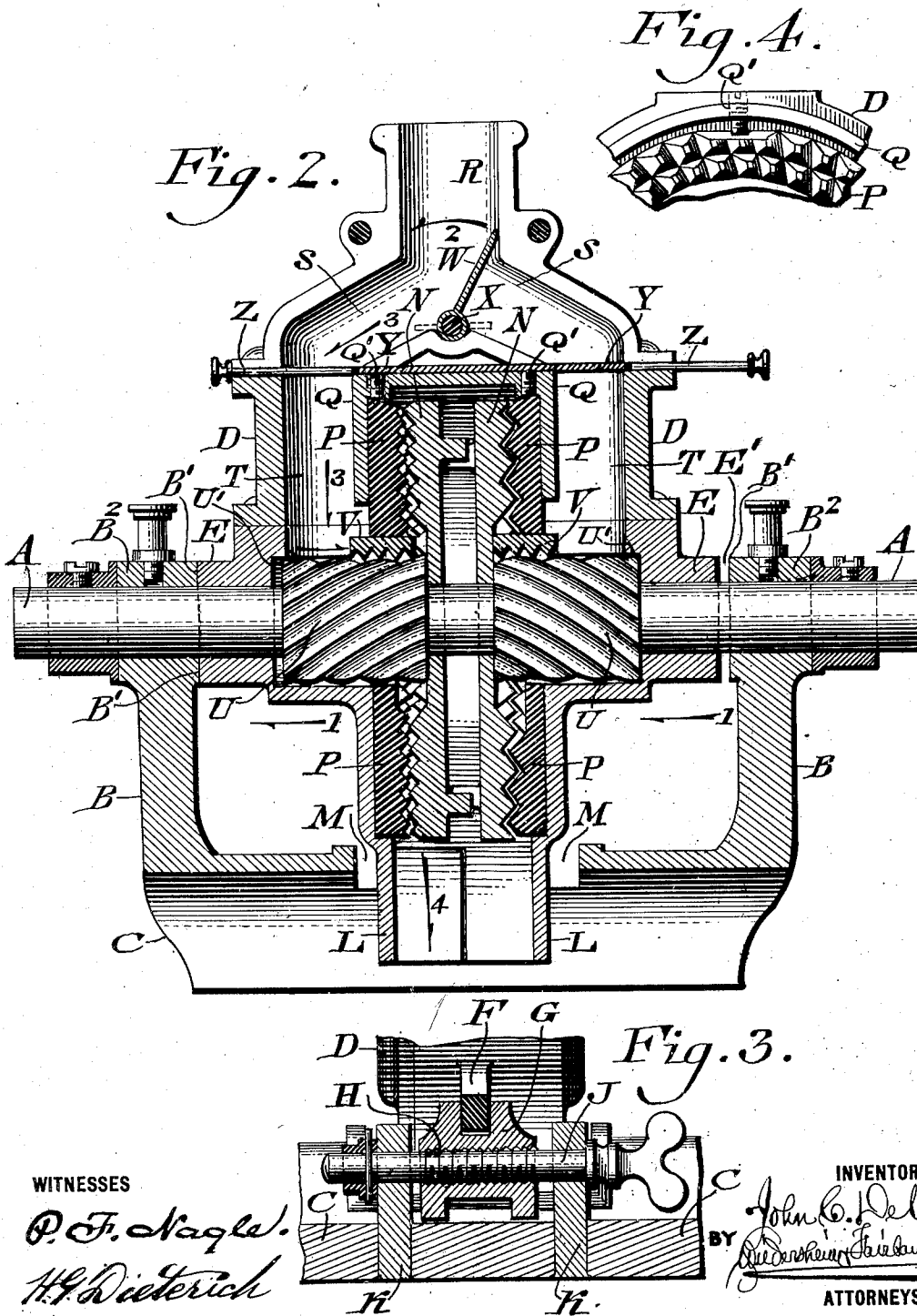
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1,043,513.

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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

JOHN C. DELL, OF PHILADELPHIA, PENNSYLVANIA.

GRINDING-MILL.

1,043,513.

Specification of Letters Patent.

Patented Nov. 5, 1912.

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To all whom it may concern:

Be it known that I, JOHN C. DELL, a citizen of the United States, residing in the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Grinding-Mill, of which the following is a specification.

My invention consists of a mill adapted for grinding coffee and other material coarse or fine, the same embodying a casing and grinding members therein, the pairs of the latter having respectively coarse and fine dress, and said casing being laterally shiftable or movable whereby a pair of the members of either coarse or fine dress may be brought coöperatively together accordingly as coarse or fine grinding is required, while the other pair of members are placed out of service.

It consists further of novel means for effecting the lateral shifting of the casing.

It consists further of details of construction as will be hereinafter set forth.

The invention is satisfactorily illustrated in the accompanying drawing, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific arrangement and organization shown and described.

Figure 1 represents a side elevation of a grinding mill embodying my invention. Fig. 2 represents a central vertical section thereof. Fig. 3 represents a vertical section of the mechanism employed for effecting the lateral motion of the casing. Fig. 4 represents a view of a portion of the interior of the mill.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings:—A designates the driving shaft of the mill, the same being mounted on the standards B which rise from the base C, the latter constituting the bottom support of the device.

D designates the mill casing on the sides of which are the bosses E which have the shaft A passing freely through the same and which are of such lengths in lateral directions in relation to the adjacent portions B' of the bearings B² for the shaft A that said casing may be moved to the right or left on said shaft, to and from said portions B'. In the present instance, the casing is shown as having been moved to the left as indicated by

the arrows 1, thus leaving the space E' between the boss E and the adjacent portion B' of the bearing B² on the right side of Fig. 2.

On the lower portion of the exterior of the casing A is the lug F which is fitted in the bifurcation or bifurcated traveler G, the latter having a threaded opening H transversely therethrough, said opening having fitted in it the screw J which is swiveled on the ears K which rise from the base C, it being evident that by rotating said screw, the traveler G may be moved to the right or left and with it the casing D, the lug F and traveler G also preventing rotating or overturning of the casing, this being also further prevented by the discharge spouts L which constitute the lower portion of the casing D, said spouts freely entering an opening M in the base C, and movable to the right or left therein, as they follow the motions of the casing.

Within the casing are the runners N which are arranged back to back on and secured to the central portion of the shaft A so as to rotate therewith, they having their grinding faces or dress on their outer sides or in opposite directions toward the outer sides of the casing. Within the casing are the grinding beds P which are stationarily secured to the walls Q in the casing by the screws Q' which are fitted in said walls and adapted to bear and tighten against the peripheries of said bed, it being noticed that the grinding faces or dress are opposite to those of the runners N, but said beds remain stationary on said walls Q and consequently in the casing but follow the side motions of the latter.

R designates the supply inlet of the casing D or hopper of the mill, the same being in communication at the bottom with the channels S which diverge to the right and left of the casing, each channel S communicating with a vertical channel T, the two channels T being respectively on the right and left of the casing. At the bases of said channels T are the spiral feeders U, which are fixed to the shaft A in any suitable manner and extend inwardly to the spaces between the beds and runners so as to direct the material to be ground to said spaces. Connected with the lower portions of the walls Q and partly and freely surrounding the feeders U are the circular toothed plates V against which the material to be ground is directed by the

feeders U so as to be cracked or broken preparatory to being introduced between the runners and beds to be ground.

At the base of the supply inlet R and the place of divergence of the channels S is the gate or valve W whose shaft X is mounted on the walls of the casing, the bottom of said valve being at the top of the lower walls of the channels S so that said valve may move from said top to the right or left, see arrow 2, and so close either of said channels while leaving the other channel open. By this provision material to be ground may be directed into either of the vertical passages T in order to be supplied to the pair of runners and beds, either in the right or left side of the casing, it being noticed by proper movement of the casing as it slides on the shaft A each bed may be moved to and from its opposed runner so as to effect coarse or fine grinding of the material, it being noticed also that the left hand runner and bed have their teeth or dress for fine grinding, while those of the right runner and bed have their teeth or dress for coarse grinding.

It is evident that when the members are in the position shown in Fig. 2, and the hopper is supplied with material to be ground, said material will be directed by the channels S. T., see arrow 3 to the left hand feeder U and passing the adjacent plate V will be directed between the runner and bed and so ground fine and discharge through the communicating spout L as per arrow 4. If coarse grinding is desired, the screw J is operated to move the casing D to the right. This brings the left hand bed P close to its runner N, but removes the right hand bed from its runner, the distance about equal to space E' between the collar E and bearing B², thus separating the last named bed and runner. The valve W will be turned to the left, consequently the material will be directed between the right hand bed and runner and so ground coarse, in which condition it will be discharged through the corresponding right hand spout L.

At the bases of the channels or chutes S is the slide Y which extends horizontally therethrough and is guided in openings in the walls of the casing D, it being connected with handled rods Z which extend outside of the casing so that the slide may be moved in and out as a valve to close one channel and open the other so as to cut off or let on the supply of coffee or other material into the channels T when so desired, thus regulating and controlling the supply of material to the grinding members. The slide Y constitutes a valve auxiliary to the gate or valve W which latter opens and closes either channel S, and the former regulates the flow of material to the channels T and the proper grinding member as above stated. If, however, the said valve W is improperly opened,

the valve Y in its closed position will prevent the material from entering the wrong passage T and reaching the grinding member that is not desired to be in operation.

As the casing D is movable or shiftable to the right or left as has been stated, and the feeders U are stationarily connected with the shaft A, provision is made to allow said motion of the casing to the required extent by forming recesses U' on the inner sides of the casing about the outer ends of said feeders so that sufficient space is afforded for the end of the right hand feeder to enter the adjacent recesses U' in the present position of parts Fig. 2, while the end of the left hand feeder has been withdrawn from the recess at the corresponding end. Then, when the casing is moved or shifted to the right, the right hand recess moves from the adjacent end of the feeder while the left hand recess moves over and covers the end of the relative feeder, the feeders thus not interfering with the required motions of the casing.

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

1. A grinding mill having a casing and a shaft and grinding members of different dress relatively slidable and non-slidable on said shaft within the casing, said casing mounted for sliding movement on said shaft in the direction of the length of the latter to place one pair of said members in operative position and the other pair in inoperative position to effect fine or coarse grinding by the respective members.

2. In a grinding mill, a driving shaft, a casing laterally slidable on said driving shaft, and slidable and non-slidable grinding members in pairs on said shaft in said casing, and means for moving said casing laterally for placing said members in operative or inoperative relation, to effect fine or coarse grinding.

3. In a grinding mill, a casing, a plurality of pairs of grinding devices therein, each pair embodying a stationary member, the same having dress for coarse or fine grinding, a driving shaft, the stationary grinding member of each pair of grinding devices being connected with said casing, and the runner of each pair being connected with said driving shaft, said casing being laterally slidable on said shaft, whereby either pair of grinding devices may be brought into operation to effect coarse or fine grinding by the movement of said casing.

4. In a grinding mill, a casing, pairs of grinding members of different dress therein, each pair embodying a stationary member, a driving shaft, a support for the bearings of said shaft, the stationary grinding member of each pair of said members being connected with said casing, and the runner of

each pair of said members being connected with said driving shaft, said casing being laterally slidable on said shaft, a traveler movable with said casing and means on said casing and support whereby motions in opposite directions may be imparted to the casing, and engageable with said traveler and the same held fixedly in such position to effect coarse or fine grinding.

5. In a grinding mill, a casing, pairs of grinding members of different dress therein, each pair embodying a stationary member, a driving shaft, a support for the bearings of said shaft, the stationary grinding member of each pair of said members being connected with said casing, and the runner of each pair of said members being connected with said shaft, said casing being laterally movable on said shaft to place one pair of said members in operative position and the other pair in inoperative position whereby fine or coarse grinding may be effected by the respective members, a lug on said casing, a traveler adapted to engage therewith, and a screw mounted on said support and adapted to engage said traveler.

6. In a grinding mill, a casing, pairs of grinding members of different dress in said casing, each pair embodying a stationary member, a driving shaft, said casing being laterally movable on said shaft to place one pair of said members in operative position and the other pair in inoperative position whereby fine or coarse grinding may be effected by the respective members, the stationary grinding member of said members being connected with said casing, and the runner thereof being connected with said shaft, said stationary members being movable into operative or inoperative position with relation to the runners, separate chan-

nels in said casing leading to the respective pairs of grinding members, a main valve at the inlet of said casing adapted to close and open either channel and auxiliary valves in said channel below said main valve.

7. In a grinding mill, a casing, pairs of grinding members therein of different dress in said casing, a driving shaft and feeding devices on said shaft one for each pair of grinding members, said casing being laterally movable on said shaft to place one pair of said members in operative position and the other pair in inoperative position whereby fine or coarse grinding may be effected by the respective members, said casing having on its interior on opposite sides about said shaft recesses, each of which is adapted to receive the end of the respective feeder on the movement of the casing.

8. In a grinding mill of the character stated, a casing, pairs of grinding members of coarse and fine dress therein, each pair embodying a stationary member, a driving shaft, a support for the bearings of said shaft, said casing being laterally movable on said shaft and the stationary members and runners of said members being connected respectively with said casing and shaft, a lug on the casing, a traveler on the base of said support, an ear rising from said base, and a screw swiveled on said ear and engaging said traveler for imparting lateral motions to said casing to place one pair of said members in operative position and the other pair in inoperative position, whereby fine or coarse grinding may be effected by the respective members.

JOHN C. DELL.

Witnesses:

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