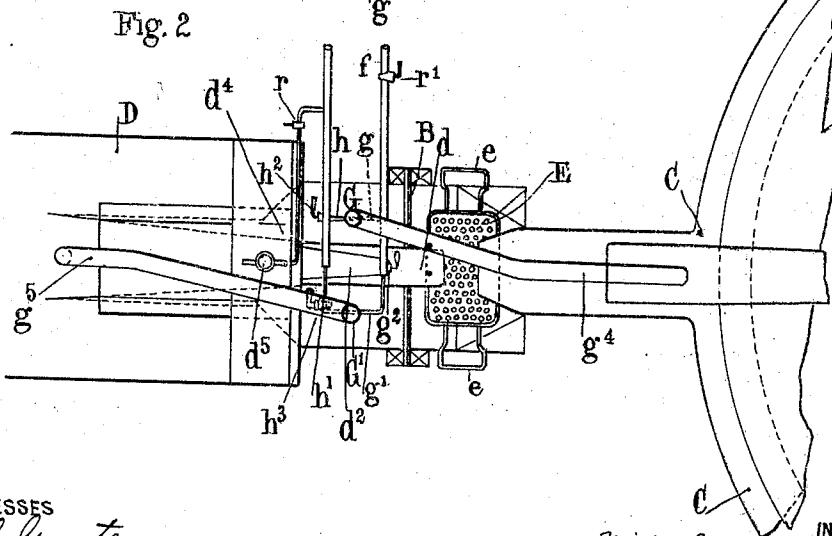
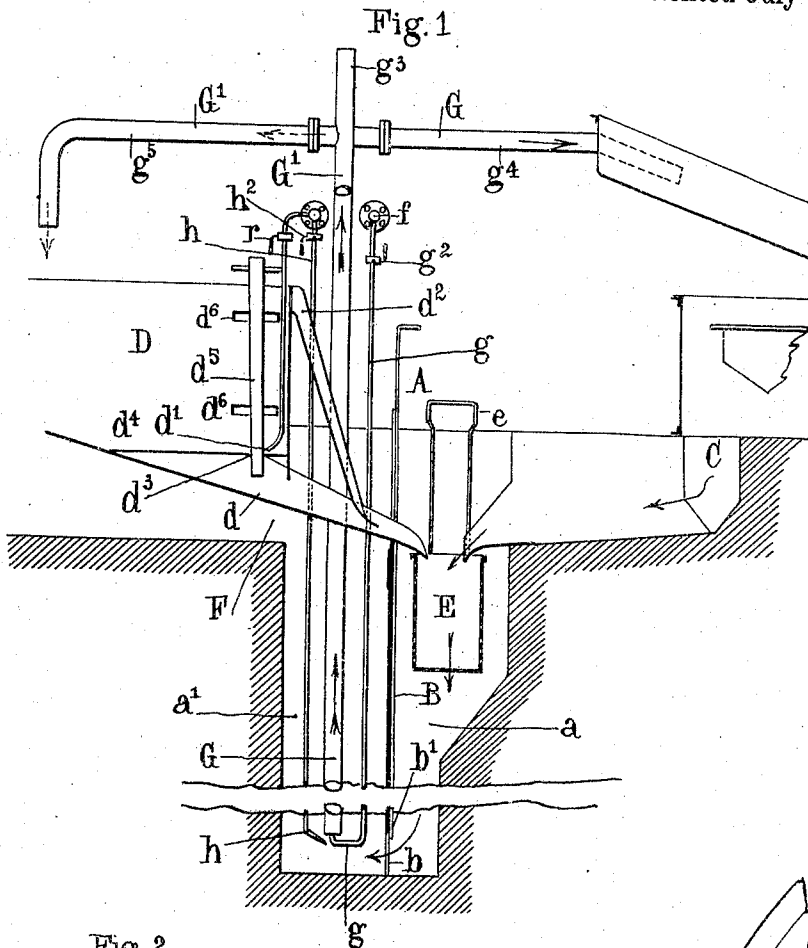


M. P. A. LARONDE.  
FEEDING DEVICE FOR GLASS GRINDING MACHINES.  
APPLICATION FILED JAN. 29, 1910.

998,353.

Patented July 18, 1911.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## FEEDING DEVICE FOR GLASS-GRINDING MACHINES.

998,353.

Specification of Letters Patent.

Patented July 18, 1911.

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*To all whom it may concern:*

Be it known that I, MICHEL PAUL AUGUSTE LARONDE, a citizen of the French Republic, residing at Aniche, Department of Nord, France, have invented certain new and useful Improvements in Feeding Devices for Glass-Grinding Machines, of which the following is a full, clear, and exact description.

10 This invention relates to feeding devices for glass-grinding machines in which sand is employed for the grinding of the glasses. The sand so employed not being utilized in its entirety, a portion thereof escapes from the apparatus without having performed its function, and the current of water which in circulating around the platform receives the projected matter removes what is a mixture of both fresh and used sand. In order to recover this unused sand, according to the method at present employed, the current of residual water leaving the apparatus is directed into a series of tanks in which the large particles are deposited, the remainder being transferred to classifying apparatus with a view to its utilization for soaping. The sand collected in this way is removed from the tanks and returned again to the grinding apparatus; this operation necessitates laborious and onerous work.

25 The present invention has for object a means which, in combination with an elevating device for the sand suspended in the water, allows within any manual labor or maintenance expenses and with a minimum of power expended: (1) of extracting from the residual water the unused sand capable of being employed again; (2) of delivering above the grinding apparatus a current of water containing in suitable dilution the sand thus taken up added to the necessary complement of quite fresh sand freed from all earthy matter and all foreign bodies. The residual water is directed to the bottom of a well of suitable section in which it rises with a certain speed; under the influence of this speed and of their mass, the particles remain suspended in the ascending current at a depth varying with their weight. The ground particles of small size and light weight, are carried to the top of the well whence they may be removed by means of an overflow. The unused particles, on the

other hand, being larger and therefore heavier, remain in suspension at the bottom of the well where they may be collected by an emulsifying device or air-lift, a pump or any other equivalent means, which conducts them directly to the grinding apparatus. The fresh sand intended to complete the amount of the feed may be added to the residual water so that it is retained in the same way as the unused sand at the bottom of the well and extracted at the same time.

One form of apparatus serving for carrying out the invention is described hereafter by way of example with reference to the annexed drawing, in which:—

Figure 1 is a vertical section of the apparatus. Fig. 2 is a plan.

The apparatus consists of a rectangular well A divided vertically into two unequal parts *a a'* by a wall B descending to the bottom of the well and furnished with an opening *b* which connects the two compartments at the bottom, this opening being adjustable in area by means of a register or shutter *b'*.

The small compartment or cell *a* receives at its upper end the sandy water from a circular channel C surrounding the grinding apparatus, and the fresh sand intended to complete the amount of the feed and conveyed from a containing bin or silo D through a passage *d*.

The sand stored by suitable means in the silo D is dredged out by a water-jet *d'* regulated by a cock *r* and falls into the passage *d* through an orifice *d<sup>3</sup>* formed in a false-bottom *d<sup>4</sup>*; the water-jet *d'* is directed so as always to clear the orifice *d<sup>3</sup>* which may readily be closed by a conical wooden plug *d<sup>5</sup>* guided in two collars *d<sup>6</sup>* and passing from top to bottom of the bin.

The bin D is provided with an overflow *d<sup>2</sup>* which delivers to the discharge passage *d*.

The united streams of sandy water coming from the apparatus and from the silo D fall into a metal basket E which is immersed in the water in the cell *a*; this basket is intended to retain pebbles or stones and other foreign bodies which may be formed in the sand, and it rests upon the brink of the well by means of handles *e* which allow of lifting it with ease when it requires emptying. The water thus strained descends to the bot-

tom of the well A and passes to the cell *a'* through the opening *b* which is adjusted in area to insure a sufficient speed of the current to scour the bottom of the well and prevent any sediment.

The position of the well B is regulated so as to give to the areas of the cells *a a'* a relation such that, with a given (and for any one apparatus approximately constant) speed of entrance of the sandy water, the water removed by the overflow may contain no trace of unused sand. The water rises slowly in the cell *a'* and leaves by an overflow *F* which removes it to waste.

The emulsifiers or air-lifts *G G'* descend into the cell *a'*, their suction or inlet being at a suitable distance from the bottom. These emulsifiers are operated by two pipes *g g'* connected to a compressed-air supply *f*; a three-way cock *g<sup>2</sup>* is arranged in such a way that air is always admitted to one of the inlet pipes *g g'*, that is neither of the emulsifiers can be put out of action without the other being started; in this way the regular removal of sand which is retained by its weight in the sump is insured and obstruction of the apparatus is prevented. A cock *r'* placed upon the air pipe *f* allows of isolating the apparatus and of regulating the speed of the emulsifiers during operation. Lastly, each emulsifier is provided with a pipe *h h'* having a stop-cock *h<sup>2</sup> h<sup>3</sup>* leading to its base a jet of water; this arrangement allows of preventing any deposit of sand in the neighborhood of the emulsifier-inlet and of freeing rapidly the bottom of the well in the event of sudden stoppage of the compressor.

The emulsifiers *G G'* consist of plain vertical tubes at the bottom of which the up-turned ends of the air pipes *g g'* deliver; their height above the water level is such that their entirely open upper end *g<sup>3</sup>* allows the expanded air to escape without evacuating the smallest quantity of raised water; the latter leaves without projection by the lateral pipe *g<sup>4</sup> g<sup>5</sup>* at the same time as the sand which it holds in suspension.

The emulsifier *G* delivers directly to the distributing device which feeds the grinding apparatus, while *G'* delivers to the silo *D* at the end opposite to the overflow.

The working of the apparatus is as follows:—A current of water circulates as regularly as possible in the channel *C* of the grinding machine and collects the sand thrown off by the operating table; this water falls continually into the metal basket *E*. When it is necessary to feed the machine, the emulsifier *G* is started, the lower orifice *d<sup>3</sup>* of the silo is opened and the water-jet *d'* is regulated to carry away the amount of sand necessary to complete the feed. When the feed is to cease, the jet *d'* is stopped, the orifice *d<sup>3</sup>* of the silo is plugged, and by

closing the air passage to the first emulsifier *G* the second one *G'* is started so as to deliver into the silo *D*; the water escapes from the silo through the overflow *d<sup>2</sup>*, giving up by decantation the large particles of sand which it contains. In this way the maintenance of the state of equilibrium in the sump *A* is insured, its obstruction is completely prevented as well as the running to waste of utilizable sand which the grinding apparatus may discharge outside the times of feeding, and this sand is collected automatically in the silo *D*, whence it may be drawn for the next operation.

The invention is not limited to the details of construction described; these may be modified without affecting the essence of the invention.

The apparatus may likewise be constructed with a view to any other employment and in particular to the classification and the utilization of the sand for the soaping process; in this case it would be necessary to employ several wells of a wall of variable area, in combination with emulsifiers with intakes at suitable positions to draw off the different grades of sand classified in the well or wells.

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

1. In combination with a polishing machine, a well having an upward flow therethrough and means for leading thereto the residual waters with their contained sand from the polishing machine, a conduit opening into the lower portion of said well and means for leading off through said conduit to the polishing machine portion of the flow of water in the well, together with the sand suspended therein at the level of the conduit inlet, substantially as described.

2. An apparatus of the character described comprising a well divided by a vertical partition with bottom port through which the compartments of said well communicate, means for regulating the size of said port, a screen arranged in one of said compartments means for leading to said screen the residual water with its contained sand from a polishing machine, in combination with an emulsifier arranged at the bottom of the other compartment and serving to convey from the latter the sand suspended therein at the level of the intake of said emulsifier, substantially as described.

3. An apparatus of the character described, comprising a well with an upward flow therethrough to an overflow outlet, means for leading thereto the residual water with its contained sand from a polishing machine, an upright conduit of predetermined capacity in said well and means for forcing up through said conduit the sand suspended in the water of said well at the level of the

intake of said conduit and means for returning to the polishing machine the sand thus recovered.

4. An apparatus of the character described, comprising an operating table for a polishing machine with a discharge-collecting water-channel around the same, a strainer to which said channel delivers its water, a storage bin for unused material with a discharge orifice in the bottom thereof, means for controlling the discharge of material through said orifice, a passage from said orifice to said strainer, a well, a wall dividing said well into two cells, said wall having an adjustable orifice at bottom establishing communication between said two cells, said strainer delivering its water to one of said

wells, an overflow for water and waste matter at the top of said second cell, air-lifts adapted to collect particles of unused material at the bottom of said second cell, one of said air-lifts returning said unused material to the operating table of said polishing machine and the other air-lift delivering said unused material to said storage bin, and means for controlling the operation of said air-lifts.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

MICHEL PAUL AUGUSTE LARONDE.

Witnesses:

CHARLES LEJEUNE,  
LÉON DECAVEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."