

No. 716,459.

Patented Dec. 23, 1902.

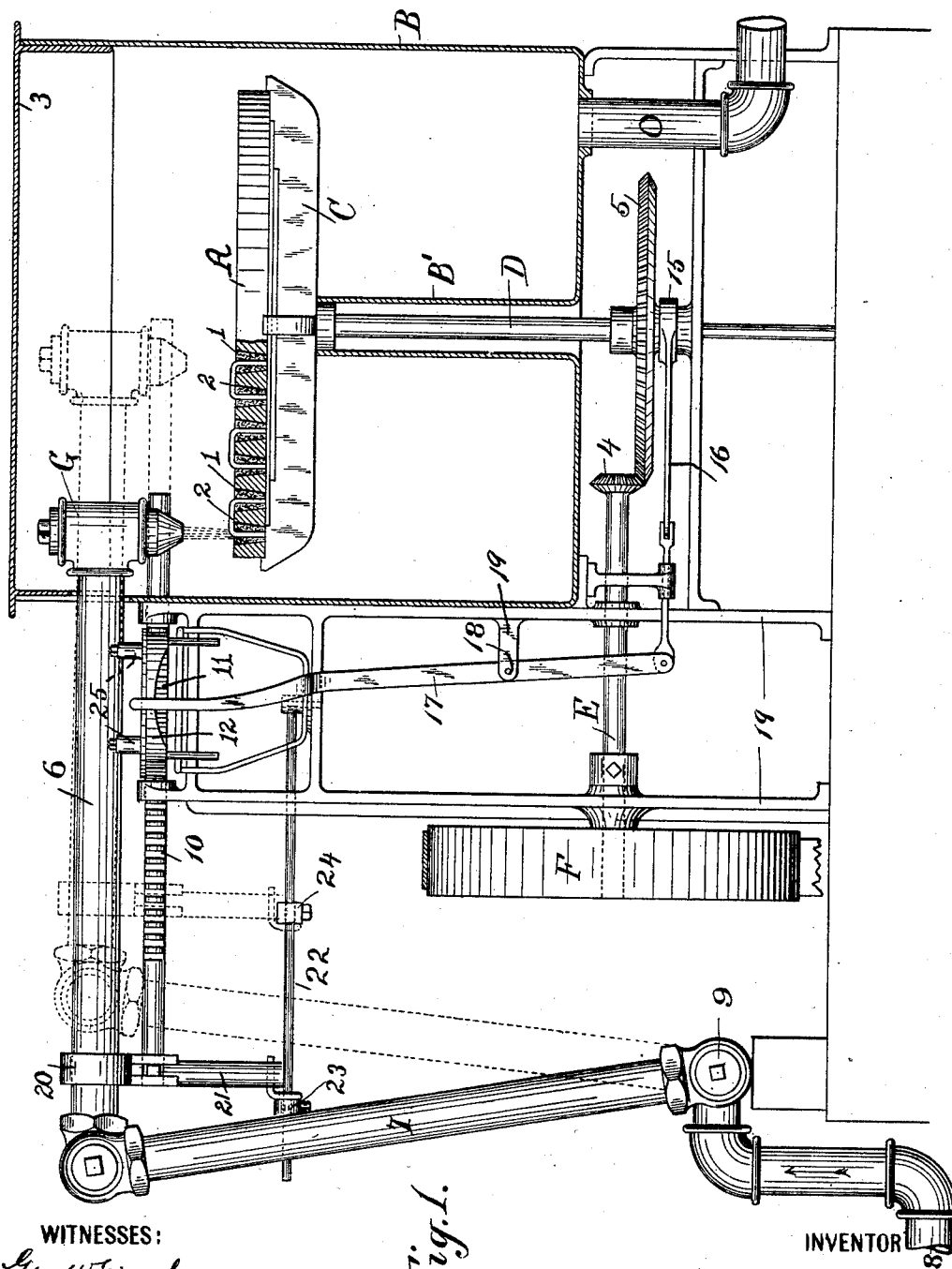
S. MUELLER.

APPARATUS FOR CLEANING DIES OR FORMS.

(Application filed Apr. 7, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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Fig. 1.

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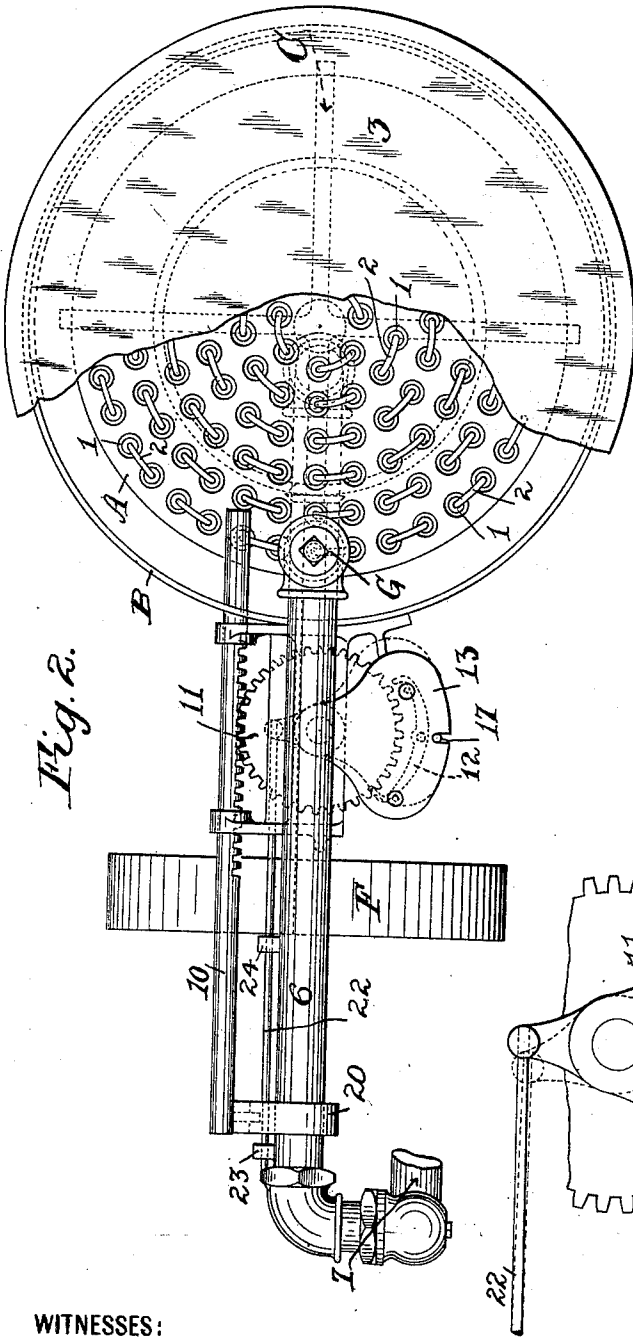


Fig. 2.

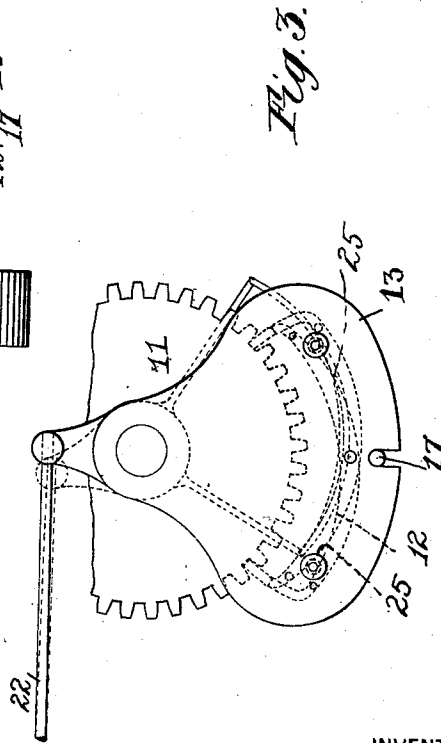


Fig. 3.

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UNITED STATES PATENT OFFICE.

SAMUEL MUELLER, OF JERSEY CITY, NEW JERSEY.

APPARATUS FOR CLEANING DIES OR FORMS.

SPECIFICATION forming part of Letters Patent No. 716,459, dated December 23, 1902.

Application filed April 7, 1902. Serial No. 101,633. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL MUELLER, a citizen of the United States of America, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Cleaning Dies or Forms, of which the following is a specification.

My invention has reference to improvements in apparatus for cleaning dies or forms such as are used in the manufacture of spaghetti, macaroni, and like preparations of cereal foods which are made, formed, or cut into a particular shape or configuration for the market.

In the manufacture of macaroni, spaghetti, and the like dies or forms made of copper or composition thereof or of steel and provided with transverse openings or perforations are used, the dough being forced through said openings in the die or form by pressure. When hollow substances, such as macaroni, are to be produced, cores are placed in the openings or perforations for the purpose of producing such tubular substances. It will be readily understood that when the works are shut down for the night the openings or perforations remain filled with the dough and must be cleaned before the die or form can be used again. Heretofore the dies used in the formation of these substances have been soaked in water and cleaned by hand, which operation naturally required a long time and incurred considerable expense. With the use of my present apparatus the dies or forms can be cleaned very rapidly and with greatly-reduced expense, and at the same time the number of dies necessary is reduced to a minimum in view of the rapidity with which the dies can be cleansed, and there is no waste of material, as heretofore, while the dies or forms are always clean and pure.

With the above objects in view my invention consists, essentially, in a receiving-chamber, a die or form holder mounted to rotate, means for rotating said die or form holder, a cleansing-nozzle mounted to move parallel to the plane of the die or form holder, means for supplying water or other cleansing liquid under pressure to said nozzle, and means for imparting movement to said cleansing-nozzle.

The nature of my invention will be under-

stood best when described in connection with the accompanying drawings, in which—

Figure 1 represents a side elevation, partly in section, of an apparatus embodying my invention. Fig. 2 is a plan or top view of the same. Fig. 3 is a plan view of part of the intermittent feeding and reversing mechanism.

Similar letters and numerals of reference designate corresponding parts throughout the several views of the drawings.

Referring to the drawings, the letter A designates a die or form such as is commonly used in the manufacture of macaroni, the same being provided with concentric series of transverse openings or perforations 1. The openings are tapered, and into the same are inserted cores 2, connected in pairs in a usual manner, so that the product formed by such dies or forms is a tubular body. The construction of these dies or forms is old and well known and constitutes no part of my present invention. For the purpose of removing the adhering dough which fills the openings or perforations at the time of the removal of the die or form from the hydraulic press I provide the following means:

B is a receiving vessel supported in a suitable manner, which said vessel is closed at its bottom and preferably provided at its top with a removable cover 3. Within said vessel and at some distance above its bottom is mounted a die or form holder C, which may be of any suitable construction, for the purpose of holding the dies or forms A, and has imparted thereto a slow rotary motion by the following means: The die or form holder C is mounted upon a vertical spindle D, which extends upwardly through the bottom of the receiving vessel B within a sleeve B', so as to prevent escape of water or other fluid used on the die. Rotary movement is imparted to said spindle D from a shaft E by intermediate gear-wheels 4 and 5, said shaft E being driven by a pulley F and belt in a usual manner.

Above the die or form holder C is arranged a nozzle G, adapted to direct vertically downward a jet of water or other cleansing fluid in the direction of the die or form holder. This nozzle G is connected, by means of pipes 6, 7, and 8, with a supply of fluid under pressure. The fluid under pressure may be supplied by a pump of a usual construction (not

shown) or, where the ordinary water-supply has sufficient pressure, directly from such supply. To this nozzle G there is imparted an intermittent movement parallel to the plane of the die or form holder, the movement being so regulated that the nozzle G is held for a determined period of time directly above one of the concentric lines of openings or perforations 1, so as to direct the jet or stream of cleaning fluid directly in line with one series of perforations at a time, it being understood that the die or form holder C is slowly rotating, and then the nozzle is shifted to come in line with the next series of openings or perforations, and so on, until the complete series of openings or perforations have been covered, as indicated by dotted lines in Fig. 1, whereupon the nozzle is returned in a step-by-step movement to the position shown by full lines in Fig. 1. The means or mechanism for accomplishing this movement of the nozzle may be of any usual construction, and I do not wish to restrict myself to any particular means or mechanism for effecting this purpose. In the present example I have shown the horizontal pipe 6 connected by the pendent pipe 7 with a swivel-joint 9 to the supply-pipe 8, so as to permit longitudinal movement of said pipe 6. To the pipe 6 is connected a rack 10, which is engaged by a gear-wheel 11, adapted to be turned in one direction or the other by means of a double pawl 12, attached to a carrier 13, pivoted to swing about the arbor of the gear-wheel 11. On the spindle D is mounted an eccentric 15, whose rod 16 engages with the lower end of a lever 17, pivoted at 18 to a suitable frame or standard 19 and having its upper end arranged to engage with the pawl-carrier to turn the gear-wheel 11, so as to feed the pipe 6, and consequently the nozzle G, in one direction or the other, according to the position of the pawl 12, during the revolution of the shaft D and that of the die or form holder C. The lug 20, which supports the rack 10, is provided with a tappet 21, projecting downwardly in the path of two stops 23 and 24, located on a horizontal rod 22, whose inner end is bifurcated and engages with the pawl. It will be readily understood that when the rack 10 is moved from the position shown in full lines in Fig. 1 by means of the gear 11 and the mechanism described to the position shown by dotted lines in the same figure the

stop 24 is engaged by the tappet 21 to move the rod 22, so as to turn over the pawl-carrier 13 about its pivot, whereby the movements of the gear-wheel and that of the pipe 6 are reversed. When the rack 10 returns from the position shown by dotted lines to that shown by full lines, the tappet 21 engages the stop 23 and another reversal takes place. The pawl-carrier 13 is subjected to the action of two springs 25 25 to hold the same in one position or the other. It is of course to be understood that any other suitable reversing mechanism may be employed.

It will be readily understood that by properly proportioning the eccentric 15 and the intermediate mechanism for the nozzle G the said nozzle is advanced from one concentric row of openings or perforations to another at each revolution of the shaft D. According to construction of the eccentric or cam this movement may be intermittent or continuous.

A suitable outlet-pipe O is provided for drawing off the liquid in the receiving vessel B.

What I claim as new is—

1. An apparatus for cleaning dies or forms having transverse openings or perforations, comprising a die or form holder mounted to rotate, means for rotating said die or form holder, a cleansing-nozzle mounted to move parallel to the plane of the die or form holder, means for supplying a cleansing fluid under pressure to said nozzle, and means for imparting movement to said cleansing-nozzle, substantially as described.

2. An apparatus for cleaning dies or forms having transverse openings or perforations comprising a die or form holder mounted to rotate, means for rotating said die or form holder, a cleansing-nozzle mounted to move parallel to the plane of the die or form holder, means for supplying a cleansing fluid under pressure to said nozzle, and means for imparting intermittent movement to said cleansing-nozzle, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SAMUEL MUELLER.

Witnesses:

A. FABER DU FAUR, Jr.,
RAENA H. YUDIZKY.