

F. G. WISELOGEL.
PRESS FOR EXPRESSING FLUIDS FROM SOLIDS.
APPLICATION FILED AUG. 31, 1908.

942,301.

Patented Dec. 7, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

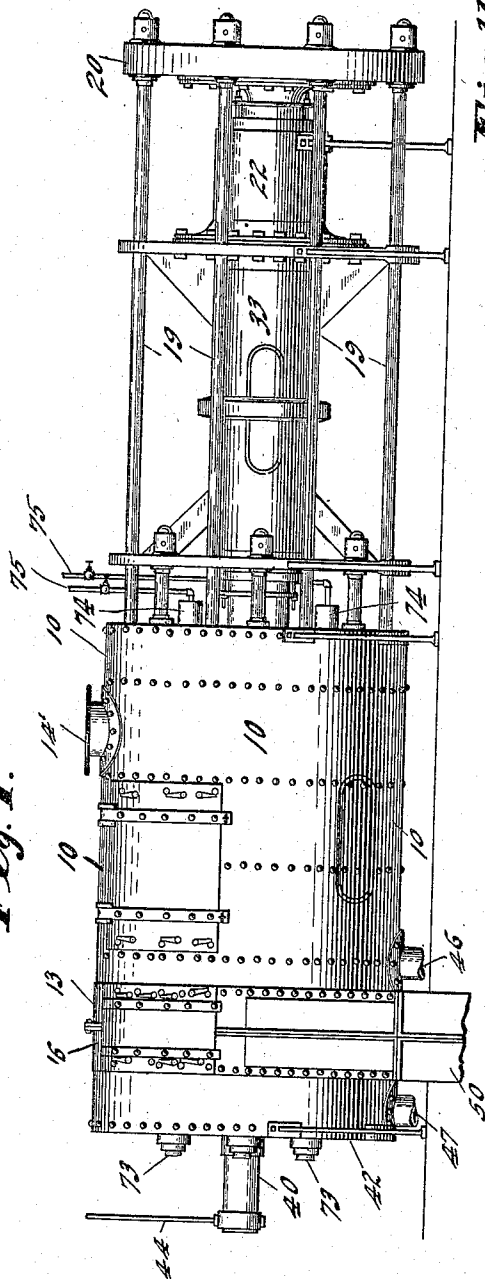
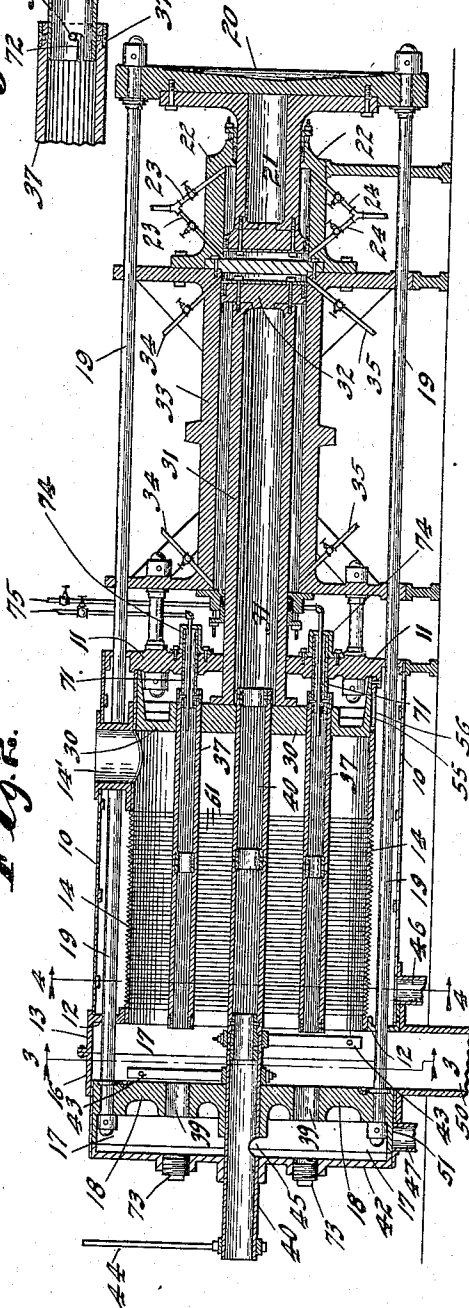


Fig. 11.



Fig. 2.



Witnesses
Frank A. Fahl
Thomas H. McMeans

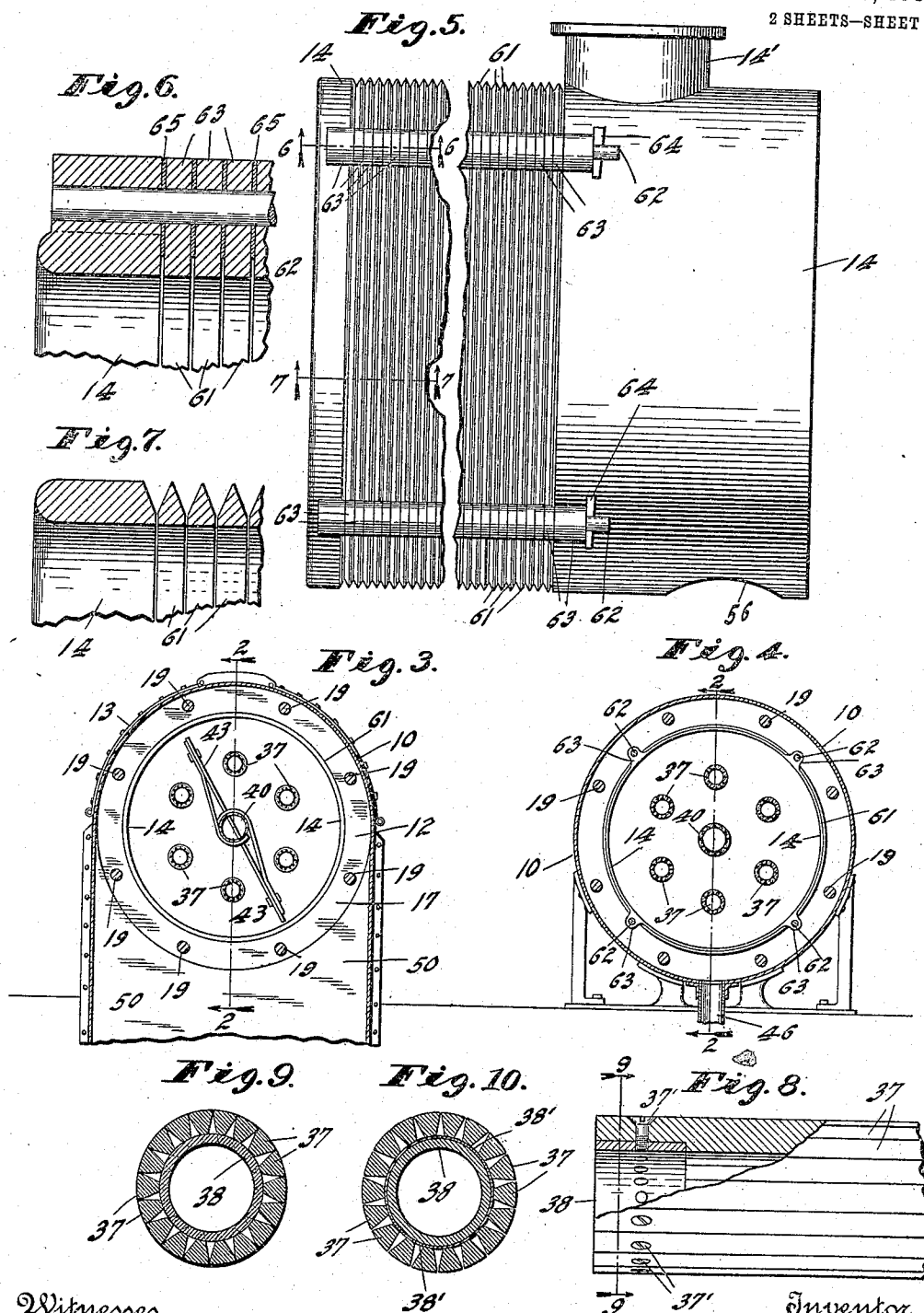
Inventor
Frederick S. Wiselugel,
By Bradford & Hood,
Attorneys.

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2 SHEETS—SHEET 2.



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Inventor
Frederick S. Wiselögel,
By Bradford & Hood,
Attorneys.

UNITED STATES PATENT OFFICE.

FREDERICK G. WISELOGEL, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO UNITED STATES CONSTRUCTION AND UTILIZATION COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

PRESS FOR EXPRESSING FLUIDS FROM SOLIDS.

942,301.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed August 31, 1908. Serial No. 451,105.

To all whom it may concern:

Be it known that I, FREDERICK G. WISELOGEL, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Presses for Expressing Fluids from Solids, of which the following is a specification.

The object of my invention is to produce a mechanism for quickly expressing fluids from semi-solid masses, such for instance as sewage, garbage, tankage and the like, the mechanism being of such character that considerable quantities can be handled at each operation, and the substantially solid residuum be readily discharged from the apparatus.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a side elevation of an apparatus embodying my said invention; Fig. 2 a central longitudinal vertical sectional view thereof at the point indicated by the dotted lines 2 2 in Figs. 3 and 4; Figs. 3 and 4 transverse vertical sectional views at the points indicated by the dotted lines 3 3 and 4 4 respectively in Fig. 2; Fig. 5 is a detail elevation upon an enlarged scale of the container or press cylinder, the central portion being broken away; Figs. 6 and 7 detail sectional views on a still further enlarged scale at the points indicated by the dotted lines 6 6 and 7 7 respectively in Fig. 5; Fig. 8 a detail or fragmentary view partially in side elevation and partially in section of one of the interior tubes; Fig. 9 a transverse sectional view at the point indicated by the dotted lines 9 9 in Fig. 8; Fig. 10 a view similar to Fig. 7 but showing the bars constituting the wall of the tube somewhat more separated, and Fig. 11 a detail sectional view showing the detachable connection between the tube portion.

In the drawings 10 indicates a main cylindrical drum closed at one end by a head 11 and having at the other end an annular head 12 which, on its outer face is provided with a flange 13 for a purpose which will appear. Mounted within the drums 10 and of considerably smaller diameter, is a strainer drum or container or press cylinder 14, which at its ends is secured to the

heads 11 and 12, so that an annular chamber 55 is formed between drums 10 and 14. The drum or cylinder 14 has a multiplicity of openings forming outlets for the fluids. That portion of said drum or cylinder in which the greater part of the pressing is done is made up of a multiplicity of annular rings 61 spaced a slight distance apart. These rings 61 are substantially V-shaped in cross section, the points being on the outer side so that the openings are of small dimensions at the inner surface of the cylinder wall, and increase in width as the outer surface is reached. This is of material advantage in a machine of this character, as it permits a free passage of the liquids without danger of having the openings clogged by the solids. These rings are assembled into a cylinder and secured together by means of rods 62 which pass through ears 63 thereon, and are drawn tightly together by any suitable means, as wedges 64. The size of the openings between these rings may be adjusted as desired by interposing washers, as 65, of varying thicknesses between the ears, as will be readily understood.

Coöperating with flange 13 is a ring 16, to form a chamber 17 at the open end of the drum 14. Movably mounted in chamber 17 is a head 18 which is adapted to be brought into engagement with head 12 so as to close the open end of drum 14. Secured to head 18 are rods 19 which pass through head 12, the annular space between drums 10 and 14, and head 11, and at their outer ends are connected to a head 20 carried by a piston 21 mounted in a cylinder 22. Cylinder 22 is provided with suitable valved feed-pipes 23 connecting with the opposite ends of the cylinder, and is also provided with suitably valved exhaust pipes 24 also connecting with opposite ends of the cylinder, so that, by properly admitting and exhausting pressure from the cylinder 22, head 18 may be moved from the position shown in Fig. 2 to a position where it will close the open end of drum 14, and vice versa. Mounted in the opposite end of drum 14 is a piston or presser-head 30 which is carried by a hollow stem 31 passing through head 11 and carried by a piston 32 mounted in a cylinder 33 which at its opposite ends is provided with suitably valved inlet pipes 34 and ex-

haust pipes 35, the arrangement being such that the presser-head 30 may be caused to traverse the drum 14.

In order to facilitate the withdrawal of fluids from the mass in the drum or container 14 I deem it advisable to provide fluid outlets at various points in the mass, and for this purpose I secure in head 11 a plurality of tubes which extend through presser-head 30 parallel with the axis of drum 14 and the full length thereof. These tubes are composed throughout that portion of their length which is within the pressing cylinder of longitudinally disposed bars 37, and these are secured to suitable supports 38 as by screws 37'. These bars are tapered in cross section, as shown in Figs. 9 and 10, so that the openings between them increase in size as they approach the interior surface. This is so that the fluids being expressed from the mass may pass freely to the interior of these tubes without the liability of clogging the openings. The distances between the bars forming the walls of these tubes may be adjusted by interposing between their inner surface and the outer surface of the rings 38 suitable bushings 38', as is shown in Fig. 10.

It is desirable that the slitted tubes 37 shall be removable, in order that the same may be cleaned or repaired when necessary. As heretofore indicated, they are connected to and held in place by the cylinder head 11, while the presser head 30 travels over them in operation. To make this detachable connection I mount a short pipe 71 in the cylinder head 11, said pipe 71 being small enough to enter the otherwise open end of tube 37. I unite these parts 71 and 37 by a suitable detachable connection, such as the "bayonet lock" illustrated in Fig. 11, where an angular slot 72 engages with the prolonged point of one of the screws 37'. The head 18, as heretofore indicated, has perforations which receive the ends of the tubes 37, when said head is moved up to the position it occupies during the pressing operation. The outer cylinder head 42 also has perforations in line with the perforations in head 18 but of somewhat greater diameter than said perforations. These are normally closed by means of plugs 73. When it is desired to remove the tubes 37, these plugs 73 are first removed, and a suitable instrument is inserted through the perforations in heads 42 and 18; and, engaging with tube 37, the latter is given a partial rotation, releasing the "bayonet lock" engagement above described, after which said tubes 37 can be withdrawn through said perforations to the outside of the press where convenient access may be had thereto for purposes of cleansing and repair, as may be desired.

In some classes of material which I have designed to treat by means of my improved press packing house products are included, which contain considerable glue. In order to keep the interior pipes free from this glue I insert through the caps 74 covering the ends of pipes 71 water pipes 75, by means of which I am enabled to at will inject hot water into said tubes 37, which will keep the glue in fluid condition and cause it to run out with the other fluids being pressed from the mass of material.

Extending through head 18 are passages 39 which are adapted to be brought into registry with the adjacent open ends of tubes 37 when head 18 is in position to close the open end of drum or container 14. In order to provide further outlet for fluids from the mass in drum 14 I journal, centrally in head 18, a tube 40, which is extended through drum 14 and head 30 into the opposite hollow rod 31. Tube 40, through the major portion of its length, is formed in the same manner as tubes 37, and said tube passes freely through a head 42 which closes the outer end of chamber 17. The tube 40 is rotatable within the head 18 but moves longitudinally therewith and said tube is provided, immediately adjacent head 18 and within chamber 17 when said head 18 is in the position shown in Fig. 2, with stirrer arms 43, and at its outer end the tube 40 is provided with an operating lever or handle 44. Tube 40 is also provided with one or more perforations 45 just outside of head 18 but inside of head 42. Leading from the annular space between drums 14 and 10 is a fluid outlet 46, and leading from that portion of chamber 17 which lies between heads 18 and 42 is a fluid outlet 47.

The operation is as follows:—Pressure is introduced into the left hand end (see Fig. 2) of cylinder 22 so as to draw head 18 up to a position to close the open end of drum 14, and, as the head needs to be maintained in this position for a considerable period, I prefer to use either oil or water for this purpose. The mass of semi-solids is then introduced into drum 14, a mouth 14' being shown as a convenient form of inlet. Pressure is then introduced into the right hand end of cylinder 33, and the presser-head 30 thereby driven toward head 18, thus expressing the fluids from the mass, said fluids flowing freely through openings in the wall of drum 14 and through the openings in the walls of tubes 37 and 40 respectively into the drum 10, or through passages 39 and 45 into the outer end of chamber 17, from whence they flow through the fluid outlets 46 and 47 respectively. As soon as the mass has been compressed to the proper amount, the pressure in the left hand end of cylinder 22 is released, and pressure introduced into the right hand end of cylinder 22, and further

pressure introduced into the right-hand end of cylinder 33, so that the two heads 30 and 18 move simultaneously to the left, thus forcing the substantially solid mass out of the open end of drum 14 into chamber 17. Thereupon the operator grasps lever 44 and rotates or oscillates tube 40 so that the stirrer arms 43 will break up the mass and allow it to flow through the discharge leg 50 of chamber 17. Plunger 18 is provided with a lip 51, which closes leg 50 when the plunger 18 is in position to close drum 14, and thus prevents fluids from running down through leg 50. The presser head 30 is likewise provided with a lip 55, which covers hole 56 in container 14 through which any small amount of solid matter which may get behind said presser head may escape.

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

1. In a press the combination of a container having suitable ends for closing the same, a pulp receiver mounted within said container and provided with strainer walls and having an open end leading to a pulp discharge outlet, means forming the said pulp outlet, a head reciprocably mounted within the container, and movable toward and from the open end of the pulp receiver to close and open the same, a piston and cylinder for moving said head, a plunger mounted within the receiver and adapted to traverse the same to the pulp discharge passage, and a cylinder and piston for moving said plunger.

2. In a press the combination of a container having suitable ends for closing the same, a pulp receiver mounted within said container and provided with strainer walls and having an open end leading to a pulp discharge outlet, means forming the said pulp outlet, a head reciprocably mounted within the container, and movable toward and from the open end of the pulp receiver to close and open the same, a piston and cylinder for moving said head, a plunger mounted within the receiver and adapted to traverse the same to the pulp discharge passage, and a cylinder and piston for moving said plunger, fluid outlet tubes having strainer walls mounted within the pulp receiver and extending through the plunger and through the head, substantially as described.

3. In a press, the combination of a perforated container, a movable head adapted to close one end of said container, means for shifting said head toward and from the open end of the container, means forming a pulp outlet passage leading from the open end of the container and traversed by said head, and a plunger arranged in the container and adapted to traverse the same to the pulp outlet.

4. In a press, the combination of a perforated container, a movable head adapted to close one end of said container, means for shifting said head toward and from the open end of the container, a tube rotatably mounted in said head and perforated, stirrer arms carried by said tube inside the head, and a plunger arranged in the container and adapted to traverse the same and to slip over the tube carried by the head.

5. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, means forming a pulp outlet passage leading from the open end of the container and traversed by said head, a plunger adapted to traverse said container toward and from the movable head, and a perforated fluid outlet tube arranged within said container.

6. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, means forming a pulp outlet passage leading from the open end of the container and traversed by said head, a plunger adapted to traverse said container toward and from the movable head, and a plurality of perforated tubes extending through the container in the line of movement of the plunger and having outlets for fluid expressed thereinto.

7. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, means forming a pulp outlet passage leading from the open end of said container and traversed by said head, a plunger adapted to traverse said container toward and from the movable head, and a plurality of perforated tubes extending through the plunger and through the container in the line of movement of the plunger and having outlets for fluid expressed thereinto.

8. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, a plunger adapted to traverse said container toward and from the movable head, and means for stirring and breaking up the pulp pressed against the movable head.

9. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, a plunger adapted to traverse said container toward and from the movable head, a plurality of perforated tubes extending through

the container in the line of movement of the plunger and having outlets for fluid expressed thereinto, and means for stirring and breaking up the pulp pressed against the movable head.

10. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, a plunger adapted to traverse said container toward and from the movable head, a plurality of perforated tubes extending through the plunger and through the container in the line of movement of the plunger and having outlets for fluid expressed thereinto, and means for stirring and breaking up the pulp pressed against the movable head.

11. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, a plunger adapted to traverse said container toward and from the movable head, a perforated tube journaled in the movable head and slipped through the plunger, and stirrer arms mounted on said tube just inside the movable head.

12. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, a plunger adapted to traverse said container toward and from the movable head, a plurality of perforated tubes extending through the container in the line of movement of the plunger and having outlets for fluid expressed thereinto, a perforated tube journaled in the movable head and slipped through the plunger, and stirrer arms on said tube just inside the movable head.

13. In a press, the combination with a perforated container, of a movable head adapted to close the open end of said container, means for shifting said head toward and from the open end of the container, a plunger adapted to traverse said container toward and from the movable head, a plurality of perforated tubes extending through the plunger and through the container in the line of movement of the plunger and having outlets for fluid expressed thereinto, a perforated tube journaled in the movable head and slipped through the plunger, stirrer arms mounted on said tube just inside the movable head, and means outside the structure whereby said last-named perforated tube may be rotated.

14. In a press, the combination of a container composed of annular rings assembled together with openings between them, suitable heads therefor, means forming a pulp outlet passage leading from the container

beyond the annular rings, a head movable toward and from the open end of the container across said pulp passage, and a plunger arranged within the container and adapted to traverse the same to the pulp passage.

15. In a press, the combination of a container composed of annular rings assembled together with openings between them, said rings being tapered in cross section whereby the openings increase in width as they approach the outer surface of the container, suitable heads therefor, means forming a pulp outlet passage leading from the container beyond the annular rings, a head movable toward and from the open end of the container across said pulp passage, and a plunger arranged within the container and adapted to traverse the same to the pulp passage.

16. In a press, the combination of a container composed of annular rings assembled together with openings between them, said rings provided with ears and rods passing through said ears and connecting said rings, suitable heads therefor, means forming a pulp outlet passage leading from the container beyond the annular rings, a head movable toward and from the open end of the container across said pulp passage, and a plunger arranged within the container and adapted to traverse the same to the pulp passage.

17. In a press, the combination of a container composed of annular rings assembled together with openings between them, said rings being provided with ears, washers between the ears, and rods passing through said ears and washers and connecting said rings, suitable heads therefor, means forming a pulp outlet passage leading from the container beyond the annular rings, a head movable toward and from the open end of the container across said pulp passage, and a plunger arranged within the container and adapted to traverse the same to the pulp passage.

18. In a press, the combination of a perforated container, a plunger adapted to traverse said container, a tube arranged within the container and extending through the body thereof to form an intermediate fluid outlet, said tube being composed of longitudinally arranged bars having slits between them through which the fluid may pass, annular rings upon which said bars are secured, and removable bushings between the bars and annular rings whereby the width of spaces between the bars may be varied.

19. In a press, the combination of a container, a plunger adapted to traverse said container, a tube arranged within the container and extending through the body thereof to form an intermediate fluid outlet,

and a detachable connection between said tube and one head of the press, the opposite presser head and cylinder head being provided with perforations in alinement with said tube through which the same may be removed.

20. In a press, the combination of a container, a plunger adapted to traverse said container, a tube arranged within the container and extending through the body thereof to form an intermediate fluid outlet, a detachable connection between said tube and one head of the press, the opposite

presser head and cylinder head being provided with perforations in alinement with said tube through which the same may be removed.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this nineteenth day of August, A. D. one thousand nine hundred and eight.

FREDERICK G. WISELOGEL. [L. s.]

Witnesses:

CHESTER BRADFORD,
THOMAS W. McMEANS.