No. 632,830. Patented Sept. 12, 1899.

G. BETZONICK.

SAMPLER.

(Application filed Nov. 25, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

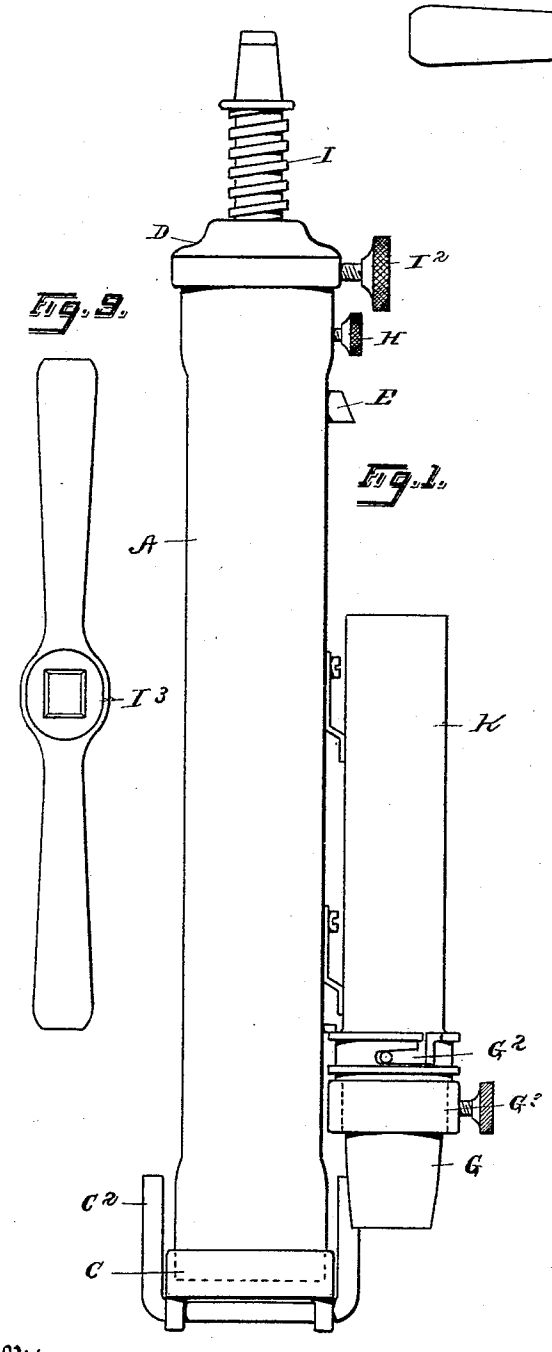
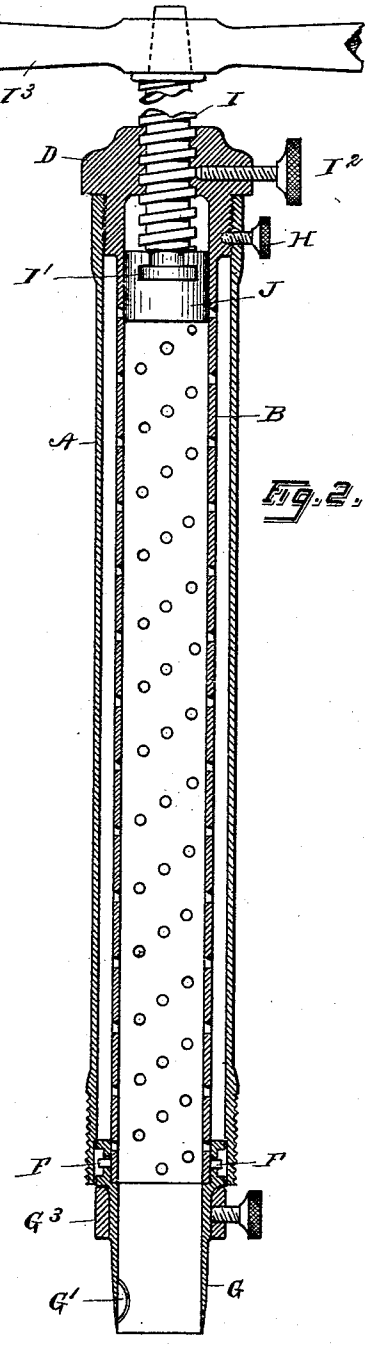


Fig. 2.



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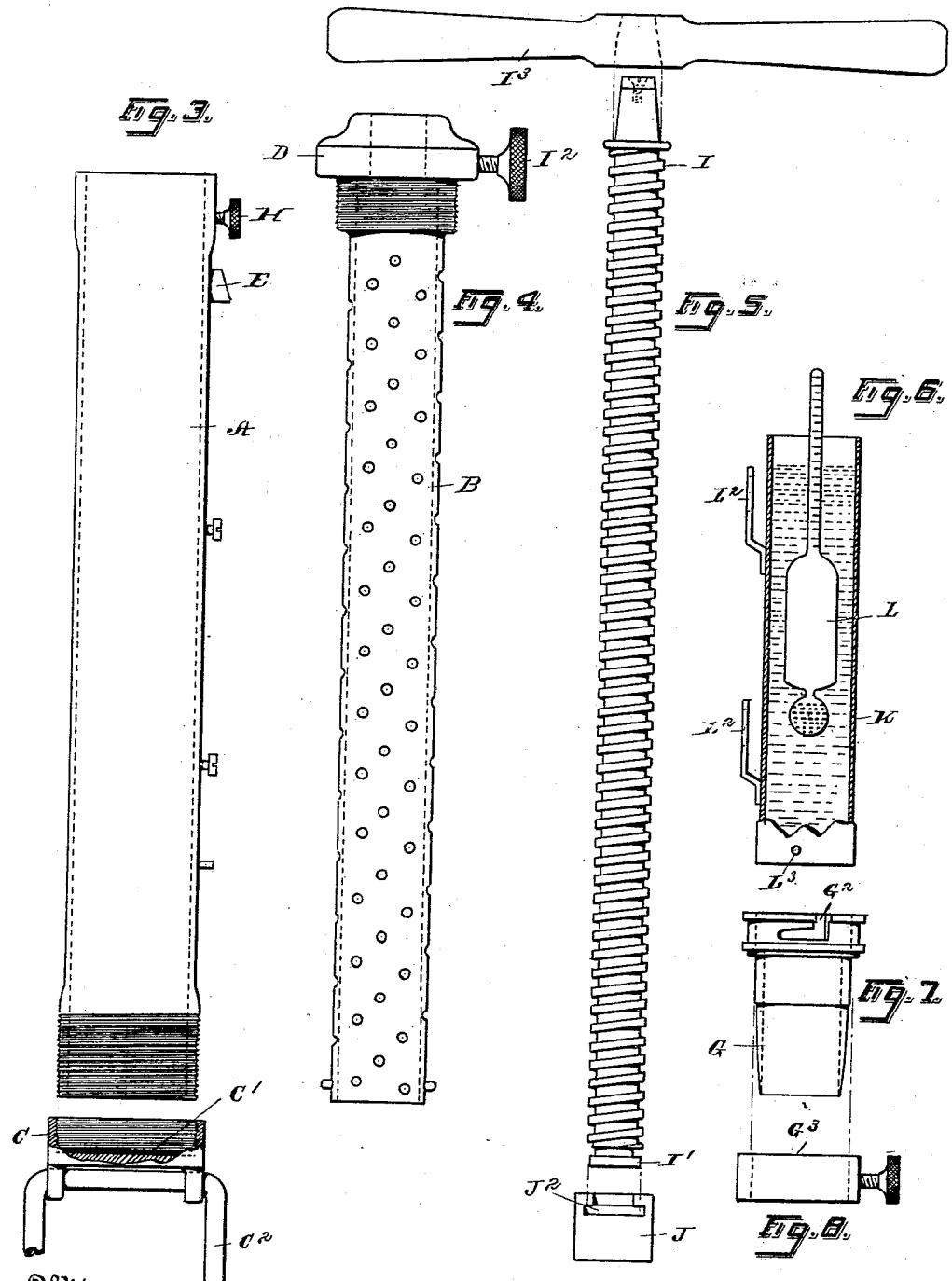
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UNITED STATES PATENT OFFICE.

GEORGE BETZONICK, OF SYDNEY, NEW SOUTH WALES.

SAMPLER.

SPECIFICATION forming part of Letters Patent No. 632,830, dated September 12, 1899.

Application filed November 25, 1898. Serial No. 697,446. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BETZONICK, a subject of the Queen of Great Britain, residing at Sydney, in the Colony of New South Wales, have invented certain new and useful Improvements in Samplers; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in samplers; and it consists in the combination and arrangement of the parts as hereinafter fully set forth and described.

It consists in providing a hand-press for extracting the juice from different materials to test the juice for desired qualities after they have been pressed.

It further consists in providing a cutter or extractor by which small and regular samples of material to be tested may be taken and delivered into the body of the press.

It further consists in the novel arrangement by means of which the sampler or juice-receptacle may be attached to or packed with the press; and it further consists in the novel construction and arrangement of the parts, whereby they can all be separated for the purpose of cleaning them.

In the drawings, Figure 1 is a side view of the invention. Fig. 2 is a vertical section of the same, the circular cutter and separator being in position. Fig. 3 is a side view of the outer shell of the press-chamber, the bottom being detached. Fig. 4 is a side view of the perforated inner cylinder of the pressing-chamber. Fig. 5 is a side view of the presser-screw, the detachable handle and piston-head being detached and connected by dotted lines. Fig. 6 is a vertical section showing the pocket for receiving the juice with the saccharimeter in position. Fig. 7 is a detail view of the circular cutter and separator. Fig. 8 is a side view of the regulating-ring for governing the size and depth of the plug taken by the circular cutter and is connected to Fig. 7 by dotted lines to show its position thereon. Fig. 9 is a view of the handle.

The pressing-chamber is constructed of two cylinders A and B. The former is solid walled and is connected by a suitable screw-thread at the bottom to the cap C and at the top to the threaded cap D. A short spout or outlet E is let through the wall of this cylinder near the top thereof. The cap C is secured to the lower end of the cylinder by an internal screw-thread, while the cap D is connected to the chamber by an external screw-thread. The inner or perforated cylinder B is formed integrally with the cap D and is open at the bottom, where it is provided with a couple of pins F to receive the bayonet-slotted extension of the circular cutter G. When the two cylinders are mounted in position, they are separated by a space, as shown in Fig. 2. They are locked against movement by a set-screw H, which is mounted in threaded perforations let through the outer cylinder and guided to enter the perforation let into the side of the cap D.

Through the perforations in the top of the cap D extends a screw-threaded plunger I. This is provided in its operative form with the presser-head J, to which it is attached by means of a stud I′, formed on the end of the plunger I. To place the head J in position, the screw is driven down through the inner cylinder until the end protrudes at the bottom, when the stud I′ may be inserted into the undercut slot J^2 in the head J. When the plunger I is drawn upward, the head J is carried into the inner cylinder and prevented from being dislodged from the plunger, which forms a neat fit with and a guide for the plunger I.

In its operation the device is mounted so that the plunger I is withdrawn to its full capacity and secured in position by means of the set-screw I^2. The circular cutter G and separator G′ are then mounted upon the end of the inner cylinder, the bayonet-slots G^2 of the same fitting over the pins F on the inner cylinder. The inner diameters of both the inner cylinder and the circular cutter are approximately parallel. If there is any difference, it is that the diameter of the cutter should be slightly less than the diameter of the inner cylinder B. The detachable ring G^3, with which the cutter is provided, is set

so as to regulate the depth to which the cutter will extend. The instrument is now grasped, and the material to be sampled is punctured by pressing with a rotary movement the circular cutter into the material.

When using the instrument in the class of work for which it is at present designed—that is, the testing and sampling of sugar-cane—it is often found that the skin of the cane is hard, and the best method of cutting the skin is to rotate the cutter until the skin has been penetrated. It will then be found that by a steady direct pressure the circular cutter can be forced into the cane with little resistance until the regulating-ring G^3 rests upon the cane. When, now, the instrument is revolved steadily in one direction, the blade G′, which is formed in the inner surface of the circular cutter, will force the material within the circular cutter to separate the plug of the material within the cutter, and when the cutter is withdrawn this plug or sample of the material will be withdrawn with it. This operation is continued until the inner chamber is filled with various plugs or samples, or, in some instances, when it is only partly filled.

In the sampling or testing of sugar-cane, for which, as before stated, this invention is particularly designed, various qualities are discovered at various heights in the cane, and it is desirable to obtain samples from all varieties of the cane with reference to the height to which the cane has grown. By doing this and taking an equal number of samples from various heights it is found that the general quality of the bulk of the cane being sampled is best arrived at.

When the chamber has been filled with plugs, as hereinbefore described, the circular cutter G is removed and the cap C is screwed into position until the rubber gasket C′ at the bottom makes a tight joint with the bottom of the outer cylinder A.

To steady the device during the operation of pressing the cane, the forked arms C^2 are inverted from the position shown in Fig. 1 of drawings to that shown in Fig. 3. This provides two arms, which may be straddled over a piece of fallen cane or other suitable material, and the set-screw I^2 being relieved and the handle I^3 placed in position the plunger I and head J are forced down upon the samples contained in the inner cylinder B. This is continued until the juice has been pressed out of the samples, in doing which the juice will pass through the perforated sides of the inner cylinder B into the space between the two cylinders A and B. When sufficient pressure has been exerted within the judgment of the operator to extract all or as large a portion of the juice as desired, the cylinders are emptied by pouring the juice out of the spout E into the juice-holder K. The saccharimeter L is now placed in the juice to test it. To prevent spilling of the juice during the operation of pressing the same, the juice-receptacle is provided with the ears L^2 L^2, by means of which it is mounted upon the sides of the cylinder A, as shown in Fig. 1. When the operation has been completed, the parts may be separated, as shown in the drawings, and cleaned. If, however, several samples are desired, the operation may be repeated, as described, by unscrewing the cap C and ejecting the plugs or samples by forcing down the plunger I in the manner described.

For the convenience of handling this instrument it is particularly designed to be packed within small and compact space. For this purpose the bottom of the juice-receptacle K is provided with pins L^3, extended out from the side upon which the circular cutter is mounted, as shown in Fig. 1. The handle I^3 is removably attached to the plunger I, so that it may be packed separately.

Having thus described this invention, it is claimed—

1. In a device of the nature described, in combination with a solid outer cylinder having a pouring-outlet near the top; of a perforated inner cylinder; a screw-threaded cap rigidly connected to the said inner cylinder and adapted to engage suitable screw-threads in the top of the outer cylinder and provided with a central screw-threaded perforation; a screw-thread plunger mounted in the said perforation and provided with a suitable handle and having a presser-head loosely connected thereto to permit the same to descend upon the samples without turning with the said plunger; a hollow circular cutter adapted to be removably attached to the bottom of the said inner cylinder and to deliver the samples into the same as cut; and a screw-threaded cap adapted to be secured to the bottom of the said outer cylinder after the said circular cutter has been removed, substantially as described.

2. In a device of the nature indicated, a pressing-chamber having outlets leading to a receiving-chamber, a detachable hollow cutter adapted to be secured to and to communicate with the pressing-chamber, and means for closing the pressing-chamber when the cutter is removed; substantially as described.

3. In a device of the nature indicated, a pressing-chamber having outlets leading into a receiving-chamber, a rotatable plunger extending through one end of the pressing-chamber, a hollow rotary cutter communicating with the other end of the pressing-chamber, means for closing the end of the pressing-chamber which receives the cutter when the cutter is not in use, and means for locking the plunger against rotation in the pressing-chamber; substantially as described.

4. In a device of the nature indicated, an inner cylinder having outlets communicating with a receiving-chamber and having a cap provided with an opening, a plunger extend-

ing through said opening, a set-screw in the cap and adapted to operate against the plunger to lock the same to the cylinder, a hollow rotary cutter upon the open end of the cylinder and communicating therewith, and means for closing said open end when the cutter is not in use; substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of September, 1898.

GEORGE BETZONICK.

In presence of—
JAMES SCOTT,
ROBERT MALLINSON.