

(No Model.)

G. G. WICKSON.  
MILK TESTER.

No. 581,188.

Patented Apr. 20, 1897.

Fig. 1.

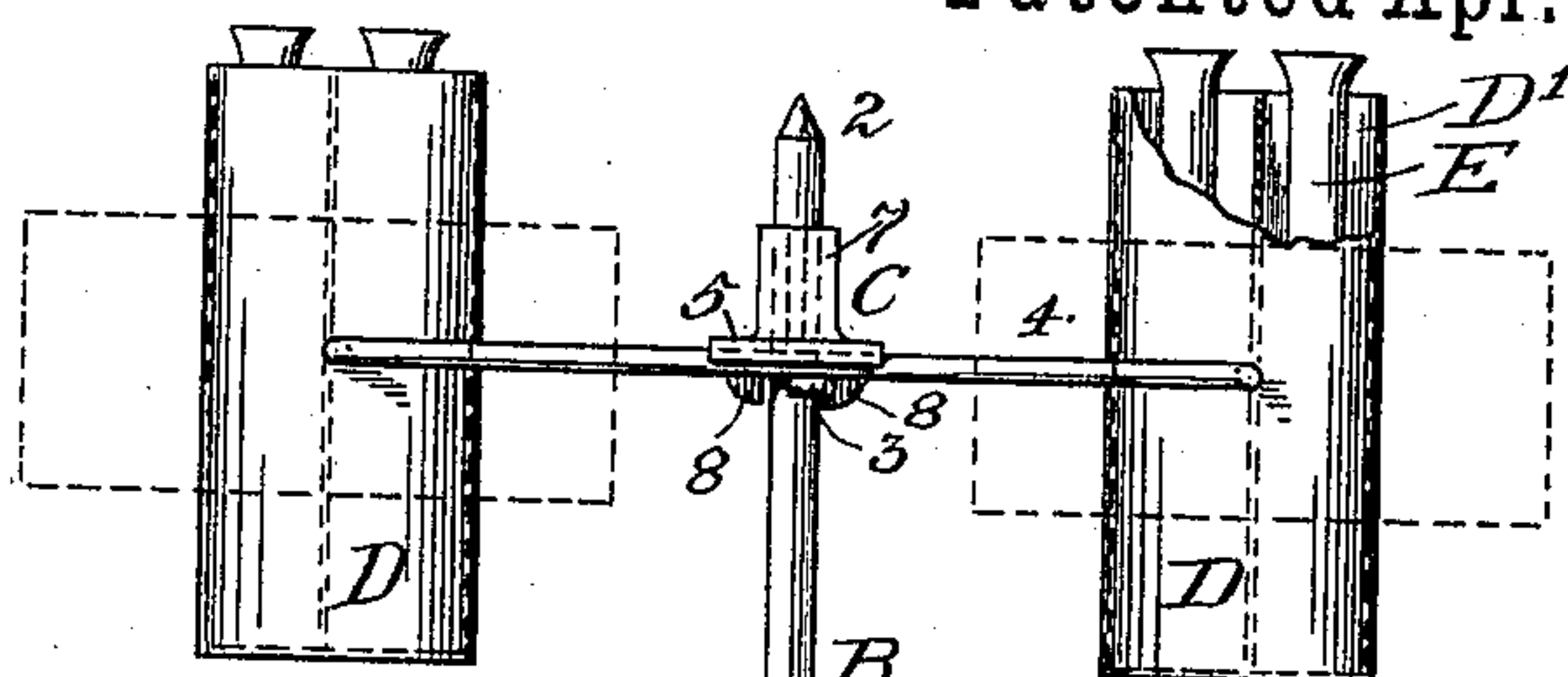


Fig. 2.

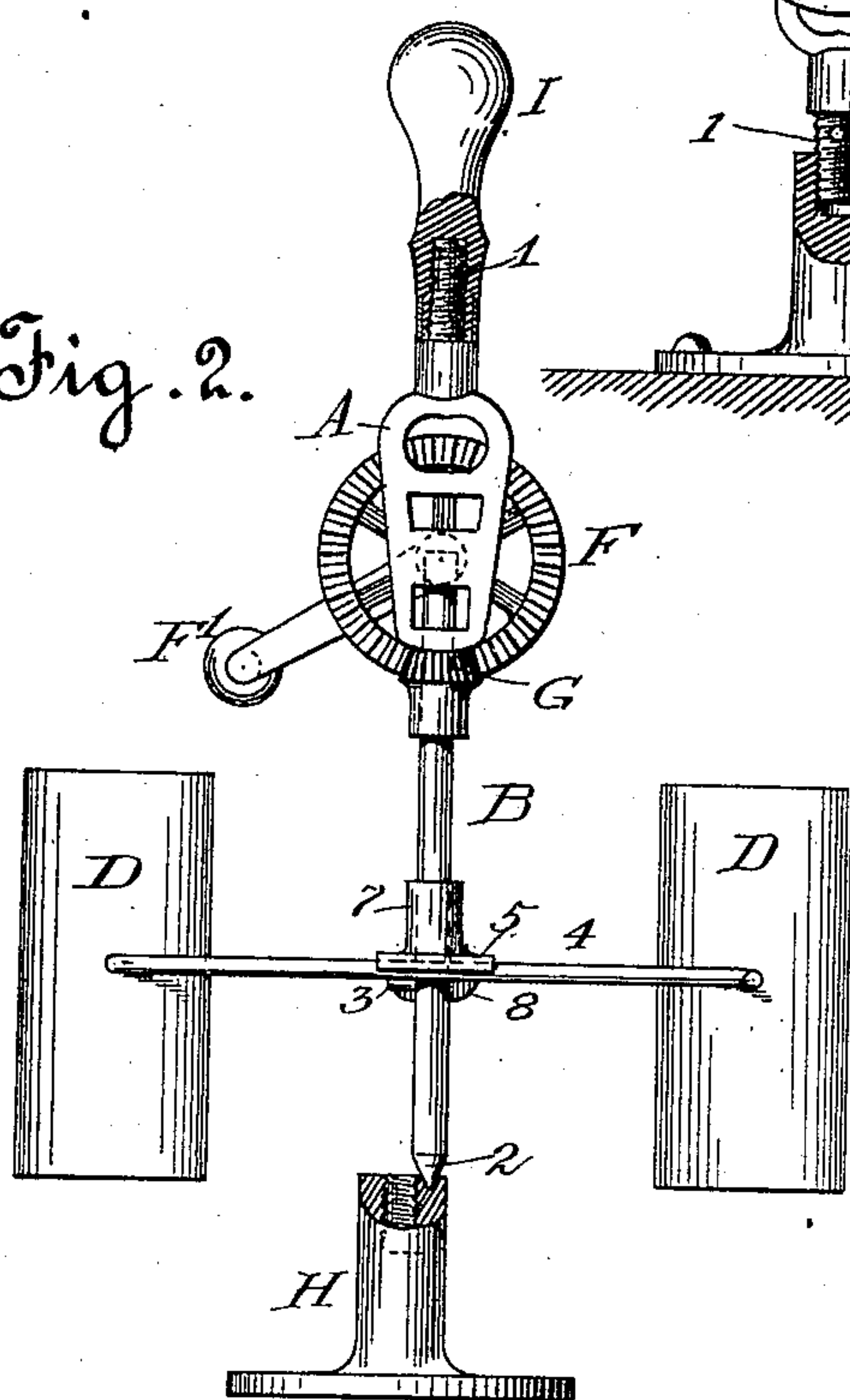


Fig. 4.

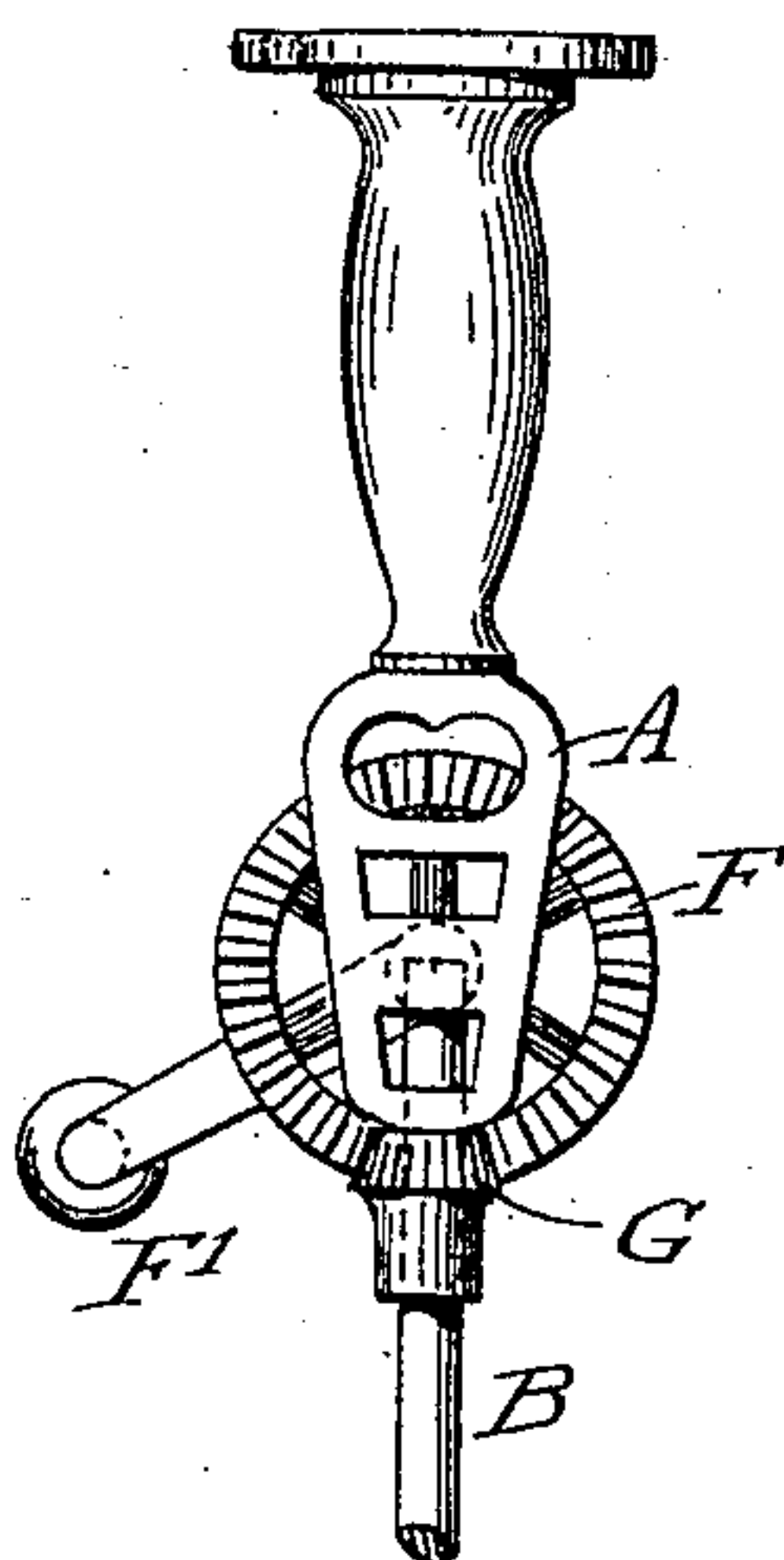
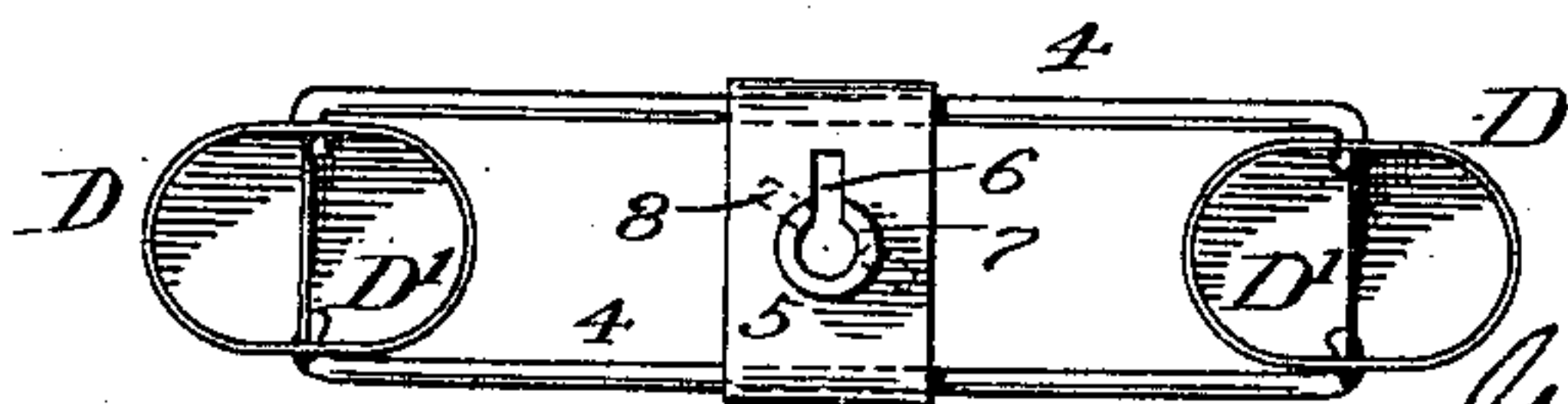


Fig. 3.



Witnesses

The Ellentwerde  
MR Seely

Inventor.

George L. Wickson  
by Spear & Seely  
Attorneys



# UNITED STATES PATENT OFFICE.

GEORGE G. WICKSON, OF SAN FRANCISCO, CALIFORNIA.

## MILK-TESTER.

SPECIFICATION forming part of Letters Patent No. 581,188, dated April 20, 1897.

Application filed June 2, 1896. Serial No. 593,985. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE G. WICKSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Milk-Testers; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to testers of the kind in which test-tubes containing samples of heated milk or other substances are subjected to rapid centrifugal action to separate the fat and ascertain its percentage.

The object of my invention is to produce a simple, cheap, and easily-operated centrifugal tester, and to so construct it that it may form part of a portable testing apparatus or of a stationary testing apparatus, as may be preferred. I accomplish this object by a novel construction and arrangement of the standard which supports the gearing for imparting motion to the tube-holders, making such standard reversible, so as to be capable of use in two positions, according to whether it is used with stationary or portable apparatus.

My invention is fully hereinafter described in detail and is shown in the accompanying drawings, in which—

Figure 1 is an elevation of my milk-tester as used with a permanent base or support. Fig. 2 is a similar elevation of the same tester reversed and forming part of a portable apparatus. Fig. 3 is a plan view of the rotary tube-holders. Fig. 4 is an elevation of a modification.

A represents a standard, preferably of cast metal, and shown as having a screw-threaded end 1.

B is a rotary stem having a bearing in the standard A and having a pointed end 2 opposite the threaded end 1. A pin 3 projects from the stem near its pointed end, by which is locked in place the frame C, which supports the test-tube holders D. The frame C consists of wires 4 4, which are secured to opposite edges of a plate 5, as shown in Fig. 3. The plate has a central slot 6, a tubular bearing 7, and two lugs 8 8 adjacent to it, so that such plate can be passed over the stem and held in place by turning the slot out of line with the pin 3. The pin then bears against

one of the lugs 7. The tube-holders D are receptacles, of sheet metal, formed into one or more compartments D' to receive the flasks or test-tubes E. In the drawings two compartments are shown in each tube-holder. The ends of the wires 4 are turned at an angle, so that they can be sprung into bearings in opposite sides of the tube-holders, thus pivoting the latter in the revolving frame. A crown-wheel F is journaled in the casting A and provided with a hand-crank F'. A small pinion G is secured to the stem B, which engages with the gear F and greatly accelerates the speed of the crank, producing a rapid rotation of the stem B and of the tube-holders, the latter being free to swing, under the centrifugal force, to the position shown by dotted lines in Fig. 1.

The principle involved in the method of testing by heated samples in centrifugal rotation is well known and forms no part of my invention.

By comparing Figs. 1 and 2 it will be observed that the standard and rotary stem are reversible, in order to adapt the tester to permanent use in one situation and also to make it portable, so as to be conveniently used by inspectors on their rounds.

In Fig. 1 the threaded end of the casting A is screwed into a fixed base H, which may be secured to any suitable support. The tube-holders are then locked to the upper part of the stem, as shown, so that they rotate above the gearing.

In Fig. 2 the stem is reversed and the tube-holders locked in place near what is now the lower end, so that they rotate below the gearing. The threaded end 1 is now the upper end, and to it may be attached a convenient handle I. The pointed end of the stem is now used as a bearing or center of rotation in any convenient way, as by inserting it into a little depression 9 in the edge of the base H, which need not be secured to anything, since it is held in place by the pressure of the operator.

A modified construction is shown in Fig. 4, which I may sometimes prefer to use. The standard A and base H are here formed in one piece, as shown, and the base is adapted to be secured in any kind of support in one position and to serve as a handle when re-

versed. By this construction it is unnecessary to use a separate base II, since when portable the pointed stem can find a temporary bearing in any convenient place and be  
5 held in that position by the combined base and handle.

What I claim is—

1. A reversible milk-tester, adapted for both portable and stationary use and comprising a standard, a stem journaled therein  
10 having a pivot at one end, the end of the standard opposite thereto being adapted to receive a handle, gearing on the standard and means for rotating the gearing, and a  
15 support for the test-tubes, and means for locking the support to the stem so that said support rotates below the gearing when the tester is supported by hand and revolves on

its pivot end and above the gearing when the tester is supported independently of the operator by the end adapted to receive the handle, substantially as described. 20

2. In a milk-tester, the combination with a rotary stem, of a slotted plate having overturned edges, means for locking said plate to  
25 the stem, wires secured by the overturned edges of the plate, and a hollow tube-holder pivoted between said wires so as to swing freely, substantially as described.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 22d  
30 day of May, 1896.

GEORGE G. WICKSON.

Witnesses:

L. W. SEELY,  
A. K. GIBBS.