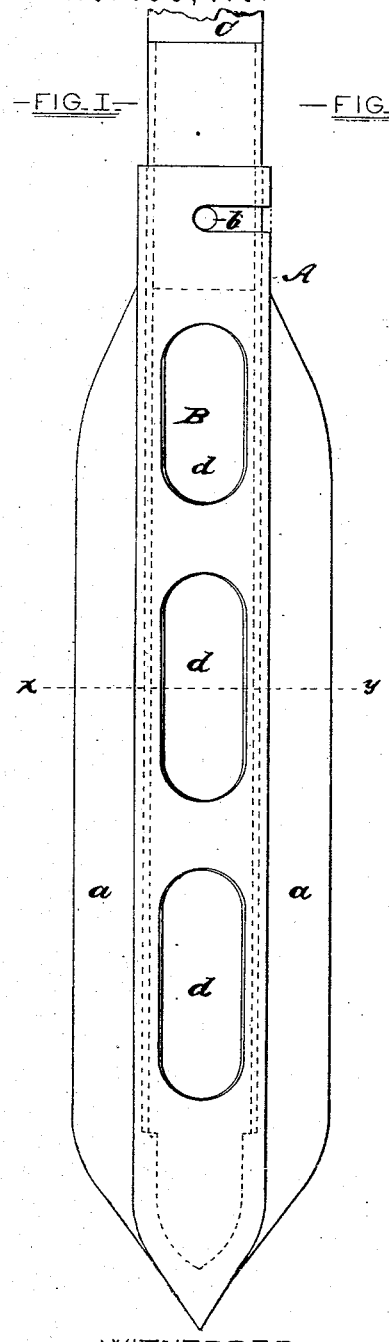
F. A. FURST.

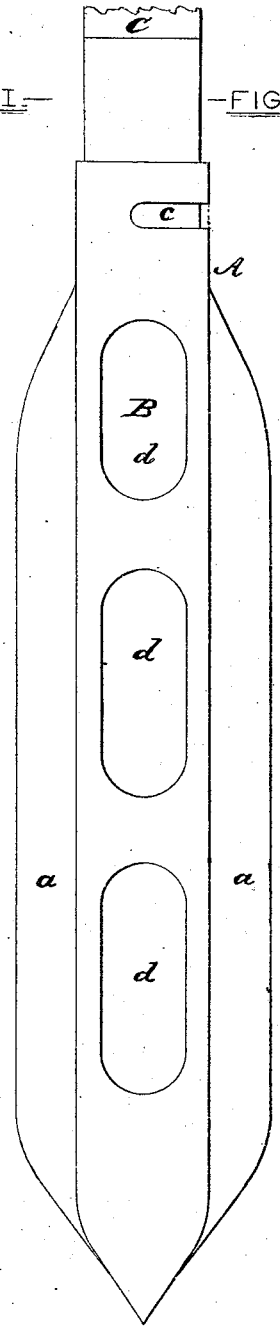
Grain-Sampler.

No. 160,416. Patented March 2, 1875.

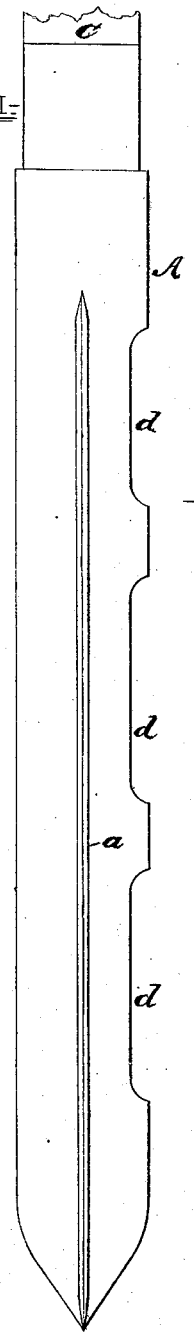
—FIG. I.—



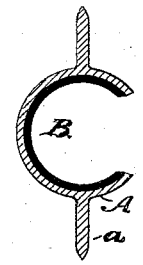
—FIG. II.—



—FIG. III.—



—FIG. IV.—



—WITNESSES—

R. A. M. Cauley.

Edmund H. Howard.

—INVENTOR—

Frank A. Furst

by G. H. & H. L. Howard,
attys.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

FRANK A. FURST, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN GRAIN-SAMPLERS.

Specification forming part of Letters Patent No. **160,416**, dated March 2, 1875; application filed February 10, 1875.

To all whom it may concern:

Be it known that I, FRANK A. FURST, of the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Devices for Testing and Sampling Grain, &c., of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to means hereinafter fully described, whereby the condition of grain at various depths and positions in the holds of vessels, elevators, and other places where grain is stored in bulk, can be determined, and samples showing the condition and quality at such depths or places obtained for examination.

In the description of my invention which follows due reference must be had to the accompanying drawing forming a part of this specification, and in which—

Figure 1 is a front view of my invention, the device being open; and Fig. 2 a corresponding view of the same when closed. Fig. 3 is an edge view of the invention, and Fig. 4 a cross-section upon the line *x y*.

Similar letters of reference indicate similar parts in all the figures.

A is the cylindrical casing of the device, the lower end of which is closed and pointed, and the sides thereof provided with the wings *a*, for purposes hereinafter described. B is a hollow spindle or shaft within the casing A, adapted to have a circumferential movement therein, limited by means of the pin *b* and slot *c* to about one-half of an entire revolution. The casing and hollow shaft are furnished with openings *d* of a corresponding size, and which, when brought into the same relative positions, afford means of communication with the interior of the spindle or shaft B. The device is secured to a handle, C, which may be of any convenient size and length.

Supposing that a cargo of grain in bulk is to be examined with a view of determining whether the lower portion thereof has been injured by water, and by procuring samples from different portions and depths of the mass to decide whether it is of a common quality throughout, the operation by means of my invention is as follows: The hollow spindle is turned in such manner as to close the apertures in the casing A, and the device is immersed in the grain to the desired depth. The position of the handle is then reversed and the grain admitted to the hollow spindle, where it is retained by again moving the handle or placing it in its first relative position with regard to the casing. The device can then be withdrawn and its contents removed for examination. This operation is continued as often as it may be thought necessary, the device at each withdrawal producing a sample of the grain which cannot possibly become mixed with portions through which the device is moved as it is brought to the surface. It will be understood that the wings *a*, although presenting sharpened edges to the grain in their insertion in and withdrawal from the same, when embedded therein, offer sufficient resistance to the turning of the casing A to prevent a conjoined movement between the said casing and hollow spindle, as the same is turned by means of the handle, during the opening and closing operation above described.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

A grain-sampler, consisting of the perforated casing A, provided with the wings *a*, in combination with the hollow shaft B, correspondingly perforated, the said shaft being adapted to be partially revolved within the said casing to a position causing the sampler to be opened or closed, as may be desired, substantially as specified.

In testimony whereof I have hereunto subscribed my name this 5th day of February, A. D. 1875.

FRANK A. FURST.

Witnesses:
EDWIN H. HOWARD,
THOMAS MURDOCH.