

J. B. FROST.
Grain Sampler.

No. 230,121.

Patented July 20, 1880.

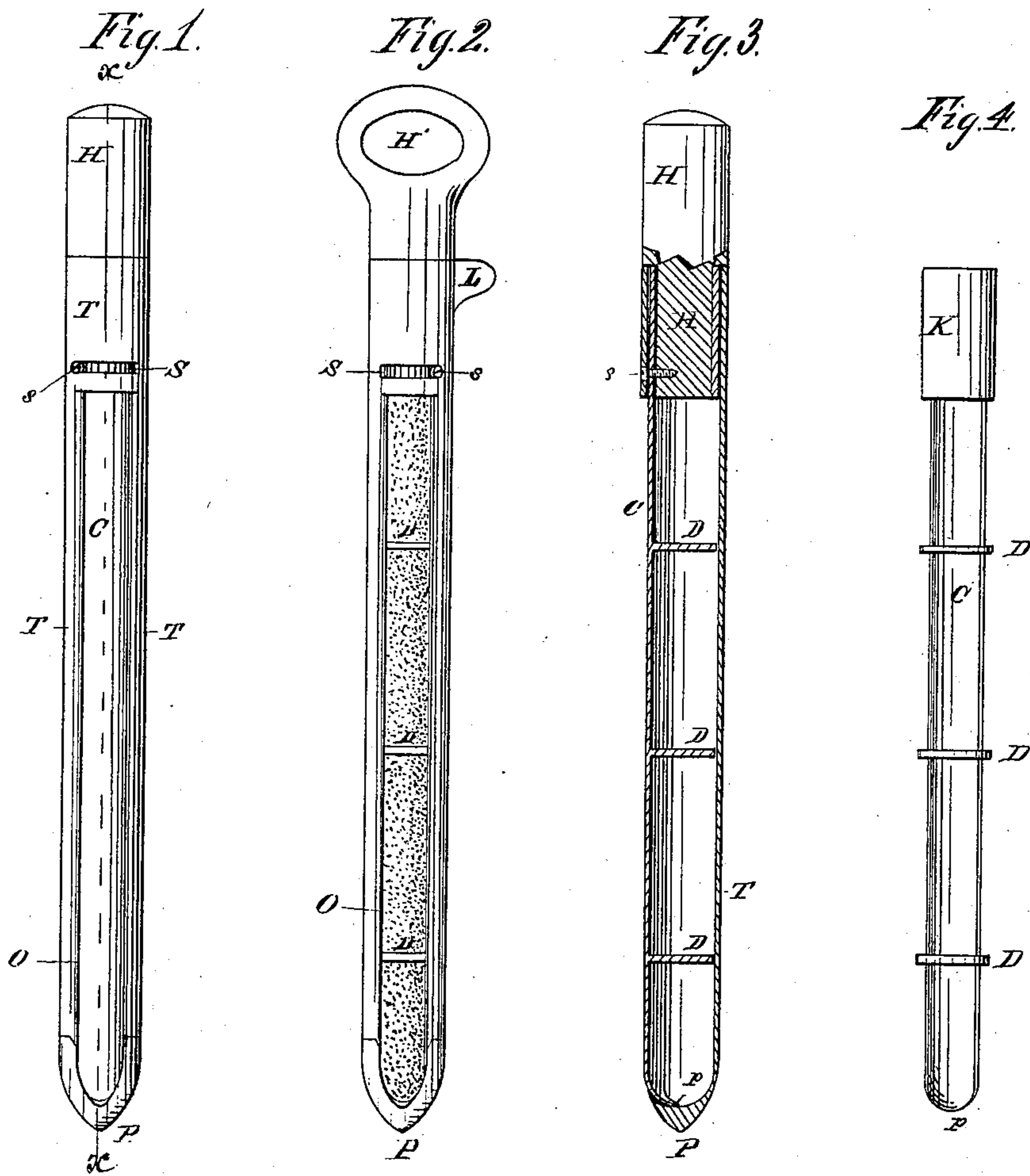
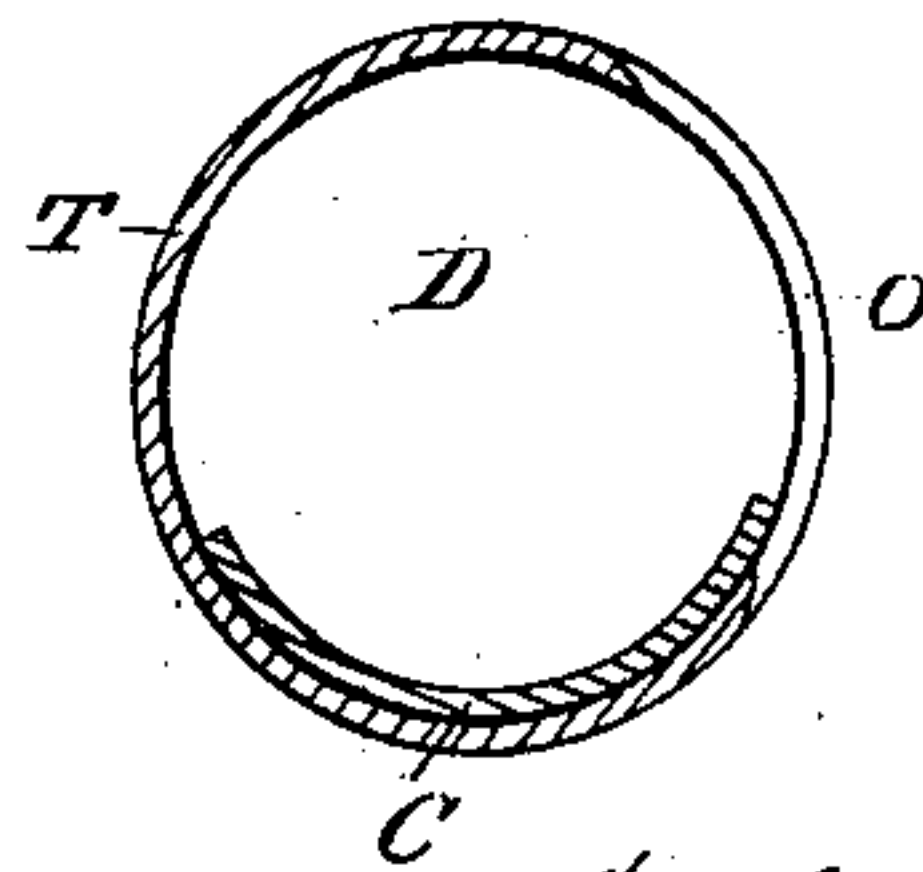


Fig. 5



Fig. 6



WITNESSES.

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UNITED STATES PATENT OFFICE.

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GRAIN-SAMPLER.

SPECIFICATION forming part of Letters Patent No. 230,121, dated July 20, 1880.

Application filed November 24, 1879.

To all whom it may concern:

Be it known that I, JOHN B. FROST, of Naperville, in the county of Du Page and State of Illinois, have invented certain new and useful Improvements in Grain-Samplers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a sampler for grain or feed, intended to be thrust into a body of the material to be tried, and to bring forth, when withdrawn, samples representing the character of the grain or feed at all points throughout the length of the instrument.

Heretofore a device for this purpose has been used consisting of a tube provided with apertures at intervals along its length, and a plug filling the interior of the tube when it is inserted into the grain and withdrawn after insertion to admit the grain to the tube through the several apertures. This implement is not only inconvenient in use, but it is unreliable in its results, since if one aperture happens to be covered by a piece of paper or a wisp of straw it fails to admit the grain opposite thereto, and the space is filled from above or below through an adjacent aperture. The sample withdrawn does not, therefore, fairly represent the actual character of the mass. Moreover, the unequal pressure of the mass at varying depths induces an uneven inflow of the grain to the tube, and the exhibit can therefore in no case correctly show the exact extent of the several strata if differences in quality are found.

My invention seeks to obviate these faults and to provide an instrument more convenient in use.

To these ends it consists in an outer metal tube having a preferably continuous slot on one side from its point to near the handle, an inner strip or partial tube conforming with the interior of the outer tube and adapted to be rotated to close the slot mentioned, said partial tube being provided with a series of division-plates secured thereto and working with it within the outer tube, so as to form a corresponding number of compartments in the sampler, between which there is no communication.

The division-plates, being secured to the rotating partial tube, hold the latter in contact with the inner face of the outer tube when rotated to close or open the slot.

In the drawings, Figure 1 shows the instrument closed. Fig. 2 shows it open and filled with grain. Fig. 3 is a longitudinal central section of the implement through the middle of the slot or the line *x x*, Fig. 1. Fig. 4 is a view of the inner partial tube or strip, with division-plates secured thereon, detached from the instrument. Fig. 5 is a sectional side view of the lower end of the closing strip or gate with division-plates thereon; and Fig. 6 is a transverse section of the implement near one of the division-plates, looking toward the handle.

T is the metal tube, narrowed to a point, P, at one end and open at the other. O is a slot in said tube, extending nearly throughout its length, as shown, and particularly reaching to the extremity of the interior at the pointed end P. Said slot is in width about one-third or one-fourth the circumference of the tube.

C is a longitudinal metal strip or partial tube, fitted to the interior of the tube T, and little wider than the slot O, so that it is capable of being rotated within the tube to open or close the slot.

D D are any desired number of metal disks, of diameter to turn with reasonable freedom within the tube T. They are recessed on one side to let in the segmental strip C, to which they are secured permanently by solder or otherwise.

K is a cylindric extension of the strip C, loosely fitting within the unslotted upper portion of the tube T, and provided with the handle H.

H' is a loop or T-handle, by which the parts C and D D may be more conveniently turned within the tube T, and L is a lateral projection from the upper end of the tube T, by which to better hold it from rotation when the handle H is turned.

S is a transverse slot in the tube, in which works a screw-pin, *s*, fast with the handle H or extension K of the strip C, for the purpose of limiting the rotary throw of the inner strip, C, so as to properly open or close the slot O. The division-plates D D support the strip C

against the inner wall of the tube T and afford, generally, the bearings upon which the strip is turned.

In use the strip C is rotated to close the slot O before thrusting the instrument into the grain or feed mass. After inserting the instrument the slot is opened by turning the handle H, while holding the tube from rotation by means of the projection L. The grain immediately fills the tube between the dividing-plates D, when the slot is again closed and the instrument is withdrawn. Upon withdrawal the slot is again opened for the inspection of the contents.

It is clear that neither compartment can be filled by other grain than that opposite thereto in the mass; that there can be no transposition of grain in the act of withdrawing the instrument, and that it may be drawn vertically as well as horizontally without discharging or disturbing the relation of any portion of its contents.

By means of the curved point *p* of the strip C the slot O is extended so as to admit grain directly to the extremity of the tube—say within one-fourth inch of the bottom of a load—thus permitting the examination to be extended to the entire mass, as well as making such examination accurate and reliable.

Opposite sides of the slot O may be connected over the division-plates, if desired, to give greater strength.

Having thus described my invention, I claim—

1. In combination with the slotted tube T, the partial tube C, fitted and adapted to rotate within the tube T, and provided with the rigidly-attached transversed disks D D, which both divide the tube T into compartments and support the partial tube C in contact with the tube T, substantially as described.

2. In combination with the apertured tube T, the partial tube C, fitted and adapted to rotate within the tube T, and held outward in proximity to said tube T by the supports D, substantially as described.

3. The partial tube C, provided with the curved end *p*, in combination with tube T, having its lower end closed, and also having the slot O extending to near the axis of the tube at its closed end, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

JOHN B. FROST.

Witnesses:

M. E. DAYTON,
JESSE COX, Jr.