May 15, 1962 D. L. HAMPL 3,034,360

GRAIN AND MATERIAL SAMPLER

Filed July 16, 1959

Fig.1

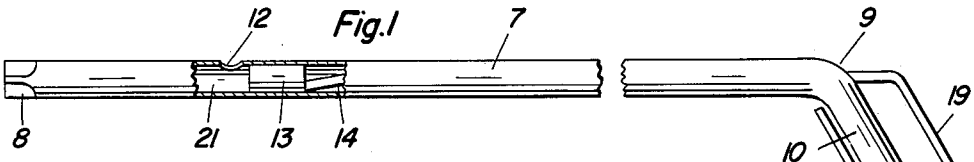


Fig.2

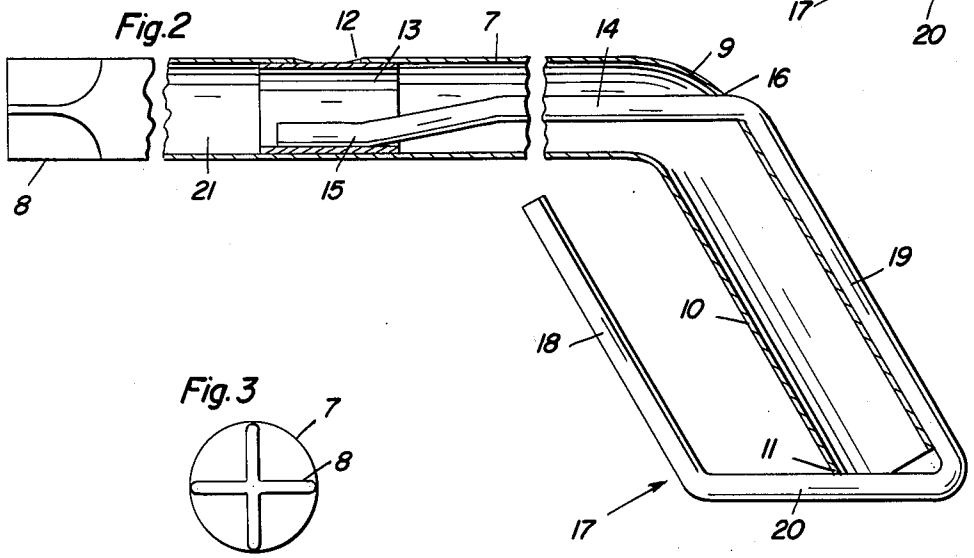


Fig.3

Fig.5

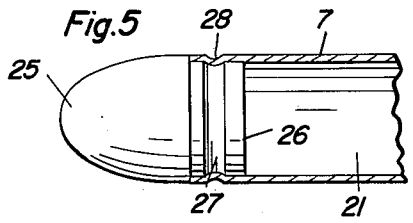


Fig.4

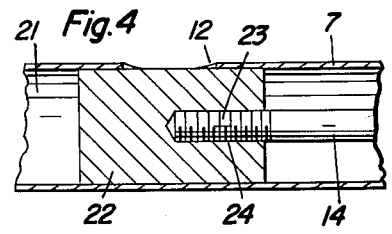
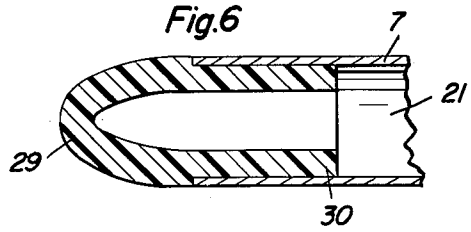


Fig.6



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GRAIN AND MATERIAL SAMPLER

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This invention relates to new and useful improvements in grain, etc., samplers and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character comprising novel means for discharging the sample.

Another very important object of the present invention is to provide, in a grain and material sampler of the aforementioned character comprising a tube having therein a port controlled by a reciprocating valve, unique means for actuating said valve.

Other objects of the invention are to provide a sampler of the character described which will be comparatively simple in construction, strong, durable, compact, of light weight and which may be manufactured at low cost.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a view principally in side elevation and partially in longitudinal section of a sampler constructed in accordance with the present invention;

FIGURE 2 is an enlarged view principally in vertical longitudinal section through the device;

FIGURE 3 is an end elevational view;

FIGURE 4 is a fragmentary view in longitudinal section through a modified form of the invention;

FIGURE 5 is a longitudinal sectional view through the forward end of the device, showing another modification; and,

FIGURE 6 is a fragmentary view in longitudinal section through the forward end portion of the device, showing another embodiment.

Referring now to the drawing in detail, it will be seen that the embodiment of the invention which has been illustrated in FIGURES 1, 2 and 3 of said drawing comprises a barrel or tube 7 of suitable metal or other material. Of course, the tube 7 may also be of any desired length and diameter. The forward or lower end of the tube 7 is closed by swaging or pinching, as indicated at 8. The rear end portion of the tube 7 is bent, as indicated at 9, in a manner to provide a rearwardly and downwardly inclined, pistol-type handle and discharge spout 10. The lower end portion of the combination handle and spout 10 has formed therein a notch or recess 11 the purpose of which will be presently set forth.

Formed in the top of the forward portion of the tube 7 is a port 12. Mounted for reciprocation in the tube 7 is a tubular control valve 13 for the port 12.

The valve 13 is actuated through the medium of a metallic rod 14. The rod 14 includes a downwardly offset forward end portion 15 which is fixed longitudinally in the valve 13. The rod 14 extends slidably through an opening 16 which is provided therefor in the bend 9 of the tube 7 and terminates in a generally U-shaped operating handle 17. The handle 17 comprises legs 18 and 19 which parallel the combination handle and spout 10. The bight portion 20 of the handle 17 is slidably engaged in the notch 11. Thus, the handle 17 which, it will be observed, straddles the handle and spout 10, is retained against swinging movement relatively thereto.

It is thought that the use or operation of the device will be readily apparent from a consideration of the foregoing. Briefly, with the valve 13 in closed position as shown in FIGURE 2 of the drawing, the tube 7 is

pushed into the grain or material. Through the medium of the handle 17, the rod 14 is retracted for sliding the valve 13 rearwardly to open position as shown in FIGURE 1 of the drawing thereby opening the port 12. The grain or material flows into the chamber 21 through the open port 12, after which the valve 13 is again closed by pushing the handle 17 forwardly until the leg 19 thereof abuts the combination handle and discharge spout 10. The device is then withdrawn from the grain and swung upwardly and rearwardly for discharging the sample by gravity through the tubular valve 13 and the pouring spout 10. The spout 10 also functions as a stop for limiting the travel of the handle 17 and consequently the valve 13 in opposite directions.

In the modification of FIGURE 4 of the drawing, reference character 22 designates a solid cylindrical valve for controlling the port 12. In this embodiment the rod 14 comprises a threaded forward end portion 23 which is screwed into a centrally located socket 24 provided therefor in the rear end portion of the valve 22.

In operation, the tube 7 is pushed into the grain with the valve 22 in closed position. The valve 22 is then retracted to open position for permitting the grain to enter the chamber 21 through the port 12. The valve 22 is then returned to closed position and the device with the sample in the chamber 21 is withdrawn from the grain. The device is then inverted and the valve 22 is again opened for discharging the sample through the port 12. In other respects this form of the invention is substantially similar to the embodiment of FIGURE 1 of the drawing.

In the embodiment of FIGURE 5 of the drawing, the forward end of the tube 7 is closed through the medium of a generally bullet-shaped plug 25 of suitable metal. The plug 25 includes a reduced end portion 26 which is circumferentially grooved, as indicated at 27, and fixed in the tube 7 by crimping, as at 28.

In the embodiment of FIGURE 6 of the drawing, reference character 29 designates a generally bullet-shaped plug of a suitable plastic which closes the forward end of the tube 7. The plug 29 is hollow and comprises an externally reduced rear portion 30 which is fixed in the tube 7.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A grain sampler comprising: a tube closed at one end and including an elongated, angularly extending handle on its other end, said tube having a grain intake port therein, a slidable valve in the tube for controlling the port, a valve actuating rod in the tube having one end portion connected to the valve and its other end portion extending slidably through said other end of said tube, and a valve operating handle on said other end of said rod, said operating handle being slidably connected to the first-named handle for retention thereby against swinging movement relatively thereto and further being generally U-shaped and comprising legs straddling said first-named handle in parallelism therewith.

2. A grain sampler comprising: a tube closed at one end and including an elongated, angularly extending handle on its other end, said tube having a grain intake port therein, a slidable valve in the tube for controlling the port, a valve actuating rod in the tube having one end portion connected to the valve and its other end portion extending slidably through said other end of said

tube, and a valve operating handle on said other end of said rod, said operating handle being generally U-shaped and comprising legs straddling the first-named handle in parallelism therewith, said first-named handle including a free end having a notch therein, said operating handle further comprising a bight portion slidably engaged in the notch.

3. A grain sampler comprising: a tube closed at one end, a pistol-type handle on the other end of said tube, said handle having a notch in its free end, said tube having a grain intake port therein adjacent to the closed end thereof, a control valve for the port slidable in the tube, an actuating rod having one end connected to the valve, and a generally U-shaped operating handle on the other end of the rod and comprising a bight portion slidably engaged in the notch.

4. A grain sampler comprising: a tube closed at one end and having a grain intake port therein, a tubular handle on the other end of said tube communicating therewith for pouring the grain therefrom, a tubular control valve for the port slidable in the tube, and means

for actuating said valve, said handle including a free end haivng a notch therein, said means comprising a rod having one end fixed to the valve, and a generally U-shaped handle on the other end of the rod including a bight portion slidably engaged in the notch.

5. A grain sampler comprising: a tube closed at one end and having a grain intake and discharge port therein, a pistol-type handle on the other end of the tube having a notch in its free end, a control valve for the port comprising a solid cylindrical body slidable in the tube, an actuating rod for the valve having one end portion threadedly connected thereto, and a generally U-shaped valve operating handle on the other end of said rod straddling the first-named handle and including a bight portion slidably engaged in the notch.

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