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COTTON SAMPLER APPARATUS

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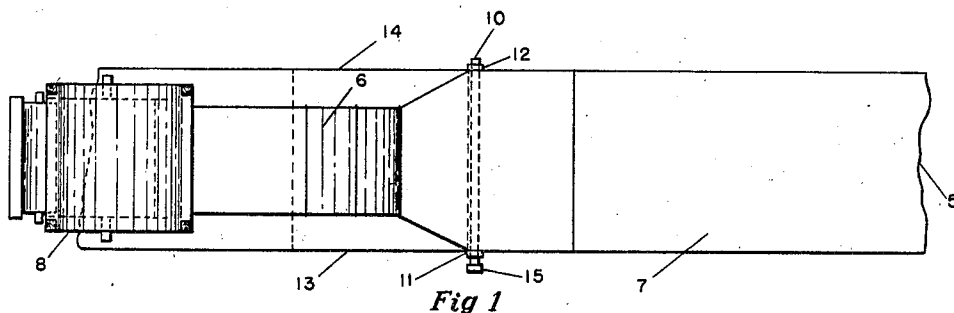


Fig 1

Fig 3

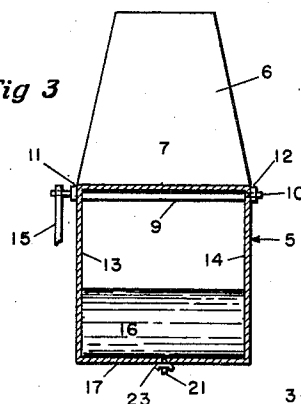
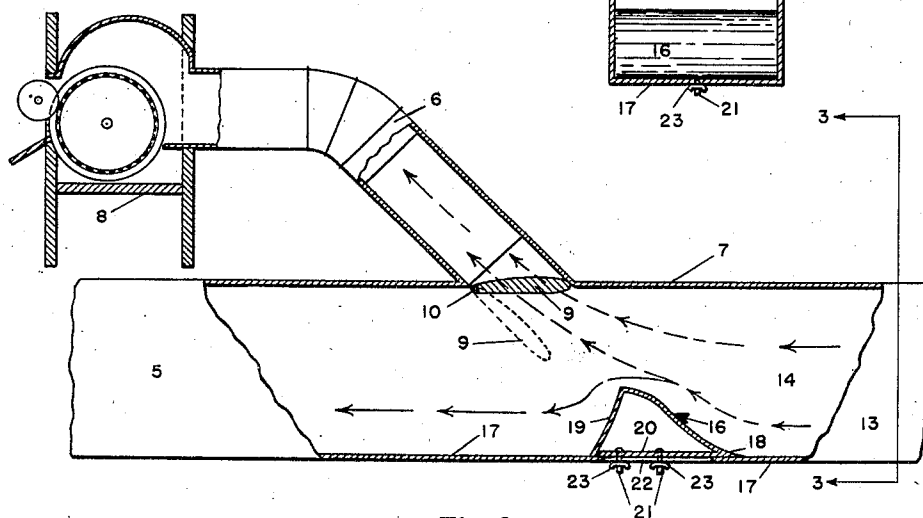


Fig 2

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COTTON SAMPLER APPARATUS

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Application July 30, 1941, Serial No. 404,626

2 Claims. (Cl. 19—156)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This application is made under the act of March 3, 1883, as amended by the act of April 30, 1928, and the invention herein described and claimed, if patented, may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment to us of any royalty thereon.

We hereby dedicate the invention herein described to the free use of the people in the territory of the United States to take effect on the granting of a patent to us.

This invention relates to a cotton sampler apparatus and the general object is the provision of means for obtaining a truly representative sample of the grade components of ginned lint, constituting the contents of a bale of cotton, as it is aerodynamically conveyed from the cotton gin to the drum of a cotton-condensing apparatus.

Another object of this invention is the provision of means which will permit the obtaining of different quantities of such samples, either intermittently or continuously, the sample in each case being comparable in quality to that of the cotton bat produced by the cotton condenser.

The following description, together with the accompanying drawing, will disclose this invention more fully, its construction and operation of parts, and further objects and advantages thereof will be apparent.

In the drawing:

Figure 1 is a plan view of an illustrative embodiment of this invention.

Figure 2 is a side elevational view, partly in section, of the embodiment illustrated in Figure 1.

Figure 3 is a section along the line 3—3 of Figure 2.

Referring with more particularity to the drawing, in which like numerals designate like parts, the numeral 5 designates a segment of a lint flue employed in the usual manner to convey air-borne cotton lint from a cotton gin (not shown) to a cotton bale condenser (not shown). Although other shapes may be used, a rectangular cross-section for that portion of the flue 5 in which the invention operates has been found convenient and suitable for the purposes of this invention. It has been found that cotton lint pneumatically conveyed by a duct substantially rectangular in cross-section progresses in relatively parallel strata, while cotton lint conveyed by ducts of circular or polygonal cross-section progresses in a substantially spiral motion.

A conveyor duct 6 is tapped into the flue 5 on one side 7 of the flue 5 at an angle diverging from the general direction of travel of the cotton lint (indicated by directional arrows) through said

flue, and it is connected for delivery to a miniature cotton lint condenser 8, or any other suitable means for collecting and compressing air-borne cotton lint, into bat form.

A closure valve 9 is normally disposed across the opening of the side 7 leading into the duct 6. The outer surfaces of the valve 9 are streamlined in the direction of flow of the cotton lint through the flue 5. The trailing edge of the valve 9 is fixed to a rocker shaft 10 rotatably mounted through suitable bearings 11 and 12 on the sides 13 and 14, respectively, of the flue 5. One end of the rocker shaft 10 is fixed to an operating arm 15.

A baffle 16, of a modified streamline character, is disposed on the wall 17 of the flue 5 opposite the valve 9. The baffle 16 is of a curvature optimum for the purpose of deflecting and trajecting the air currents toward the duct 6. We have found that a flat reversed S-curve is satisfactory for the baffle 16, said baffle being disposed at a forward angle toward and aligned with the duct 6, the rearward end 18 being substantially tangent to the wall 17. The forward end 19 of the baffle 16 projects downward to the wall 17 in the shape of a concave arc. The baffle 16 with its forward end 19 is at least as wide as the valve 9, substantially as illustrated. The baffle 16 is carried on a supporting member, such as plate 20, which is slidably disposed on the wall 17 of the flue. One or more bolts 21 are secured to the plate 20, and they project vertically downward through a longitudinal slot 22 in the wall 17, the ends of which are provided with winged nuts 23 for clamping the bolts in place at different points along the slot so that the position of the baffle 16 can be varied with respect to the duct 6 for different operating conditions. However, other adjusting means may be provided, the means illustrated being merely suggestive. Normally, the valve 9 is in a closed position as shown by the solid lines in Figure 2. This permits all of the air-entrained lint to pass through the flue 5, between the valve 9 and the baffle 16, toward the cotton gin condenser (not shown). The streamline character of the valve 9 and the baffle 16 prevents the banking up of lint at these points.

When it is desired to obtain a sample of the cotton lint passing through the flue 5, the leading edge of the valve 9 is revolved downward to the position shown by the broken lines in Figure 2 by turning the arm 15. Portions of the lint cotton diverted by the baffle 16 and thrown towards the valve 9 are diverted into the duct 6 from whence they proceed into the miniature

condenser 8 and are formed into a bat as a sample representative of the bulk of cotton lint passing through the flue at that time. When the sample has been obtained, the valve 9 is returned to its normal, closed position.

Although the embodiment illustrated shows the valve 9 on the upper side of the flue 5, it is to be understood that this invention is not limited in its scope to this position and that it may be disposed on other walls of the flue 5, such as on one of the side walls 13 and 14. Also, this invention is applicable to any part of a lint cotton conveyor system wherein the lint is entrained with air. If desired, the valve 9 may be used without the baffle 16 at any point in cotton gin lint-handling aerodynamic passages, such as the housing of a cotton gin condenser.

Having thus described our invention, we claim:

1. In combination with a cotton lint flue having a duct tapped in at one side of said flue sloping in the general forward direction of travel of the cotton lint through the flue, a hinged closure valve in said flue adjacent the mouth of said duct, and means operated from the exterior of the flue for actuating said valve, said valve being streamlined in the direction of flow of the cotton lint through the flue, bat-forming means subjoined to said duct, a baffle within the flue attached to the side thereof opposite said duct having its rearward end substantially tangent to

the side of the flue to which it is attached and its forward end projecting in the general direction of said duct so as to deflect and traject cotton lint passing through the flue toward said duct, and means for changing the position of said baffle in a forward and rearward direction.

2. Lint cotton sampler apparatus in combination with a lint flue connecting a cotton gin with a cotton condenser, comprising a duct tapped in at one side of said flue sloping in the general forward direction of travel of the cotton lint through the flue, a hinged closure valve in said flue adjacent the mouth of said duct, and means operated from the exterior of the flue for actuating said valve, said valve being streamlined in the direction of flow of the cotton lint through the flue, bat-forming means subjoined to said duct, a baffle within the flue attached to the side thereof opposite said duct having its rearward end substantially tangent to the side of the flue to which it is attached and its forward end projecting in the general direction of said duct so as to deflect and traject cotton lint passing through the flue toward said duct and said valve, and means for changing the position of said baffle in a forward and rearward direction.

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