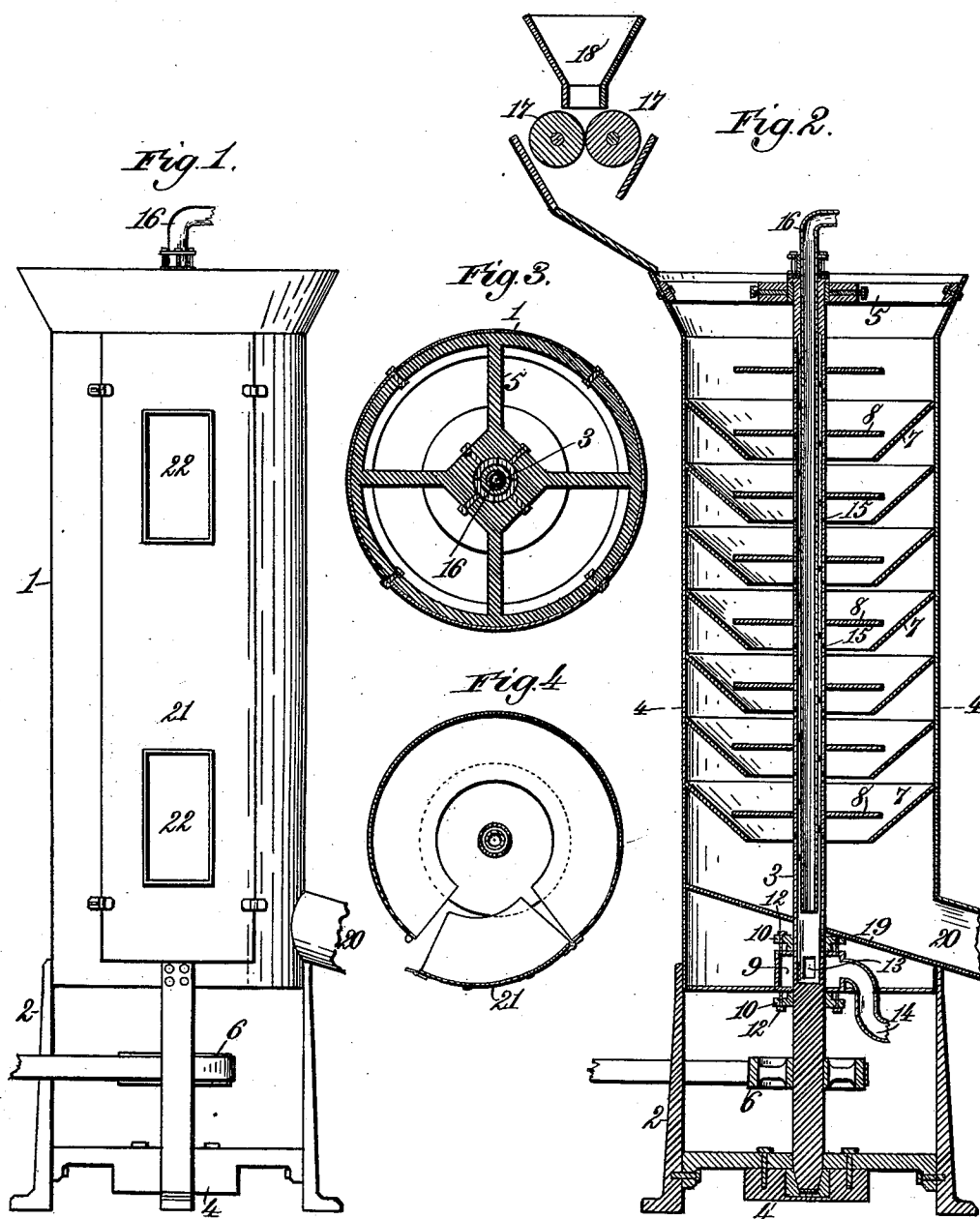


(No Model.)

W. W. REID & B. W. COOK.
SUGAR GRANULATOR.

No. 541,010.

Patented June 11, 1895.



WITNESSES
G. W. Rea,
Albert Swatt.

INVENTORS
William W. Reid,
Benjamin W. Cook,
BY *Walter H. Cook*
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM W. REID, OF NEW ORLEANS, AND BENJAMIN W. COOK, OF PORT ALLEN, LOUISIANA.

SUGAR-GRANULATOR.

SPECIFICATION forming part of Letters Patent No. 541,010, dated June 11, 1895.

Application filed February 28, 1895. Serial No. 540,076. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM W. REID, residing at New Orleans, in the parish of Orleans, and BENJAMIN W. COOK, residing at Port Allen, in the parish of West Baton Rouge, State of Louisiana, citizens of the United States, have invented certain new and useful Improvements in Sugar-Granulators; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon.

It is the purpose of our invention to provide an apparatus for granulating sugar which shall be rapid and efficient, in operation, and simple and comparatively inexpensive in construction, whereby sugar may be granulated and perfectly dried as it comes from the sugar-making mechanism.

The invention consists in the several novel features of construction and new combinations of parts hereinafter fully described and then particularly pointed out and defined in the claims concluding this specification.

To enable those skilled in the art to fully understand and to make and use our said invention, we will now describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation showing an apparatus in which our invention is incorporated. Fig. 2 is a central vertical section of the apparatus shown in Fig. 1. Fig. 3 is a plan view of the same, the hopper and crushing-rolls being omitted. Fig. 4 is a horizontal section upon the line 4 4, Fig. 2, showing the door partly opened.

The reference-numeral 1, in said drawings indicates a cylindrical, upright casing, having a closed lower end which is mounted in a rigid base 2. Throughout the length of said casing extends a tubular shaft 3, supported in a bearing 4 below the base 2, and in a spider-bearing 5 at the open top of the casing. The tubular shaft is capable of revolving in said bearings and is driven by a pulley 6, which is belted to any suitable source of power.

Upon the interior of the cylindrical casing 1, at suitable and regular intervals, are arranged hopper-shaped sections 7, rigidly se-

cured by their edges to the inner face of the casing. From this point of attachment each section extends downward and inward, terminating at the contracted lower end, which is open. Each section represents, in other words, a frustum of an inverted, hollow cone, the truncated end of each being in, or nearly in, the same plane with the attached edge of the next section below. Upon the tubular shaft are rigidly mounted a series of horizontal disks 8, arranged at points between the upper and lower open ends of the sections 7, and having a diameter somewhat greater than the contracted lower ends of said sections. A sufficient annular space is provided between the edge of each disk and the inner face of each hopper-shaped section 7 for the passage of the granulated sugar.

In the lower end of the cylindrical casing 1 is arranged a chamber 9, through which the lower, tubular portion of the shaft 3 passes. The shaft is packed through this chamber by means of glands 10, which are adjusted by bolts 12, to give as nearly as possible an airtight joint. In the lower end of the tubular shaft are formed openings 13, through which heated air, which is supplied to the chamber 9 by a tube 14, may pass into the tubular shaft 3. In said shaft are formed numerous small apertures 15, by which the heated air may escape in all directions into the interior of the cylinder. A separate tube 16 may also be packed in the upper end of the shaft and extended nearly to the lower end of the tubular portion, and either tube may be used to supply the heated air. The means for heating and forcing the same may be of any ordinary form and require no specific explanation.

At a suitable point above the open top of the cylindrical casing are arranged a pair of crushing rolls 17. Over these rolls is a hopper 18, preferably arranged at such a point that it can receive the sugar as it comes from the sugar making mechanism. By passing between said rolls the lumps are crushed and the large crystals broken up. The sugar then passes to the granulator, entering its open upper end and falling upon the upper disk. The tubular shaft 3 being in rapid revolution, the sugar is immediately thrown outward against the inner face of the cylindrical cas-

ing and drops into the first hopper-shaped section 7. Sliding down its wall it is poured upon the second disk, and the previous operation is repeated. During the operation heated air is poured through the numerous apertures in the tubular shaft and is forced to pass upward and escape through the open top of the casing. The sugar moving in the opposite direction is caused to travel the greatest possible distance in order to reach the lower end of the casing, and is, moreover, kept in constant agitation so that the hot air can reach every granule and no lumps, or adhesions, can be formed. After passing through the last section 7 it falls upon an inclined chute 19 and passes out of the casing through an opening 20. By the time it reaches the latter point it is thoroughly dried and granulated.

The cylindrical casing is provided with a hinged section 21, by which access may be had to the interior, and transparent panes 22 may be inserted at suitable points, to permit inspection of the interior.

What we claim is—

1. In a sugar-granulating apparatus, the combination with a cylindrical casing having a series of interior rigidly attached, hopper-shaped sections, of a tubular shaft passing concentrically through said casing and through central openings in said sections, said shaft being provided with a series of disks ar-

ranged to revolve within but out of contact with the hopper-shaped sections, and being provided also with numerous apertures for the passage of hot air into the casing crushing rolls adapted to deliver sugar to the open top of the casing, and means for supplying air to the tubular shaft, substantially as described.

2. In a sugar-granulating apparatus, the combination with a cylindrical casing having a hinged section and provided with a series of interior, hopper-shaped sections secured by one edge to its inner face, of a concentric, tubular shaft provided with a series of disks arranged within, but out of contact with the hopper-shaped sections, the lower end of the casing being provided with a chamber through which the tubular shaft is packed and from which it may receive hot air under pressure which escapes through apertures in said shaft and crushing rolls arranged to deliver sugar to the open top of the casing, substantially as described.

In testimony whereof we have hereunto subscribed our names in the presence of two witnesses.

WILLIAM W. REID.
BENJAMIN W. COOK.

Witnesses:

ROBT. E. RIES,
W. H. COOK.