No. 726,607. PATENTED APR. 28, 1903.

O. W. ALLISON, DEC'D.

C. A. WOLCOTT, EXECUTRIX.

APPARATUS FOR DISENTANGLING CUT TOBACCO.

APPLICATION FILED JUNE 23, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

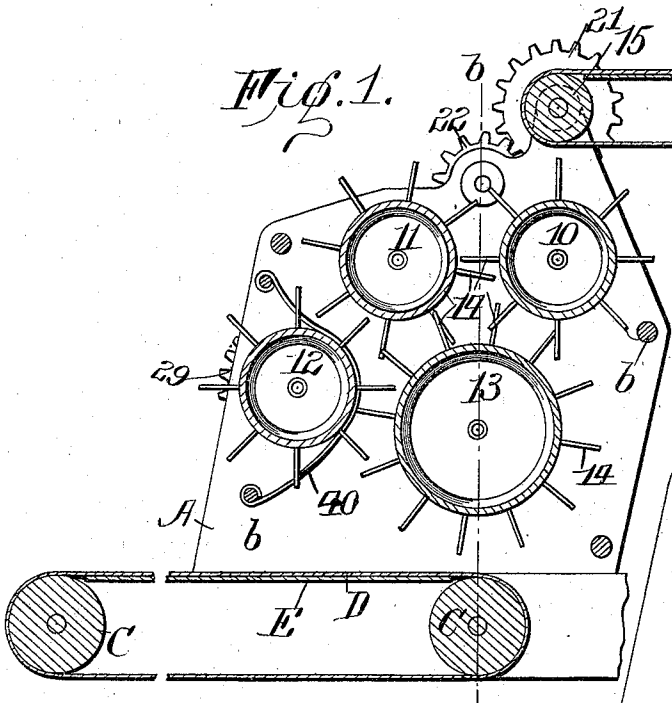


Fig. 2.

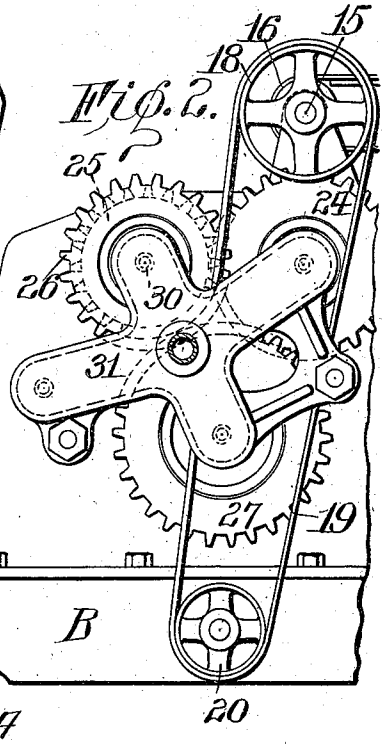
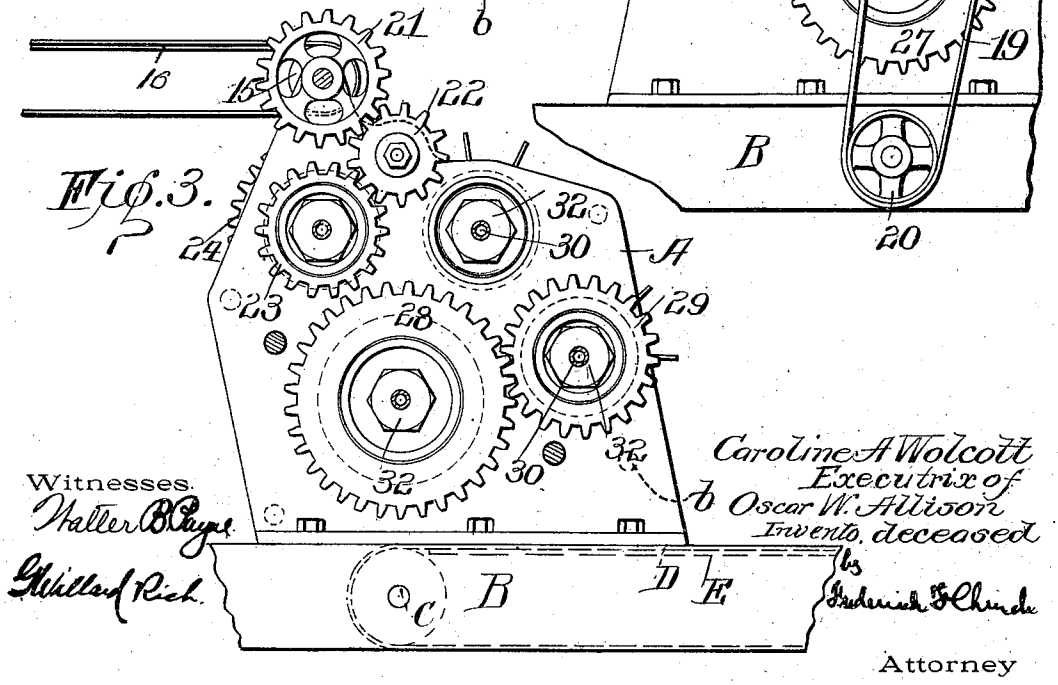


Fig. 3.



Witnesses.
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Oscar W. Allison
Invento. deceased
by
Frederick P. Church
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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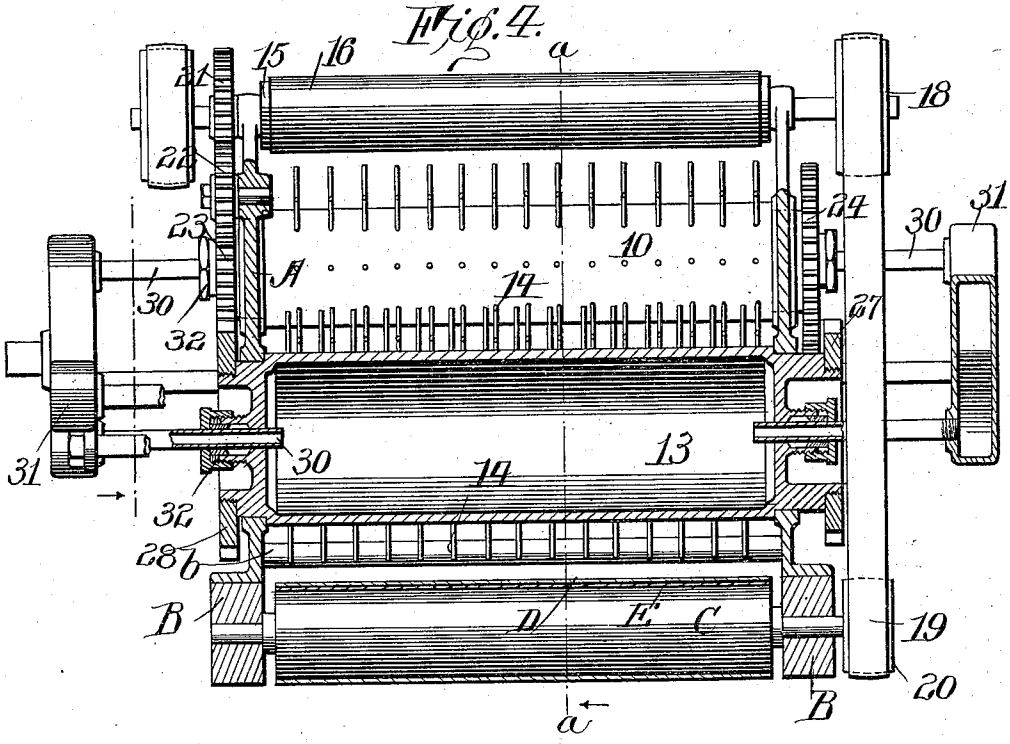
C. A. WOLCOTT, EXECUTRIX.

APPARATUS FOR DISENTANGLING CUT TOBACCO.

APPLICATION FILED JUNE 23, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.



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UNITED STATES PATENT OFFICE.

CAROLINE ALLISON WOLCOTT, OF ROCHESTER, NEW YORK, EXECUTRIX OF OSCAR W. ALLISON, DECEASED.

APPARATUS FOR DISENTANGLING CUT TOBACCO.

SPECIFICATION forming part of Letters Patent No. 726,607, dated April 28, 1903.

Application filed June 23, 1902. Serial No. 112,946. (No model.)

To all whom it may concern:

Be it known that OSCAR W. ALLISON, deceased, late a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, did invent certain new and useful Improvements in Apparatus for Disentangling Cut Tobacco, of which the following is a specification.

The present invention relates to an apparatus adapted to carry out a method described in Letters Patent No. 575,774, granted May 26, 1897, to Oscar W. Allison and Caroline Allison, which method consists generally in heating the fibers of the cut tobacco and carding, combing, and disentangling the fibers while in a heated condition, as particularly set forth in said Letters Patent referred to, and has for its object to provide an apparatus by means of which the carding and combing operation and the necessary heating and drying may be performed more expeditiously and during a single passage through a comparatively small machine. In the prior patent referred to the fibers of the tobacco were separated or loosened in a drum and were afterward combed out or disentangled by cylinders having intermeshing teeth or projections and after being subjected to the action of these was dried in a second drum and again disentangled; but owing to the second tumbling or turning action to which it was subjected in order to further dry it the tobacco was liable to become entangled again, and reliance was placed upon the second combing operation to straighten out the fibers which had been dried more or less. In the present apparatus the operation of drying and disentangling the fibers is continuous and the tobacco is both dried and combed or carded by the employment of a series of heated cylinders having teeth or projections preferably operating at greater surface speeds progressively from the point where the tobacco first enters the machine, so that the tobacco will be prevented from winding or becoming caked upon one cylinder and will be properly operated upon continuously, all or nearly all of the fibers being subjected to the action of the heated pins while passing through the machine.

In the accompanying drawings, Figure 1 is a longitudinal vertical sectional view of the improved machine, taken on the line *a a* of Fig. 4. Fig. 2 is a view of one side of the machine. Fig. 3 is a view of the opposite side. Fig. 4 is a vertical sectional view taken on the line *b b* of Fig. 1.

Similar reference characters in the several figures indicate similar parts.

The main frame of the machine consists generally of two side plates or frames A A, connected by tie rods or bolts *b b* so as to leave a space between them, said plates being secured at their lower ends to a suitable base or support B, in the sides of which are journaled rollers C, around which extends an endless traveling belt D, and beneath the upward stretch of the latter is arranged a supporting-plate E to prevent the belt from sagging. This belt or apron is approximately as wide as the space between the side frames A A and serves merely to carry the tobacco to any suitable point of deposit.

Journaled in the side frames of the machine is a series of cylinders or drums 10, 11, 12, and 13, the three first-mentioned ones being substantially the same size and the main drum or cylinder 13 being larger. Each of the cylinders is provided with a series of projecting fingers 14, formed integral therewith or secured rigidly thereto, those on the feeding-cylinders 10 and 11 arranged to extend past each other, sufficient space being permitted between them for the clearance of the fingers. The fingers or pins on the cylinder 12 pass between those on the cylinder 11, and those on the cylinder 13 pass the ones on all the other cylinders without interference. Journaled in the upper portions of the side frame is an operating-shaft having between the side frames a long apron roller or pulley 15, around which passes a feeding or conveying apron or belt 16, extending over an idler pulley or roller 17 on a suitable support, and at one end of the shaft 15 is provided a belt-pulley 18, from which a belt 19 extends to a pulley 20 on the shaft of one of the apron-pulleys C at the lower portion of the machine. At the opposite end of the shaft 15 is arranged a gear 21, meshing with an idler-pinion 22, journaled on a stud on one of the side frames and which in turn

meshes with the gear 23 on one end of the cylinder 10. At the opposite end of said cylinder is provided a gear 24, meshing with a gear 25 on one end of the cylinder 11. (See dotted lines, Fig. 2.) On the same end of the cylinder 11 is secured a gear 26, meshing with a gear 27, secured to the cylinder 13, and at the opposite end of the cylinder 13 is a gear 28, meshing with a gear 29, connected to the cylinder 12. These gears for the cylinders are preferably arranged near the outer sides of the frame-plates A, being secured to the ends of the cylinders by screw-threads, as shown in Fig. 4, or otherwise. All of the cylinders are hollow and have at their ends apertures through which pass the inner ends of fluid-pipes 30, said pipes being connected to steam chests or manifolds 31, arranged at the opposite sides of the frame, a steam-tight joint being formed by constructing packing-glands 32 in the ends of the cylinders containing suitable packing and through which the stationary steam-pipes 30 extend, so as to permit the passage of fluid through all of the cylinders, keeping the latter at a high temperature if steam is employed and serving also to heat the picking or separating pins 14.

The tobacco fibers are in a moist and more or less entangled condition and as they come from the cutting-machine are deposited on the conveying-apron 16 and are carried along by said apron and are deposited between the feeding-cylinders 10 and 11, which revolve toward each other, but at different speeds, by reason of the different sizes of the gears 24 and 25, the cylinder 11 moving the more rapidly and serving to straighten or comb out to some extent the fibers. The main cylinder 13 is revolved by the gearing so as to have a surface speed slightly less than that of the cylinder 11, and the doffing or separating cylinder 12 is revolved at a greater surface speed than any of the others and serves to remove the fibers from the teeth of the main cylinder 13 and to prevent them being carried around on the cylinder 11 and cause them to be deposited on the conveying-belt D, which carries them out of the machine to a suitable point of deposit. The picking or separating fingers, and the surface of the drums or cylinders as well, being very hot when used for drying the fibers of the tobacco and the differential movement of the fingers being progressively faster toward the discharge end of the machine, the tobacco is found to be combed out, the masses or lumps disentangled, and it is left comparatively dry when removed from the discharge belt or apron and in a condition for further drying, if desired, and packaging.

The same machine or apparatus may be used for cooling tobacco or other fibers, if desired, by causing a fluid, such as water or cold air, to flow through the cylinders, and this operation may, if desired, follow the drying and straightening operation, so that by the employment of two machines the tobacco may be given the necessary treatment after cutting without liability of becoming caked or tangled and may be delivered from the last machine in proper condition.

The arrangement of the gearing between the cylinders shown is preferred; but any desired manner of producing the requisite different surface speed of the fingers or of the cylinders may be employed, and it is desirable, although not regarded as essential, that the cylinder 13, referred to as the "main cylinder," be of larger diameter than the others.

In order that the fibers may not cling to the teeth on the doffer-cylinder and be carried around by it, any suitable device for removing them may be employed—such, for instance, as the curved wires 40, extending partially around the cylinder between the teeth or fingers thereon.

What is claimed as the invention of the said OSCAR W. ALLISON is—

1. In an apparatus for disentangling or combing and treating fibers, the combination of a plurality of revoluble hollow cylinders provided with projecting fingers thereon, those on adjacent cylinders extending past each other, fluid-supply pipes leading into and out of the cylinders and means for rotating the cylinders at different relative speeds.

2. In an apparatus for disentangling or combing and treating damp fibers such as cut tobacco, the combination of a plurality of revoluble hollow cylinders provided with projecting teeth or fingers thereon, those on adjacent cylinders extending past each other, fluid supply and discharge pipes connecting with opposite ends of the cylinders and gearing for rotating the several cylinders at differential surface speeds.

3. In an apparatus for disentangling or combing and treating damp fibers such as cut tobacco, the combination of a pair of hollow revoluble feed-cylinders having projecting teeth or fingers thereon extending past each other, gearing for operating said rollers at different surface speeds, a main hollow cylinder having projecting teeth or fingers extending past those on the feed-cylinders, a hollow cylinder having teeth or fingers extending past those on the main cylinder and on one of the feed-cylinders, gearing for operating the last-mentioned cylinder at a different surface speed from either of said two cylinders and fluid supply and discharge passages leading to the interior of all of the cylinders.

4. In an apparatus for disentangling or combing and treating fibers such as cut tobacco, the combination with a pair of revoluble hollow feed-cylinders each having projecting teeth or fingers extending past those on the other, means for operating the rollers at different surface speeds in opposite directions, a hollow revoluble main cylinder having teeth or fingers extending past those on the two feed-cylinders, gearing for operating

said main cylinder at a different surface speed from either of the feed-cylinders, and a hollow revoluble doffing-cylinder having teeth or fingers extending between those on one feed-cylinder and on the main cylinder, means for operating said doffing-cylinder at greater surface speed than either of the other two and fluid supply and discharge passages leading to the interior of all the cylinders.

5. In an apparatus for disentangling or combing and treating fibers such as cut tobacco, a revoluble hollow cylinder having outwardly-projecting teeth or fingers thereon, a similar cylinder provided with projecting teeth or fingers, means for revolving the two cylinders at different relative speeds, and fluid inlet and discharge passages connecting with the opposite ends of said cylinders to permit the passage of fluid therethrough.

CAROLINE ALLISON WOLCOTT,
Executrix of the estate of Oscar W. Allison, deceased.

Witnesses:
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