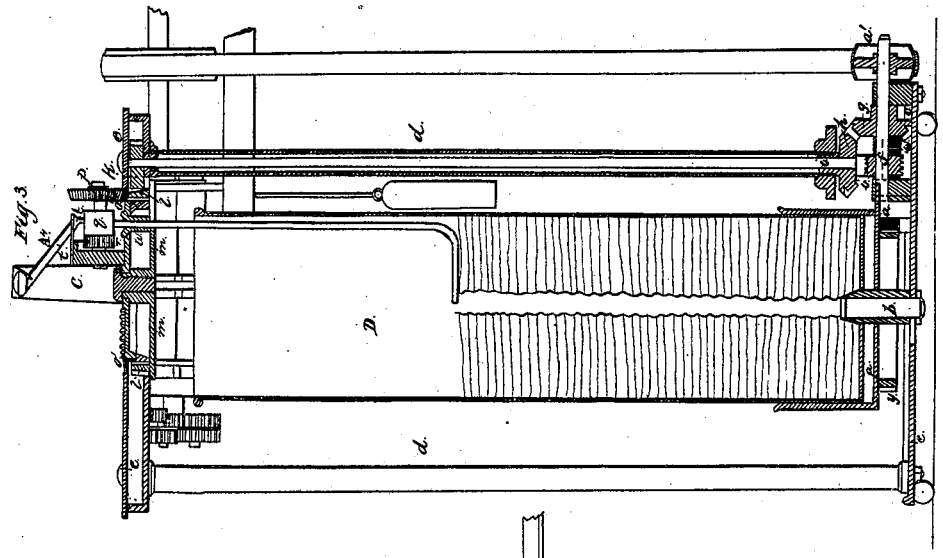
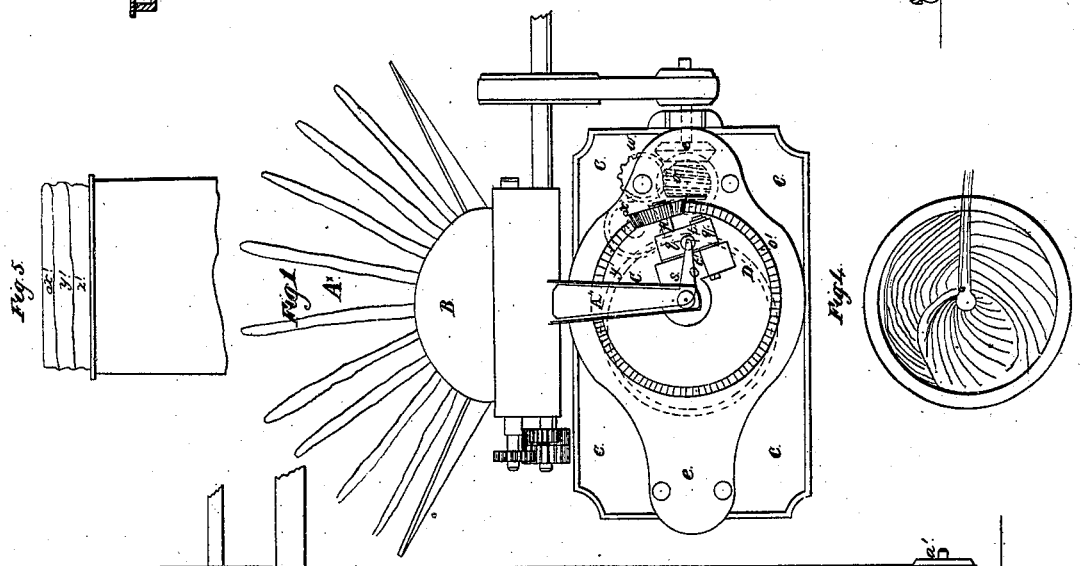
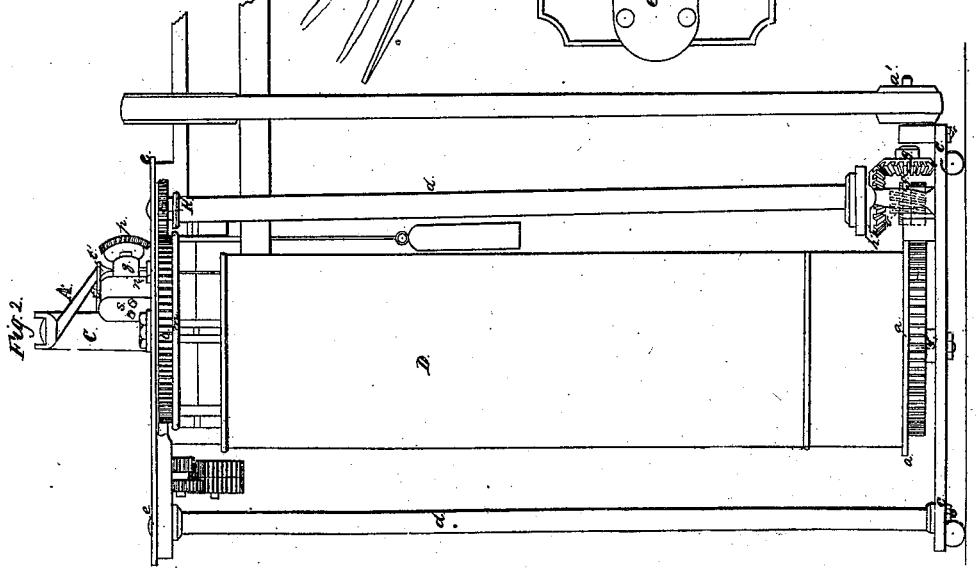
Tatham & Cheetham.

Carding Mach.

No. 4,277. Patented Nov. 18, 1845.







UNITED STATES PATENT OFFICE.

JOHN TATHAM AND DAVID CHEETHAM, OF ROCHDALE, ENGLAND.

IMPROVEMENT IN THE MODE OF LAYING ROVING IN CANS.

Specification forming part of Letters Patent No. **4,277**, dated November 18, 1845.

To all whom it may concern:

Be it known that we, JOHN TATHAM, machine-maker, of Rochdale, in the county of Lancaster, and DAVID CHEETHAM, cotton-spinner, of same place, both of the Kingdom of Great Britain, have invented a new and useful Improvement in the Manufacture of Cotton and other Fibrous Substances, which consists of a peculiar construction and arrangement of apparatus to be applied to the carding-engine and other subsequent preparation machinery—such as the drawing, roving, or slubbing machinery—for the purpose of delivering or depositing the slivers, drawings, slubbings, or rovings of cotton or other fibrous substances or material into the ordinary cans or other receptacles commonly used for such purposes, in order that the cans may be caused to contain a much greater quantity of cotton, &c., and also to leave it in such a state that upon being withdrawn from the can in any subsequent process it may be freely delivered or unwound, and the presence of any knots, lumps, or any other imperfections be avoided. The following description and accompanying drawings, taken together, constitute a full and exact specification of our invention.

Of the said drawings, Figure 1 is a horizontal view of this improved apparatus as seen from above and attached to or placed in connection with the doffing end of a common carding-engine. Fig. 2 is an elevation of the same and shown in its relative situation in connection with the ordinary tin can or receptacle placed to receive the sliver of cotton, as usual. Fig. 3 is a vertical section taken through at about the middle of the apparatus for the purpose of more clearly exhibiting its working parts.

In the figures the web of cotton is shown at A as passing from the doffing-cylinder through the usual cone or trumpet and between drawing or delivering rollers in the box B. From thence it is conducted along the trough or passage C to the apparatus about to be described.

D is the tin can or common receptacle for the sliver, the said can being placed upon a plate-wheel *a a*, formed with a vertical rim or other proper contrivance to receive the can and insure its correct position with respect to the delivering apparatus. This plate-wheel *a a* is mounted upon a central stud or pin *b*, affixed to the foundation or bottom plate *c c*, and from this plate rise two vertical columns *d d*, carrying the top plate to box *e e*, placed some distance above the mouth of the tin can D and supporting the improved delivering apparatus. This apparatus, constituting the first feature of novelty in these improvements, is constructed and operates as follows: A small pulley *a'* or other connecting-gearing is fixed upon a shaft *f*, suitably mounted upon or near the bottom plate *c c*. To this pulley motion is to be communicated from any convenient driving part of the carding-engine or other machinery. This shaft *f* has a miter-wheel *g*, which gears with a similar wheel *h* upon a vertical shaft *i*.

Upon the upper end of this vertical shaft *i* a spur-pinion *k* is keyed and engages with a spur-wheel *l*, formed around the periphery of a circular box *m*, which box is properly supported by and so as to revolve within the stationary upper plate *e e*. This stationary upper plate *e e* has a horizontal circle of beveled teeth *o'* formed on its surface, into which a beveled pinion *p* gears.

q q are a pair of calender-rollers, one of which is made fast to the bevel-pinion or is placed upon the same shaft with it. The said rollers should be coupled together by a pair of pinions taking into each other, one of which is seen at *r*, Fig. 3. The rollers *q q* and bevel-pinion *p* are mounted and turn loosely upon studs or axles fixed in the bracket *s*, from whose top an arm *t'* extends and carries the trumpet *t*, that conducts the sliver A to the rollers. The bottom plate *m* has also a spout or opening *n* for the same purpose.

From the rotary movements of the parts described it will be seen that the sliver A will be drawn down by the calender-rollers *q q* and delivered through the spout *n*. Now, in order that the slivers, drawings, slubbings, or rovings may be deposited in the can in a certain novel and peculiar manner, and which will allow of their subsequent deposit without injury and their being afterward readily withdrawn therefrom without entanglement, it must be observed that the delivery apparatus is placed eccentric with respect to the center or axis of the receiving-can, and also that the can is caused to revolve very slowly in the contrary direction to that of the delivering or depositing apparatus, which is

effected by means of the worm *v*, placed upon the driving-shaft *f* and suitably connected by a slow train of gearing *w x* to the spur-wheel *y*, round the bottom of the can-receiver Q Q. The effect of the revolutions of the delivery apparatus and the can is that the sliver is deposited in eccentric helices, which are wound one above the other around the interior of the can in a similar manner to that represented in the top view of the can of sliver at Fig. 4 and in side view at Fig. 5, each of the apparent divisions *x' y' z'*, Fig. 5, indicating one entire revolution of the can and so many of the revolving delivering apparatus as shall be required to form eccentric helices entirely around the interior of the can. When the can or receptacle has thus become loosely filled with slivers, drawings, slubbings, or rovings, the helical column will extend upward and at length rise against the under side of the box *m*, and as the revolutions of the apparatus continue the cotton will still be drawn, deposited, and packed in the can or other receptable until any desired quantity has accumulated therein before it may become necessary to remove the can from the machine.

We would here remark that in such cases where a very great weight of cotton is thus put or pressed into the can the elasticity of it on removal of the can would cause it to rise some distance above the top of the can. To prevent accidents or injury to the mass by reason of its falling over the side of the can, it is advantageous to have a movable telescopic tube fitted upon the upper part of the can, or instead thereof a skeleton frame of side rods may be elevated around the top of the can, and thus prevent the sliver falling over sidewise as it rises.

With respect to the process of slubbing or roving we would remark that in those instances where it is not desirabe or convenient to employ this apparatus to such process we propose to take the slubbings or rovings from ordinary bobbins and double them and by this apparatus deposit them in cans or other receptacles precisely in the same form, placing the cans behind the roving or spinning machine instead of using bobbins, as commonly done.

We would further observe that in those instances where it may be preferred to deposit the sliver directly upon a false bottom of the can, which will recede as the sliver accumulates, the calender-rollers may be dispensed with by placing the false bottom against the box *m*, which will then be sufficient to cause the sliver to be properly deposited, and, lastly, that in such instances where the cans or receptacles are required to be of an oval, square, oblong, or any other form the sliver, drawing, slubbing, or roving may be deposited with a similar effect merely by suitably traversing or revolving the plates on which the calender or delivering rollers are placed, the receivers or cans being either stationary or in motion.

Another modification of the same invention is that in which the can or other receiving-vessel is made stationary. In such case the delivering apparatus is not only to be made to revolve or operate in the manner as above described, but it should also have such a circular motion imparted to it as will cause it to lay the sliver around the interior of the can in eccentric helices, as exhibited in Fig. 4.

We claim—

1. The combination, with a can or other mechanical equivalent, of mechanism, substantially as set forth, for laying a sliver therein in eccentric helices, as above described.

2. The combination, with the above, of a compressing frame or plate *m*, disposed over it and operating so as to condense the material or force it into the can, as above specified.

In testimony that the foregoing is a correct specification of our said invention we have hereunto set our signatures this 2d day of August, 1845.

JOHN TATHAM.
DAVID CHEETHAM.

Witnesses:
H. WILDING,
Clerk, U. S. Consulate, Liverpool.
SAM. PEARCE,
Vice-Consul U. S. A., Liverpool.