

**No. 641,084.**

**Patented Jan. 9, 1900.**

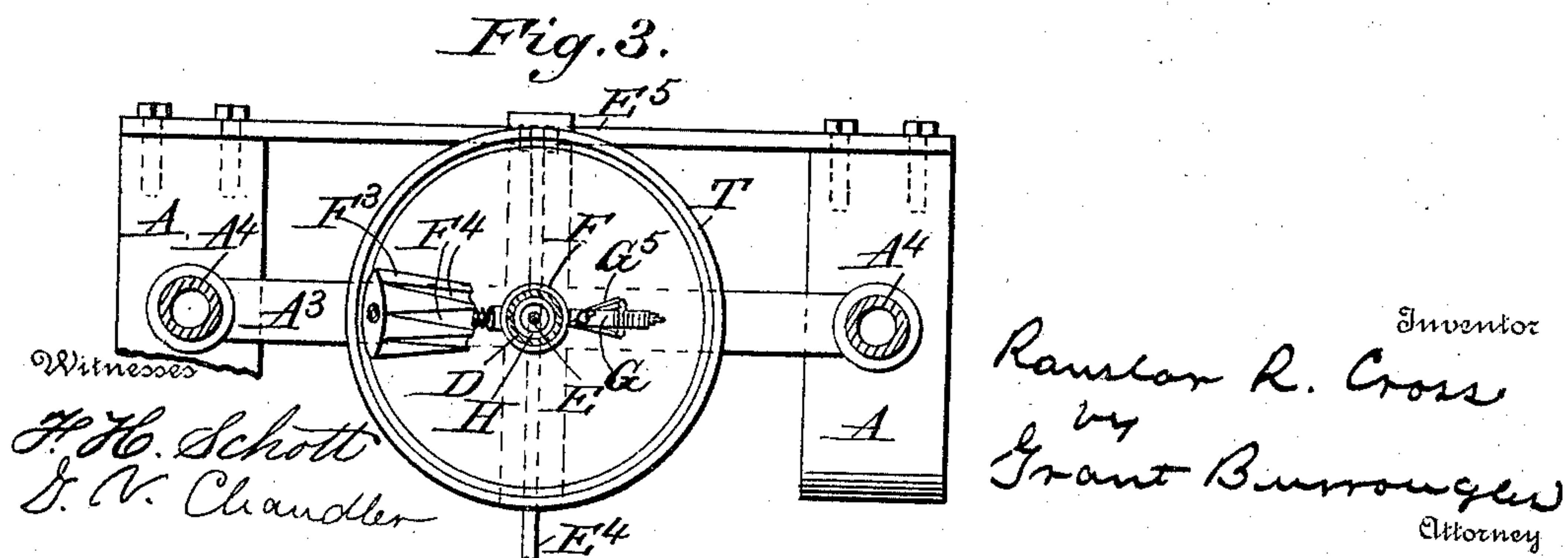
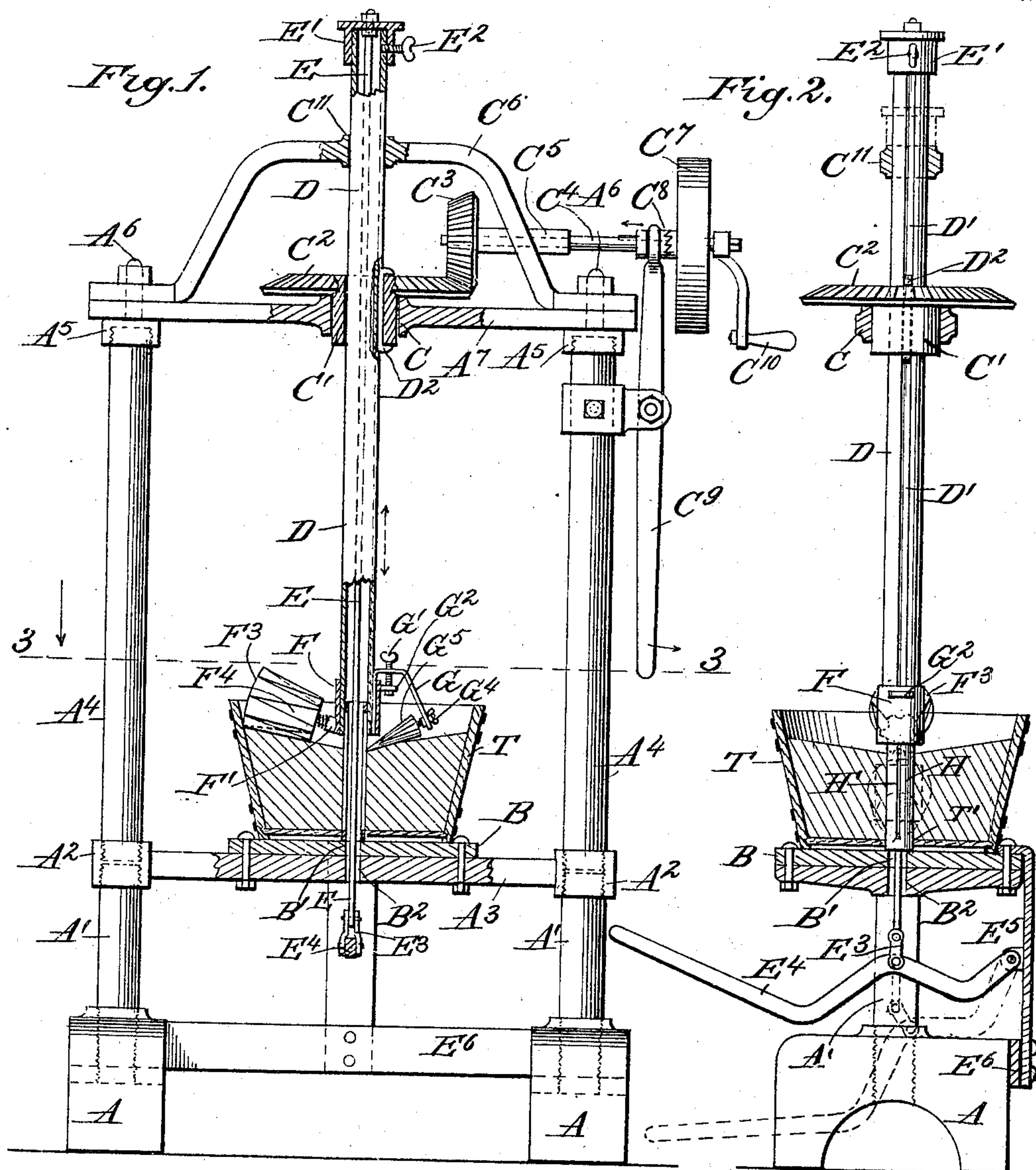
**R. R. CROSS.**

**MACHINE FOR PACKING BUTTER.**

(Application filed Apr. 6, 1899.)

(No Model.)

**2 Sheets—Sheet 1.**



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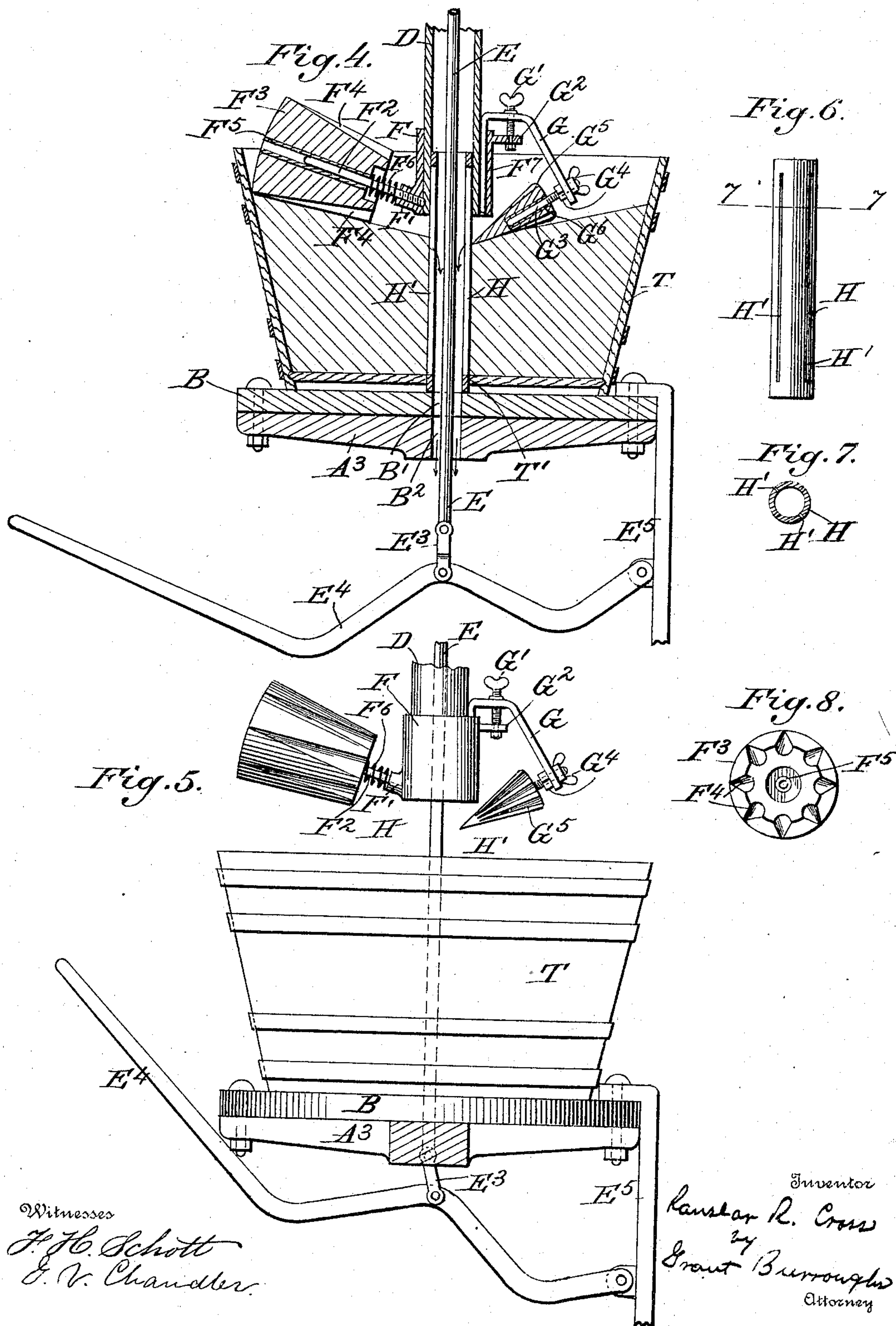
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Witnesses

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# UNITED STATES PATENT OFFICE.

RANSLAR R. CROSS, OF ONEONTA, NEW YORK.

## MACHINE FOR PACKING BUTTER.

SPECIFICATION forming part of Letters Patent No. 641,084, dated January 9, 1900.

Application filed April 6, 1899. Serial No. 712,015. (No model.)

*To all whom it may concern:*

Be it known that I, RANSLAR R. CROSS, a citizen of the United States, residing at Oneonta, in the county of Otsego and State of New York, have invented certain new and useful Improvements in Machines for Packing Butter, of which the following is a full, clear, and exact description, such as will enable those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to improvements in machines for packing butter into tubs; and it consists of the novel construction, combination, and arrangement of parts, such as will be hereinafter fully described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar reference characters designate corresponding parts in the several views, Figure 1 is a front elevation, partly in section, of a machine embodying the invention. Fig. 2 is a side elevation, partly in section, of the same. Fig. 3 is a horizontal sectional view on the line 3 3 of Fig. 1. Fig. 4 is an enlarged detail view showing a tub and the packing-rollers. Fig. 5 is a similar view showing a side elevation of the same. Fig. 6 is a detail view showing the slotted tube through which the liquid matter expressed from the butter escapes. Fig. 7 is a sectional view on the line 7 7 of Fig. 6. Fig. 8 is a detail view showing the small end of the main roller.

The supporting-frame of the machine may be of any construction suitable in the premises. In the present instance, however, it consists of the base-pieces A, into which are screwed the lower standards A', formed of pieces of metal tubing. The upper ends of these standards are screw-threaded and are turned into the collars A<sup>2</sup> of the cross-piece A<sup>3</sup>. The upper standards A<sup>4</sup>, also formed of metal tubing, have their lower ends screw-threaded and are also turned into the collars A<sup>2</sup> and are in line with the lower standards A'. On the top of each of the upper standards A' is turned a screw-threaded cap A<sup>5</sup>, provided with a screw-threaded lug A<sup>6</sup>. A cross-piece A<sup>7</sup> has apertures in its ends, which

engage with the lugs A<sup>6</sup> of the caps A<sup>5</sup>, and connects the upper ends of the standards A<sup>4</sup>.

On the cross-piece A<sup>8</sup> is secured the tub-supporting table B. The latter has an opening B' in its center, that registers with an opening B<sup>2</sup> in the cross-piece.

The cross-piece A<sup>7</sup> has formed in it a bearing C intermediate of its ends, in which is journaled the hub C' of the bevel-gear C<sup>2</sup>. The latter is rotated by the bevel-gear C<sup>3</sup>, mounted on the shaft C<sup>4</sup>, which is journaled in the sleeve C<sup>5</sup>, carried by the yoke C<sup>6</sup>. The latter has apertures in its ends, which engage with the lugs A<sup>6</sup>, and it is held in place by nuts turned onto said lugs. On the outer end of the shaft C<sup>4</sup> is mounted the loose pulley C<sup>7</sup>. A clutch C<sup>8</sup>, operated by the lever C<sup>9</sup>, is splined on the shaft C<sup>4</sup> and is adapted to engage with the pulley. By a belt driven by a suitable motor the pulley can be rotated. By means of the clutch rotary motion can be imparted to the shaft C<sup>4</sup>. A hand-crank C<sup>10</sup> is also provided for rotating the shaft.

In the crown of the yoke C<sup>6</sup> is a bearing C<sup>11</sup>. The latter and the opening in the hub C' and the opening B' in the table B and the opening B<sup>2</sup> in the cross-piece A<sup>8</sup> are all in substantially the same straight line.

A tubular shaft D is journaled at its upper end in the bearing C<sup>11</sup> and passes through the hub C'. It has a longitudinal keyway D' in its periphery. By means of the key D<sup>2</sup>, inserted in said keyway, and a suitable recess in the bevel-gear C<sup>2</sup> the tubular shaft is caused to rotate with the said gear. This connection with the gear allows the tubular shaft to be moved freely up and down without interfering with its rotation.

Means for moving the tubular shaft vertically are provided. A rod E passes through the shaft and is attached at its upper end to the cap E'. The latter fits over the upper end of the shaft and is provided with a thumb-screw E<sup>2</sup> for securing it thereon. The lower end of the rod passes through the opening B' in the table B and the opening B<sup>2</sup> in the cross-piece A<sup>8</sup> and is connected by the link E<sup>3</sup> with the lever E<sup>4</sup>. The latter is pivoted to the bracket E<sup>5</sup>, attached to the table B, and the cross-piece E<sup>6</sup> secured to the base-pieces A. By moving the lever, and thereby the rod E,



the tubular shaft which is attached to the said rod can be moved vertically.

On the lower end of the tubular shaft is secured the collar F, from which projects the stud F'. A screw-threaded opening leads through said stud and the collar to the interior of the latter. Into this screw-threaded opening is turned the screw-threaded end of the spindle F<sup>2</sup>. The inner end of the latter impinges on the tubular shaft and serves to hold the collar in place. The spindle F<sup>2</sup> is inclined upwardly toward its outer end, and it carries the main roller F<sup>3</sup>. The latter is shaped somewhat like the frustum of a cone. In its periphery are grooves F<sup>4</sup>, which begin at its larger end and gradually increase in size toward its smaller end. It is provided with a sleeve F<sup>5</sup>, which forms the bearing for the spindle. Interposed between the inner end of the roller, which is recessed for the purpose, and the stud F' is a coiled spring F<sup>6</sup>, which when compressed tends to force the roller outwardly on the spindle to a limited extent.

In the collar F, on the side opposite to that from which the stud F' projects, is a guideway F<sup>7</sup>. In the latter is mounted the bracket G. By means of the screw G', journaled at its lower end in the lug G<sup>2</sup> and engaging at its upper end with the bracket, the latter can be vertically adjusted. The outer end of the bracket is depressed and carries the spindle G<sup>3</sup>, which has a screw-threaded end passing through said bracket and is provided with the nuts G<sup>4</sup>. By means of these nuts, which clamp the bracket, the spindle can be adjusted relatively to the bracket. On the free end of the spindle is journaled the auxiliary roller G<sup>5</sup>, which is conical in form. It is provided with a sleeve G<sup>6</sup> to form the bearing between it and the spindle. The periphery of this roller is also grooved. In this instance, however, the grooves begin near the apex of the roller and gradually increase in size toward the larger end of the same.

In the lower end of the tubular shaft D is removably mounted the tube H. The latter has longitudinal slots H' extending nearly its entire length. The tube incloses the rod E, and its lower end rests on the table B, registering with the opening B'.

The tub T is of a construction similar to that of the tubs ordinarily used in packing butter, except that it has an aperture T' in its bottom at a central point. This aperture is of such size as to permit the passage of the slotted tube H.

The operation of the device is as follows: First, the rod E is disconnected at its lower end from the link E<sup>2</sup> by removing the pin joining the two. Then the tubular shaft D is raised until the lower end of the rod is sufficiently elevated to permit the tub T to be placed in position on the supporting-table. The tub is then placed on the table with the aperture T' in its bottom registering with the

aperture B' in the table. The slotted tube H is then placed in position, with its lower end passing through the aperture T' in the bottom of the tub and resting on the table. The tubular shaft D is allowed to descend with the rod E passing through the slotted tube and the latter telescoping with the shaft. The lower end of the rod E is connected with the link E<sup>2</sup>. By depressing the free end of the lever E<sup>4</sup> the rollers F<sup>3</sup> and G<sup>5</sup> are moved to the bottom of the tub, and the tubular shaft is moved downwardly over the slotted tube. When the rollers are in the lower part of the tub, the auxiliary roller G<sup>5</sup> is adjusted so that its path of travel will be slightly below that of the main roller F<sup>3</sup>. Butter is fed into the tub, and the tubular shaft is set in motion. As the rollers travel around the tub they compress the butter and force out the liquid matter. After this layer of butter has been sufficiently packed the rollers are raised through the movement of the lever E<sup>4</sup> and the intermediate connections between it and the tubular shaft. More butter is then fed into the tub and is compressed and packed in the same way as that first introduced. As the rollers rise the main roller F<sup>3</sup> is pressed outwardly on its spindle by the spring F<sup>6</sup> against the side of the tub. As the sides of the tub flare outwardly toward its mouth, the roller moves outwardly on its spindle. As the spindle is inclined upwardly, the main roller in its new position will travel in a path considerably above that of the auxiliary roller. To compensate for this, the auxiliary roller is moved upwardly relative to the main roller by adjusting the bracket G in its guideway. If the auxiliary roller should not be adjusted, its path of travel in the butter would be so deep as to cause it to bury in the butter to such an extent as to prevent it from properly packing. After the packing of the second layer the rollers are again raised and the auxiliary roller again adjusted. This is repeated until the tub is filled.

It is to be observed that the path of travel of the main roller and that of the auxiliary roller overlap, and also that the paths of travel of both incline toward the center of the tub, and, further, that the inclination of the path of the auxiliary roller is greater than that of the main roller. This causes the liquid matter expressed from the butter to flow toward the center of the tub and to escape through the slotted tube H.

The projections of the rollers press into the butter and form grooves therein leading toward the escape-pipe. These grooves facilitate the flow of the liquid matter expressed from the butter toward the said pipe. The corrugated surfaces of the rollers adapt them to engage with the butter and to work it better than if they were smooth, the ribs of the corrugations serving to grip the butter and to engage with the lumps.

It is to be noted that the periphery of the



outer or larger end of the main roller is circular, so that it will bear smoothly against the inner face of the tub.

The pressure of the rollers on the butter can be regulated by the lever E<sup>4</sup> and the intermediate connections.

After the tub has been packed the rod E is disconnected from the lever, and the rollers, tubular shaft, and rod are raised free from the tub and the slotted tube, which is left in the butter. The tub is then removed from the table and the slotted tube is removed. For some purposes it is desirable to leave the hole made by the slotted tube in the butter. However, it can be filled by hand readily. The opening in the bottom of the tub is closed by a plug or in any other suitable manner.

While the hereinbefore-described embodiment of the invention is the preferred one, yet it can be departed from to a considerable extent without departing from its spirit.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

2. In a machine for packing butter, a rotatable carrier, a main roller adjustable on said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

3. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller adjustably mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

4. In a machine for packing butter, a rotatable carrier, a main roller adjustable on said carrier and traveling in a circular path, an auxiliary roller adjustably mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

5. In a machine for packing butter, a rotatable carrier, rollers mounted on said carrier and traveling in different concentric paths which continuously overlap, and means for raising and lowering said carrier.

6. In a machine for packing butter, a rotatable carrier, rollers mounted on said carrier and traveling in different concentric paths which continuously overlap and which have different inclinations, and mechanism for raising and lowering said carrier.

7. In a machine for packing butter, a rotatable carrier, rollers adjustably mounted on said carrier and traveling in different concentric paths which continuously overlap, means for moving said rollers to vary the relative inclinations of the paths in which they travel, and mechanism for raising and lowering said carrier.

8. In a machine for packing butter, a rotatable carrier, spindles carried by said carrier, a main roller journaled on one of said spindles, a spring pressing said main roller outwardly on its spindle, an auxiliary roller journaled on another of said spindles and traveling in a path inside of that traveled by said main roller and continuously overlapping the same, and mechanism for raising and lowering said carrier.

9. In a machine for packing butter, a rotatable carrier, a main roller mounted on said carrier and having an endwise movement, an auxiliary roller vertically adjustable on said carrier, and means for raising and lowering said carrier.

10. In a machine for packing butter, a rotatable carrier, a main roller mounted on said carrier and having an endwise movement, an auxiliary roller vertically adjustable on said carrier and traveling in a path inside of and continuously overlapping the path traveled by said main roller, and means for raising and lowering said carrier.

11. In a machine for packing butter, a rotatable carrier, a spindle attached to said carrier, a main roller journaled on said spindle, a spindle adjustably mounted on said carrier, an auxiliary roller journaled on said adjustable spindle and traveling in a path inside of the path traveled by said main roller and overlapping the same, and means for raising and lowering said carrier.

12. In a machine for packing butter, a rotatable carrier a spindle attached to said carrier, a main roller journaled on said spindle and movable endwise thereon, a spindle vertically adjustable on said adjustable spindle, and means for raising and lowering said carrier.

13. In a machine for packing butter, a rotatable carrier, a spindle attached to said carrier, a main roller journaled on said spindle and having an endwise movement thereon, a spring pressing said roller outwardly on its spindle, a spindle vertically adjustable on said carrier, an auxiliary roller journaled on said vertically-adjustable spindle, and means for raising and lowering said carrier.

14. In a machine for packing butter, a supporting-table provided with an opening, a slotted tube having its lower end registering with the opening in said table, a rotatable shaft adapted to telescope with said tube, and a roller carried by said shaft.

15. In a machine for packing butter, a supporting-table provided with an opening, a slotted tube having its lower end registering with the opening in said table, a rotatable



shaft adapted to telescope with said tube, means for raising and lowering said shaft, and a roller carried by said shaft.

16. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of the path traveled by the main roller, and means for raising and lowering said carrier.

17. In a machine for packing butter, a carrier, a roller mounted on said carrier, and a spring normally pressing said roller outwardly from said carrier.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

RANSLAR R. CROSS.

Witnesses:

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