No. 836,735. PATENTED NOV. 27, 1906.

J. BRENZINGER.

CAN HEADING MACHINE.

APPLICATION FILED AUG. 4, 1905.

Fig. 1.

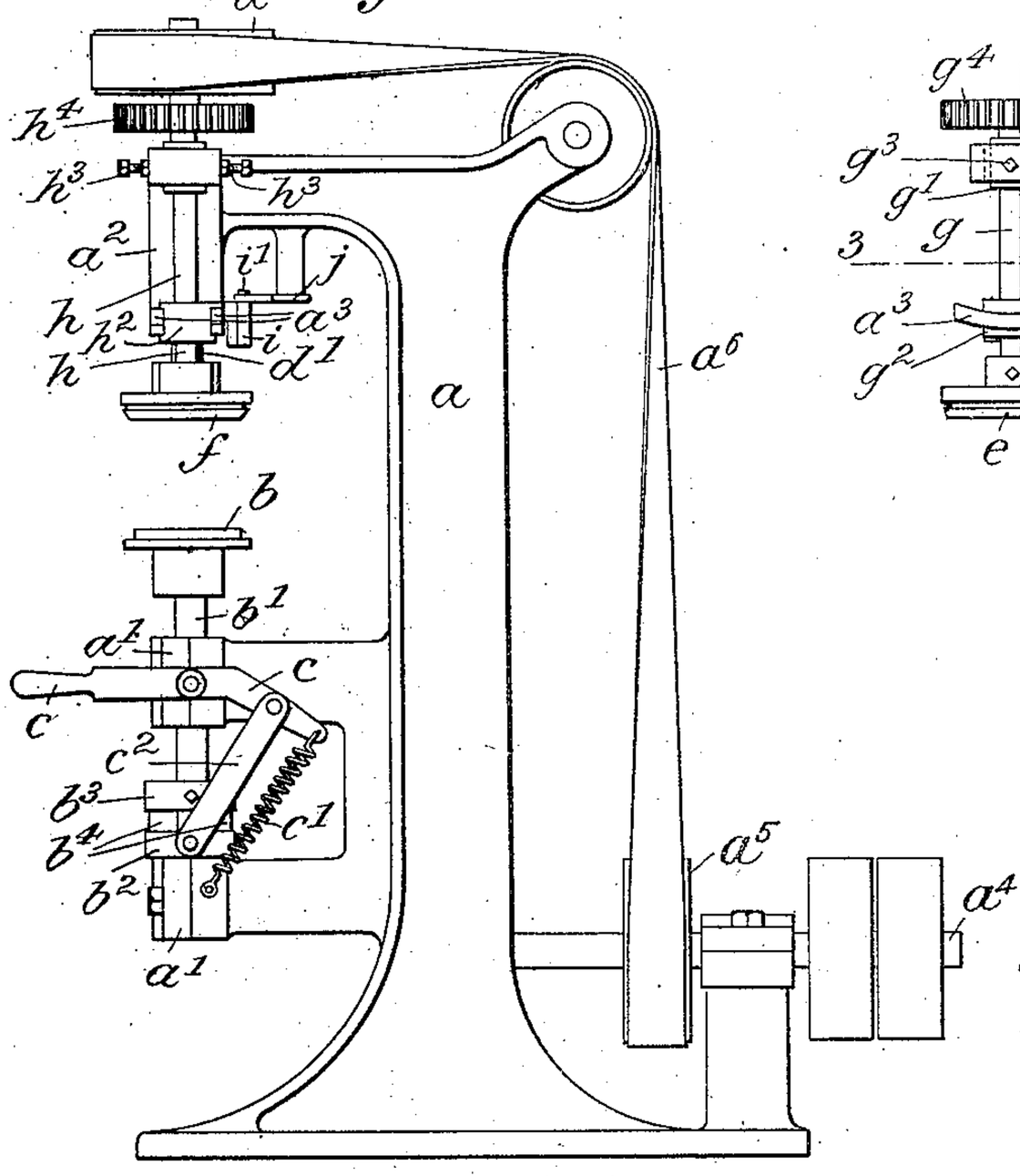


Fig. 2.

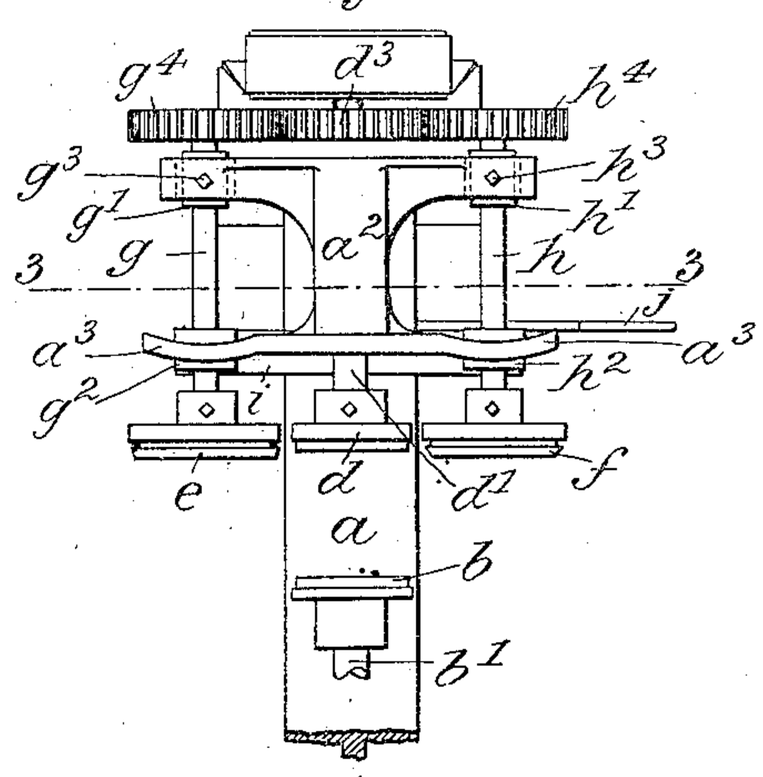
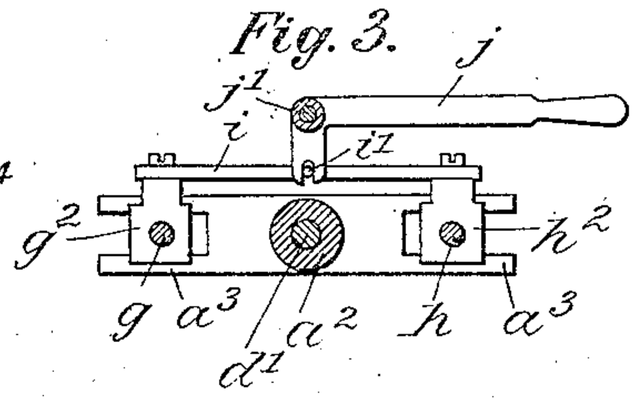


Fig. 3.



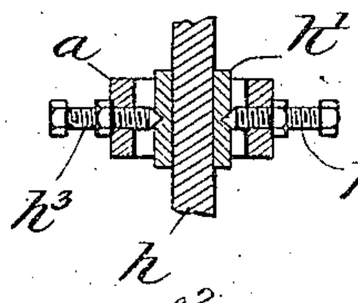


Fig. 7.

Fig. 4.

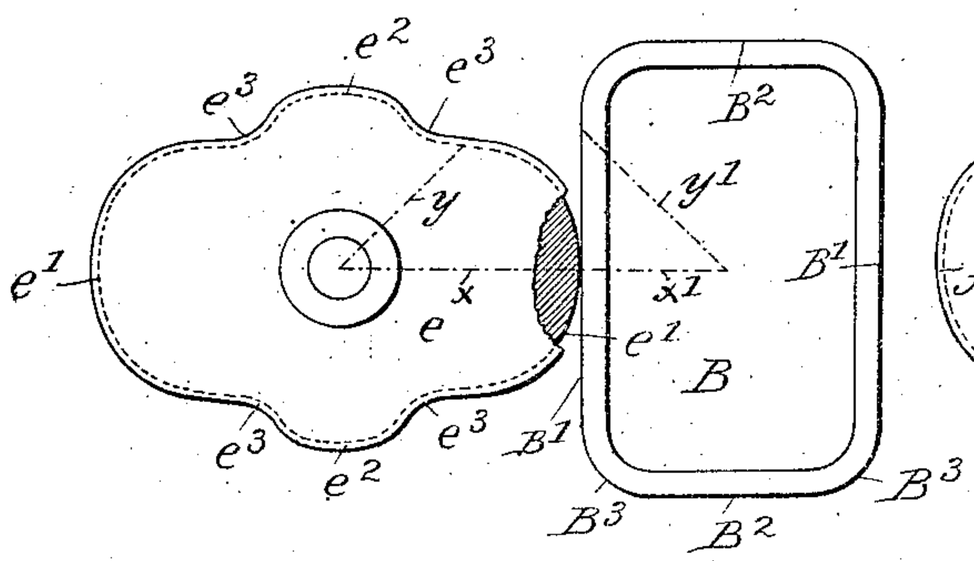


Fig. 5.

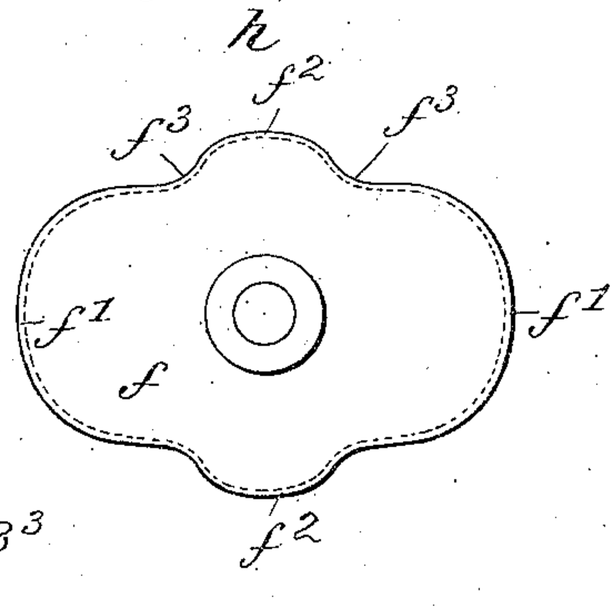
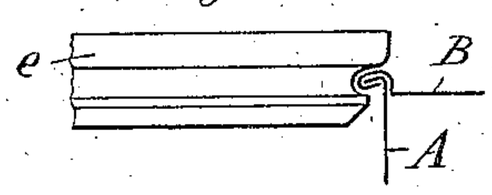
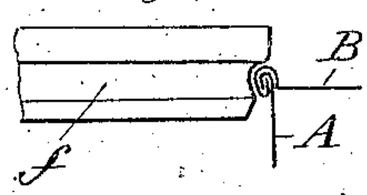


Fig. 6.





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UNITED STATES PATENT OFFICE.

JULIUS BRENZINGER, OF MOUNT VERNON, NEW YORK, ASSIGNOR TO SANITARY CAN MACHINERY COMPANY, OF ELLSWORTH, MAINE, A CORPORATION OF MAINE.

CAN-HEADING MACHINE.

No. 836,735. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed August 4, 1905. Serial No. 272,657.

To all whom it may concern:

Be it known that I, JULIUS BRENZINGER, a citizen of the United States, residing at Mount Vernon, Westchester county, State of New York, have invented new and useful Improvements in Can-Heading Machines, of which the following is a specification.

This invention relates to a can-heading machine which is adapted to secure a cover to a non-circular can by means of a double seam. For this purpose the machine is provided with a pair of non-circular rollers which are so shaped as to form a complement to the can-body. In this way all means for effecting a lateral movement of the roller while in operative engagement with the can-body are dispensed with, whereby the construction of the machine is simplified and its output is increased.

In the accompanying drawings, Figure 1 is a side elevation of my improved can-heading machine; Fig. 2, a front elevation of the upper part thereof; Fig. 3, a horizontal section on line 3 3, Fig. 2; Fig. 4, a plan, partly broken away, of the seaming-rollers and cover; Fig. 5, a detail of the first seaming-roller; Fig. 6, a detail of the second seaming-roller, and Fig. 7 a detail of the suspending means of one of the seaming-rollers.

The letter *a* indicates the frame of the machine, provided with bearings *a'* to receive the shaft *b'* of a rotatable platform *b*. This platform is adapted to support the can-body A to be headed, such can-body being of oblong angular or other non-circular shape. The shaft *b'*, together with platform *b*, may be raised by means of a lever *c*, influenced by a spring *c'*, and connected by a link c^2 with a collar b^2, loosely embracing shaft *b'*. Between collar b^2 and a collar b^3, fast on shaft *b'*, are interposed cushions b^4, so that by depressing lever *c* shaft *b'* is raised through the intervention of link c^2, collar b^2, cushions b^4, and collar b^3. Vertically above shaft *b'* there depends from frame *a* a rotatable chuck *d*, adapted to engage the recessed cover B, which is to be joined to can-body A. The spindle *d'* of chuck *d* turns in a bearing a^2 and receives rotary motion from power-shaft a^4 by pulley a^5, belt a^6, and pulley d^2. It will be seen that when the can-body A, with cover B superposed, is placed upon platform *b* and the latter is raised until cover B is engaged by chuck *d* the parts A and B will be rotated in unison.

During the rotation of parts A and B their adjoining flanges are upset by a pair of seaming-rollers *e* and *f*, of which roller *e* is profiled to form a double seam, Fig. 5, while roller *f* is profiled to flatten such seam, Fig. 6—that is to say, each of the rollers has an upper flange, a lower flange, and an intervening groove, the groove in roller *f* being somewhat shallower and higher than that of roller *e*.

Each of the rollers *e* and *f* makes the same number of rotations as the can A, and its periphery is equal in length to that of the seam to be upset thereby. For this purpose the circumferential length or surface speed of the working edge of chuck *d* corresponds substantially to the circumferential length of the grooved non-circular working edge of each of the rollers *e* and *f*. As the description of roller *e* applies equally to roller *f*, the former only will now be considered.

Briefly stated, the contour of roller *e* constitutes a complement to that of the chuck *d* and of the can, so that as the parts *e* and A are jointly rotated the sum of the successively-alined radii of such parts is always equal. Thus the sum of the radii *x x'* is equal to the sum of the radii *y y'* or of any other two radii which will contact with each other during the rotation of the parts. For an oblong can-head, as shown in Fig. 4, the roller *e* must therefore be of oblong shape, having two diametrically-arranged larger convex cam-sections *e'* and two intermediate diametrically-arranged smaller convex cam-sections e^2. Between each pair of sections *e' e²* there is formed the reëntrant angle or concave cam-section e^3. With this construction the peripheral length of each cam-section *e'* corresponds substantially to the length of each long cover side B', cam-section e^2 corresponds substantially to short cover side B^2, while cam-section e^3 corresponds substantially to the length of corner B^3. It is obvious that with a can of different shape the contour of roller *e* must be correspondingly changed, the gist of the construction being that the grooved non-circular working edge of the rollers form a complement to a non-circular can of substantially the same circumferential length.

The roller f has the convex cam-sections f' f^2 and the concave sections f^3 corresponding to the parts e' e^2 e^3, respectively, of roller e.

The machine is so timed that the rollers e f are brought into successive operative contact with the can. To effect this result, the construction is as follows:

The shafts g h of rollers e f, respectively, are journaled in upper bearings g' h' and lower bearings g^2 h^2.

The upper bearings g' h' are freely suspended between screws g^3 h^3, respectively. The lower bearings are slidable in curved slotted guides a^3, projecting laterally from bearing a^2. The bearings g^2 h^2 are connected by a slide i, having a pin i', which is grasped by the notched end of a bent lever j, fulcrumed to frame a at j'. Thus by manipulating lever j either of the bearings g^2 h^2 may be moved inward to correspondingly tilt its shaft g or h, and thereby move its roller e or f laterally into operative contact with the can A, while the other roller is moved away from such can.

Simultaneous rotary movement is imparted to the rollers e f by gear-wheels g^4 h^4, fast on shafts g h, respectively, and meshing into a gear-wheel d^3, fast on shaft d' of chuck d. The gear-wheels g^4 h^4 are of the same diameter as wheel d^3, so that the rollers e and f rotate with the same speed as chuck d, the teeth of wheels g^4 h^4 being so shaped as to permit the slight oscillation of shafts g h on screws g^3 h^3.

It will be seen that by the construction described the working seaming-roller while in operative engagement with the can will turn on a stationary axial line, or, in other words, the operative contact between can and roller will be maintained without swinging the latter alternately inward and outward to permit the rotation of the unround can-body.

What I claim is—

1. In a can-heading machine a non-circular seaming-roller having an alternately inwardly and outwardly extending grooved working edge, combined with a chuck having a corresponding working edge of same surface speed, whereby the sum of their successively-alined radii remains constant, substantially as specified.

2. In a can-heading machine, a non-circular seaming-roller having an alternately inwardly and outwardly extending grooved working edge, combined with a chuck having a complementary working edge of substantially the same circumferential length as that of the seaming-roller, and means for maintaining the seaming-roller on a stationary axial line while in operative engagement with the can, substantially as specified.

3. In a can-heading machine, a non-circular seaming-roller having an alternately inwardly and outwardly extending grooved working edge, combined with a chuck having a complementary working edge of substantially the same circumferential length as that of the seaming-roller, means for maintaining the seaming-roller on a stationary axial line while in operative engagement with the can, and means for rotating the seaming-roller and chuck at the same speed, substantially as specified.

Signed by me at New York city, (Manhattan,) New York, this 3d day of August, 1905.

JULIUS BRENZINGER.

Witnesses:
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FRED UNFRICHT.