No. 783,789. PATENTED FEB. 28, 1905.

O. J. JOHNSON.

HORN SUPPORT FOR SOLDERING MACHINES.

APPLICATION FILED NOV. 18, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

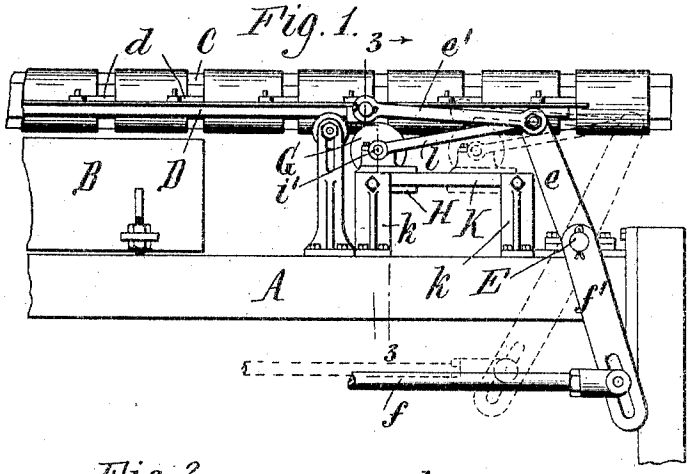


Fig. 2.

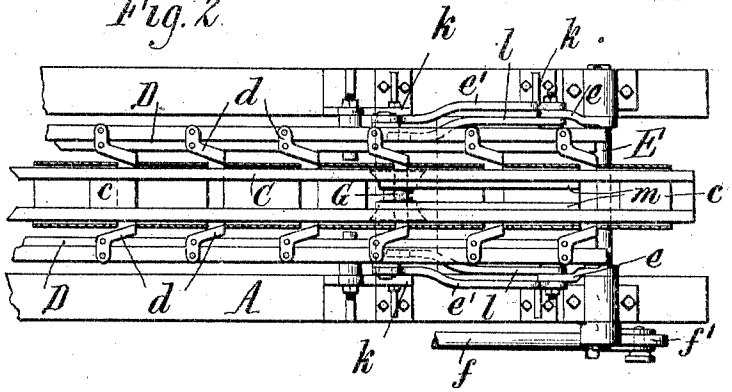
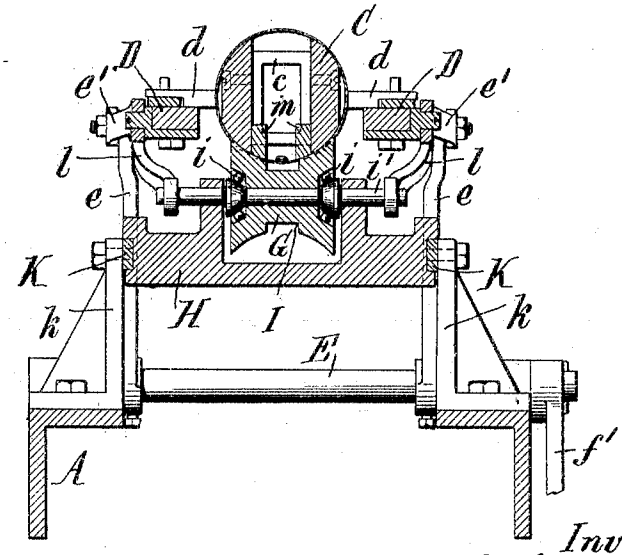


Fig. 3.



Witnesses:

R. W. Ruser.

E. A. Volk.

Inventor.

O. J. Johnson

by Wilkelm, Falkenberg & Ward

Attorneys.

No. 783,789. PATENTED FEB. 28, 1905.

O. J. JOHNSON.

HORN SUPPORT FOR SOLDERING MACHINES.

APPLICATION FILED NOV. 18, 1904.

2 SHEETS—SHEET 2.

Fig. 4.

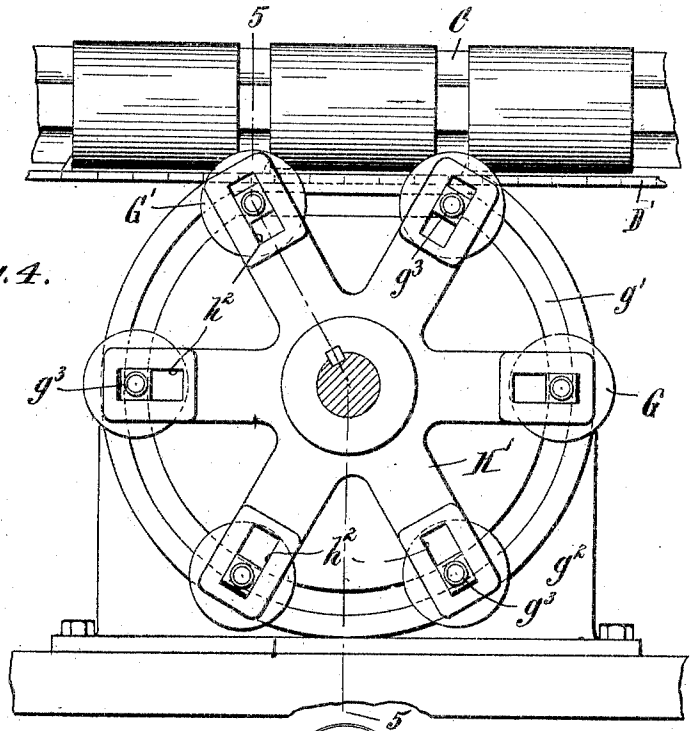
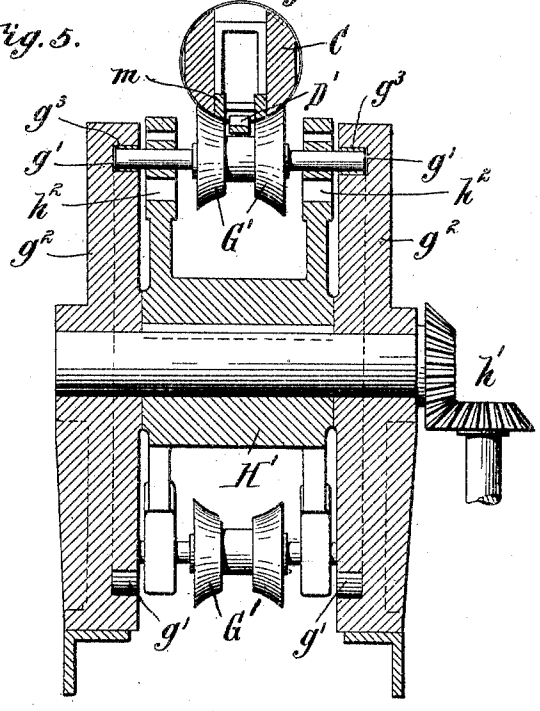


Fig. 5.



Witnesses:—
R. W. Ruser.
E. a. Volk.

Inventor.
O. J. Johnson
By Wilkinson, Barker & Hard
Attorneys.

No. 783,789. Patented February 28, 1905.

UNITED STATES PATENT OFFICE.

OLIVER J. JOHNSON, OF WHEELING, WEST VIRGINIA.

HORN-SUPPORT FOR SOLDERING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 783,789, dated February 28, 1905.

Application filed November 18, 1904. Serial No. 233,385.

To all whom it may concern:

Be it known that I, OLIVER J. JOHNSON, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented a new and useful Improvement in Horn-Supports for Soldering-Machines, of which the following is a specification.

This invention relates to that type of machines for soldering the longitudinal side seams of can-bodies in which the can-bodies encircle and are supported by a horizontal horn, along which they are moved or fed past the soldering devices; and the invention relates more particularly to the means for supporting the outer or discharge end of the horn.

The object of the invention is to provide a support for the end of the soldering-horn, of simple and desirable construction, which will adequately support the horn and will not impede the ready passage of the can-bodies off of the horn or mar the can-bodies.

In the accompanying drawings, Figure 1 is a fragmentary side elevation of the discharge end of a can-body-soldering machine provided with a horn-support embodying the invention. Fig. 2 is a plan view thereof, the can-bodies being in section to expose the horn. Fig. 3 is a transverse sectional elevation thereof, on an enlarged scale, in line 3 3, Fig. 1. Fig. 4 is a longitudinal sectional elevation, on an enlarged scale, of a horn-support of different construction. Fig. 5 is a transverse sectional elevation thereof in line 5 5, Fig. 4.

Like letters of reference refer to like parts in the several figures.

Referring to Figs. 1 to 3, A represents a portion of the frame of a can-body side-seam soldering-machine, and B a portion of the solder-box. These form no part of the invention and may be of any usual or suitable construction.

C represents the supporting-horn for the can-bodies. In the construction shown it extends horizontally over the solder-box and preferably, though not necessarily, consists of parallel separated bars or rails of segmental circular cross-section which are connected and spaced apart by spacing-blocks or the like *c*, located at intervals along the length of the horn. The receiving end of the soldering-horn, which is not shown, may be supported in any known way. The can-bodies encircle and are supported by the horn while they are moved intermittently along the same by feed mechanism, which in the construction shown consists of feed-dogs *d*, which engage the rear ends of the can-bodies and are pivoted to horizontal feed-bars D, which are arranged at opposite sides of the horn and are reciprocated lengthwise by a rock-shaft E, which is journaled on the frame A beneath the horn and has arms *e*, connected by links *e'* to the feed-bars. The rock-shaft is oscillated by suitable power-operated links *f*, connected to depending arms *f'*, fixed to the rock-shaft. Upon each movement of the rock-shaft in one direction the feed bars and dogs move forwardly, and the dogs engaging the rear ends of the several can-bodies move them all forward one step, and upon each opposite movement of the rock-shaft the feed bars and dogs are moved rearwardly, the dogs being thrown outwardly or away from the can-bodies and returned past the latter, which remain stationary, and then being thrown inwardly to engage the rear ends of the bodies to move them forwardly another step at the next forward movement of the feed-bars. This feed mechanism, which is fully described in my application for United States Letters Patent, filed April 15, 1903, Serial No. 152,733, is preferably employed, because the dogs have very little or no tendency to displace the can-bodies in their return movements and no means are required to hold the bodies stationary during the return movements of the dogs. Other intermittent-feed mechanism for can-bodies could, however, be substituted.

G represents a roller which is arranged beneath and supports the discharge end of the horn. It preferably has a concave periphery to conform to the circular shape of the horn and can-bodies and a central circumferential groove I to prevent contact of the roller with the soft solder on the can-seams. The roller is journaled to turn freely on a support or carriage H, which reciprocates horizontally with the feed devices, so that the roller, which

bears against the horn between the adjacent ends of two can-bodies, as shown in Fig. 1, will move forwardly with the bodies and will maintain its bearing on the horn between the bodies during the entire forward movement of the latter. In the construction illustrated in the drawings the roller rotates on ball-bearings i about an axle i', fixed on the reciprocating carriage H, which is supported and guided on stationary horizontal tracks or guides K, secured at opposite sides of the carriage to fixed brackets k, rising from the main frame. The tracks enter grooves in the opposite sides of the carriage. The latter is reciprocated with the feed devices by links l, pivotally connected at opposite ends to the ends of the roller-axle and operating rock-arms for the feed devices. While the above-described construction of the horn-support and its reciprocating means is simple and efficient, a reciprocating support for the horn differently constructed and operated could be employed.

In the operation when the can-bodies are advanced along the horn by the feed mechanism the roller-support G moves with the can-bodies and bears and rolls directly against the horn in the space between the two adjacent can-bodies. The cans are not forced forwardly between the horn and the supporting-roller, so that the forward movement of the bodies by the feed mechanism is not opposed and the feed-dogs do not mar the ends of the bodies. When the feed devices return, the can-bodies remain stationary, the feed-dogs moving rearwardly past the bodies, and the supporting-roller, which returns with the feed devices, rolls against the under side of the body immediately in rear of it and engages the horn in the space between this and the next can-body. The supporting-roller engages the can-bodies only while they are stationary, and as it rolls on the bodies it has little or no tendency to move them rearwardly on the horn, and the usual dogs or devices for holding the bodies from rearward movement are unnecessary. Thus the edges of the can-bodies will not be dented or marred in either the forward or rearward movement of the feed devices and supporting-roller.

Figs. 4 and 5 illustrate a horn-support on which the horn bears directly and which moves in forward direction with the can-bodies and does not at any time bear on the can-bodies. It is especially adapted for machines of the continuous type in which the bodies are advanced along the horn by an endless feed-chain or the like D'. This support comprises a series of supporting-rollers G', similar to that described, whose axles travel and bear in cam-ways or grooves g' in stationary cam-plates g^2 at opposite sides of the horn. The cam-grooves are circular, except at their upper portions, where they are straight and parallel with the horn for a distance somewhat greater than the length of a can-body. The ends of the roller-axles which enter the cam-grooves are preferably provided with antifriction-rollers g^3. The axles of the supporting-rollers are moved along in the cam-grooves in the same direction and at the same speed as the can-bodies move on the horn by a rotating carrier H', which is driven by any suitable mechanism h' and is provided with radial slots h^2, through which the roller-axles extend and in which they slide. While the roller-axles are passing through the straight portions of the cam-grooves the rollers are held in direct contact with the horn between adjacent can-bodies and support the horn. In this support the rollers do not move rearwardly and never bear on the can-bodies. This support is also adapted for use with an intermittent-feed machine by driving the carrier H' intermittently.

The horn is preferably provided at that portion beneath which the supporting-roller moves with short bearing-strips m, which are secured between the lower portions of the separated horn-bars and increase the bearing-surface for the supporting-roller.

I claim as my invention—

1. The combination with a supporting-horn which the can-bodies encircle and along which they are moved, of a support for the horn which moves along the horn with the can-bodies, substantially as set forth.

2. The combination with a supporting-horn which the can-bodies encircle and along which they are moved, of a support which bears directly on the horn adjacent to the end of a can-body and moves along the horn in one direction with the can-bodies, substantially as set forth.

3. The combination with a supporting-horn which the can-bodies encircle, and means for moving the can-bodies intermittently along the horn, of a support on which the horn rests, and means for moving the support along the horn in one direction with the can-bodies and in the opposite direction while the can-bodies are stationary, substantially as set forth.

4. The combination with a supporting-horn which the can-bodies encircle and along which they are moved, of a roller-support for the horn which moves along the horn with the can-bodies, substantially as set forth.

5. The combination with a horn which the can-bodies encircle, and means for moving the can-bodies intermittently along the horn, of a roller which bears against the horn between adjacent can-bodies and supports the horn, and means for moving the roller along the horn in one direction with the can-bodies and in the opposite direction while the can-bodies are stationary, substantially as set forth.

6. The combination of a horn which the can-bodies encircle, feed devices for moving the can-bodies intermittently along the horn, a support for the horn, and means for simulta-

neously reciprocating said feed devices and horn-support, substantially as set forth.

7. The combination of a horn which the can-bodies encircle, means for moving the can-bodies intermittently along the horn, a horizontally-movable carriage, a roller which is journaled on said carriage and supports the horn, and means for moving the carriage lengthwise of the horn in one direction with the can-bodies and in the opposite direction while the can-bodies are stationary, substantially as set forth.

8. The combination of a horn which the can-bodies encircle, feed devices for moving the can-bodies intermittently along the horn, a supporting-roller for the horn, and a common means for simultaneously reciprocating said feed devices and supporting-roller, substantially as set forth.

Witness my hand this 31st day of October, 1904.

OLIVER J. JOHNSON.

Witnesses:
W. F. BERNHEISEL,
LOUIS SWENSON.