(No Model.)

# N. M. BAIN.

## CAN SOLDERING MACHINE.

No. 588,808. Patented Aug. 24, 1897.

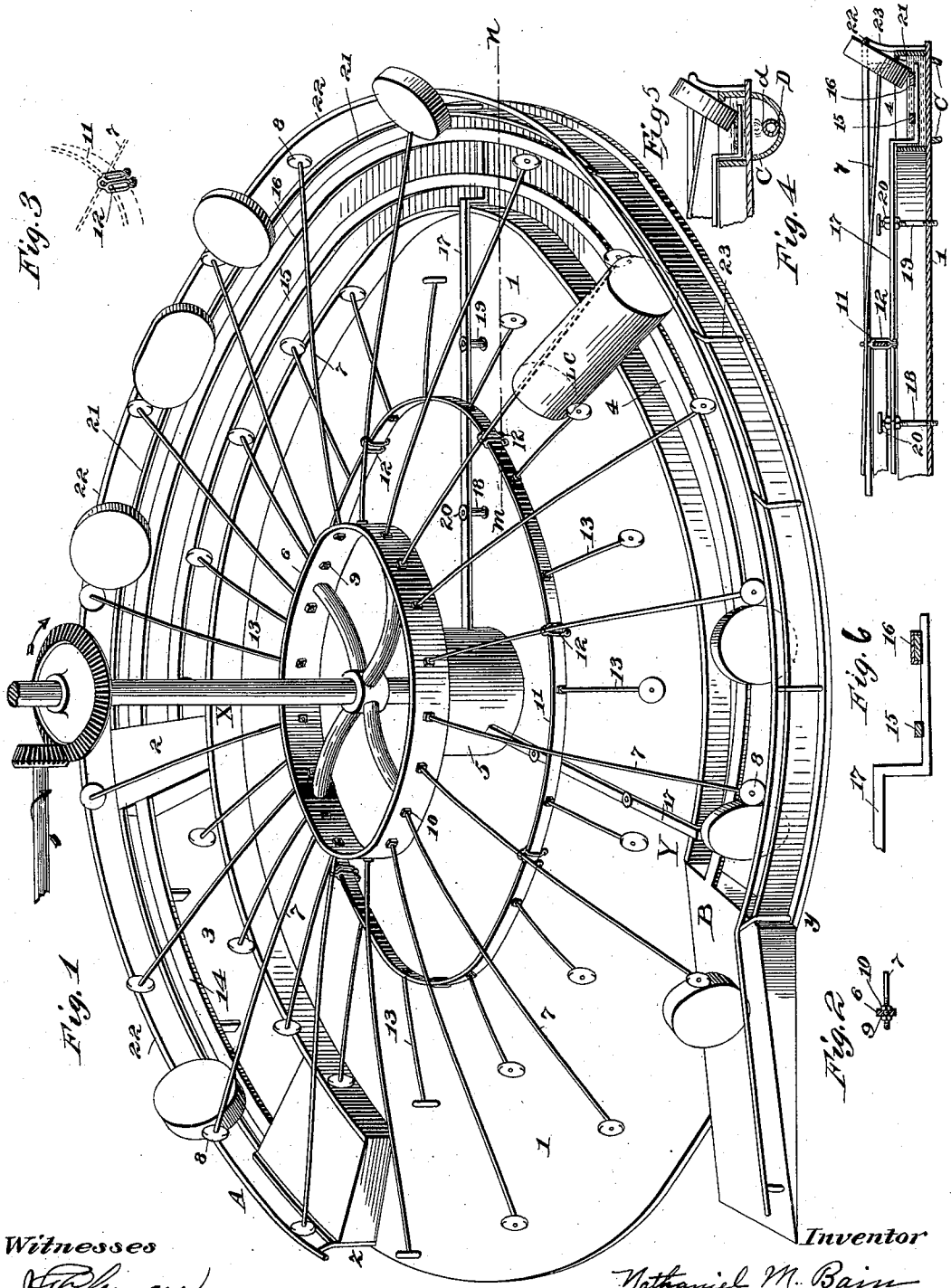


Fig. 1



Fig. 3



Fig. 5



Fig. 4



Fig. 6



Fig. 2

Witnesses

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# UNITED STATES PATENT OFFICE.

NATHANIEL M. BAIN, OF PORTLAND, OREGON.

## CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 588,808, dated August 24, 1897.

Application filed January 2, 1896. Serial No. 574,141. (No model.)

*To all whom it may concern:*

Be it known that I, NATHANIEL M. BAIN, a citizen of the United States, residing at Portland, Multnomah county, Oregon, have invented a new and useful Improvement in Can-Soldering Machines, of which the following is a specification.

The object of my invention is to obtain a soldering-machine for cans, more especially for oval and long cans. The mechanism invented by me for this purpose is as illustrated in the accompanying drawings, in which—

Figure 1 is a perspective plan view of my soldering-machine. Fig. 2 is a detail of a band-wheel and an inner end of a long arm, showing means for securing the wheel on the arm. Fig. 3 is a detail of a section of a long arm, a hoop, and clips thereon for supporting the hoop on the arm. Fig. 4 is a cross-sectional view of the device, taken on line *m n*, Fig. 1. Fig. 5 is a view similar to the latter, showing an apparatus for heating the soldering-trough underneath the same. Fig. 6 is a detail of two tracks and means for supporting the same.

The numerals and letters designate the parts of my machine referred to in describing the same.

The circular bed-plate 1 is rigidly mounted on some suitable frame and a furnace is provided under that section of such plate embraced within the letters X and Y. On the bed-plate is provided a trough extending from *z* to *y*, which is divided by a box-like partition, inserted at 2, into two compartments or baths, one, 3, for the acid solution and the other, 4, for the molten solder.

5 is a block or pillow in which the band-wheel 6 is journaled. The band-wheel is provided with a series of long arms 7, having antifriction-wheels 8 at their ends. These arms are threaded at their inner ends and are secured in apertures in the rim of the band-wheel by means of two nuts 9 and 10, (see Fig. 2,) thus adapting such arms to be laterally adjusted to some degree.

11 is a hoop which is supported from the arms 7 by means of suitable clips 12, which clips are also adapted to lateral adjustment, a detail of this construction being shown in Fig. 3. From such hoop 11 project a series of short or auxiliary arms 13, which are secured in the hoop by the same means as the arms 7 are secured in the rim of the band-wheel, and like the latter arms they are adapted to be laterally adjusted.

14 is a track rigidly fixed in the acid-tray 3.

15 and 16 are two tracks supported on three arms 17, each of which is mounted on the bed-plate by means of two short posts 18 and 19, which posts are provided with two nuts or collars 20, holding the arms 17 between them, as seen in Fig. 4, and the base or lower ends of such posts 18 19 being threaded and inserted in threaded perforations in the bed-plate, so as to be vertically adjustable.

21 is a bead extending along the interior of the outer wall of the troughs to prevent the edges of the can from binding against such outer walls.

The rail or track 16 is covered with asbestos to offer some resistance to the cans and turn the same while being moved forward by the arms 7.

22 is a rail supported on posts 23, attached to the outer wall of the trough, this rail being provided for the cans to lean against while traveling around the machine and dipping their edges in the acid and the molten solder.

The operation of my machine is very simple. The shaft of the band-wheel 6 is revolved by means of suitable gearing, as indicated by the arrows. The cans are fed to the machine at A and are revolved and moved by the arms 7, in the first place through the acid-trough and next through the solder-trough, while so revolving leaning outward against the rail 22 and dipping their edges in the molten solder as they travel along and are finally ejected from the machine at B.

The short or auxiliary arms 13 are provided to keep long cans in position and cause them to revolve evenly. For the purpose of illustrating this operation one long can is shown in broken outlines L C in Fig. 1, and it will be observed that the auxiliary arm 13 holds the inner end of such long can in place by preventing the same from rolling away from the arm 7.

Underneath the solder-trough is suspended in depending straps C a suitable tubular fluid-heating device D, having apertures *d* in its upper surface, as shown in Fig. 5, for the

ignition of the fluid in the tube for heating the solder-trough directly above the same.

Now what I claim is—

1. In a soldering-machine, in combination, the circular bed-plate, rigidly mounted, a circular trough upon such bed-plate, divided by a partition into the two compartments 3 and 4; a suitable heating apparatus under the compartment 4 to heat the same; the wheel 6, journaled in a suitable pillow or support; means for revolving such wheel; the arms 7, secured in slots or apertures in the rim of the wheel 6, by means permitting such arms to be laterally adjusted, and such arms being provided with antifriction-wheels 8 at their free ends; the rigidly-fixed rail 14, and the rails 15 and 16 mounted on suitable supports adapting the same to vertical adjustment; a suitable friction covering, for the purposes specified, on such rail 16; a bead 21, extending along the interior of the outer wall of the troughs or compartments, and the rail 22 for cans to lean against, all substantially as set forth.

2. In a soldering-machine in combination, the circular bed-plate rigidly mounted, a circular trough upon such bed-plate, divided by a partition into the two compartments 3 and 4; a suitable heating apparatus under the compartment 4 to heat the same; the wheel 6 journaled in a suitable pillow or support; means for revolving such wheel; the arms 7, secured in slots or apertures in the rim of the wheel 6 by means permitting such arms to be laterally adjusted, and such arms being provided with antifriction-wheels 8 at their free ends; the hoop 11 supported from the arms 7 by adjustable clips, the auxiliary arms 13 secured in slots or apertures in the rim of such hoop 11 by means permitting such arms to be laterally adjusted, and such arms 13 being likewise provided at their free ends with antifriction-wheels; the rigidly-fixed rail 14 and the rails 15 and 16 mounted on suitable supports adapting the same to vertical adjustment; a suitable friction covering, for the purpose specified, on such rail 16; a bead 21 extending along the interior of the outer wall of the troughs or compartments; and the rail 22 for cans to lean against, all substantially as set forth.

In witness whereof I have hereunto set my signature, in the presence of two witnesses, this 27th day of November, 1895.

NATHANIEL M. BAIN.

Witnesses:
E. D. TIMMS,
T. J. GEISLER.