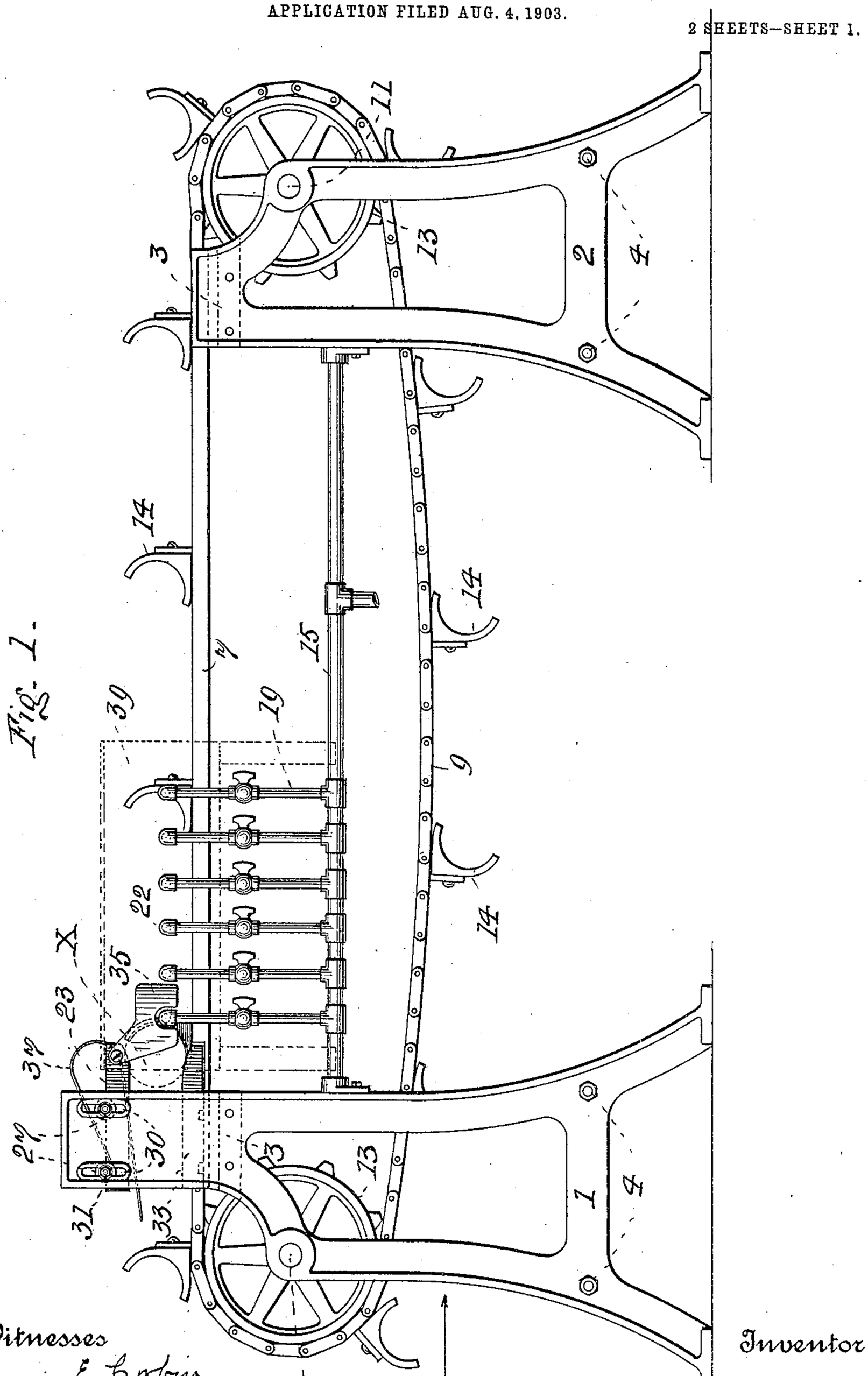
No. 809,108. PATENTED JAN. 2, 1906.

S. K. GREEN.

APPARATUS FOR DETACHING THE HEADS FROM THE BODIES OF SHEET METAL CANS.

APPLICATION FILED AUG. 4, 1903.

2 SHEETS—SHEET 1.



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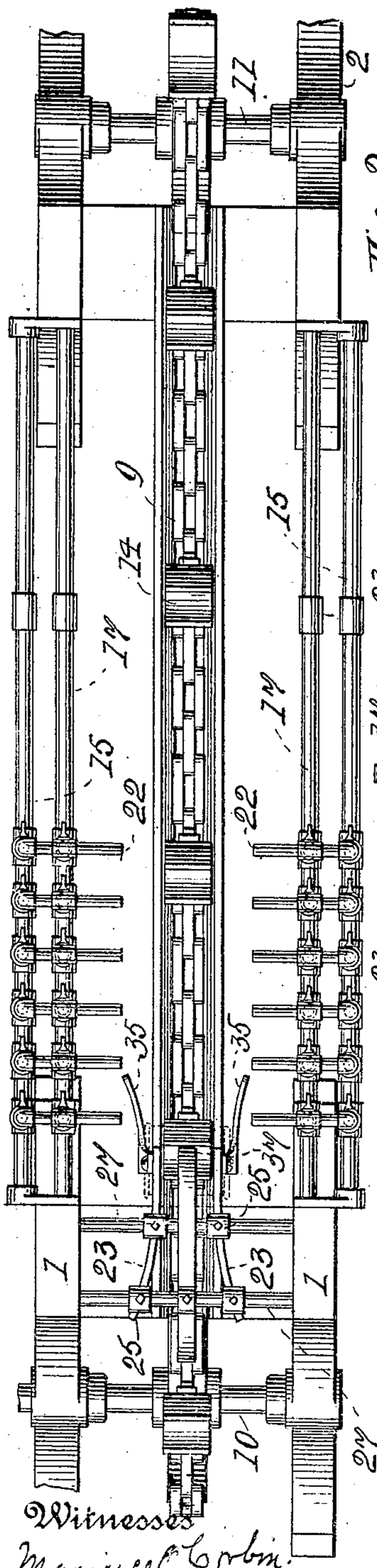

Fig. 2.

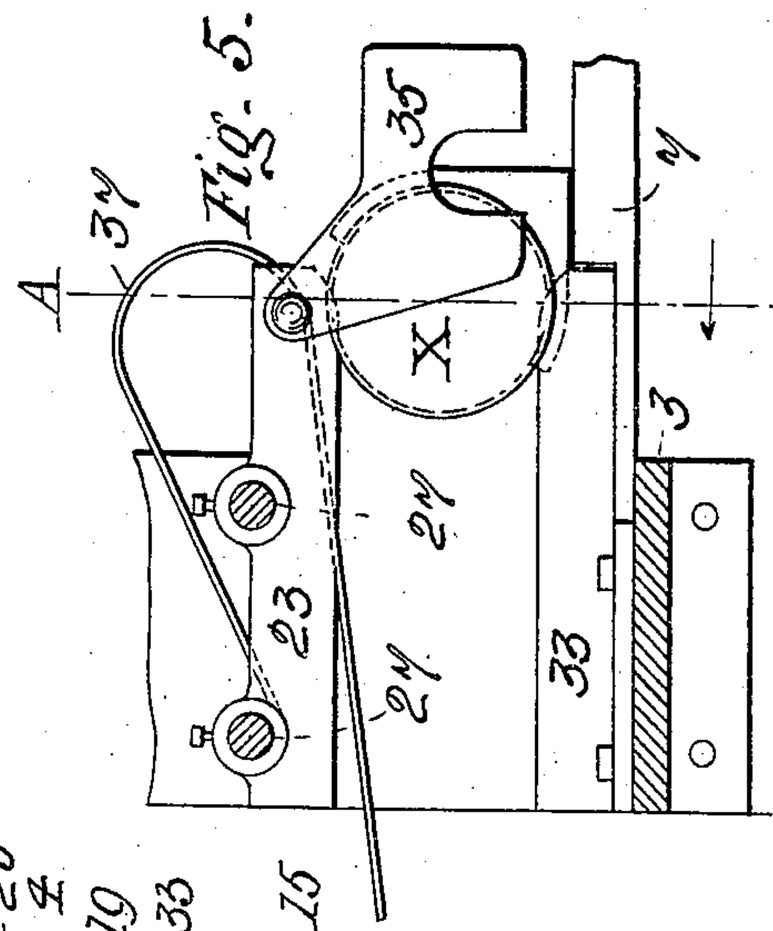

Fig. 5.

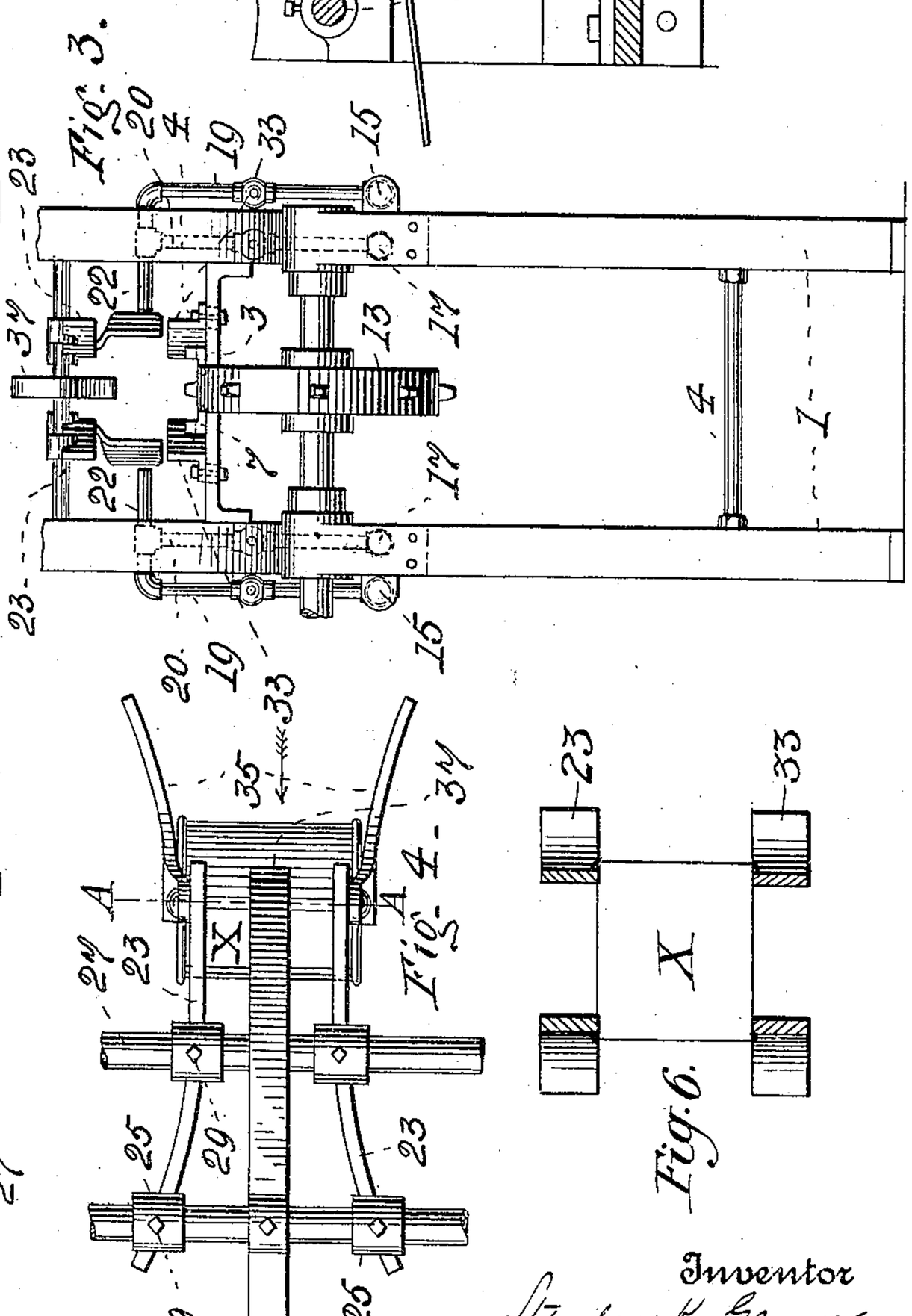

Fig. 3.

Fig. 4.

Fig. 6.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DETACHING THE HEADS FROM THE BODIES OF SHEET-METAL CANS.

No. 809,108. Specification of Letters Patent. Patented Jan. 2, 1906.

Application filed August 4, 1903. Serial No. 168,235.

To all whom it may concern:

Be it known that I, STANLEY K. GREEN, of the city of Baltimore and State of Maryland, have invented certain Improvements in Apparatus for Detaching the Heads from the Bodies of Sheet-Metal Cans, of which the following is a specification.

In the utilization of waste tin-plate cans or those which have been emptied of their contents the first step consists in the removal of the heads from the bodies; and the present invention consists in an apparatus comprising appliances whereby heat is communicated to the heads of the cans to melt the solder which holds them to the body and also in means for detaching the loosened heads, as will hereinafter fully appear.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is an exterior side elevation of the improved apparatus. Fig. 2 is a top or plan view of Fig. 1. Fig. 3 is an end view of Fig. 1 looking in the direction indicated by the arrow in that figure. Figs. 4 and 5 are enlarged views of parts of the apparatus. Fig. 6 is a section of either Fig. 4 or Fig. 5 taken on line A A, except that certain parts shown in those figures are omitted, and looking in the direction indicated by the arrows.

Referring now to the drawings, 1 and 2 are respectively the front and rear end frame. The two sections of each frame are united by the transverse bar 3 and bolts 4, and the two composite frames are connected by angle-bars 7, which are secured side by side to the transverse bars 3 and together form a track or way and a support for an endless sprocket-chain 9, hereinafter more particularly referred to.

10 and 11 are shafts, the former being the driver, supported rotatably in suitable bearings in the frames 1 and 2. These shafts are provided with tight sprocket-wheels 13, which carry the endless sprocket-chain 9, before referred to.

14 14 are segmental or open carriers for the cans fastened at suitable and uniform distances apart to the sprocket-chain 9.

15 and 17 are respectively an air and a gas pipe, one of each of which is secured in a horizontal position at each side of the apparatus.

19 and 20 are branch air and gas pipes leading from the pipes 15 and 17, respectively, united at their ends by short pipes which form heating-burners 22, the flames from which are situated at each side of the apparatus, and arranged in a horizontal plane, and play upon the can-heads and liquefy the solder in the circular joints.

The burners described are thought to be the simplest and most effective ones that can be employed for the purpose; but as the ultimate object of the burners is to communicate heat to the can-heads, and thereby loosen them from their bodies, it is evident that many other heat-transmitting appliances could be substituted for the burners described without effecting any new and valuable results.

23 23 are head-detaching blades placed in the path of the upper limb or edge of the can-heads. They are supported in an angular or flaring position as seen from the top, and the distance across their ends, with which the cans first come in contact, is less than the distance between the flanges of the can-heads, while their other ends are separated to a much greater distance. The vertical position of these head-detaching blades is such that they bear forcibly upon the can-bodies as they are carried under them for a purpose hereinafter described.

To admit of the head-detaching blades being adapted to suit cans of different diameters and lengths, they are, by preference, provided with hubs 25, which are slid over rods 27 and held in place by means of set-screws 29, and the ends of the said rods pass through vertical slots 30 in the frame 1 and are held by nuts 31. The head-detaching blades 23 will in most cases be sufficient to dislodge the can-heads; but to insure their dislodgment I provide the apparatus with the lower head-detaching blades 33, which are held by the transverse bar 3 of the frame 1 in angular or flaring positions like the ones 23 and situated directly beneath them, so that the two sets of blades will coöperate in removing the heads from the can-bodies. These latter blades require only lateral adjustment, and this is effected by passing their holding-bolts through slots in the bar 3, as shown by the dotted lines in Fig. 3. The upper surface of the lower head-detaching blade is elevated slightly above the path of the lower portion of the can-bodies, and the distance between the upper and lower blades is therefore less than the diameter of the can-bodies, which in passing between them are distorted from a cylindrical form. This distortion will in

many instances be sufficient to spring off the heads without the head-spreading effect of the blades.

35 and 35 are flared plates secured, preferably, to the blades 23 to center the cans as they approach the head-detaching devices. In other words, they insure the passage of the detaching-blades between the flanges of the heads.

37 is a curved spring-holder with one end thereof secured in any suitable manner to the front frame 1 and with its other end adapted to bear with a spring-pressure on the can-bodies as they traverse the head-detaching devices.

The operation of the apparatus is as follows: The operator, who stands at the rear end of the machine, places the cans (denoted by *x*) in the segmental holders, which carry them in a fixed position—that is to say, without rotation—between the heaters, which liquefy the solder in the circular seams. Before the liquefied solder cools the cans are conveyed to the head-detaching devices, which compress the bodies and push off the heads, the angular blades entering between the flanges of the heads, and the detached heads fall at the sides of the machine. The bodies are delivered at the front end of the machine. To concentrate the heat from the burners upon the cans and protect persons standing at the sides of the machine, it may be advantageous to provide the apparatus with a hood 39. (Shown only in dotted delineation in Fig. 1.)

I claim as my invention—

1. In an apparatus for detaching the heads from the bodies of soldered sheet-metal cans, the combination of heaters, mechanism to convey the cans between the said heaters whereby the solder in the head-joints is liquefied, and devices to separate the heads from the bodies while the said solder is in a melted condition, substantially as specified.

2. In an apparatus for detaching the heads from the bodies of soldered sheet-metal cans, the combination of heaters, a conveyer to carry the cans to and from the said heaters, detaching devices to separate the heads from the bodies while the solder in the joint is heated to a liquefied condition, and a centering appliance whereby the cans are accurately presented to the head-detaching devices, substantially as specified.

3. In an apparatus for detaching the heads from the bodies of soldered sheet-metal cans, the combination of a movable endless conveyer-chain, segmental can holders or carriers attached to the said endless chain, heating appliances between which the endless chain conveys the cans, and flaring head-detaching blades which in the movement of the cans pass between the flanged heads thereof and separate them from the bodies, substantially as specified.

4. In an apparatus for detaching the heads from the bodies of soldered sheet-metal cans, the combination of a movable endless conveyer-chain carrying can-holders, a heater at each side of the said endless chain, and head-detaching appliances which comprise devices to compress the can-bodies between the heads thereof or distort them from a cylindrical form while the solder is in a liquefied condition, substantially as specified.

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