No. 754,702. PATENTED MAR. 15, 1904.

J. G. & M. O. REHFUSS.

APPARATUS FOR FLUXING CANS.

APPLICATION FILED AUG. 1, 1902. RENEWED JAN. 4, 1904.

NO MODEL. 4 SHEETS—SHEET 1.

Fig. 1.

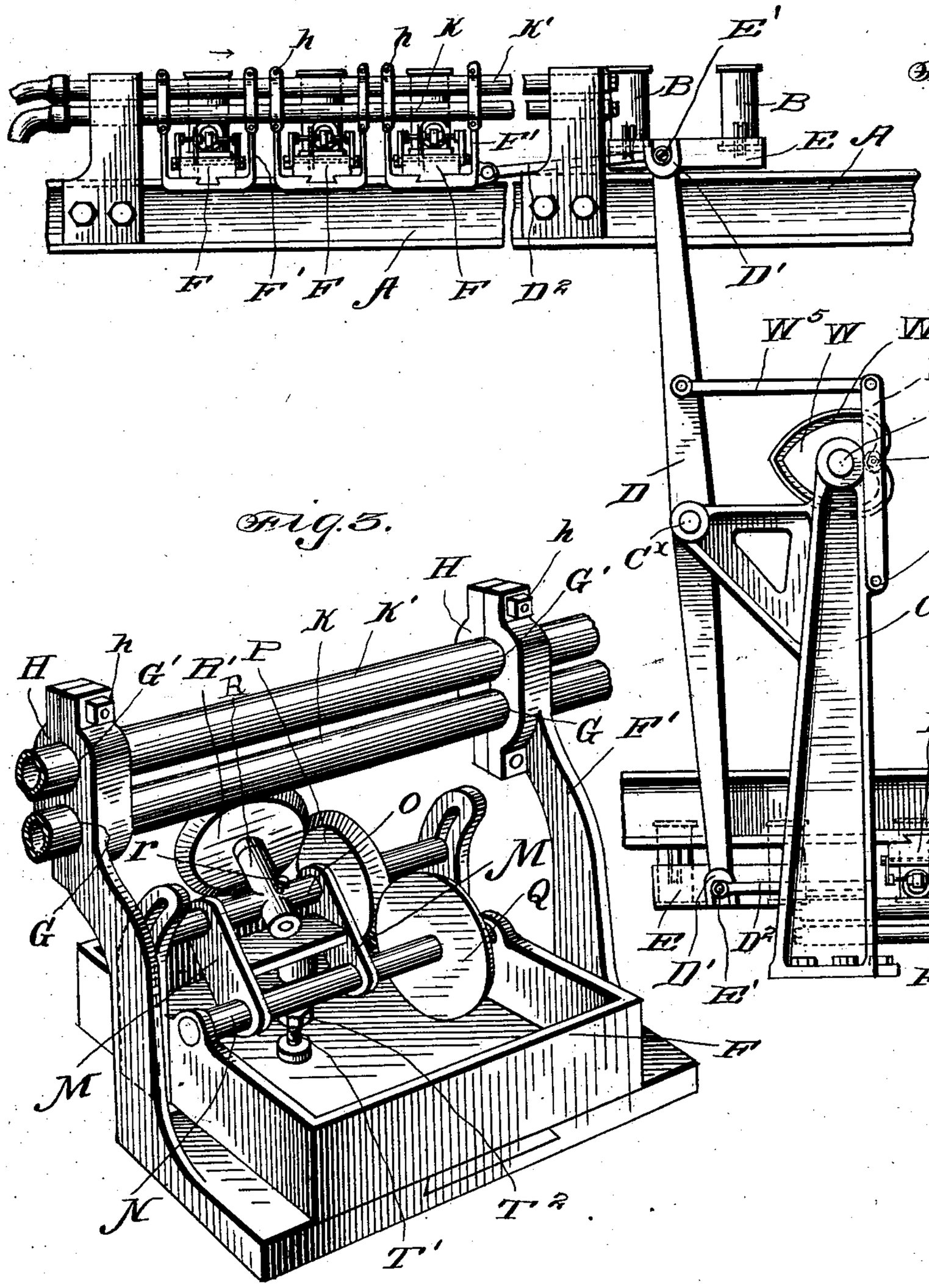


Fig. 3.

Witnesses

R. A. Boswell.

N. E. Emerson.

Inventors

J. G. Rehfuss and M. O. Rehfuss

By Franklin H. Hough

Attorney.

No. 754,702. PATENTED MAR. 15, 1904.

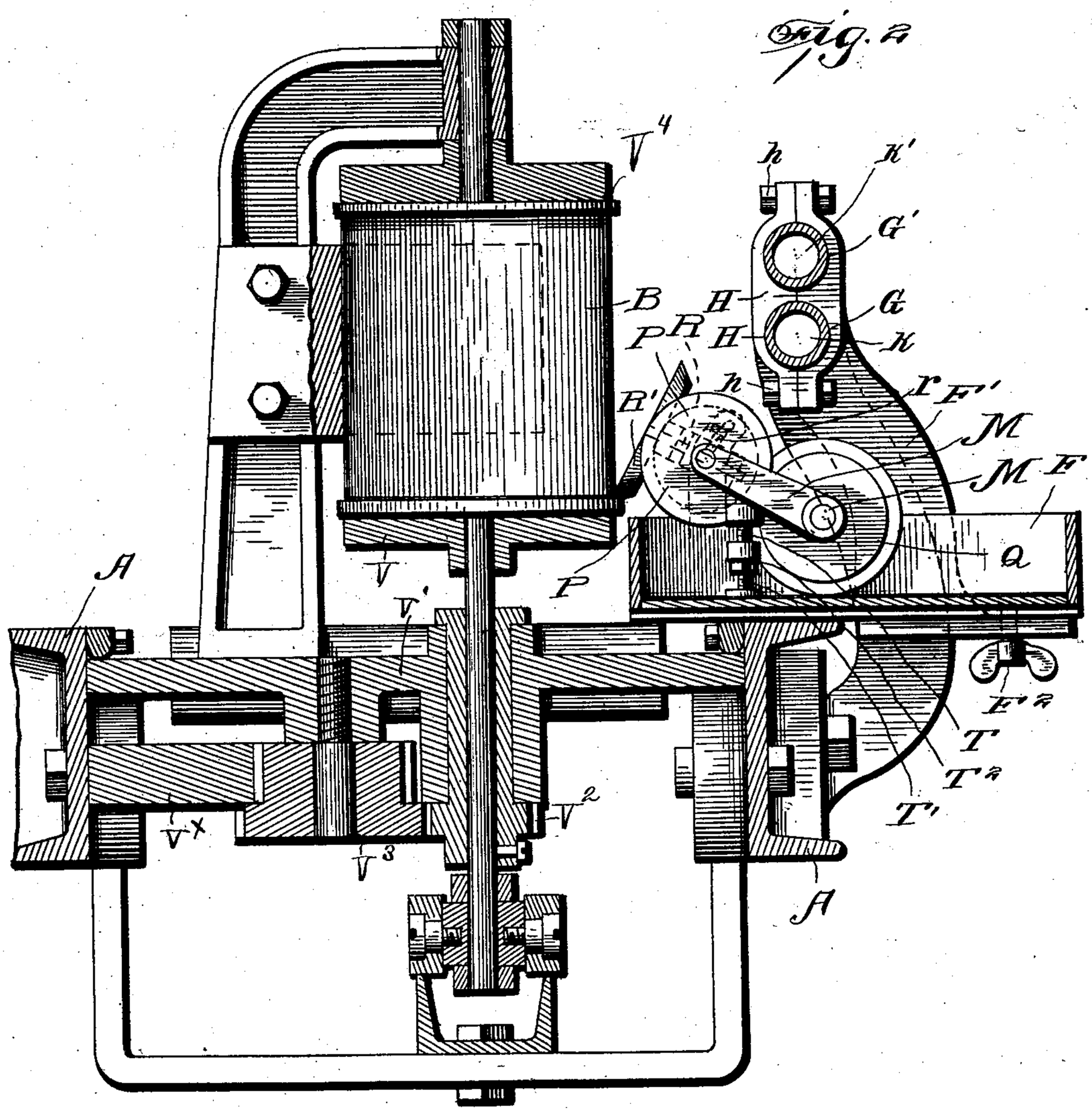
J. G. & M. O. REHFUSS.

APPARATUS FOR FLUXING CANS.

APPLICATION FILED AUG. 1, 1902. RENEWED JAN. 4, 1904.

NO MODEL. 4 SHEETS—SHEET 2.

Fig. 2



Witnesses

P. A. Boswell.

N. E. Emerson

Inventors

J. G. Rehfuss and M. O. Rehfuss,

By Franklin & V. Hough

Attorney.

No. 754,702. PATENTED MAR. 15, 1904.

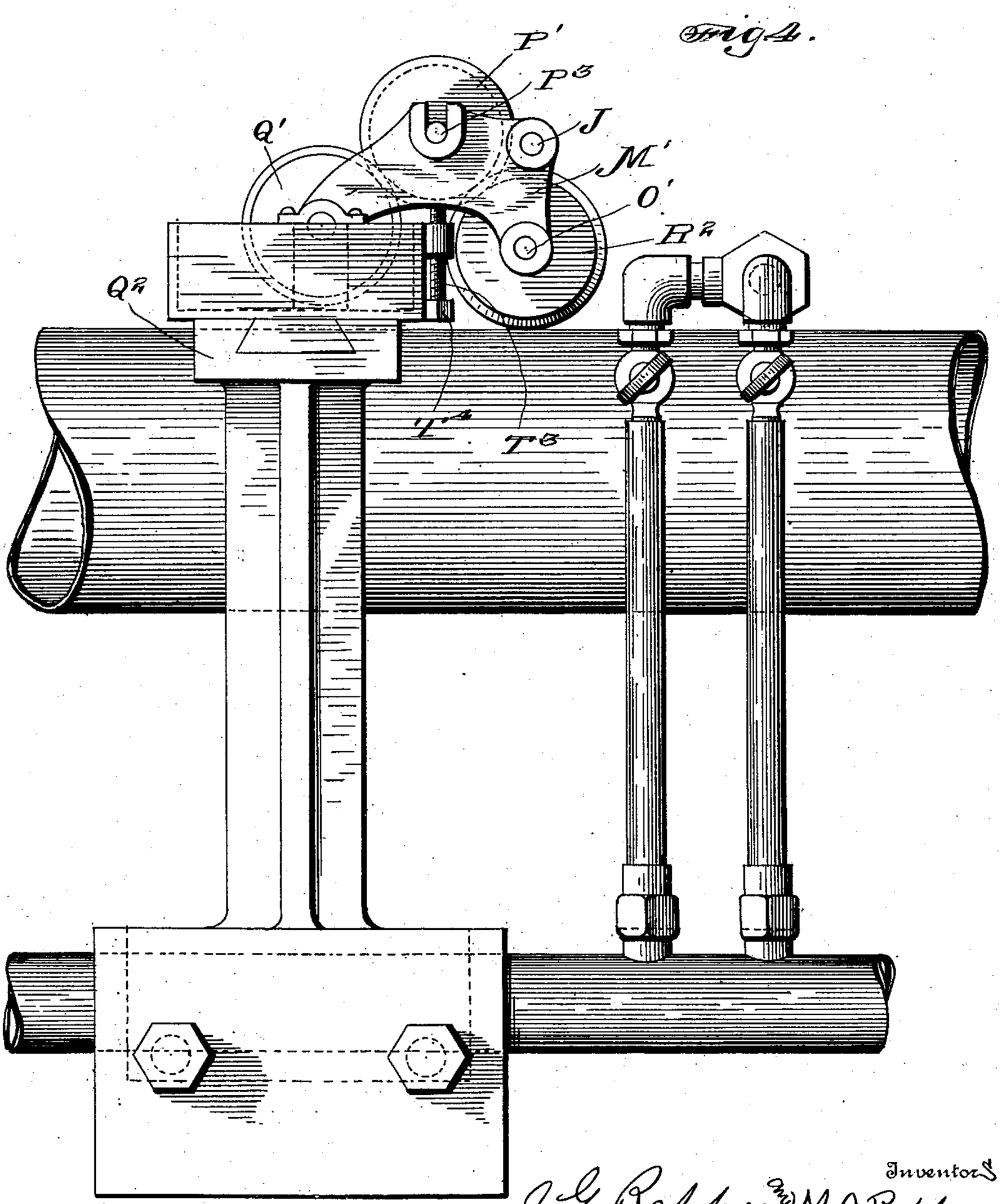
J. G. & M. O. REHFUSS.

APPARATUS FOR FLUXING CANS.

APPLICATION FILED AUG. 1, 1902. RENEWED JAN. 4, 1904.

NO MODEL. 4 SHEETS—SHEET 3.

Fig. 4.



Witnesses

R. A. Boswell.

N. E. Emerson.

Inventors

J. G. Rehfuss and M. O. Rehfuss,

By Franklin H. Hough

Attorney.

No. 754,702. PATENTED MAR. 15, 1904.

J. G. & M. O. REHFUSS.

APPARATUS FOR FLUXING CANS.

APPLICATION FILED AUG. 1, 1902. RENEWED JAN. 4, 1904.

NO MODEL. 4 SHEETS—SHEET 4.

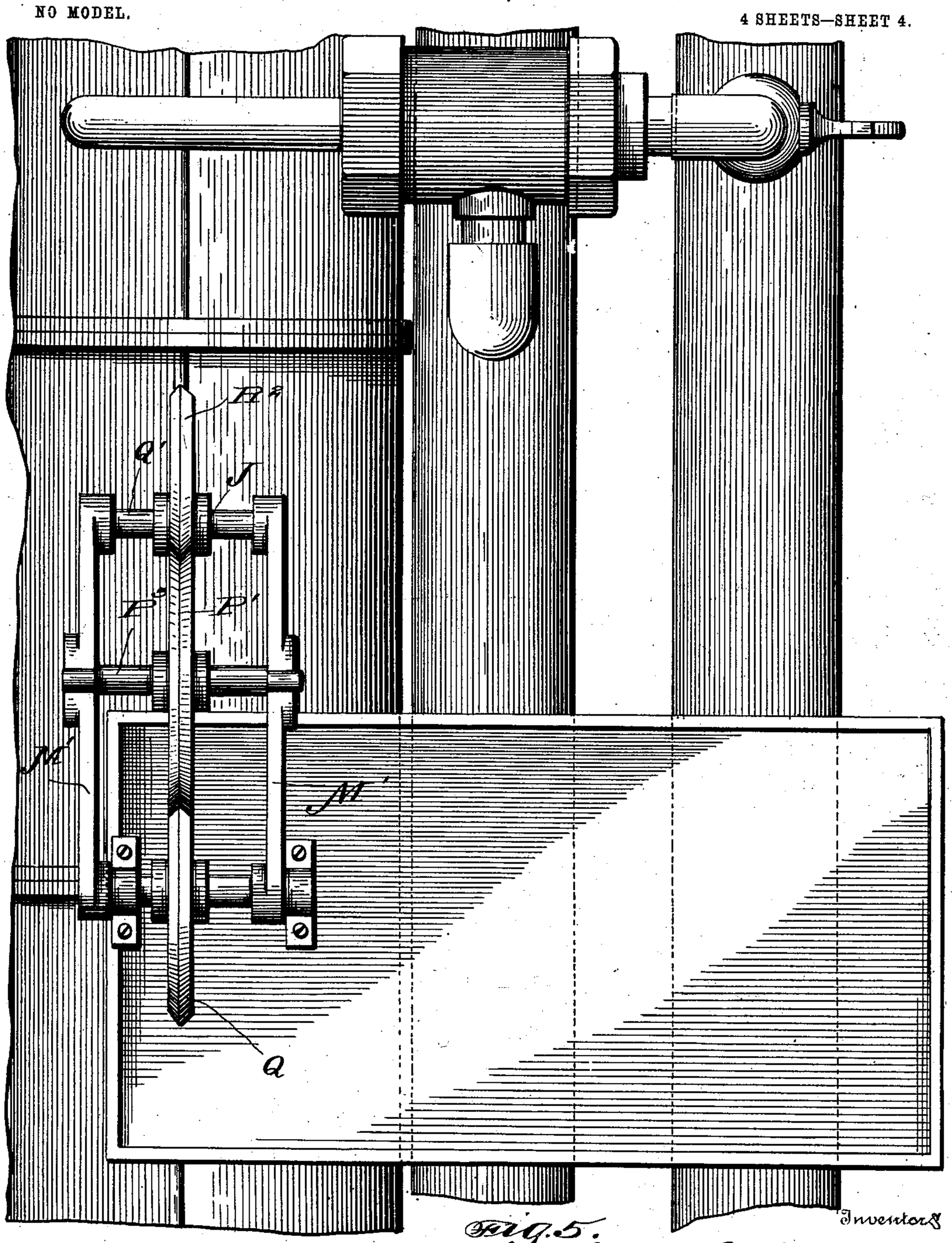


Fig. 5.

Witnesses
R. A. Boswell.
N. E. Emerson.

Inventors
J. G. Rehfuss and M. O. Rehfuss,
By Franklin N. Hough
Attorney.

No. 754,702. Patented March 15, 1904.

UNITED STATES PATENT OFFICE.

JOHN G. REHFUSS AND MARTIN O. REHFUSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE BUREAU CAN AND MANUFACTURING COMPANY OF DELAWARE.

APPARATUS FOR FLUXING CANS.

SPECIFICATION forming part of Letters Patent No. 754,702, dated March 15, 1904.

Application filed August 1, 1902. Renewed January 4, 1904. Serial No. 187,741. (No model.)

To all whom it may concern:

Be it known that we, JOHN G. REHFUSS and MARTIN O. REHFUSS, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Fluxing Cans; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in fluxing apparatus for use in connection with can-making machines; and it consists in the provision of mechanism whereby the seams of a can may be thoroughly fluxed while the can is either rotating or moving longitudinally, in the former case the fluxing apparatus being adapted to travel with the can as it rotates and when used for fluxing longitudinal seams to remain stationary.

The invention consists, further, in various details of construction and combinations of parts, as will be hereinafter fully described and then specifically defined in the appended claims.

Our invention is clearly illustrated in the accompanying drawings, in which similar letters of reference indicate like parts in the several views, in which—

Figure 1 is a side elevation of our improved fluxing apparatus shown as applied to a machine for soldering the tops and bottoms to cans, as embodied in our application bearing Serial No. 96,273, in which the fluxing apparatus is adapted travel with the cans. Fig. 2 is a sectional view through the fluxing-receptacle and parts of the endless carrier and means for holding and rotating the cans thereon as they travel in contact with the fluxing apparatus. Fig. 3 is a perspective view of the fluxing-wheels, showing the relative arrangement of the same whereby the flux is fed from a receptacle by frictional contact with the wheels to a can. Fig. 4 is a side elevation of our fluxing apparatus shown as held stationary and as applied to a portion of our can-making machine Serial No. 104,870. Fig. 5 is a top plan view of a modified form of fluxing-box.

Reference now being had to the details of the drawings by letter, A A designate parallel portions of the frame of our machine for soldering the tops and bottoms to cans as covered by our application hereinbefore referred to and to which we have applied our fluxing mechanism. Said frame carries an endless carrier on which the cans B travel in upright positions while passing by the two horizontal portions of the frame. In the drawings, however, we have omitted all mechanism for actuating the cans, as the same forms no part of the present invention. Mounted on a shaft $C^{\times}$, journaled in a standard C′, forming a portion of the frame, is a lever D, having forked ends D′, said lever being provided for the purpose of reciprocating the solder-holding carriages E, which are connected by rods D^2 with bracket members carrying the flux-containing receptacle, each end of said lever having a connection with the pin E′, mounted on the carriages, whereby the latter are reciprocated to bring the sticks of solder adjacent to and cause them to travel with the rotating can during the soldering process. The details of the attachments to the soldering-carriages are omitted from the present application, as they form no part of the present invention; but said carriages are shown merely for the purpose of showing how the attachments for operating the fluxing apparatus are operated.

The fluxing mechanism comprises one or more receptacles F, which are adapted to contain fluxing liquid, each of which is supported on a bracket-shaped member F′, having preferably dovetailed connection therewith, as illustrated, and by means of an adjusting-screw F^2 said fluxing-receptacle may be held in different positions with relation to the bracket supporting the same. The ends of said bracket-arms are grooved, as at G and

G′, and each bracket-arm has a clamping-jaw H, also provided with two concaved portions, which are adapted to form in connection with the recessed bracket-arms clamping means to receive the gas and air pipes K and K′, respectively, said clamping-jaw H being held to the bracket-arm F′ by means of bolts *h*.

Mounted in suitable bearings in the side walls of the receptacle is a shaft N, on which the crank-arms M are pivotally mounted, and journaled in said crank-arms M is a shaft O, on which a beveled flux-feeding friction-wheel P is mounted, which is in contact with the beveled portion of the wheel Q, which is mounted on the shaft N and is positioned in the fluxing-receptacle. Adjustably held in an aperture or suitable bearing in the shaft O is a stub-shaft R, which is held in an adjusted position by means of a set-screw *r*. Keyed to said stub-shaft R is a beveled flux-feeding wheel R′, which is normally in contact with the beveled portion of the wheel P. Said crank-arms may be held in inclined positions by means of the screws T and T′, which are right and left threaded and mounted in a similarly-threaded nut T^2, whereby as said nut is turned in one direction or the other said screws may be turned out or in for the purpose of holding the arms in adjusted positions. It will be observed that said crank-arms may be raised or lowered accordingly as the can to be soldered travels at different elevations, and in either case the three wheels of the fluxing mechanism will be in contact with one another, thus insuring a continuous feed of the flux.

Referring to the modified form in Fig. 4, we have shown the fluxing device held stationary instead of traveling with the cans which are to have their tops and bottoms fluxed and soldered, the form shown in said modification being for fluxing longitudinal seams of cans which travel underneath the fluxing mechanism. In this modification two plates M′ are held together by means of a pin J, and the flux-feeding wheel Q′ has a double-bevel circumference instead of a single bevel, as in the other form of fluxing mechanism, and mounted on a shaft O′, carried at the ends of said plates M′, is another wheel with double bevel (designated by letter R^2) which has frictional contact with a flux-feeding wheel P′, which has a grooved circumference in which the two wheels Q′ and R^2 have frictional contact. The wheel P′ is mounted on stub-shafts P^3, which have bearings in the notches in said plates. In the modified form we have shown a screw T^3 passing through a threaded lug on the flux-containing receptacle and having a head T^4, provided for the purpose of raising or lowering said screw when it is desired to adjust the flux-feeding wheels with relation to the seams which are to be fluxed. In Fig. 4 it will be seen that the flux-containing receptacle has dovetailed connection with the standard Q^2 and may be held at any location thereon in order to secure proper adjustment.

In order to impart an accelerated movement to the oscillating lever when traveling in one direction, we provide a cam W, having a cam-groove W^2 in the face thereof, which cam, substantially heart-shaped, is mounted to rotate with the shaft C. A lever W′ is pivoted at W^3 to a standard supporting the shaft C and carries an antifriction-roller W^4, which is adapted to travel in said groove W^2, and pivotally connecting said lever W′ and the oscillating lever is a link W^5. By this peculiar construction of cam and connections with the oscillating lever it will be observed that the fluxing devices (there being two shown on the upper portion of the machine and two on the lower portion for fluxing the tops and bottoms of cans) will be given a variable reciprocating movement through the rod D^2, which connects the pivotal pin E′ with the bracket F′, which is fastened to and is adapted to reciprocate with the pipes K and K′, through which pipes air and gas are conveyed to burners for heating the can, but which are not illustrated, as they do not form any part of the present application.

The means for rotating the cans comprises a spring-actuated plate or disk V, which has a shank portion mounted in one of the links V′ of the chain of the endless carrier and which shank portion has keyed thereto a pinion V^2, which is in mesh with the teeth of a gear V^3, also carried by a link of the carrier and in mesh with a rack-bar $V^\times$. The can is held between said rotary disk and a stationary swiveled disk V^4, which rotates with the disk as it travels with the carrier and during the fluxing process.

The operation of our improved fluxing apparatus when used in connection with the construction illustrated in Fig. 1 of the drawings, in which the rotating cans are fluxed, it being understood that the cans are mounted on an endless carrier, only a portion of which, however, is illustrated, as said cans are traveling along the horizontal portions of the frame illustrated, the cans are rotated in any suitable manner, (not illustrated,) and adjacent to the path of the rotating cans are located the fluxing devices, and as the flux-feeding wheel R′ comes in contact with a can adjacent to its connection with the top of the can, which in the upper portion of the carrier is inverted, said wheel R′ will be held yieldingly against the can, as illustrated in the detail view, and the rotary movement of the can will impart by frictional contact with said wheel R′ a movement to the latter, and flux will be fed from the receptacle by the bevel-wheel Q to the wheel P and thence to the wheel R′, onto the seam to be soldered. As a can comes into contact with the lower beveled edge of the wheel R′ the latter will be raised slightly. In case there should be a little variation in the location of the plane in which the seam to

be soldered is positioned the wheel R′ and the wheels in contact therewith will rise or lower and still be in operative connection with one another. As the cans are traveling in the direction indicated by the arrow, the fluxing will be accomplished while the fluxing-wheels are being driven forward by means of link connection with the oscillating lever D, said lever being driven by means of the heart-shaped cam W, which is keyed to rotate with the shaft C, said lever having pivotal link connections with a lever W′, carrying an anti-friction-roller journaled in a groove in said cam. By reason of the peculiar shape of said heart-shaped cam it will be observed that an accelerated movement is given to said oscillating lever when not moving in the direction of the carrier, and having a slower movement while fluxing a can than on the return movement of the oscillating lever, which carries the fluxing devices back to come in contact with the following two cans. It will thus be seen that the tops of two cans are fluxed simultaneously on the upper portion of the machine and the bottoms of two cans are fluxed simultaneously with the tops on the lower portion of the frame, it being understood that said oscillating lever actuates two sets of fluxing apparatus of similar construction, but reversely arranged, one set being to flux the tops of the cans, while the other is provided for fluxing the bottoms of the cans.

In the modification our fluxing apparatus is positioned so that the wheel R^2 will travel over or rest upon the longitudinal seam of the can as the same is fed forward on a former after having been turned into cylindrical form and after its edges are interlocked and clenched by mechanism which forms no part of the present invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A fluxing apparatus, comprising a horizontally-reciprocating flux-containing receptacle, means for moving the same, flux-feeding wheels in contact with one another, one of said wheels adapted to rotate within said receptacle, said wheels designed to be driven by frictional contact with a moving can, and means for adjusting the said wheels to rotate in different positions, as set forth.

2. A fluxing apparatus, comprising a flux-containing receptacle, a support therefor having dovetailed connection with said receptacle, flux-feeding wheels in contact with one another, one of said wheels adapted to rotate within the flux-receptacle, said wheels being driven by a frictional contact with a moving can, and means for adjusting the wheels to rotate in different positions, as set forth.

3. A fluxing apparatus, comprising a flux-containing receptacle, a member having bracket-arms upon which said receptacle is movably held, and means for supporting the bracket-arms, a shaft journaled in the flux-receptacle, a frictional flux-feeding wheel rotating with said shaft, slotted arms rising from the receptacle, a shaft guided in said slots, and a flux-wheel P, links guiding said shaft and the flux-wheel R′ arranged as shown and described, and means for holding said flux-wheels to operate in different positions, as set forth.

4. A fluxing apparatus comprising a flux-containing receptacle, frictional feed-wheels in contact with one another, one of which rotates within said flux-containing receptacle, said wheels adapted to be rotated by frictional contact with a rotating can, an oscillating lever, a standard on which the same is mounted, a cam-wheel, a second lever pivoted to said standard, an antifriction-roller carried by said second lever and traveling in a groove in said cam-wheel, and connections between said levers, and pivotal link connections between said oscillating lever and fluxing device, for imparting a varying movement to the fluxing apparatus, as set forth.

5. A fluxing apparatus comprising a receptacle, reciprocating tubular portions, bracket-arms carried by said tubular portions, a fluxing-receptacle adjustably held on said bracket-arms, flux-feeding wheels, one of which is mounted to rotate in said receptacle and having frictional contact with one another and adapted to be rotated by frictional contact with a moving can, an oscillating lever and connections between the same and said tubular portions, whereby the latter are reciprocated, as set forth.

6. A fluxing apparatus comprising a flux-containing receptacle, bracket-arms supporting said receptacle, dovetailed connections between said receptacle and bracket-arms, flux-feeding wheels in frictional contact with one another, one of said wheels mounted to rotate within the receptacle, said wheels actuated by frictional contact with a rotary can, and means for imparting a reciprocating movement to the fluxing apparatus, as set forth.

7. A fluxing apparatus comprising a receptacle, means for supporting the same, and imparting a reciprocating movement thereto, flux-feeding wheels in contact with one another, one of which wheels rotates within the flux-receptacle, said wheels adapted to be driven by frictional contact with a rotary can, and means for adjusting said wheels to rotate in different positions, as set forth.

8. A fluxing apparatus comprising a receptacle, a shaft mounted on standards carried thereby, crank-arms carried by said shaft, fluxing-wheels carried by said crank-arms, said flux-feeding wheels adapted to be operated by contact with a rotary can, and means for imparting a reciprocating movement to the fluxing apparatus.

9. A fluxing apparatus comprising a receptacle, a bracket-arm on which the same is ad-

justably held, one face of the bracket-arm being recessed, tubular portions to which said arm is clamped, frictional flux-wheels in contact with one another, said wheels being actuated by frictional contact with a rotary can, and means for reciprocating said tubular portion to which the fluxing apparatus is attached, as set forth.

10. A fluxing apparatus comprising a fluxing-receptacle, a bracket-arm supporting the same, reciprocating tubular portions to which said bracket-arm is supported, beveled frictionally-driven wheels in contact with one another, one of which wheels rotates within a flux-receptacle, said wheels being adapted to be driven by frictional contact with a rotating can, as set forth.

11. A fluxing apparatus comprising a flux-receptacle, bracket-arms supporting the same, means imparting a reciprocating movement thereto, a shaft supported by standards mounted on the flux-receptacle, a bevel-wheel rotating with said shaft, crank-arms mounted on the shaft, a second shaft carried by said crank-arms, a flux-feeding wheel thereon, and a bevel-wheel carried by said second shaft and adapted to be driven by a rotating can, said wheels being in contact with one another and adapted to receive flux from the receptacle and transfer it to a rotating can, as set forth.

12. A fluxing apparatus comprising a flux-containing receptacle, means for imparting a reciprocating movement thereto, flux-feeding wheels mounted on the receptacle and in contact with one another, and adapted to be driven by frictional contact with a rotating can, a screw having an adjusting-nut thereon adapted to hold the friction-wheels in adjusted positions.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN G. REHFUSS.
MARTIN O. REHFUSS.

Witnesses:
HENRY PENNINGTON,
J. B. JARDELLA.