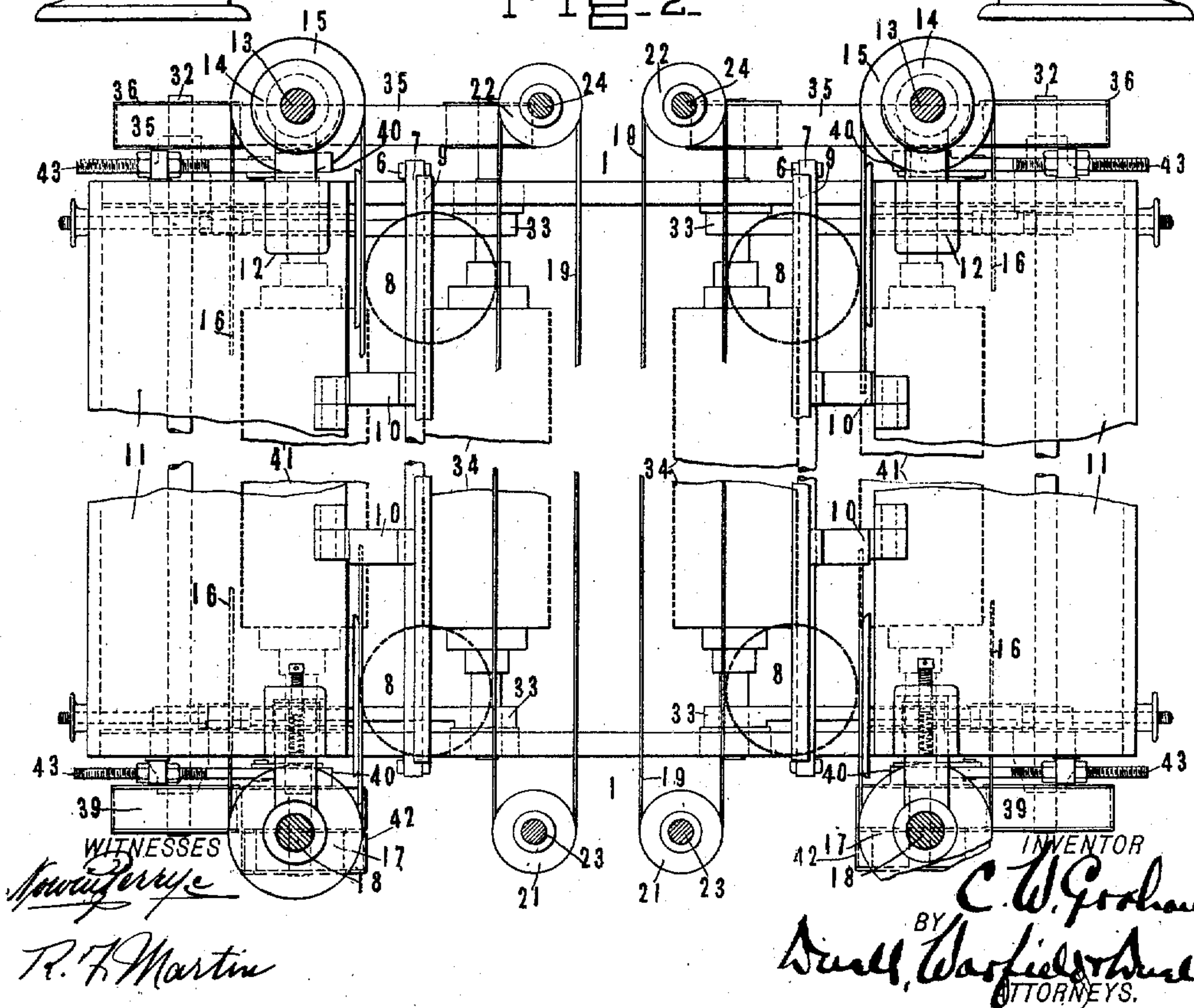
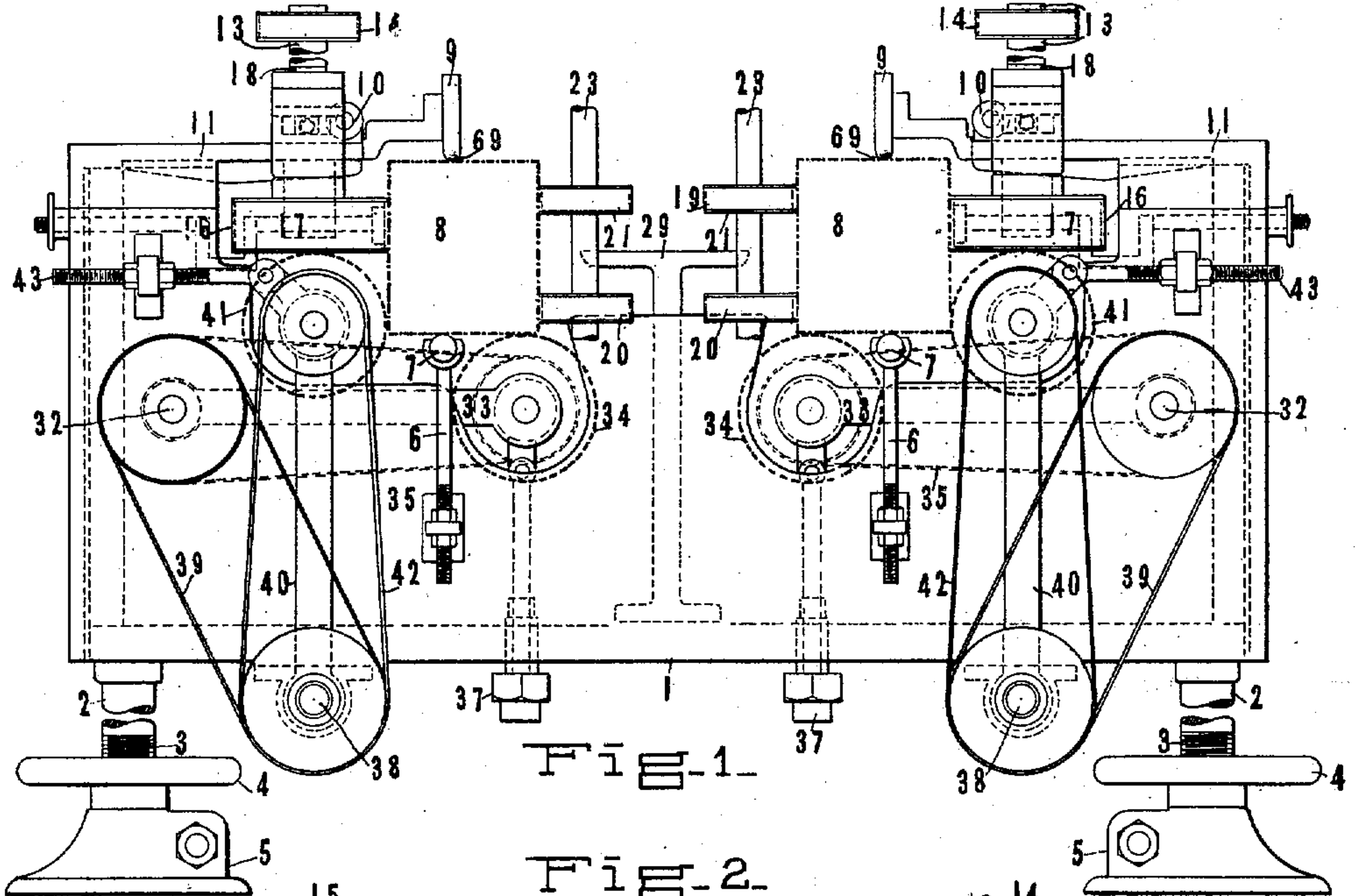


C. W. GRAHAM.
CAN CLEANING MACHINE.
APPLICATION FILED FEB. 19, 1907.

969,949.

Patented Sept. 13, 1910.
3 SHEETS-SHEET 1.



WITNESSES
R. F. Martin

INVENTOR
C. W. Graham
BY *D. W. Barfield*
ATTORNEYS.

C. W. GRAHAM.
CAN CLEANING MACHINE.
APPLICATION FILED FEB. 19, 1907.

969,949.

Patented Sept. 13, 1910.

3 SHEETS—SHEET 2.

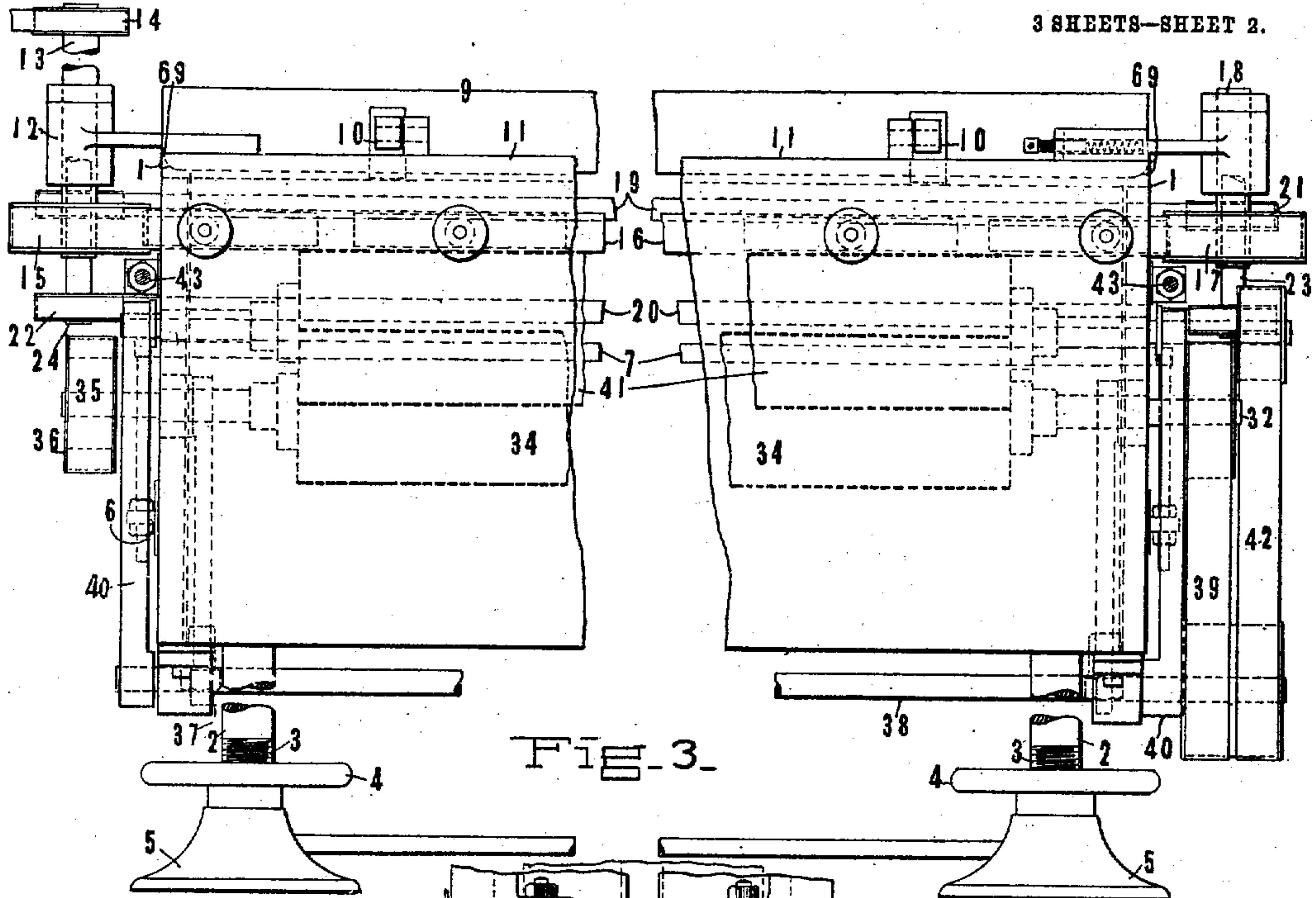


FIG. 3.

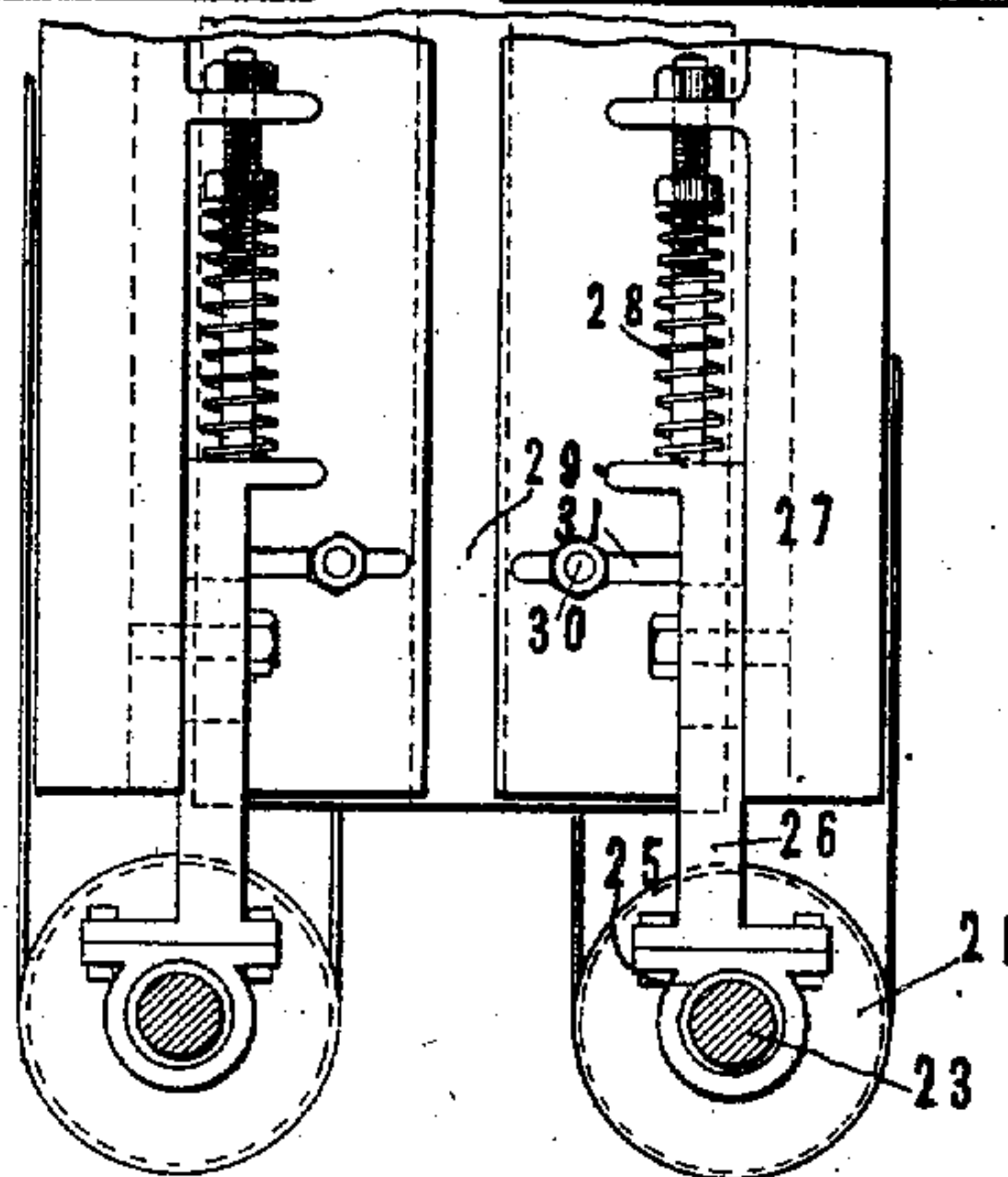


FIG. 4.

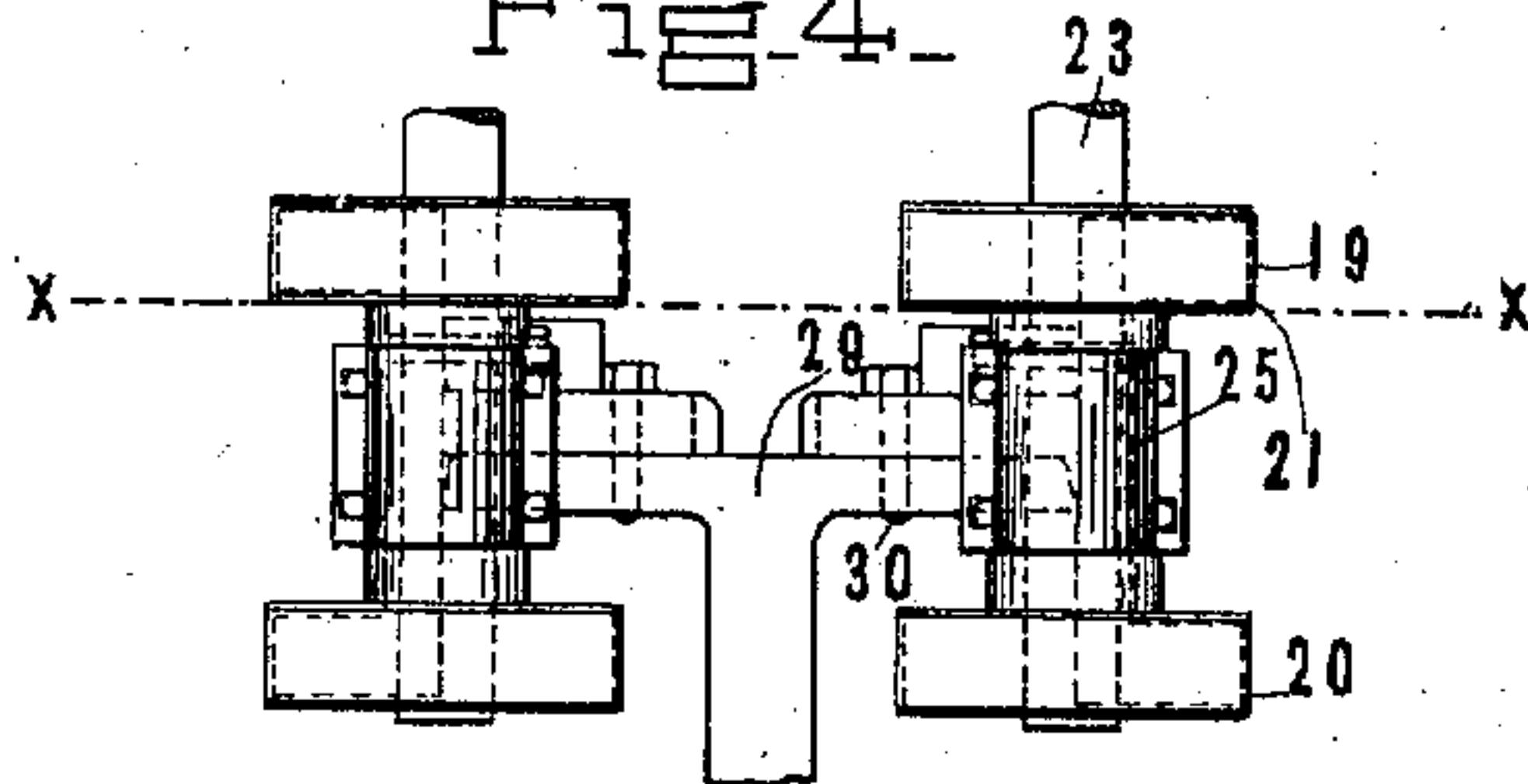


FIG. 5.

WITNESSES
Novia Perry
R. F. Martin

INVENTOR
C. W. Graham
BY *Duell, Hoofield & Duell*
ATTORNEYS.

969,949.

G. W. GRAHAM.
CAN CLEANING MACHINE.
APPLICATION FILED FEB. 19, 1907.

Patented Sept. 13, 1910.

3 SHEETS—SHEET 3.

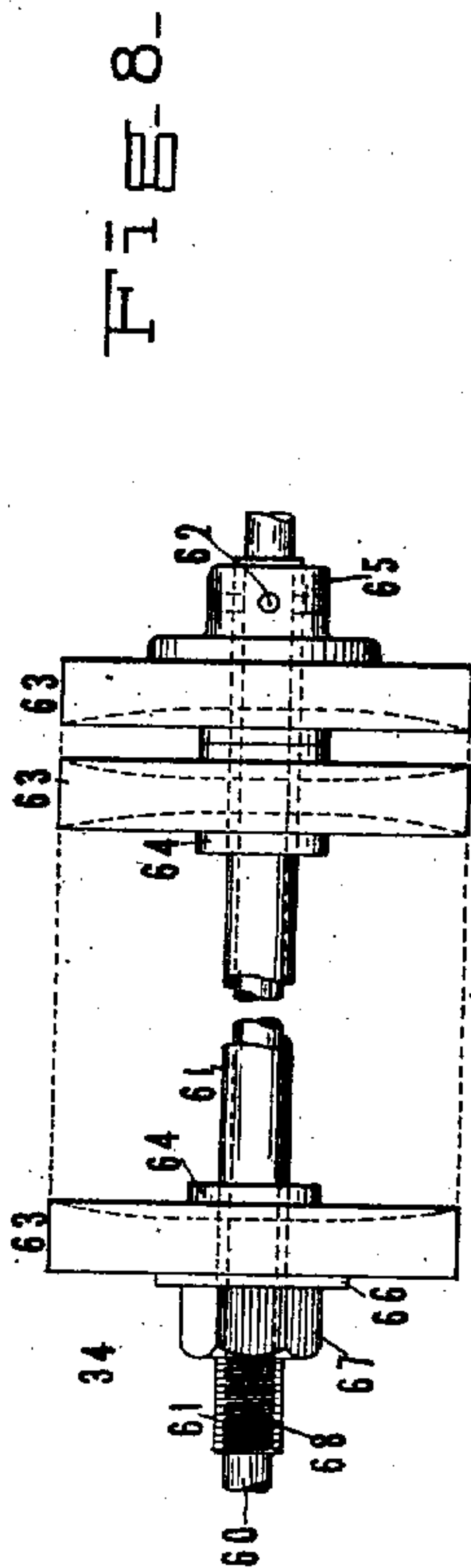


FIG. 8-

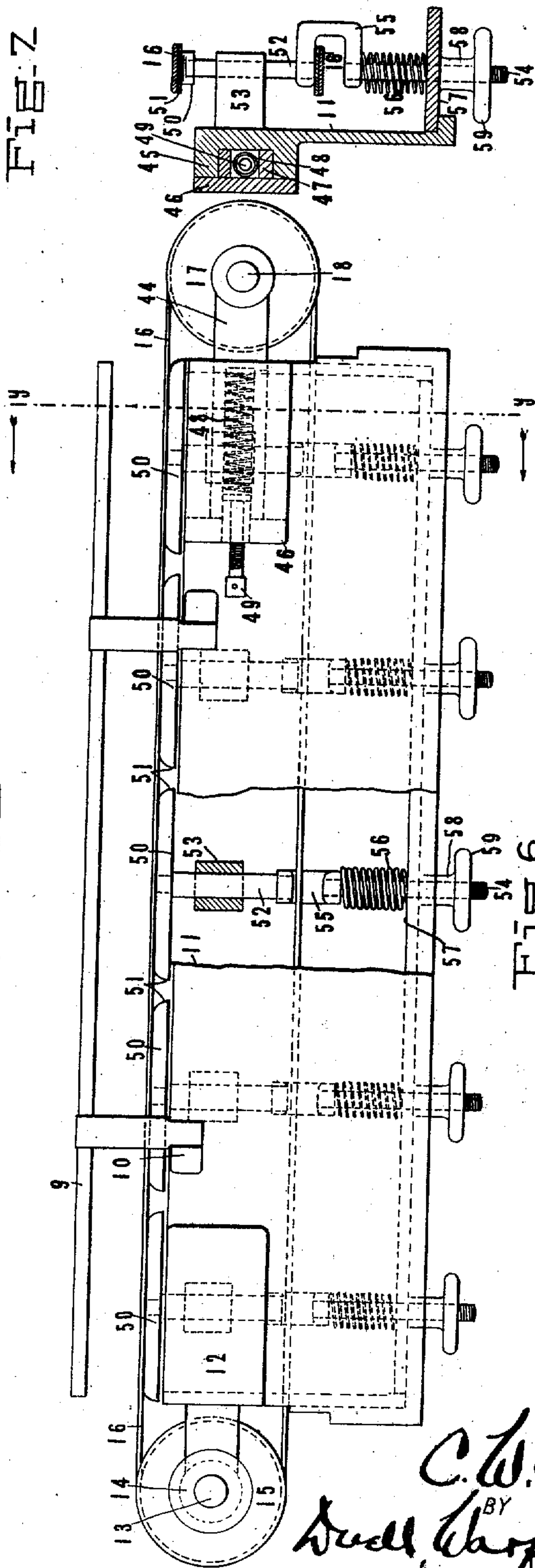


FIG. 2

FIG. 6-

WITNESSES
Howie Rye
R. H. Martin

INVENTOR
C. W. Graham
BY
Dud. Chaffield
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES W. GRAHAM, OF ROME, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
AMERICAN CAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

CAN-CLEANING MACHINE.

969,949.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed February 19, 1907. Serial No. 358,320.

To all whom it may concern:

Be it known that I, CHARLES W. GRAHAM, residing at Rome, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Can-Cleaning Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to can machinery and the like.

One of the objects thereof is to provide can cleaning apparatus of efficient and practical construction and capable of a high speed of working.

Another object is to provide a machine of the above type which shall be readily adjustable to accommodate cans of different sizes and shapes.

Another object is to provide a machine of the type first mentioned in which the seams are uniformly cleaned at all points.

Another object is to provide a machine of the type first mentioned in which cramping or binding of the can, as that due to expansion of the parts of the machine, is obviated.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is shown one of various possible embodiments of my invention,—Figure 1 is an end view thereof, certain parts being omitted in order to show the structure more clearly. Fig. 2 is a plan, also having parts omitted. Fig. 3 is a side elevation. Fig. 4 is a detail sectional plan of adjusting mechanism, taken substantially on the line $x-x$ of Fig. 5. Fig. 5 is an end view of parts shown in Fig. 4. Fig. 6 is a detail plan showing the tensioning means. Fig. 7 is a cross-section taken along the line $y-y$ of Fig. 6, looking in the direction indicated by the arrows. Fig. 8 is a detail view of a cleaning device.

Similar reference characters refer to similar parts throughout the several views of the drawings.

In order to render more readily understood certain features and aims of this invention, it may here be noted that in connection with can machinery in which solder is to be applied or treated, it is often incident to the use of the machine that the parts are exposed to varying degrees of temperature with a corresponding tendency to expansion. This expansion gives rise to a tendency to bind or cramp the cans if they be accurately guided in their travel through the machine. It may also be noted that in connection with can cleaning machinery, if the same is to be of thorough and efficient action, all parts of the seam should be uniformly acted upon by the cleansing means, as there is otherwise a waste of solder as well as an unfinished appearance in the can which has been acted upon. The above and other defects are done away with and many positive advantages attained in constructions of the nature of that hereinafter described.

Referring now to Fig. 1 of the accompanying drawings, there is shown a frame 1 mounted upon uprights 2, the height of which may be adjusted as by the screws 3 and hand wheels 4 coacting with the bases 5. Adjustably mounted upon this frame, as by the threaded rods 6, are a pair of longitudinally disposed supporting rails 7 preferably provided with convex upper surfaces upon which rest the cans 8. The upper ends of cans 8 are engaged by the swinging guides 9 hinged, as at 10, to the plates 11 bolted upon the machine frame and adapted to act by their weight to hold the cans in the desired path and thus exert a flexible pressure thereon in which the chance of binding in a vertical plane is done away with.

Referring now to the means whereby the cans are propelled along the rails 7, the detailed description will be confined to one side of the machine only, inasmuch as both sides are substantially identical in this respect.

Journaled within bearing 12 bolted upon the upper plate 11 is a vertical shaft 13 provided with a driving pulley 14 and having a second pulley 15 fast upon the lower end thereof. Pulley 15 is connected, as by belt 16, with a similar pulley 17 mounted upon shaft 18 at the opposite end of the machine. These pulleys are so disposed and formed as

to provide a belt surface substantially parallel to the support 7 and adapted to exert a resilient pressure upon the adjacent side of the cans 8. The opposite side of the cans 5 is engaged by belts 19 and 20 respectively connecting in pairs the pulleys 21 and 22 mounted upon shafts 23 and 24 at opposite ends of the machine and driven from any desired source of power. Shaft 23 10 is journaled within the bearing 25 mounted upon a slide 26 which is guided within a casting 27 and normally urged outwardly in a direction to tauten the belt, as by the adjustable spring 28. The entire casting 27, 15 moreover, is mounted upon a bed 29 centrally disposed within the frame of the machine, as by means of the bolts 30 and slots 31, in such manner as to permit an adjustment of the belts 19 and 20 toward or away 20 from the belt 16. Belts 19 and 20 and belt 16 are so driven as to cause a movement of their active surfaces, by which is meant the can-engaging portions thereof, in opposite directions and at different rates of speed. 25 In this manner the cans embraced by these belts are given a positive rotary movement and are yet rolled from one end of the machine to the other in the direction of the belt traveling at the greater rate of speed. 30 Journaled within frame 1 is a shaft 32 provided with a pair of swinging arms or links 33 within which is mounted a rotary cleaner 34 which may be provided with a surface of any desired character such as is 35 adapted to wipe away the surplus solder from the lower end of the can seam. This cleaner is driven, as by belt 35, from the pulley 36 upon the shaft 32, and is adjusted toward and away from the can, as by the 40 threaded link 37 resting within the frame of the machine.

Upon the lower side of the machine frame is a shaft 38 driven as by belt 39 from shaft 32 and provided with swinging arms 40 45 within which is journaled a cleaner 41 driven by belt 42 and coacting with the side surface of the end seam of the can. This cleaner is likewise adjustable toward and away from the can, as by the threaded link 43, and it 50 may be noted that these cleaners extend substantially from end to end of the machine and simultaneously act upon both portions of the surface thereof, being thus active for a considerable length of time and during 55 several rotations of the can body, whereby all parts of the seam thereof are thoroughly and uniformly cleaned.

The shaft 18 is preferably mounted within a journal 44 slidably mounted between 60 guides 45 formed upon the upper plate 11 and boxed in as by the cover or plate 46. Between the portions 47 of the bifurcated end of the journal member is positioned a spring 48 abutting at one end against the 65 journal and at the other end against an

adjusting screw 49 adapted to vary the tension thereon. It will thus be seen that the journal 44 is normally spring-pressed in a direction away from the opposite pulley, and hence the belt is given the desired degree 70 of tension.

In order to insure a firm engagement between the belt 16 and the adjacent can bodies, there are provided a number of presser shoes 50, the conformation and mounting of which 75 are substantially identical. Each shoe 50 is preferably curved or beveled at its ends, as at 51, in order to avoid abrading the inner surface of the belt, and is fast upon a rod 52 slidably mounted in a guide 53 depending 80 from the lower surface of the plate 11, as best indicated in Fig. 7 of the drawings. Mounted within the outer plate of the machine is a threaded rod 54 rigidly connected 85 as by the U-shaped member 55 with the rod 52. Each shoe 50 is thus pressed toward the inner surface of the belt as by a coiled spring 56 interposed between the member 55 and the outer wall of the machine frame, as shown 90 at 57. The tension of this spring, moreover, is controlled by a nut 58 provided with a hand grip 59 as shown.

It may here be noted that although certain advantageous features of my invention obtain irrespective of the type of cleaning 95 member employed, nevertheless that set forth in Fig. 8 of the drawings has been found to present many advantages. In this construction the cleaning shaft 60 is provided with a sleeve 61 secured thereon as by a pin 62. 100 Upon this sleeve are mounted rag wheels 63, held in proper conformation and properly spaced relation one to another by the washers 64. The end rag wheel at one end of the cleaner takes against a collar 65 rigidly se- 105 cured to the sleeve 61, and the wheel at the opposite end of the cleaner is engaged by a washer 66 held in place by a nut 67 threaded upon the sleeve 61, as indicated at 68. In this manner the entire cleaner may be re- 110 moved as a unit, as by sliding the sleeve 61 from the shaft 60, or any individual rag wheel may be removed and repaired or replaced as desired. The tightness of disposition, moreover, of the rag wheels is 115 readily adjustable as by the nut 67.

Although the cleaner 41 is not shown in detail, it is nevertheless to be understood that the construction thereof is substantially identical with that of the cleaner 34 imme- 120 diately above set forth.

The elements upon the opposite side of the machine are substantially identical with those above described, and it may here be noted that the two can paths are substan- 125 tially parallel and the propelling belts thereof travel in such direction as to move the cans which they engage in opposite directions throughout the machine. In this manner, as the cans travel through one of 130

these paths, one end seam thereof is thoroughly cleansed, and the same is merely reversed, as by suitably inclined chutes, and led to the other path, whereby the remaining end seam is cleansed and the finished can returned to a position adjacent that from which it was first delivered into the machine. In this manner a high rate of working as well as efficient action are readily attained.

The operation of the above-described embodiment of my invention, in so far as the same has not been already set forth, is substantially as follows: The several driving shafts being actuated from any desired sources of power and the can bodies being maintained at the proper temperature in any desired manner, the same are fed into the path at one side of the machine and readily pass beneath the weighted guide 9, as by reason of the rounded end 69 thereof, and are immediately given a whirling as well as forward movement by the several propelling belts. The can cleaners then act upon both the bottom and side of the end seam of the can and quickly remove all surplus solder therefrom. The cans are then fed to the opposite path in an inverted position and the remaining end seam is similarly treated. The cleaners are quickly adjustable, as for taking up wear or exerting greater pressure upon the seam, and the belts 19 and 20 are not only automatically maintained taut, but may be readily adjusted to accommodate cans of varying diameters, or removed as for cleaning or repair. The belts, moreover, are firmly and uniformly held against the can bodies as by the pressure shoes above set forth, and the intensity of their engagement with the can bodies is readily adjusted to the point insuring the most efficient action.

It will thus be seen that I have provided a machine in which the several objects of my invention are attained, and that the hereinbefore enumerated advantages are, among others, present. The entire construction is simple and inexpensive and the action automatic, thus doing away with the need of labor or supervision and permitting a high speed of working.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In apparatus of the class described, in combination, a supporting member, means adapted to adjust the height of said supporting member, a swinging guide adapted to rest upon and exert a resilient pressure upon the opposite end of a cam positioned upon said support, a pair of belts engaging the opposite sides of a can upon said support, means adapted to drive said belts in opposite directions and at different speeds, and means adapted to clean a seam of a can upon said belts.

2. In apparatus of the class described, in combination, a pair of belts adapted to engage one side of a can adjacent the ends thereof, a belt adapted to engage the other side of a can intermediate the ends thereof, means adapted to drive said belts in opposite directions and at different speeds, can cleaning means adapted to coact with a seam of a can upon the side of said second belt, and means adapted to adjust the position of said can cleaning means.

3. In apparatus of the class described, in combination, a pair of belts adapted to engage opposite sides of a can and impart rotary movement thereto, means adapted to drive said belts in opposite directions and at different speeds, means adapted to adjust one of said belts toward or away from the other thereof to accommodate cans of varying diameters, can cleaning means adapted to coact with a can between said belts, and means adapted to adjust the position of said can cleaning means to coact with cans of varying diameters.

4. In apparatus of the class described, in combination, a pair of belts adapted to engage opposite sides of a can and impart rotary movement thereto, means adapted to drive said belts in opposite directions and at different speeds, means adapted to adjust one of said belts toward or away from the other thereof to accommodate cans of varying diameters, can cleaning means adapted to coact with a can between said belts, and means adapted to adjust the position of said can cleaning means to coact with cans of varying diameters, said can cleaning means comprising a rotary member adapted to engage the side of the can.

5. In apparatus of the class described, in combination, a pair of belts adapted to engage one side of a can adjacent the ends thereof, a belt adapted to engage the opposite side of the can intermediate the ends thereof, means adapted to drive said second belt and said pair of belts at different rates and in opposite directions, adjusting means adapted to vary the distance between said second belt and said pair of belts to accommodate cans of varying diameters and ro-

tary can cleaning means adapted to engage a can positioned between said belts on the side of said second belt and clean a seam thereof.

5 6. In apparatus of the class described, in combination, a can supporting member, a guide adapted to exert a resilient pressure upon the opposite side of a can upon said member, and means adapted to propel a can
10 positioned between said support and said guide.

15 7. In apparatus of the class described, in combination, a can supporting member, a guide adapted to exert a resilient pressure upon the opposite side of a can upon said member, means adapted to propel a can positioned between said support and said guide, and means adapted to clean the end seam of a can upon said support.

20 8. In apparatus of the class described, in combination, a can supporting member, a guide adapted to exert a resilient pressure upon the opposite portion of a can, a pair of can propelling members adapted to en-
25 gage opposite sides of a can between said support and said guide, and means adapted to clean the end seam of a can positioned between said members.

30 9. In apparatus of the class described, in combination, a can supporting member, a guide adapted to exert a resilient pressure upon the opposite portion of a can, a pair of can propelling members adapted to en-
35 gage opposite sides of a can between said support and said guide, means adapted to clean the end seam of a can positioned between said members, and means adapted to drive the active portions of said members at different rates of speed.

40 10. In apparatus of the class described, in combination, a supporting member, a swinging guide adapted to rest upon and exert a resilient pressure upon the opposite end of a can positioned upon said support, a pair
45 of belts engaging opposite sides of a can upon said support, means adapted to drive said belts to propel said can along said support, and means adapted to clean the end seam of a can between said belts.

50 11. In apparatus of the class described, in combination, a pair of belts adapted to engage one side of a can adjacent the ends thereof, a belt adapted to engage the oppo-
55 site side of a can intermediate the ends thereof, means adapted to drive said belts to propel a can positioned therebetween, and can cleaning means adapted to co-act with the end seam of a can upon the side of said second belt.

60 12. In apparatus of the class described, in combination, a frame, a pair of can supporting members mounted thereon in substantially parallel relation, a plurality of pairs of belts adapted respectively to engage
65 opposite sides of cans upon each of said sup-

porting members, means adapted to drive said pairs of belts to propel cans in opposite directions along said supporting members and impart a rotary movement thereto, means adapted to clean the end seam of a can upon either of said supporting members, and means adapted to exert a resilient pressure upon the upper ends of cans positioned upon said supporting members. 70

13. In apparatus of the class described, in combination, a frame, a pair of can supporting members mounted thereon in substantially parallel relation, a plurality of pairs of belts adapted respectively to engage opposite sides of cans upon each of said supporting members, means adapted to drive
80 said pairs of belts to propel cans in opposite directions along said supporting members and impart a rotary movement thereto, a plurality of pairs of cleaners adapted simultaneously to clean the sides and ends of cans upon said supporting members, and means adapted to engage the upper ends of cans upon said supporting members and exert a resilient pressure thereon. 85

14. In can machinery, in combination, supporting means, a pair of belts mounted adjacent said supporting means adapted to engage opposite sides of a can thereon and having their engaging surfaces lying in planes substantially perpendicular to the plane of said supporting means, and spring-pressed means adapted to engage one of said belts and press the same toward the can. 90

15. In can machinery, in combination, supporting means, a pair of belts mounted adjacent said supporting means adapted to engage opposite sides of a can thereon and having their engaging surfaces lying in planes substantially perpendicular to the plane of said supporting means, and a spring-pressed shoe adapted to engage the inner surface of one of said belts and press the same toward the can. 100

16. In can machinery, in combination, a pair of pulleys, a belt mounted upon said pulleys and adapted to frictionally engage and propel a can, and automatically operating means tending to separate said pulleys whereby the tension of said belt will be maintained constant. 110

17. In apparatus of the class described, in combination, a can supporting member, a pair of can propelling members adapted to engage opposite sides of a can upon said support, means adapted to drive said members in opposite directions and at different speeds, means adjacent one of said members for cleaning the side of a can, and means adjacent the other of said members for cleaning the end of said can. 120

18. In apparatus of the class described, in combination, a can supporting member, a pair of can propelling members adapted to engage opposite sides of a can upon said 130

support, means adapted to drive said members in opposite directions and at different speeds, means adjacent one of said members for cleaning the side of a can, and means adjacent the other of said members for cleaning the end of said can, said two last named means being simultaneously operative.

19. In apparatus of the class described, in combination, a can supporting member, a pair of can propelling members adapted to engage opposite sides of a can upon said support, means adapted to drive said members in opposite directions and at different speeds, means adjacent one of said members for cleaning the side of a can, and means adjacent the other of said members for cleaning the end of said can, said two last named means being adjustable toward and from the can.

20. In apparatus of the class described, in combination, a can supporting member, a pair of can propelling members adapted to frictionally engage opposite sides of a can upon said support with their engaging faces in vertical planes, means adapted to drive said members in opposite directions and at different speeds, a rotary cleaner adjacent one of said members for cleaning the side of a can, and a rotary cleaner adjacent the other of said members for cleaning the end of said can.

21. In apparatus of the class described, in combination, a can supporting member, a pair of can propelling members adapted to frictionally engage opposite sides of a can upon said support with their engaging faces in vertical planes, means adapted to drive said members in opposite directions and at different speeds, a rotary cleaner adjacent one of said members for cleaning the side of a can, and a rotary cleaner adjacent the other of said members for cleaning the end of said can, said two cleaners being simultaneously operative.

22. In apparatus of the class described, in combination, a can supporting member, a pair of can propelling members adapted to frictionally engage opposite sides of a can upon said support with their engaging faces in vertical planes, means adapted to drive said members in opposite directions and at different speeds, a rotary cleaner adjacent one of said members for cleaning the side of a can, and a rotary cleaner adjacent the other of said members for cleaning the end of said can, said two cleaners being adjustable toward and from the can.

23. In apparatus of the class described, in combination, a can supporting member, a pressure member adapted to engage part of a can opposite that engaged by the supporting member, a pair of can propelling members adapted to engage opposite sides of a can upon said support, means adapted to drive said members in opposite directions

and at different speeds, means adjacent one of said members for cleaning the side of a can, and means adjacent the other of said members for cleaning the end of said can.

24. In apparatus of the class described, in combination, a can supporting member, a pressure member adapted to engage part of a can opposite that engaged by the supporting member, a pair of can propelling members adapted to frictionally engage opposite sides of a can upon said support with their engaging faces in vertical planes, means adapted to drive said members in opposite directions and at different speeds, a rotary cleaner adjacent one of said members for cleaning the side of a can, and a rotary cleaner adjacent the other of said members for cleaning the end of said can.

25. In apparatus of the class described, in combination, a can supporting member, a pressure member adapted to engage part of a can opposite that engaged by the supporting member, can propelling members adapted to engage opposite sides of a can upon said support, means adjacent one of said members for cleaning the side of a can, and means adjacent the other of said members for cleaning the end of said can.

26. In apparatus of the class described, in combination, a can supporting member, a pivoted pressure member adapted to engage part of a can opposite that engaged by the supporting member, can propelling members adapted to engage opposite sides of a can upon said support, means adjacent one of said members for cleaning the side of a can, and means adjacent the other of said members for cleaning the end of said can.

27. In a can machinery, in combination, a pair of pulleys, a belt upon said pulleys and adapted to frictionally engage and propel a can, automatically operating means tending to separate said pulleys whereby the tension of said belt may be maintained, and resilient means adapted to press said belt toward the can.

28. In a can machinery, in combination, a pair of pulleys, a vertically disposed belt upon said pulleys and adapted to frictionally engage and propel a can, automatically operating means tending to separate said pulleys, whereby the tension of said belt may be maintained, adjustable resilient means adapted to press said belt toward the can, and cleaning means adjustable toward and from the can.

29. In apparatus of the kind described, in combination, a member for unyieldingly engaging an end of a can, a member yieldingly engaging the other end of the can, means yieldingly engaging the sides of the can to propel the same between said first-named members, and a can cleaning means.

30. In apparatus of the kind described,

in combination, an adjustable member for unyieldingly engaging an end of a can, a member yieldingly engaging the other end of the can, means yieldingly engaging the sides of the can to propel the same between said first-named members, and a can cleaning means.

31. In apparatus of the kind described, in combination, a member for unyieldingly engaging an end of a can, a member yieldingly engaging the other end of the can, bodily adjustable means yieldingly engaging the side of the can to propel the same between said first-named members, and a can cleaning means.

32. In apparatus of the kind described, in combination, an adjustable member for unyieldingly engaging an end of a can, a member yieldingly engaging the other end

of the can, bodily adjustable means yieldingly engaging the sides of the can to propel the same between said first-named members, and a can cleaning means. 20

33. In apparatus of the kind described, in combination, an adjustable member for unyieldingly engaging an end of a can, a member yieldingly engaging the other end of the can, bodily adjustable means yieldingly engaging the sides of the can to propel the same between said first-named members, and a bodily adjustable cleaning means. 25 30

In testimony whereof I affix my signature, in the presence of two witnesses.

CHARLES W. GRAHAM.

Witnesses:

WALTER C. HARRINGTON,
LEON D. TITUS.