(No Model.) 3 Sheets—Sheet 1.

G. L. MERRELL.

CAN CLEANING MACHINE.

No. 436,860. Patented Sept. 23, 1890.

Fig. 1.

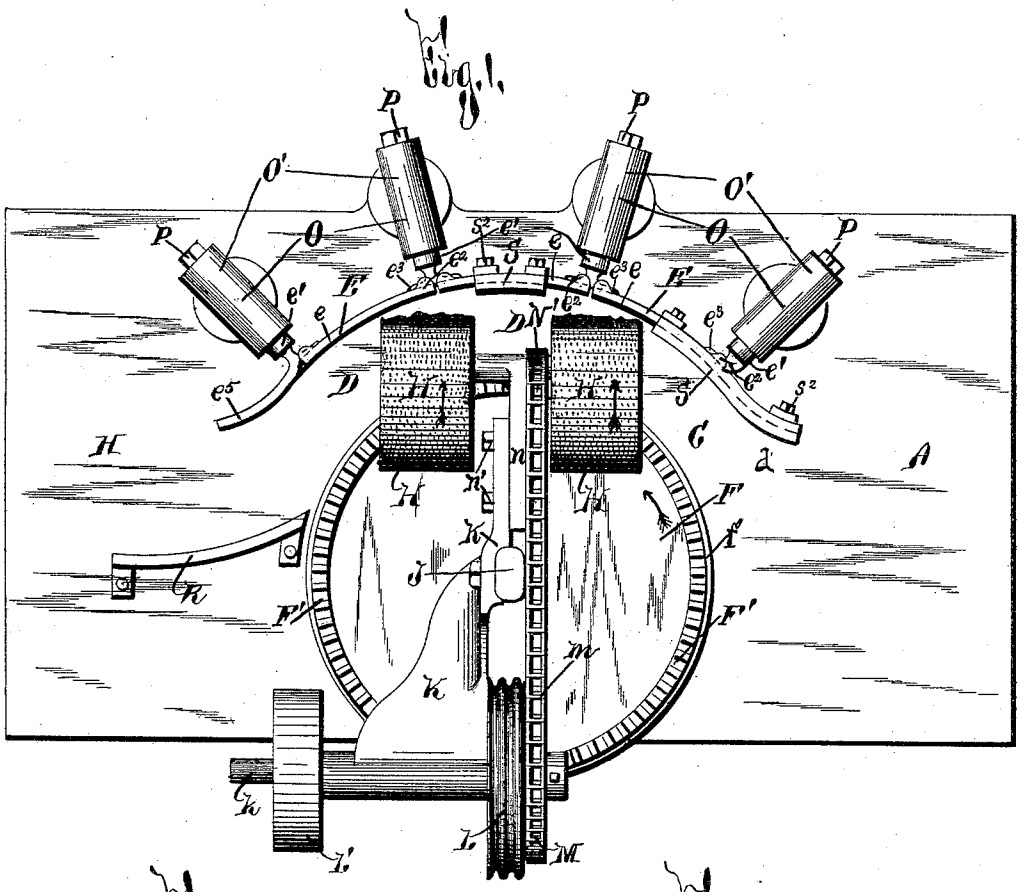


Fig. 4.

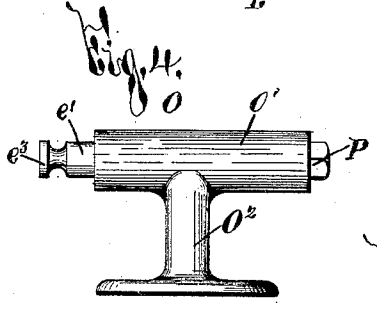


Fig. 5.

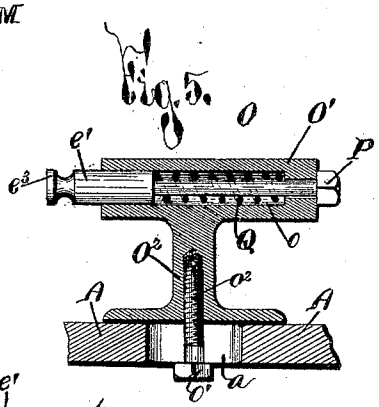
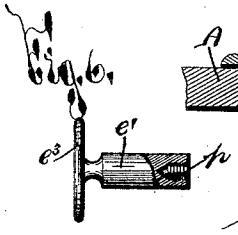


Fig. 6.



WITNESSES:

H. C. Parsons.

H. E. Chase.

INVENTOR

Lewis Merrell

BY

George H. Hoyt

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

G. L. MERRELL.

CAN CLEANING MACHINE.

No. 436,860. Patented Sept. 23, 1890.

Fig. 2.

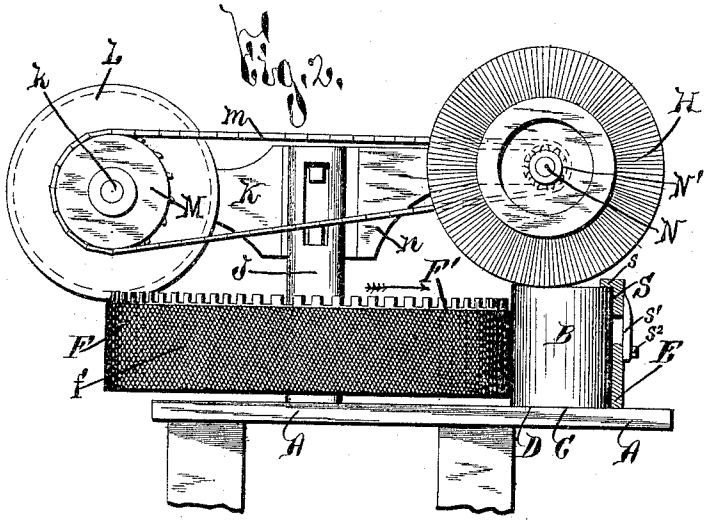


Fig. 3.

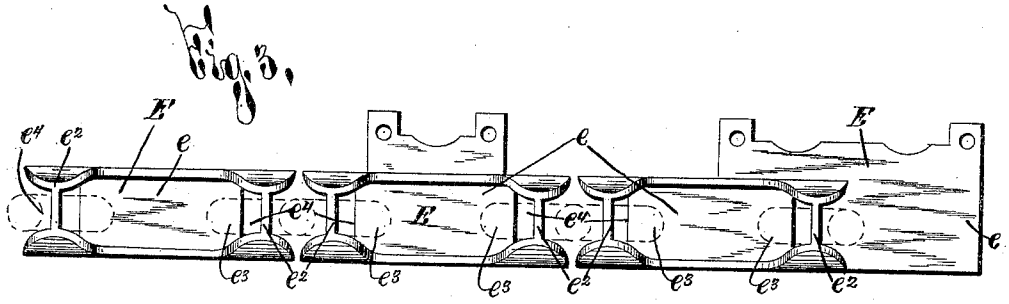


Fig. 7.

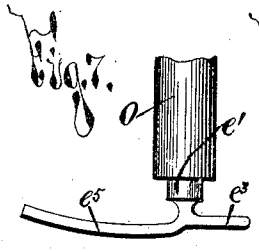


Fig. 8.

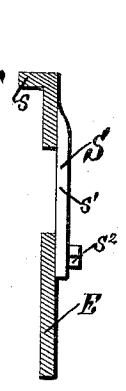
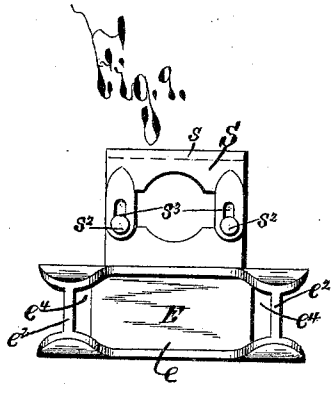


Fig. 9.



WITNESSES:

H. C. Passone.

H. E. Chase.

INVENTOR

Laius Lewis Merrell

BY

George W. Ley

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

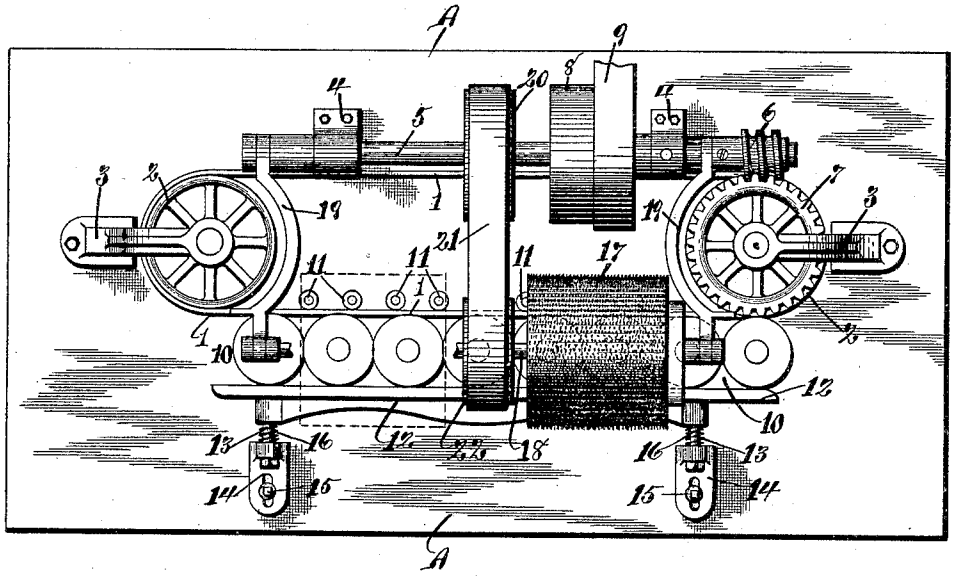
(No Model.) 3 Sheets—Sheet 3.

G. L. MERRELL.

CAN CLEANING MACHINE.

No. 436,860. Patented Sept. 23, 1890.

Fig. 10.



WITNESSES:

H. E. Chase,

H. C. Parsons,

INVENTOR

Laine Lewis Merrell

BY

George W. Hoyt

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GAIUS LEWIS MERRELL, OF SYRACUSE, NEW YORK.

CAN-CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 436,860, dated September 23, 1890.

Application filed August 24, 1889. Serial No. 321,877. (No model.)

To all whom it may concern:

Be it known that I, GAIUS LEWIS MERRELL, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Can-Cleaning Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to an improved can-cleaning machine, and has for its object the production of a simple and effective device for thoroughly and effectively cleaning the tops of cans; and to this end it consists, essentially, in a suitable support for the cans, a guideway, through which guide the cans are fed with a rotary movement formed by a feed for engaging and feeding the cans, and a guide oppositely arranged with said feed, and a brush for bearing or brushing upon the top of the cans.

It also consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing my invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figures 1 and 2 are respectively top plan and elevation views of my improved machine. Fig. 3 is a rear elevation of the adjustable guide for the cans, the separate divisions of said guide being shown as detached and as developed in a straight plane in order to clearly illustrate their construction. Fig. 4 is an elevation of the yielding support for rendering the can-guide adjustable. Fig. 5 is a longitudinal sectional view of the parts as illustrated in Fig. 4. Fig. 6 is a detail view, partly in section, of the plunger movably mounted in the supporting-bracket. (Best illustrated in Figs. 4 and 5.) Figs. 7, 8, and 9 are different detail views of the adjustable guide for the cans, and Fig. 10 is a top plan view of a modified form of my invention.

The supporting-frame A of my improved machine may be of suitable form, size, and construction, and a portion thereof preferably forms the can-support C, for supporting the cans top uppermost in their passage through the machine.

The can-guideway D, which may be of suitable form and construction, is preferably formed by the feed mechanism F, and a guide or curved rail E, oppositely arranged to said feed.

H represents a brush for cleaning the tops of the cans, which brush is of suitable form and construction, and is so arranged as to bear upon the top of the cans. As illustrated and as preferably constructed, I provide two of said brushes supported above and on either side of a central line drawn through said feed F and guide E.

The feed F preferably consists of a wheel revolubly mounted upon the stationary standard J, supported upon the frame A. This feed or wheel F engages the cans by frictional contact, and as shown in Fig. 2 of the drawings is provided with a frictional face *f*, which preferably consists of rubber or other suitable material, and is preferably corrugated diagonally, or, in other words, is provided with projections arranged diagonally in relation to each other. It will, however, be understood that this frictional face or rubber may be corrugated vertically as well as diagonally, and it will also be understood that by forming the frictional facing of the wheel F of rubber or like material the feeding of the cans is greatly facilitated. Secured to this standard J is the bracket K, supporting the shaft *k*, upon which is mounted a worm L and a pulley L′. Also secured to this shaft is a sprocket-wheel M, which is connected to a sprocket-wheel N′, mounted upon the shaft N, supported in a bracket *n*, secured by screws *n′* to the bracket K. This shaft N carries the brushes H, which are preferably arranged on either side of the chain *m*, and are of sufficient size to bear upon and brush the top of the cans.

Upon the top of the wheel F is the circular rack F′, with which the worm L engages, and as motion is transmitted to the pulley L′ the brushes H are revolved in the direction indicated by the arrow, and the circular guide or feed F is rotated to feed forward the cans in the direction also indicated by the arrow.

The yielding curved guide or plate E (best illustrated in Figs. 1 and 3) consists of a series of plates or segments *e*, mounted upon movable plungers or supports *e′*, guided in

brackets O. These brackets O consist of the standard O^2 and the barrel or head O′, provided with the recess *o*.

Supported in the barrel O′ is a bolt P, the inner extremity of which engages a screw-threaded socket P in the plunger *e′*, between the adjacent faces of which and the recess *o* is interposed a spring Q, which has a constant tendency to force the plunger outward and toward the feed F. The amount of movement of said plunger can be regulated at will by screwing inward or outward said bolt P, and it will be understood that when a can of a periphery a little larger than ordinary forces said plunger inward or backward immediately after the passage of said can the spring Q will force said plunger outward, so that the head of the bolt P will abut against the rear face of the barrel O. These plungers *e′* are preferably so adjusted that the can when being fed through the guideway will force said plunger slightly backward from its normal position in order to insure a reaction of said plunger and a consequent frictional contact of the can with the circular guide and feed F.

In order to allow of an adjustment of the guide E to any size of can the brackets O are preferably secured to the frame A by means of a screw *o′* bearing against the said frame, with one extremity engaging the screw-threaded socket o^2 in the bracket and the other working in a slot *a* in the frame, whereby said brackets are shifted toward or away from the guide or feed F, as desired.

For the purpose of connecting the plates or segments *e* to the plungers *e′*, I provide at the rear of said segments a bar e^2, which is connected to or engaged by single or double feet or lateral projections e^3, formed upon the adjacent plungers or supports *e′*. It will readily be seen that when the feet of the central plungers or yielding supports *e′* for the plates or segments *e* engage the bars e^2, formed upon the adjacent extremities of a pair of said plates, the said plates are thus loosely connected together, and an independent movement is allowed to each, whereby one plate may automatically adjust itself to one sized can and the other plate to another sized can. In order to allow of this movement of these segments or plates *e*, the material at the ends thereof and immediately in front of the bars e^2 is cut away at e^4, so as to prevent any binding of the feet e^3 of the plungers *e′* during the movement of said segments.

By reference to the drawings it will be seen that the plunger or support *e′* at the discharge end of the guide D is preferably formed with an elongated foot e^5, which forms an extension of the said guide and causes the can to be fed away from the wheel F after its passage beneath the brushes H.

Upon an examination of the drawings and reference to the foregoing description, it will be noted that the cans are engaged only upon one side, or rather upon one point of their periphery, and it will be understood that they are thereby given a rotary movement when being fed through my improved machine, and as set forth in my pending application, Serial No. 271,367, this revolution of the can is very desirable, producing a more effective cleaning of the can, and also a more even wear upon the brush for cleaning the cans.

In order to further insure the discharge of the cans out of contact with the said feed or guide F, I prefer to provide the stationary guide-plate R, which may be of suitable form, size, and construction.

When the brushes first strike the can, there is usually a slight tipping tendency thereof, and in order to prevent this I secure to the guide plates or segments *e* at points on one side of the brushes the guards S, which consist of a flange *s*, extending over the guideway D, and the downwardly-extending portions *s′*, suitably secured at s^2 to the said plates *e*. These guards are rendered adjustable to conform to the different heights of cans by means of slots s^3, formed in the portion *s′* and registering with the bolts or screws for securing said guards to the said plates or segments *e*.

At Fig. 10 I have shown a modified form of my invention in which the feed mechanism consists of an endless belt 1, passed over oppositely-arranged pulleys 2, supported by brackets 3, mounted upon the frame A. Mounted upon the frame A are brackets 4, in which is journaled a shaft 5, carrying a worm 6, which engages with a worm-wheel 7, mounted above one of the pulleys 2, and thereby serves to actuate the said moving belt or feed. Power is transmitted to this shaft 5 by a pulley 8, mounted thereon and connected by the belt 9 to any suitable actuating mechanism. (Not shown.)

On the inside of the portion of the belt 1 which forms a wall of the guideway 10, are rollers 11, and arranged opposite to said rollers and portion of the belt is the guide 12, consisting of a moving plate parallel with the adjacent portion of the belt 1. This plate 12 is supported and movable on rods or supports 13, mounted in brackets 14, adjustably secured by screws or bolts 15 to the frame A.

Interposed between the brackets 14 and the guide 12 are springs 16, which constantly force said guide toward the adjacent portion of the belt and facilitate the frictional engagement of the cans.

The brush 17 is mounted on a shaft 18, journaled in brackets 19, supported on the shaft 5 or its brackets 4, as may be desired.

Provided upon the shaft 5 is a pulley 20, which by a belt 21 is connected to a pulley 22 upon the shaft 18 for transmitting motion to said latter shaft and rotating the brush 17.

I do not herein claim, broadly, the following combinations, viz: a support for supporting the cans top uppermost, a feed for frictionally engaging the cans, and a movable guide arranged opposite to the feed, a

revolving wheel for feeding the cans, a guide movable toward said wheel, and a brush for cleaning the tops of the cans and a support for the cans, a feed for feeding the cans, a guide movable toward said feed, and a spring for tensioning said guide toward the feed.

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

1. In a can-cleaning machine, the combination of a support for the cans, a feed for frictionally engaging the cans, and a yielding guide arranged opposite to the feed and having independently-moving segments, substantially as and for the purpose specified.

2. In a can-cleaning machine, the combination of a support for the cans, a feeding-wheel having a frictional face for engaging the cans, a guide movable toward said wheel and having independently-moving segments, and a spring for tensioning said guide, substantially as and for the purpose set forth.

3. In a can-cleaning machine, the combination of a support for supporting the cans top uppermost, a guide for the cans, a brush bearing upon the top of the cans for cleaning the same, and a guard bearing upon the top of the can for preventing the tipping of the can during the operation of the brush, substantially as set forth.

4. In a can-cleaning machine, the combination of a rotating wheel having a frictionally-operating face, a circular rack, a worm engaging said rack, a revolving brush projecting beyond said wheel, and a guide-rail arranged opposite to the said wheel, substantially as specified.

5. In a can-cleaning machine, the combination of a support for the cans, a feed for feeding the cans, a guide-rail arranged opposite to the feed, a plunger supporting said rail, a spring for tensioning said plunger, and a screw or bolt for varying the throw of the plunger, substantially as and for the purpose set forth.

6. In a can-cleaning machine, the combination of a brush for cleaning the cans, a support for the cans, a feed for feeding the cans, a guide-rail for the cans, and a guard S, extending from said guide-rail and adjustable upon said rail in order to bear upon the top of the cans and prevent their tipping during the operation of the brush, substantially as and for the purpose set forth.

7. In a can-cleaning machine, the combination of a brush for cleaning the tops of the cans, a support for the cans, a feed for feeding the cans, a guide-rail arranged opposite to the feed and composed of a series of segments, plungers for supporting said segments, provided with engaging points for engaging the separate segments and allowing of a swinging movement thereof, and a spring for tensioning said plungers, substantially as and for the purpose described.

8. In a can-cleaning machine, the combination of a support for the cans, a feed for the cans, a brush for cleaning the tops of the cans, the separate segments e, provided with the cut-outs e^4 and the bars e^2 at their adjacent extremities, plungers for supporting said segments and engaging the said bars e^2, and springs for tensioning said plungers, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 20th day of August, 1889.

GAIUS LEWIS MERRELL.

Witnesses:
CLARK H. NORTON,
A. E. PARSONS.