(No Model.) 2 Sheets—Sheet 1.

C. A. BURT.

CAN WIPING MACHINE.

No. 490,100. Patented Jan. 17, 1893.

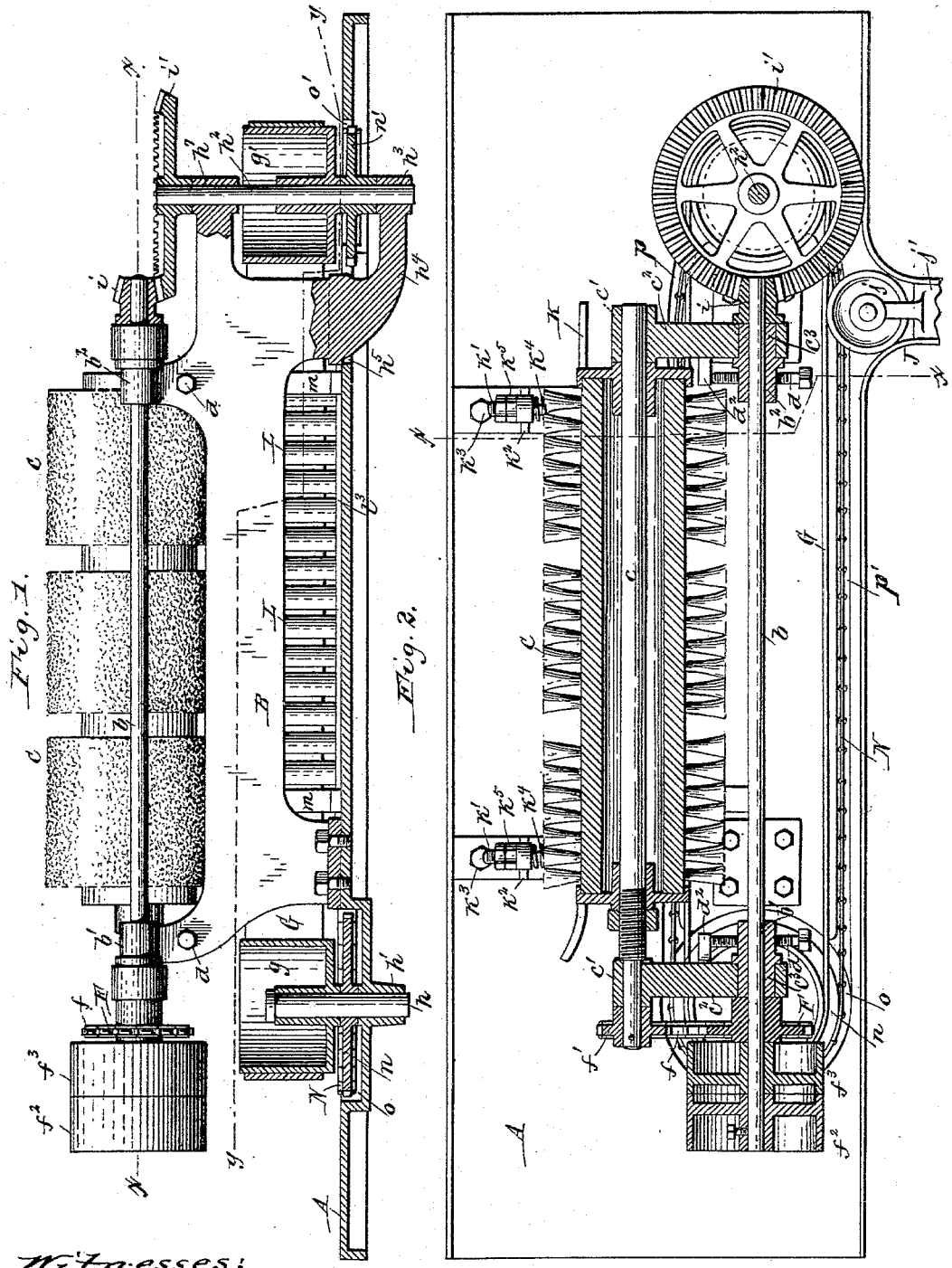

Fig. 1.

Fig. 2.

Witnesses:
Theo. L. Popp.
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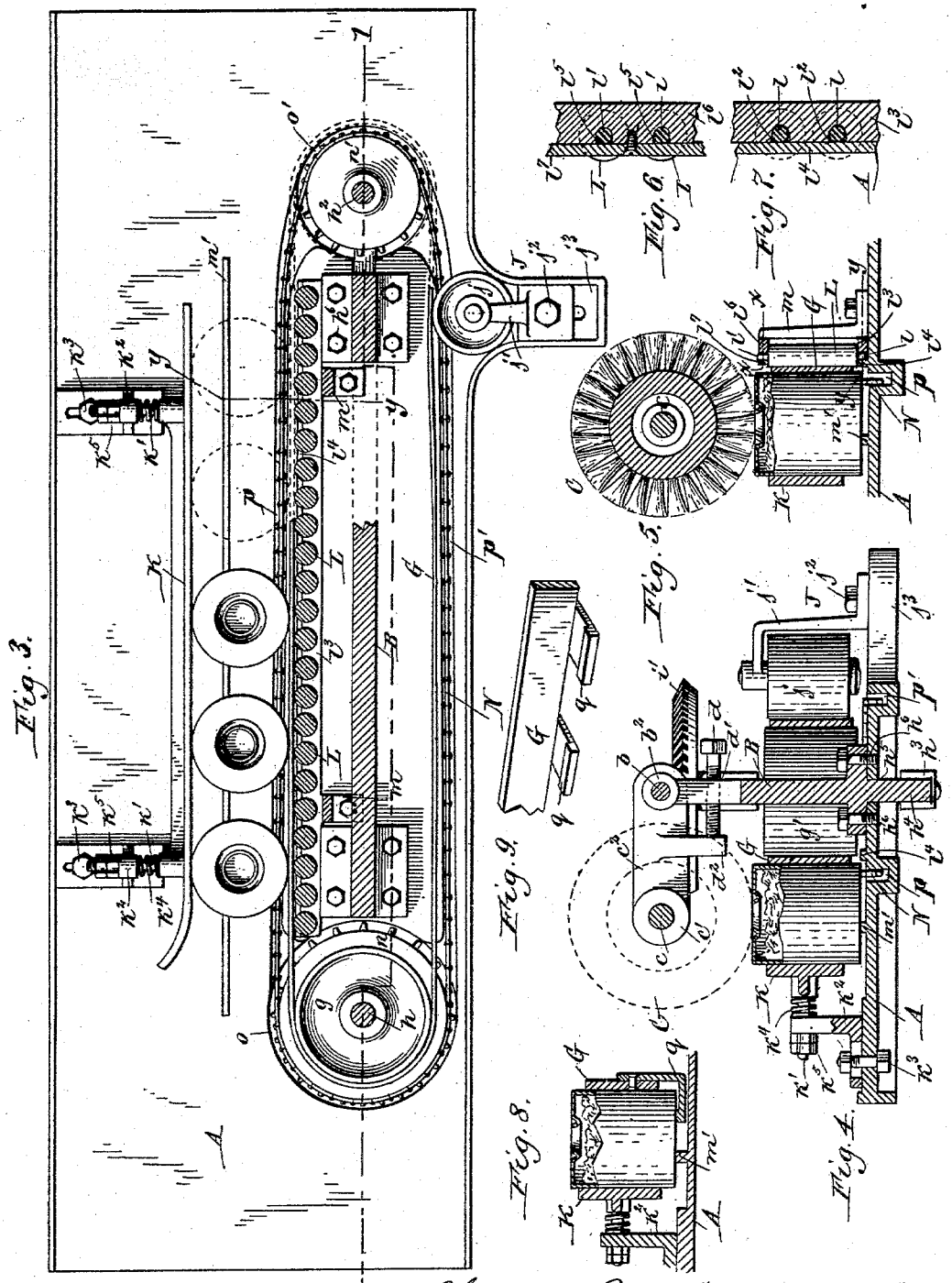

Fig. 3.

Fig. 6.

Fig. 7.

Fig. 5.

Fig. 4.

Fig. 9.

Fig. 8.

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UNITED STATES PATENT OFFICE.

CHARLES A. BURT, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE BURT MANUFACTURING COMPANY, OF SAME PLACE.

CAN-WIPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 490,100, dated January 17, 1893.

Application filed May 2, 1891. Serial No. 391,414. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BURT, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Machines for Wiping Cans, of which the following is a specification.

This invention relates to that class of machines which are employed for wiping the open tops of filled cans preparatory to securing the covers and in which the cans are moved automatically over a table, top uppermost, and passed with a combined forward and rotating or rolling motion underneath a revolving brush, whereby every portion of the top is brought in contact with the brush and the material adhering to the top is removed. In a machine of this character in which the movement of the cans is effected by a feed belt engaging against the cylindrical sides of the cans the moist, slippery material which accumulates on the feed belt often interferes with the proper propulsion of the cans through the machine.

The objects of my invention are to overcome this difficulty and to simplify the construction of the machine.

In the accompanying drawings consisting of two sheets:—Figure 1 is a longitudinal section of the machine, the section being taken in line 1—1, Fig. 3. Fig. 2 is a horizontal section of the machine in line x—x, Fig. 1. Fig. 3 is a horizontal section of the machine in line y—y, Fig. 1. Fig. 4 is a vertical transverse section in line x—x, Fig. 2. Fig. 5 is a cross section in line y—y, Fig. 3. Figs. 6 and 7 are horizontal sections, on an enlarged scale, in lines x—x and y—y, Fig. 5, respectively. Fig. 8 is a fragmentary vertical section showing a modified construction of my improvement. Fig. 9 is a fragmentary perspective view of the feed belt of this modified construction.

Like letters of reference refer to like parts in the several figures.

A represents the table or top plate of the machine and B a supporting frame or standard arranged lengthwise upon one side of the table.

b represents a longitudinal driving shaft journaled in bearings b' b^2 formed on the upper portion of the standard at opposite ends thereof.

C represents a revolving brush of cylindrical form whereby the tops of the cans are cleaned. This brush is arranged in front of the driving shaft and mounted on a longitudinal shaft c journaled with its ends in bearings c' formed at the front ends of transverse arms c^2. The rear ends of these arms are pivoted on cylindrical bosses c^3 formed on the sides of the bearings b' b^2 and concentric with the driving shaft b, so that the brush can swing vertically.

d represents screws whereby the brush is adjusted vertically to the tops of the cans. These adjusting screws are arranged transversely in screw threaded openings d' formed in the standard and bear with their front ends against the rear side of depending lugs formed on the arms d^2 between the driving shaft and the brush shaft.

F represents a sprocket wheel secured to the driving shaft adjacent to the outer side of the bearing b'.

f is a chain belt which passes around the sprocket wheel F and a sprocket wheel f' of smaller diameter secured to the adjacent end of the brush shaft, whereby rotary motion is transmitted from the driving shaft to the brush.

f^2 f^3 are tight and loose pulleys arranged on the driving shaft adjacent to the sprocket wheel F.

G represents the main endless feed or carrying belt bearing against the inner sides of the cans and whereby the latter are carried past the lower portion of the brush. This belt is arranged lengthwise in a vertical position and is supported by pulleys g g' arranged near opposite ends of the table. The pulley g is a loose pulley and is mounted on the upper end of a vertical shaft h journaled with its lower end in a bearing h' formed in the table. The pulley g' is the driving pulley and is secured to a vertical shaft h^2. The latter is journaled with its lower end in a bearing h^3 arranged below the table and formed on the end of a depending arm h^4 formed integral with the adjacent portion of the standard.

In assembling the parts the arm h^4 is passed through an opening h^5 formed in the table

and the standard is provided with two laterally projecting feet which rest upon the table and are secured to the latter by bolts h^6. The upper portion of the shaft h^2 is journaled in a bearing h^7 formed on the adjacent portion of the standard.

i represents a bevel pinion secured to the end of the driving shaft adjacent to the bearing b^2 and meshing with a large bevel gear wheel i' secured to the upper end of the shaft h^2 whereby motion is imparted to the carrying belt.

J represents a belt tightener whereby the slack in the main carrying belt is taken up. This tightener consists of a roller j bearing against the rear portion of the main feed belt and pivoted on a bracket j' which is adjustably secured by a bolt j^2 to an extension j^3 formed on the rear side of the table, or in any other suitable manner.

K represents a vertical abutment of pressure plate which bears yieldingly against the opposite or outer sides of the cans. This plate is arranged parallel with the main carrying belt and is separated from the latter a sufficient distance to form a channel or way for passing the cans underneath the brush. The outer side of the pressure plate is provided with two laterally projecting rods k' k' arranged near opposite ends and sliding in brackets k^2 k^2 adjustably secured to the top of the table by bolts k^3.

k^4 represents springs surrounding the sliding rods k' and bearing with their ends against the brackets and pressure plate, whereby the latter is yieldingly pressed against the cans. The inward movement of the gage plate is limited by screw nuts k^5 applied to the screw threaded end of the sliding rods and bearing against the front side of the brackets k^2. The end of the pressure plate at the entrance of the can channel is curved outwardly to facilitate the entrance of the cans between the main carrying belt and the plate. The pressure plate bearing against one side of each can and the feed belt bearing against the opposite side of the can causes the latter to roll on the pressure plate while being propelled through the channel. The combined lengthwise and rotary movement of the can in its passage through the channel causes the can to present every part of its top to the wiping action of the brush, thereby insuring a complete cleaning of the top.

L represents supporting rollers which bear against the rear side of the carrying portion of the main feed belt and retain the latter in line between the driving pulley and the loose pulley. These rollers are arranged vertically and provided with journals l l' at opposite ends. The journals l at the lower ends of the pressure rollers are arranged in notches l^2 formed in a plate l^3 and this plate bears with its notched edge against a longitudinal rib l^4 formed on the upper side of the table, thereby retaining the lower journals l in place. The journals l' at the upper ends of the rollers are arranged in notches l^5 formed in a plate l^6 in which they are retained by a bar or cap piece l^7 secured to the front side of the upper plate l^6. The upper and lower notched plates are attached to brackets m which are secured upon the table.

m' represents a rib formed lengthwise on the upper side of the table between the carrying portion of the main feed belt and the pressure plate. This rib supports the cans and enables the same to move through the channel with less friction.

N represents an auxiliary feed belt engaging against the bottoms of the cans and assisting in propelling the cans through the channel. This auxiliary belt is arranged lengthwise on the table and passes with its receiving portion around a loose sprocket wheel n secured to the vertical shaft h below the pulley g, while its delivery portion passes around a driving sprocket wheel n' secured to the vertical shaft h^2 below the pulley g'. This auxiliary belt is arranged vertically and presents its edge to the bottoms of the cans, and the weight of the cans resting upon this belt together with the pressure of the brush on the tops of the cans enables the auxiliary belt to obtain a firm hold upon the bottom of the cans and causes the latter to be rotated more positively, or with less slip and carried lengthwise through the channel. When the main feed belt becomes covered with moisture its hold upon the side of the cans is impaired. The auxiliary belt supplements the action of the main belt and on one side of the center line of the cans it materially assists in producing the desired combined forward and rolling movement of the cans. A chain belt is preferably employed as the auxiliary belt in order to obtain a strong hold upon the cans. The main belt has more slip than the auxiliary belt and the auxiliary belt is arranged nearer the axis of rotation of the cans than the main belt. In order to cause both belts to propel the cans at the same speed the auxiliary belt is run at a sufficiently lower speed than the main belt to compensate for these differences. By proportioning the speed of the main belt to that of the auxiliary belt, as five to four satisfactory results are obtained. For this reason the driving wheel n' of the auxiliary belt is made proportionately smaller in diameter than the driving pulley g' of the main belt. The loose sprocket wheel n of the chain belt is arranged in a circular depression o formed in the top of the table beneath said sprocket wheel and the driving sprocket wheel n' is arranged in a circular opening o' formed in the table concentric with this wheel, thereby permitting both sprocket wheels to be arranged with their upper flat sides on or below the level of the table.

p p' represent guide grooves formed length-

wise in the top of the table and in which the auxiliary belt is guided. These guide grooves extend from opposite sides of the circular depression to opposite sides of the circular opening and the carrying portion of the auxiliary belt, in passing through the groove *p* is held in an upright position so that the edge of the belt is always presented to the bottoms of the cans. The end portions of the guide grooves running into the circular opening and depression are made flaring so as to permit the auxiliary belt to enter and leave these grooves freely.

In the modified construction represented in Figs. 8 and 9 the auxiliary belt is omitted and a hold against the bottoms of the cans near the main feed belt is obtained by angle plates *q* which are secured to the main belt and extend forwardly from the face of the belt and underneath the bottoms of the cans against which they bear near the face of the feed belt.

I claim as my invention:

1. In a machine for cleaning the tops of cans, the combination with the table supporting the cans, top uppermost, of a feed belt bearing against the sides of the cans and a traveling feeding device bearing against the bottoms of the cans, substantially as set forth.

2. The combination with the table supporting the cans, top uppermost, of a feed belt arranged vertically on the table and bearing with its upper edge against the bottoms of the cans, substantially as set forth.

3. The combination with the table and the main feed belt bearing against the cylindrical sides of the cans, of an auxiliary feed belt bearing against the bottoms of the cans, substantially as set forth.

4. The combination with the can supporting table, of a main feed belt bearing against the cylindrical sides of the cans, an auxiliary feed belt bearing against the bottoms of the cans, and driving mechanism whereby the auxiliary belt is actuated at less speed than the main belt, substantially as set forth.

5. The combination with the can supporting table, of a main feed belt, a driving pulley whereby the main belt is actuated, an auxiliary feed belt, and a driving wheel for the auxiliary belt secured to the shaft of the driving pulley of the main belt and made of less diameter than said pulley, substantially as set forth.

6. The combination with the can supporting table, of a main feed belt, a driving pulley whereby the main feed belt is actuated, an auxiliary feed belt, a driving wheel whereby the auxiliary belt is actuated and which is smaller in diameter than the driving pulley of the main belt, and a guide whereby the carrying portion of the auxiliary belt is held outside of the main belt, substantially as set forth.

7. The combination with the can supporting table, of a main feed belt, an auxiliary feed belt, a driving pulley and wheel for said belts secured to a vertical shaft, a driving shaft arranged above said belts and gear wheels connecting said driving shaft with the vertical shaft of the belt pulley and wheel, substantially as set forth.

8. The combination with the table provided with an upwardly projecting rib and the main feed belt, of vertical rollers supporting said belt and arranged with the front sides of their lower journals against said rib, a notched plate in which the rear sides of said journals are arranged, and a notched plate and cap piece in which the upper journals of said rollers are confined, substantially as set forth.

Witness my hand this 18th day of April, 1891.

CHARLES A. BURT.

Witnesses:
F. H. CRAFTS,
FRANK W. EMERSON.