J. J. KIRKBY.

CAN STRAIGHTENING MACHINE.

APPLICATION FILED SEPT. 18, 1914.

1,229,292.

Patented June 12, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

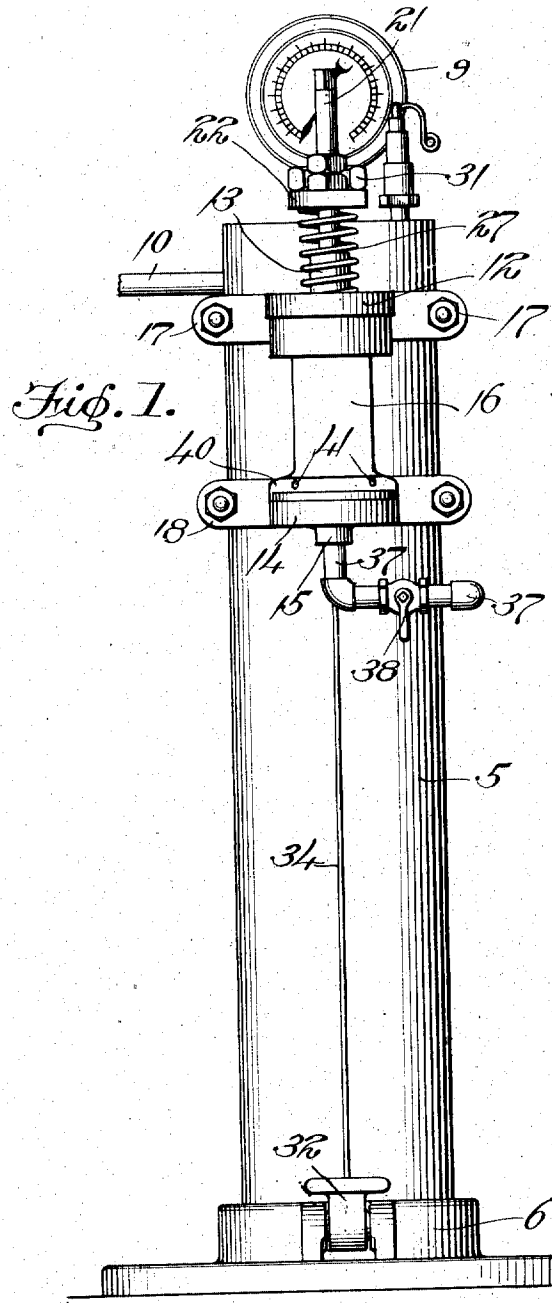


Fig. 2.

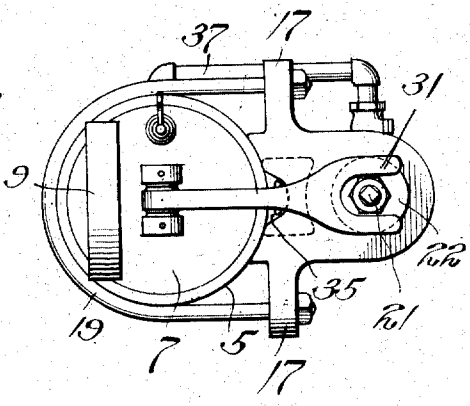
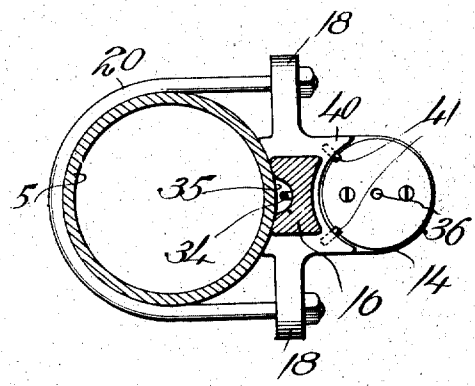


Fig. 4.



Witnesses

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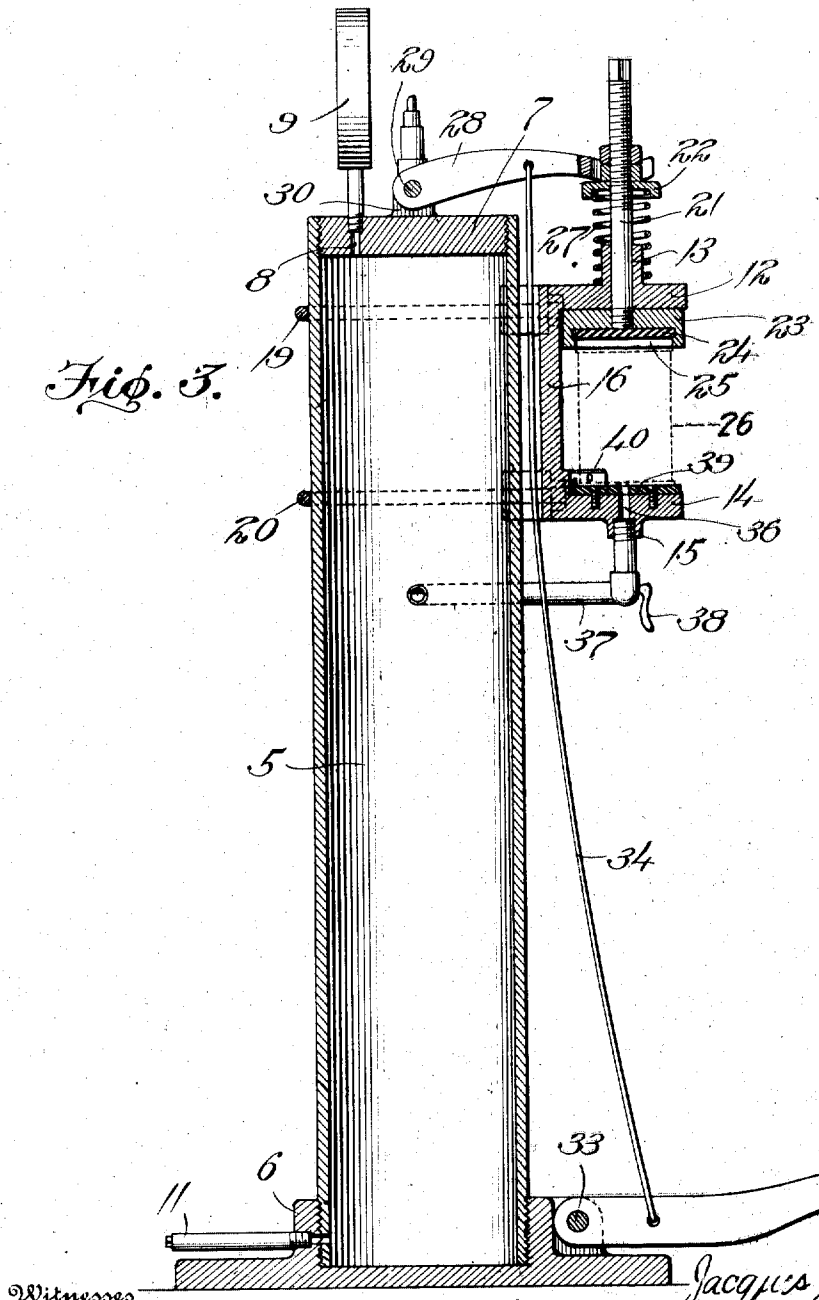
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JACQUES J. KIRKBY, OF CLYMER, NEW YORK.

CAN-STRAIGHTENING MACHINE.

1,229,292. Specification of Letters Patent. Patented June 12, 1917.

Application filed September 18, 1914. Serial No. 863,367.

To all whom it may concern:

Be it known that I, JACQUES J. KIRKBY, a citizen of the United States, residing at Clymer, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Can-Straightening Machines, of which the following is a specification.

This invention relates to machines for straightening bent or dented cans formed of tin, or other metal containers, and has particular reference to machines of this type adapted to use compressed air as the straightening means.

As a principal object, it is contemplated by this invention to provide a machine of the type described which shall be adapted to work upon cans of various sizes and shapes and in which the can shall be readily positioned when it is to be straightened or removed with equal readiness after such straightening.

A further object, and one of equal importance with the foregoing is to provide a machine of this type which shall be constructed with such regard to proportion, number and arrangement of parts as to be capable of being cheaply manufactured, as to occupy the minimum amount of space and as to be durable and efficient in operation.

The above and additional objects which will become apparent as this explanatory description proceeds are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

With reference to the drawings, wherein there is illustrated the preferred embodiment of this invention as it is reduced to practice, and throughout the several views, of which like characters of reference designate similar parts:—

Figure 1 is a front elevation of the machine as a whole,

Fig. 2 is a plan view of the same,

Fig. 3 is a vertical sectional view taken therethrough at right angles to Fig. 1, and

Fig. 4 is a horizontal section through the machine and in particular through the can basket.

In the principal embodiment of this invention as illustrated, the compressed air chamber 5 which is essentially a hollow cylinder vertically threaded into a base 6 acts as a pedestal to which the remainder of the machine parts are securable. The upper portion of the cylinder is removably closed by a plug 7 threaded thereinto and apertured at 8 to receive the stem of a pressure gage 9 suitably carried thereby. Connecting at the upper and lower portions of the air chamber 5 are respectively the inlet and drain pipes 10 and 11 therefor, the former of which is of course a lead from a suitable compressor (not shown).

The can basket which forms a most important part of this invention consists of a top 12 formed with the central boss or enlargement 13 and a bottom 14 similarly formed with a boss 15, said top and bottom being connected by an intermediate portion 16 formed integrally therewith. Both the top and bottom portions of the can basket are formed with the respective pairs of lateral integral ears 17 and 18 in which are received respective U-shaped yokes 19 and 20 embracing the hollow air pedestal 5 in the manner clearly illustrated in all of the figures and removably positioning the can basket thereon. These yokes 19 and 20 will also permit vertical and rotary adjustment of the can basket on the pedestal when such is desired to change the position of the basket to suit the operator, it being evident that the pipe 37 leading to the bottom of the can basket may, if desired, be a flexible pipe.

The boss 13 of the can basket top 12 is vertically apertured to slidably receive a stem 21 having its ends threaded to receive respectively an adjusting washer 22, and the head 23 which is cylindrically recessed to receive a resilient washer 24, preferably of rubber, and also recessed as at 25 in order to receive an end of the can to be straightened, the latter being positioned as shown by the dotted lines at 26 of Fig. 3 against the washer 24. A suitable resilient means such as the expansible coiled spring 27 is interposed between the adjusting washer 22 and the basket top 12 surrounding the stem 21 and the boss 13 in order to normally hold the head 23 against the underside of the basket top.

As a means for overcoming the tension of the spring 27 in order to lower the head 23

when a can is to be locked in place there is provided a lever 28 pivoted at 29 in suitable ears 30 formed upon the closure plug 7, such lever being enlarged adjacent its free extremity and provided with a cut out portion forming a yoke 31 which is adapted to loosely embrace the adjusting washer 22 and to be supported thereby. To operate this lever 28 a foot pedal 32 is pivoted as at 33 to suitable ears formed forwardly upon the base 6, and a suitable link which may be a wire rod, rope or cable 34 connects the lever and pedal in such manner that depression of the latter will result in a similar movement of the former. As illustrated more particularly in Figs. 3 and 4, the back 16 of the can basket is so arcuately formed or channeled vertically as to provide a passageway 35 for the movement of the link 34.

The bottom 14 of the can basket is formed with the vertical air inlet 36 connecting with the enlargement 15 in which is removably seated the conducting pipe 37 communicating at its other end with the interior of the air chamber 5. Intermediate the ends of the pipe 37 is positioned an air cock or three-way valve 38 of any usual construction and having movements to be hereinafter more fully described. A seat 39 which is preferably of leather or a similar material is removably secured to the basket bottom 14 and centrally apertured to communicate with the air duct 36. Enlargements 40 are formed at the juncture of the back 16 with the basket bottom being arcuately disposed to more readily position a can seated on the latter and also being provided with suitable adjusting screws 41 whereby the can may be centered upon the cushion 39 directly over the aperture 36.

In operation, it will be understood that the can or other metal container to be straightened is placed upon the can basket bottom 14 and centered thereon by the screws 41. The foot pedal 32 is then depressed by the operator and effects a gripping of the can top by the slidable head 23 against the tension of the spring 27. The air cock 38 is then manipulated to admit air from the chamber 5 to the passageway 36 formed in the basket bottom and accordingly to the interior of the can in which the tendency of the compressed air to equalize its pressure upon the walls of the can will result in an immediate effacement of the bend or dent which it was desired to straighten out of the metal container thus operated upon.

To remove the can, the valve 38 is set in its second position in which air from the chamber 5 is cut off and the air used in the can exhausted into the surrounding atmosphere, the foot pedal 32 is released so that the spring 27 may return the lever 28 permitting a disengagement of the slidable head with the can top so that the straightened can may be displaced from the basket in making room for another.

While in the foregoing however, there has thus been illustrated in the drawings and described in the specification such combination and arrangement of elements as constitute the preferred embodiment of this invention, it is desired to emphasize the fact that such minor changes in the matters of proportion and degree may be made in later adaptations of this device as shall not alter the spirit of the invention as defined in the appended claims.

What is claimed is:—

1. A can straightening machine including an air cylinder, a can basket including an integral top, bottom and connecting portion, said portion being shaped to fit the cylinder, means for attaching the top and bottom of said basket to said cylinder, means slidable through the top to grip the can, independently operable means to center the can upon the bottom, air conducting means between said basket and the cylinder, and multiple way control means interposed on said air conducting means.

2. A can straightening machine including an air cylinder, a can basket having an integral top, bottom and intermediate portion, said portion being shaped to fit the cylinder, means removably securing said basket top and bottom to the cylinder, means resiliently operable through said top to grip the can, means controlling operation of first said means, and air conducting means connecting said basket with said cylinder.

3. A can straightening machine including an air cylinder, a can basket having an integral top, bottom and intermediate portion, said portion being shaped to fit the cylinder, means removably securing said basket top and bottom to the cylinder, means resiliently operable through said top to grip the can, means controlling operation of first said means, means for adjusting the operation of first said means by said control means, and air conducting means connecting said basket with the cylinder.

4. A can straightening machine including an air cylinder, a can basket having an integral top, bottom and intermediate portion, said intermediate portion being shaped to fit the cylinder and providing a longitudinal passageway therebetween and the basket, ears formed on said basket top and bottom, yokes removably connecting with said ears to support the basket upon its cylinder, means operable through the top of the basket to grip a can therein, foot control means for first said means, and a connection between said foot control and the first said means adapted to utilize the passageway between said basket and the cylinder.

5. A can straightening machine including

an air cylinder, a can basket having an integral top, bottom and intermediate portion, said intermediate portion being shaped to fit the cylinder and providing a longitudinal passageway therebetween and the basket, ears formed on said basket top and bottom, yokes removably connecting with said ears to support the basket upon its cylinder, an enlargement formed on the intermediate portion of said basket at the juncture with said bottom, centering means projecting through said enlargements, means resiliently operable through said top to grip the can, and control connections for said resiliently operable means adapted to pass through the passage provided between said basket and the cylinder.

6. A can straightening machine including a cylinder forming an air chamber, a can basket removably positioned on said cylinder, and including an integral top, bottom and intermediate portion, means formed adjacent said latter two portions for adjustably positioning cans in said basket, means conducting air from said chamber through said bottom, means controlling the passage of air, and means resiliently controlled to slide through said top in further positioning the cans in said basket.

7. A can straightening machine including a cylinder forming an air chamber, a can basket removably positioned on said cylinder and including an integral top, bottom and intermediate portion, means formed adjacent said latter two portions for adjustably positioning cans in said basket with respect to said bottom, means conducting air from said chamber to said bottom, means controlling the passage of air, a head slidably mounted in said top, and means for adjusting movement of said head to permit it to grip cans of different sizes.

8. A can straightening machine including a cylinder forming an air chamber, an upper closure for said cylinder, a base for said cylinder, a lever pivoted to said closure, a foot pedal pivoted to said base, a can basket removably positioned on said cylinder, a can top gripping head slidable within said basket, adjusting means to control the normal position of said head, means yieldably supporting said head in said normal position, and connections between said pedal and said lever so that actuation of the former will move said head from its normal position in gripping cans of various sizes, as adjusted.

9. A can straightening machine including a cylinder forming an air chamber, an upper closure for said cylinder, a base for said cylinder, a lever pivoted to said closure, a foot pedal pivoted to said base, connections between said pedal and said lever, a can basket, yokes removably positioning said basket on said cylinder, an apertured bottom for said basket, means conducting air from said chamber through said bottom, means adjacent said bottom for adjustably positioning cans laterally with respect to said bottom, an apertured top for said basket, a can top gripping head slidable through said basket top, means yieldably supporting said head to permit of the insertion into or removal from said basket of cans, means for actuating said head by said pedal and lever, and means adjusting said head longitudinally for cans of different lengths.

10. A can straightening machine including a cylinder forming an air chamber, a can basket removably positioned on said cylinder and including a fixed top, bottom and intermediate portion, a stem slidable through said top, a head carried by said stem to extend below said top, resilient means normally supporting said head in contact with said top, a gas inlet stem through said bottom, air tight linings carried by said head and bottom, and a valved multiple control between said chamber and said inlet.

11. A can straightening machine including a cylinder forming an air chamber, a can basket removably postioned on said cylinder and including an integral, top, bottom and intermediate portion, the latter arching away from said cylinder, a stem slidable through said top, a recessed head carried by said stem, air tight lining means for said head and said bottom, resilient means normally supporting said head, adjusting means for said resilient means, a lever pivoted to contact with said adjusting means, air inlet means for said bottom, a valved multiple control interposed on said air inlet between said chamber, said basket and the atmosphere, centering means for said basket bottom, and a manually operable lever to actuate the first said lever in moving said head against the tension of said resilient means.

12. A can straightening machine including an air cylinder, a can basket removably positioned thereupon, a bottom for said basket to support the cans to be straightened, a top for said basket, a rod operable through said top, a gripping head carried by said rod, means movable upon said rod for adjusting the position of said gripping head, and air conducting means leading from said cylinder through said basket bottom.

13. A can straightening machine including an air cylinder, a can basket removably positioned thereupon, a bottom for said basket to support the cans to be straightened, a top for said basket, a rod operable through said top, a gripping head carried by said rod, means movable upon said rod for adjusting the position of said gripping head, air conducting means leading from said cylinder through said basket bottom, and mul-

tiple-way control means interposed on said air conducting means to control the admission of air into said basket or the exhaust therefrom into the atmosphere.

14. A can straightening machine including a pressure cylinder, a can basket removably positioned thereupon, an apertured bottom for said basket formed with a central boss, an apertured top for said basket also formed with a boss, a rod slidable through said top, a gripping head for the cans to be straightened carried by said rod, resilient means normally forcing release of said head from said cans, and air conducting means extending from said cylinder through said apertured bottom.

15. A can straightening machine including a pressure cylinder, a can basket removably positioned thereupon, an apertured bottom for said basket formed with a central boss, an apertured top for said basket also formed with a boss, a rod slidable through said top, a gripping head for the cans to be straightened carried by said rod, resilient means normally forcing release of said head from said cans, air conducting means extending from said cylinder through said apertured bottom, and multiple-way control means interposed on said air conducting means to control the admission of air into said basket or the exhaust therefrom into the atmosphere.

16. A can straightening machine including a pressure cylinder, a can basket removably positioned upon said cylinder, an apertured bottom for said basket formed with a central boss, an apertured top for said basket formed with a similar boss, a rod slidable through second said boss, a gripping head carried by said rod, resilient means surrounding said rod to normally prevent contact of said head with cans supported by said basket, means adjustable upon said rod and in contact with said resilient means to determine the position of said head, and air conducting means leading from said cylinder through said bottom boss to furnish the straightening fluid for said can.

17. A can straightening machine including a pressure cylinder, a can basket removably positioned upon said cylinder, an apertured bottom for said basket formed with a central boss, an apertured top for said basket formed with a similar boss, a rod slidable through second said boss, a gripping head carried by said rod, resilient means surrounding said rod to normally prevent contact of said head with cans supported by said basket, means adjustable upon said rod and in contact with said resilient means to determine the position of said head, air conducting means leading from said cylinder through said bottom boss, and a multiple-way control means for manual operation in admitting the fluid of pressure into said basket or the exhaust therefrom into the atmosphere.

18. A can straightening machine including an air cylinder, a can basket removably positioned thereupon, a bottom for said basket to support the cans to be straightened, an air tight lining secured to said bottom, centering enlargements adjacent said bottom for positioning said can upon said lining, a top for said basket, means operable through said top to grip the can, means adjusting said gripping means, and air conducting means leading from said cylinder through said basket bottom and lining.

19. A can straightening machine including an air cylinder, a can basket removably positioned thereupon, a bottom for said basket to support the cans to be straightened, an air tight lining secured to said bottom, centering enlargements adjacent said bottom for positioning said can upon said lining, a top for said basket, means operable through said top to grip the can, means adjusting said gripping means, air conducting means between said cylinder and said basket, and multiple-way control means interposed on last said means to govern the admission of air into said basket or the exhaust therefrom into the atmosphere.

20. A can straightening machine including a pressure cylinder, a can basket removably positioned thereupon, an apertured bottom for said basket, an apertured top for said basket, a rod slidable through said top, a centrally recessed gripping head for the cans to be straightened carried by said rod, air-tight lining means inset into said recessed head, resilient means normally forcing the release of said head from said cans, and air conducting means between said cylinder and said apertured bottom.

21. A can straightening machine including a pressure cylinder, a can basket removably positioned thereupon, an apertured bottom for said basket, an apertured top for said basket, a rod sidable through said top, a centrally recessed gripping head for the can to be straightened carried by said rod, air-tight lining means inset into said recessed head, resilient means normally forcing the release of said head from said can, air conducting means between said cylinder and said apertured bottom, and multiple-way control means interposed on last said means to govern the admission of air into said basket or the exhaust therefrom into the atmosphere.

22. A can straightening machine including a pressure cylinder, a can basket removably positioned upon said cylinder, an apertured bottom for said basket, an apertured top for said basket, a rod slidable through said top, a centrally recessed gripping head carried by said rod, an air-tight lining inset into said gripping head, a similar lining car-

ried by said bottom and apertured to register with said bottom, means for setting said top upon a can to position the same in said basket, means for centering said can upon said bottom, and air conducting means between said cylinder and said bottom.

23. A can straightening machine including a pressure cylinder, a can basket removably positioned upon said cylinder, an apertured bottom for said basket, an apertured top for said basket, a rod slidable through said top, a centrally recessed gripping head carried by said rod, an air-tight lining inset into said gripping head, a similar lining carried by said bottom and apertured to register with said bottom, means for setting said top upon a can to position the same in said basket, means for centering said can upon said bottom, air conducting means between said cylinder and said bottom, and multiple-way control means interposed on last said means to control the admission of air into said basket or the exhaust therefrom into the atmosphere.

24. A can straightening machine including a pressure cylinder, a can basket removably positioned upon said cylinder, an apertured bottom for said basket, an apertured top therefor, an intermediate portion connecting said bottom and top, a rod slidable through said top, a recessed gripping head carried by said rod, means normally maintaining said head in contact with said basket top, a lever pivoted to said cylinder and controlling movement of said head against the action of said resilient means, a base for said cylinder, a foot lever pivoted to said base, connections between the intermediate portions of both levers, means carried by said bottom and intermediate basket portion to center a can in said basket, and air-conducting means between said cylinder and said bottom.

25. A can straightening machine including a pressure cylinder, a can basket removably positioned upon said cylinder, an apertured bottom for said basket, an apertured top therefor, an intermediate portion connecting said bottom and top, a rod slidable through said top, a recessed gripping head carried by said rod, means normally maintaining said head in contact with said basket top, a lever pivoted to said cylinder and controlling movement of said head against the action of said resilient means, a base for said cylinder, a foot lever pivoted to said base, connections between the intermediate portions of both levers, means carried by said bottom and intermediate basket portion to center a can in said basket, air conducting means between said cylinder and said bottom, and a manually operable valve lever interposed on said air conducting means to control the admission and exhaust of air into and from said basket.

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

JACQUES J. KIRKBY.

Witnesses:
WILLIAM C. EARL,
JAMES WASSINK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."