

Feb. 18, 1936.

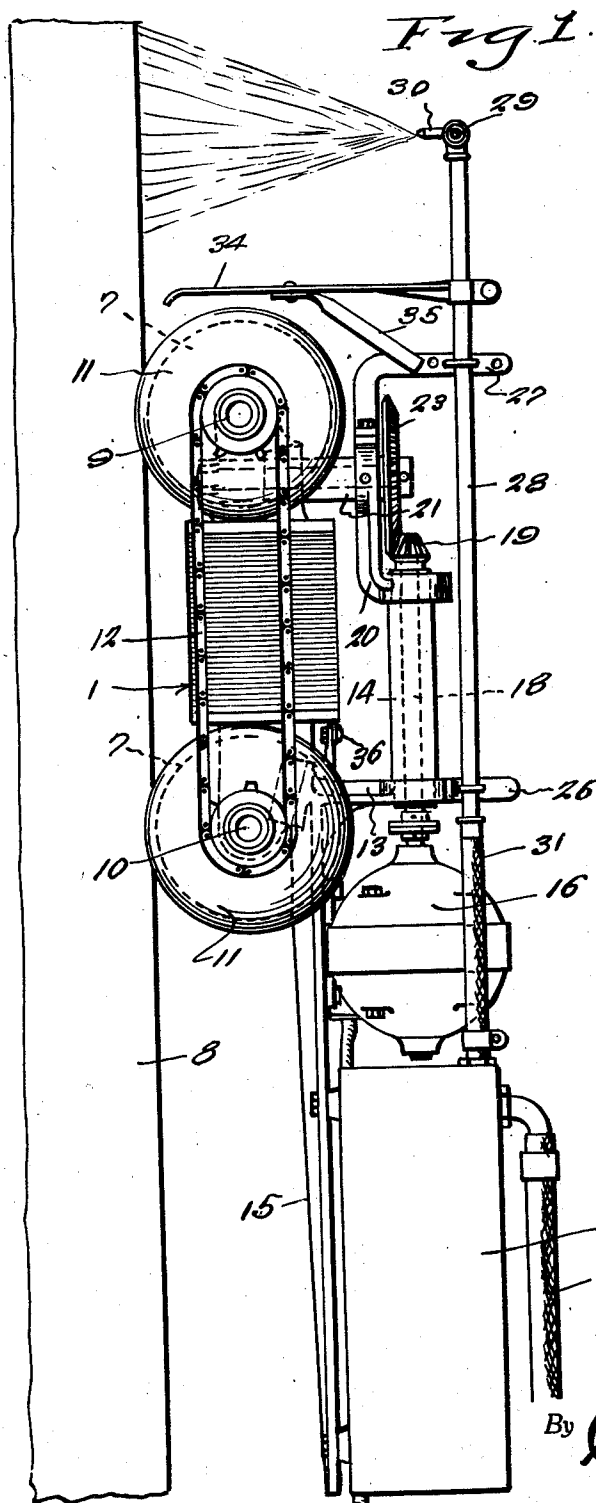
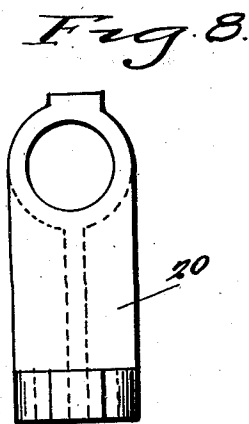
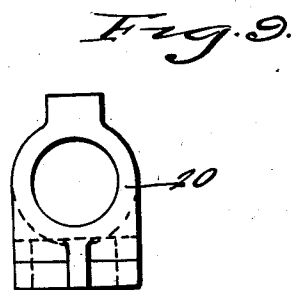
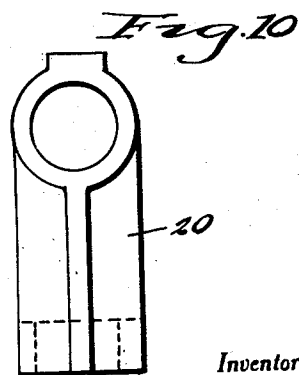
J. W. ALLEN

2,030,840

SMOKESTACK PAINTER

Filed Aug. 1, 1934

3 Sheets-Sheet 1



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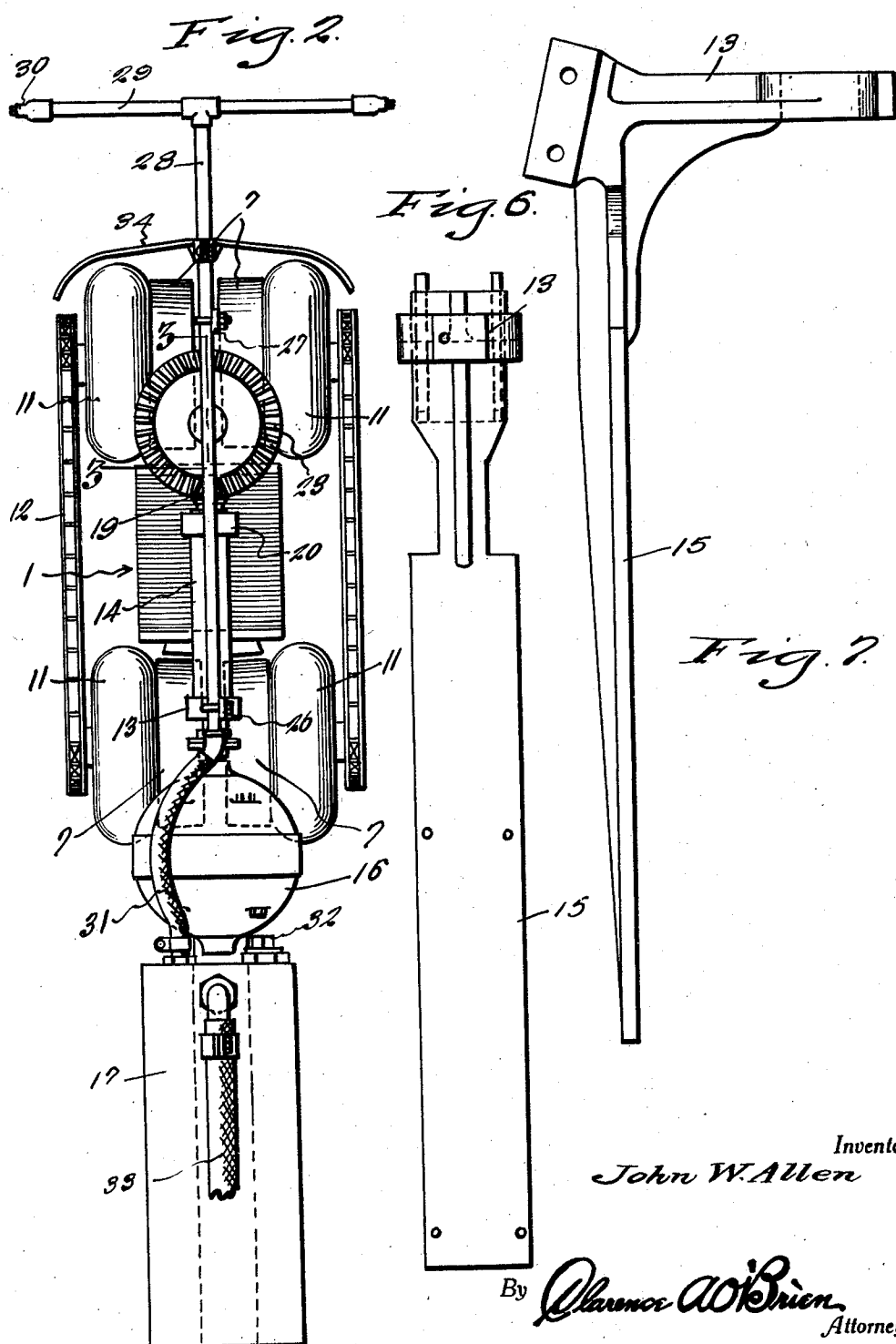
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SMOKESTACK PAINTER

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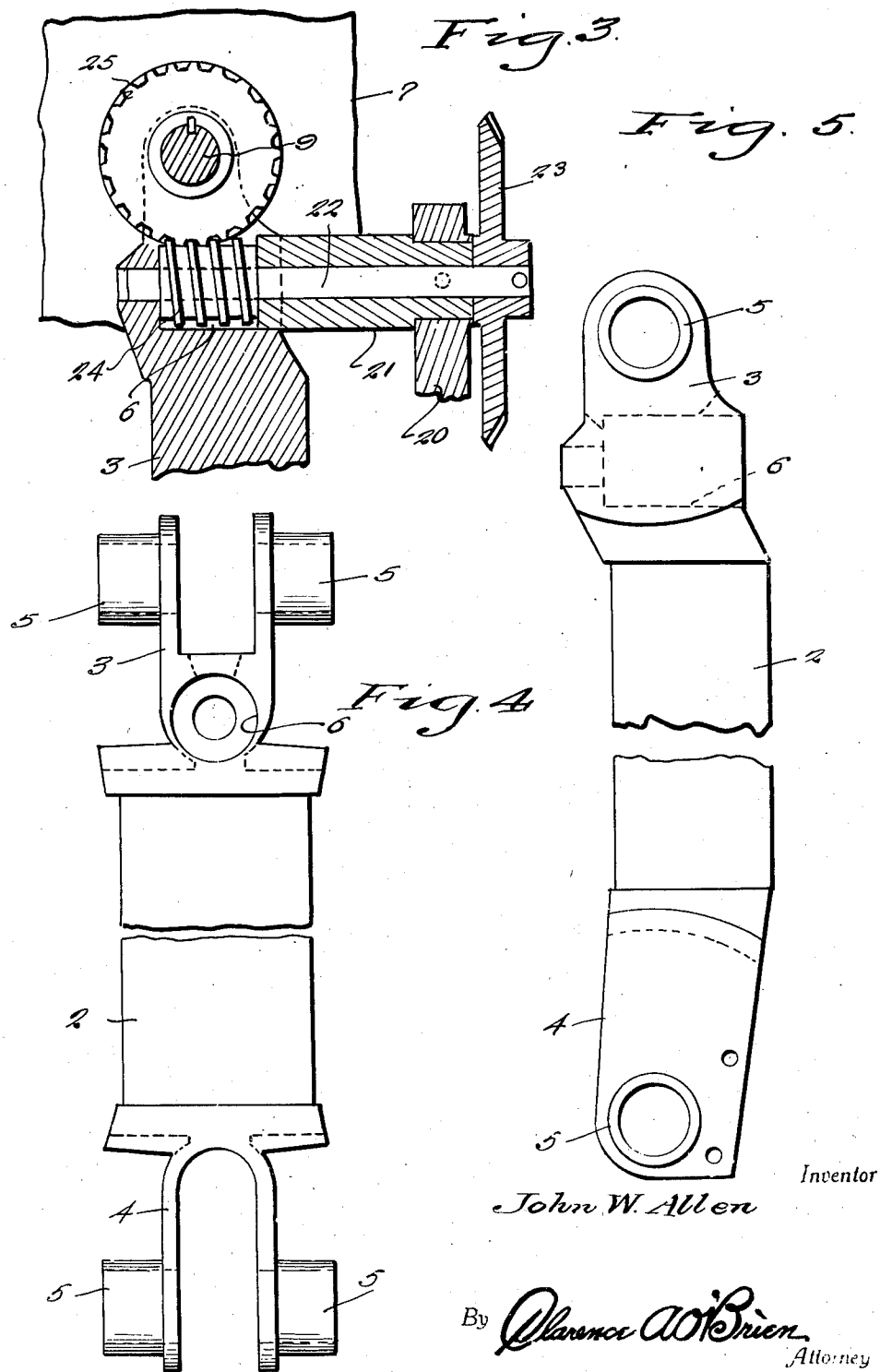
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J. W. ALLEN
SMOKESTACK PAINTER

2,030,840

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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

2,030,840

SMOKESTACK PAINTER

John Walter Allen, Greenwood, Miss., assignor of
forty-nine per cent to W. M. Blain, Greenwood,
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Application August 1, 1934, Serial No. 737,994

1 Claim. (Cl. 91—18)

The present invention relates to new and useful improvements in machines for painting smoke stacks and other metal surfaces and has for its primary object to provide a novel construction, combination and arrangement of parts through the medium of which the machine will climb the stack or other surface under its own power.

Other objects of the invention are to provide a painting machine of the aforementioned character which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact, light in weight and which may be manufactured and operated at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in side elevation of a painting machine constructed in accordance with the present invention, showing the same in operation on a stack.

Figure 2 is a view in front elevation thereof.

Figure 3 is a view in vertical section through the drive gears, taken substantially on the line 3—3 of Figure 2.

Figure 4 is a view in front elevation of the core of the electromagnet which also constitutes the frame or chassis of the machine.

Figure 5 is a view in side elevation of the magnet core.

Figure 6 is a detail view in front elevation of the support for the motor and the paint container.

Figure 7 is a detail view in side elevation of the motor and paint container support.

Figure 8 is a detail view in front elevation of the bracket which supports the gear assembly.

Figure 9 is a detail view in bottom plan of the member shown in Figure 8.

Figure 10 is a detail view in rear elevation of the member shown in Figures 8 and 9.

Referring now to the drawings in detail, it will be seen that the embodiment of the present invention which has been illustrated comprises an electro-magnet which is designated generally by the reference numeral 1. As illustrated to advantage in Figures 4 and 5 of the drawings, the core 2 of the electro-magnet has mounted on its ends yokes 3 and 4 the legs of which are provided with aligned spindles 5 of tubular form. The right portion of the yoke 3 is further provided with a counterbored opening 6, the purpose of which will be presently set forth. Journaled on

the trunnions 5 are magnetic wheels 7 which support the machine on the metallic stack 8 or other metal surface which is being painted.

The tubular spindles 5 constitute bearings in which transverse shafts 9 and 10 are journaled, said shafts 9 and 10 having fixed thereon pneumatic tire equipped traction wheels 11. The traction wheels 11 are operatively connected with each other by chain and sprocket connections 12.

Mounted on the lower yoke 4 is a bracket 13 in which a substantially sleeve-like bearing 14 is mounted. The bracket 13 includes an integral hangar 15 upon which a reversible electric motor 16 and a container 17 are mounted, the container 17 being for the reception of the paint. The motor 16 drives a shaft 18 which is journaled in the bearing 14 and which has fixed on the upper end a pinion gear 19. Mounted on the upper end portion of the bearing 14 is an angular bracket 20 having mounted therein a bearing 21 in which a shaft 22 is journaled, one end portion of the bearing 21 being engaged in the opening 6 of the upper yoke 3. One end portion of the shaft 22 is journaled in the reduced inner end portion of the opening 6. This is best seen in Figure 3 of the drawings. Fixed on the outer end of the shaft 22 is a comparatively large beveled gear 23 which is in mesh with the gear 19. Fixed on an inner portion of the shaft 22 and operable in the opening 6 is a worm 24 which is operatively engaged with a worm gear 25 which is keyed on the shaft 9. It will thus be seen that the drive or traction wheels 11 are operatively connected to the electric motor 16 for actuation thereby.

Extension brackets 26 and 27 are mounted on the brackets 13 and 20, respectively, for supporting a spray pipe 28 having a T-head 29 on its upper end which is provided with spray nozzles 30. The lower end of the pipe 28 is connected to the top of the paint container 17 by a flexible conduit 31. It may be well to here mention that the container 17 is air tight and provided with a filling cap 32. Air under pressure from a suitable source of supply is introduced into the container 17 through a flexible conduit 33.

Mounted on an upper portion of the pipe 28 is a horizontally extending shield 34 which protects the machine from the paint. The reference numeral 35 designates a brace for the shield 34. The conductor wires are connected to the electro-magnet 1 as at 36.

In operation, the machine is placed in position on the stack and the electro-magnet 1 is energized for holding the machine to the stack through the medium of the wheels 7. Then, the reversible

electric motor 16 is energized for driving the traction wheels 11 for causing the machine to climb the stack or to lower itself on said stack. By using an electric motor of the reversible type 5 the machine may be caused to move back and forth over horizontal surfaces if desired. When the air under pressure is injected into the container 17, the paint therein is ejected through the flexible conduit 31, the pipe 28, etc., and 10 sprayed by the nozzles 30 on the work as clearly indicated in Figure 1 of the drawings. While the magnetic wheels 7 will adhere to the surface of the stack at all times when energized, the traction wheels 11 may be regulated for engagement 15 with the surface of stacks of different curvatures by regulating the air pressure in the pneumatic tires of said traction wheels 11.

It is believed that the many advantages of a painting machine constructed in accordance with 20 the present invention will be readily understood, and although a preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall 25 within the scope of the invention as claimed.

What is claimed is:—

A climbing machine comprising an electro-magnet including a core, yokes on the ends of said core, tubular spindles projecting laterally from the yokes, magnetic wheels journaled on said tubular spindles and magnetically connected with the magnet, shafts journaled in the tubular spindles, traction wheels fixed on the shafts, an electric motor supported on the electro-magnet, and means operatively connecting the traction 10 wheels to said electric motor, said means including a bracket mounted on the electro-magnet, a bearing mounted in said bracket, a shaft journaled in said bearing and operatively connected to the electric motor for actuation thereby, an angu- 15 lar bracket mounted on said bearing, a bearing mounted on the second-named bracket at right angles to the first-named bearing, a shaft journaled in the second-named bearing, gears operatively connecting the second and third- 20 named shafts, a gear fixed on one of the first-named shafts in one of said yokes, and a gear fixed on the third-named shaft and operatively engaged with the third-named gear.

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