

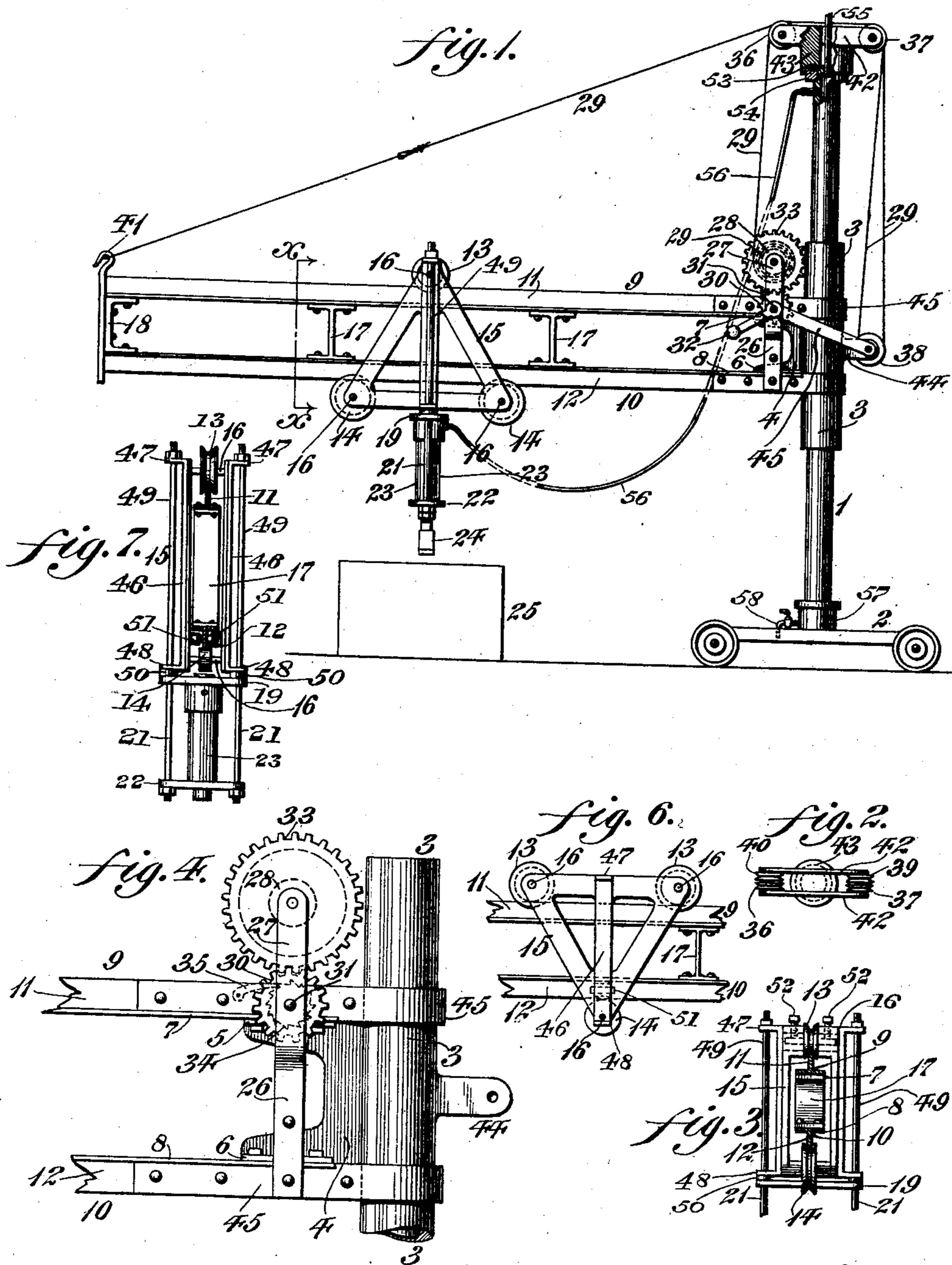
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Patented June 3, 1902.

H. G. KOTTEN.
PNEUMATIC SURFACER FRAME.

(Application filed July 17, 1901.)

(No Model.)



Witnesses

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Fig. 5.

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UNITED STATES PATENT OFFICE.

HERMAN G. KOTTEN, OF NEW YORK, N. Y.

PNEUMATIC-SURFACER FRAME.

SPECIFICATION forming part of Letters Patent No. 701,580, dated June 3, 1902.

Application filed July 17, 1901. Serial No. 68,592. (No model.)

To all whom it may concern:

Be it known that I, HERMAN G. KOTTEN, of the city, county, and State of New York, have invented a new and useful Improvement in
5 Pneumatic-Surfacers, of which the following is a specification.

My invention relates to a novel construction of a pneumatic-surfacers frame; and it consists in an improved machine for dressing
10 large or small surfaces of granite or other hard stone, said machine having a portable crane provided with a laterally-extending arm, on which travels a carriage securely holding a pneumatic tool of the Kotten or
15 similar type, which can be readily guided at the will of the operator.

My invention also consists of the novel construction of a carriage adapted to travel on said arm and novel means for securing the
20 pneumatic tool thereto.

It also consists of the novel manner of constructing the laterally-extending arm which supports said carriage, said arm being composed of a T-shaped beam whose flanges are
25 so constructed as to form a track upon which the carriage carrying the pneumatic tool travels.

It also consists of the novel construction of mechanism for raising and lowering said arm.
30 It further consists of novel details of construction, all as will be hereinafter fully set forth, and specifically pointed out in the claims.

Figure 1 represents a side elevation of a
35 pneumatic-surfacers frame embodying my invention. Fig. 2 represents a plan view of the upper right-hand portion of Fig. 1. Fig. 3 represents a section on line *x x*, Fig. 1. Fig. 4 represents, on an enlarged scale, a side elevation of a portion of the mechanism for raising and lowering the laterally-extending rotatable arm. Fig. 5 represents a plan view of a plate employed to support the pneumatic tool. Figs. 6 and 7 represent side and end
45 elevations of the tool-carriage and its adjuncts.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a post
50 mounted on any suitable movable bed or support 2, said post carrying the sleeve 3, which is movably mounted thereon, to which sleeve is

attached the bracket 4, which has the upper and lower flanges 5 and 6, which are bolted or otherwise secured to the contiguous flanges 7
55 and 8, respectively, of the upper and lower T-beams 9 and 10, whose upper and lower flanges 11 and 12, respectively, form an arm having a track for the upper and lower trolleys or rollers 13 and 14 of the carriage 15, which latter
60 is composed of suitable angular or other shaped sides of substantially the contour seen in Figs. 1 and 6, which are held in assembled position by the pins 16 or similar devices, which form the journals for the trolleys 13
65 and 14. It will be understood that I may employ the form of carriage seen in Fig. 1, where one trolley is shown as traveling on the track 11 and two trolleys on the track 12, or I may employ two trolleys on the track 11
70 and one trolley on the track 12, as seen in Fig. 6, without departing from the spirit of my invention. The upper and lower tracks 11 and 12 are spaced at their intermediate portions by means of the angle or other irons
75 17 and at their ends by the angle-iron 18, whereby a very stiff and rigid structure is obtained. The carriage 15 has secured to the lower portion thereof the plate 19, having the openings 20 therein, through which pass the
80 rods 21, which support at their lower extremities the plate 22, through which passes and is sustained the pneumatic or other tool 23, which may be the well-known type of tools for dressing large or small surfaces on granite
85 or other hard stone, such as the "Kotten" pneumatic tool, manufactured under prior patents granted to me, said tool being provided with a suitable chisel 24, below which is shown a block of stone 25.
90

26 designates arms secured to the T-beams 9 and 10 by any suitable means, said arms having the extensions 27, in which is rotatably mounted the drum 28, which has one end of the cord 29 connected thereto.
95

30 designates a pinion mounted on the bearing 31 and actuated by the handle 32, said pinion meshing with the gear 33, which is mounted on the same shaft as the drum 28, so that the pinion 30, gear 33, and drum 28
100 all rotate in unison, while the ratchet and pawl 34 and 35, respectively, prevent improper rotation of the above parts, as is evident, said ratchet being attached to or mounted so as to

rotate in unison with the pinion 30. The cord 29 passes from the drum 28 over the roller 36, thence over the roller 37, thence over the roller 38, thence over the roller 39, and over the roller 40 to the extremity of the T-beams 11 and 12, where it is secured in any convenient manner, as by the hook 41. The rollers 36, 37, 39, and 40 are mounted in the arms 42, which are carried by the cap 43, which is free to turn upon the top of the post 1, although it will be evident that other equivalent means of supporting said rollers may be employed, if desired.

In practice I journal the roller 38 in suitable bearings in the lug or lugs 44, from which extend the braces 45 to the arms 26, as is evident.

The operation is as follows: The arm, composed of the beams 9 and 10 and their adjuncts, can be readily swung on the post, and the carriage carrying the pneumatic tool can be moved along said arm according to requirements, it being of course understood that the compressed air or other motive fluid is conducted to the pneumatic tool from any desired source. (Not shown.) When it is desired to raise or lower the pneumatic tool, this can be readily effected by rotating the pinion 30 to the desired extent, whereupon the cord 29 will be wound or unwound upon the drum 28 to the desired extent, as will be understood from Figs. 1, 2, and 4, and the laterally-extending arm carrying the carriage and pneumatic tool can be readily and expeditiously raised, lowered, or moved in a horizontal direction to the desired extent by the most unskilled labor, as is evident. The pawl 35 prevents improper movement of the pinion 30 and its adjuncts, and the carriage 15 can be readily moved toward or away from the post 1, as is evident.

Under proper conditions my novel machine will peen and bush from fifty to eighty superficial feet of surface per day after the stone has been pointed off within one inch of the required surface. The work done with this machine is more uniform than handwork, and the commonly-called "sun-raking" can be entirely avoided.

It will be understood that the form of frame or frames constituting the carriage 15 can be varied and the same may be constructed and assembled differently from that shown without departing from the spirit of my invention.

In the preferred form of my invention I construct the carriage for the pneumatic tool substantially as shown in Figs. 6 and 7, wherein it will be seen that I secure to each side of the carriage 15 a strip 46, having the upper and lower flanges 47 and 48, respectively, through which passes the upper extension 49 of the rod 21, the latter having the lug 50 thereon, which spaces the flange 48 from the plate 19. It will also be seen in Figs. 6 and 7 that I make the lower roller without a groove, so that the same travels

directly upon the lower edge of the flange or track 12, while undue lateral movement of the carriage 15 is prevented by means of the rollers 51, which revolve in suitable bearings on the lower portion of the carriage and are located one on each side of the track 12, as will be understood from Fig. 7. It will thus be seen that the yoke formed by the plates 19 and 22 and the rods 21 affords a ready and convenient means for supporting and affording access to the tool 22.

When the construction of flange seen in Fig. 3 is employed, I may, if desired, employ adjusting-screws 52, whereby the bearings for the pin 16 can be raised or lowered in any well-known manner, which I have not deemed it necessary to describe in detail, as this construction will be familiar to those skilled in this art. I have found it desirable in practice to mount the cap 43 upon the ball-bearings 53, which roll or are supported on the collar 54, as will be understood from Fig. 1. I also in practice utilize the hollow upright or post 1 as a compressed-air reservoir and lead the compressed air thereto by the connection 55, the compressed air or other motive fluid being conducted to the tool by the pipe 56 and any entrained water or extraneous matter falling to the lower portion 57 of the hollow post or reservoir 1 and being withdrawn by the drip-cock 58.

So far as I am aware I am the first to utilize the supporting part, as 1, in an apparatus of this character as a compressed-air reservoir and to take the compressed air therefrom directly to the tool 23, and my claims to this feature are therefore to be interpreted as of corresponding scope.

It will be apparent that various changes may be made in the art which may come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact construction I have herein shown and described.

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

1. A post, an arm rotatably mounted thereon, a drum carried by said arm, rollers carried by said post and arm, a connection passing around said rollers and leading from an end of said arm to said drum, and means for rotating the latter, in combination with a carriage mounted on said arm, trolleys on the upper and lower portion of said carriage adapted to contact with tracks on said arm, and a set of rollers mounted in the lower portion of said carriage and adapted to contact with the lower of said tracks.

2. The combination of a post, an arm secured to a sleeve rotatably mounted thereon, a carriage movably supported on said arm, a drum carried by said arm, rollers carried by said post, a roller secured to bearings on said sleeve, said bearings projecting therefrom in an opposite direction to said arm, a connection passing around each of said rollers and

leading from an end of said arm to said drum, and means for rotating the latter.

3. In a surfacer-frame, a post, a sleeve surrounding said post and adapted to be moved thereupon, an arm projecting from said sleeve, and secured thereto, tracks formed on the upper and lower surfaces of said arm, a carriage movable upon said tracks, said carriage having strips on either side thereof, rods supported by said strips, plates carried by said rods, a pneumatic tool supported upon said plates and means for raising and lowering said arm.

4. In a surfacer-frame, a post, an arm projecting laterally therefrom, means for enabling said arm to be turned on said post, a cap rotatably mounted on said post, rollers mounted on said cap, a drum mounted on said arm, a connection leading from an end of said arm to said drum and passing over said rollers, a carriage movable on said tracks and having strips on either side thereof, rods supported by said strips, plates carried by said rods and a pneumatic tool supported between said plates.

5. In a surfacer-frame, a post, an arm rotatably mounted thereupon, said arm consisting of a plurality of T-beams braced at intervals throughout their length, the central flanges of the upper and lower T-beams facing upwardly and downwardly respectively and forming a track, a carriage having trolleys at its upper and lower portion and adapted to travel on said track and means for raising and lowering said arm.

6. In a surfacer-frame, a post, an arm rotatably mounted thereupon, said arm consisting of a plurality of T-beams braced at intervals throughout their length, the central flanges of the upper and lower T-beams facing upwardly and downwardly respectively and forming a track, a carriage having trolleys at its upper and lower portion and adapted to travel on said track and means for raising and lowering said arm, in combination with a pneumatic tool supported by said carriage.

7. In a surfacer-frame, a post, a cap rotatably mounted thereon, and carrying a plurality of rollers, a sleeve rotatably mounted on said post, an arm projecting from said sleeve and having a track thereon, a carriage adapted to travel upon said track, a drum mounted on said arm, a roller carried by said sleeve, rollers journaled in said carriage, and bearing against said track for preventing lateral motion and a connection secured to one end of said arm, and passing around said rollers to said drum, in combination with a pneumatic tool carried by said carriage, and means for rotating said drum.

8. The combination of a laterally-extending arm, having an upper and lower track thereon, a carriage movable on said tracks, strips on either side of said carriage, rods supported by said strips, plates carried by said rods and a pneumatic tool supported between said plates.

9. The combination of a laterally-extending rotatable arm, having tracks thereon, a carriage mounted on said tracks, a roller carried on the lower portion of said carriage and adapted to contact with the lower one of said tracks, other rollers carried by said carriage and adapted to contact with the opposite sides of said lower track, said carriage having strips on either side thereof, rods supported by said strips, plates carried by said rods and a pneumatic tool supported between said plates.

10. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a collar on the upper portion of said post, a cap rotatably mounted on said collar, ball-bearings intermediate said cap and collar, an inlet-pipe for compressed air leading through said cap to said reservoir, rollers journaled in said cap, a sleeve rotatably mounted on said post, an arm projecting from said sleeve, a drum supported upon said arm, and a connection leading from a point at or near the extremity of said arm around said rollers to said drum.

11. The combination of a post, a laterally-extending arm rotatably mounted thereupon and having an upper and lower track thereon, a carriage movable upon said tracks, strips on either side of said carriage, rods supported by said strips, plates carried by said rods, a pneumatic tool supported between said plates, a drum carried by said arm, rollers carried by said post, a connection passing around said rollers, and leading from said arm to said drum and means for rotating the latter.

12. The combination of a post, a sleeve rotatably mounted thereon, an arm secured to said sleeve and consisting of upper and lower I-beams, a bracket 4 interposed between the inner ends of said beams, braces 17 and 18 interposed between the intermediate and outer ends of said beams, arms 26 secured to said beams near their inner extremities and provided with a gear-wheel and drum rotatably mounted therein, ratchet-and-pawl mechanism for operating said drum, lugs 44 projecting from said sleeve in a direction opposite to said beam, a roller mounted in said lugs, braces 45 extending from said lugs 44 to said arms 26, a cap rotatably mounted on the upper portion of said post, rollers carried by said cap, a connection from said drum passing around the rollers carried by said cap, thence under the roller carried by said lugs and thence over another set of rollers carried by said cap, said connection having one end secured to the extremity of said arm and the other extremity adapted to be wound upon said drum and a carriage mounted on said arm.

13. The combination of a post, a sleeve rotatably mounted thereon, an arm projecting laterally from said sleeve and having tracks thereon, a roller mounted on said sleeve and extending in a direction opposite to said arm, a drum carried by said arm, a cap rotatably mounted on the upper portion of said post, two series of rollers carried by said cap and a

connection extending from said drum around one pair of the rollers carried by said cap, thence downwardly around the roller carried by said sleeve, thence upwardly over the other set of rollers carried by said cap, the outer extremity of said connections being secured to an end of said arm.

14. The combination of a post, a sleeve rotatably mounted thereon, an arm projecting laterally from said sleeve and having tracks thereon, a roller mounted on said sleeve and extending in a direction opposite to said arm, a drum carried by said arm, a cap rotatably mounted on the upper portion of said post, two series of rollers carried by said cap, a connection extending from said drum around one pair of the rollers carried by said cap, thence downwardly around the roller carried by said sleeve, thence upwardly over the other set of rollers carried by said cap, the outer extremity of said connections being secured to an end of said arm, and a carriage mounted on said tracks adapted to support a pneumatic tool.

15. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a sleeve rotatably mounted on said post, an arm projecting laterally from said sleeve and adapted to support a carriage for a pneumatic tool, a roller mounted on said sleeve, a cap rotatably supported on the upper portion of said post, a drum carried by said arm, a plurality of sets of rollers carried by said cap, a connection leading from said drum around one set of rollers in said cap, thence around the roller carried by said sleeve, thence upwardly over the other set of rollers carried by said cap, the outer extremity of said connection being secured to an end of said arm.

16. The combination of a post, an arm rotatably mounted thereon and having upper and lower tracks thereupon, a carriage movable on said tracks and consisting of triangular-shaped frames, rollers journaled in the apices of said frames, strips secured to either side of said carriage, rods supported in said strips, plates carried by said rods and a pneumatic tool supported between said plates.

17. The combination of a post, an arm rota-

tably mounted thereon and having upper and lower tracks thereupon, a carriage movable on said tracks and consisting of triangular-shaped frames, rollers journaled in the apices of said frames, strips secured to either side of said carriage, rods supported in said strips, plates carried by said rods and a pneumatic tool supported between said plates, in combination with rollers mounted in the lower portion of said carriage on either side of said lower track, said rollers being adapted to contact with said track and prevent undue lateral motion of said carriage.

18. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a laterally-extending arm rotatably mounted on said post and having tracks thereon, a carriage movable on said tracks, rods suitably supported from said carriage, plates carried by said rods, a pneumatic tool supported between said plates and a hose leading from said post to said pneumatic tool.

19. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a laterally-extending arm rotatably mounted on said post and having tracks thereon, a carriage movable on said tracks, rods suitably supported from said carriage, plates carried by said rods, a pneumatic tool supported between said plates and a hose leading from said post to said pneumatic tool, in combination with means for raising and lowering said arm and carriage.

20. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a laterally-extending arm rotatably mounted on said post, a carriage movable on said arm, rods supported from said carriage, plates carried by said rods, a pneumatic tool supported between said plates, a hose leading from said post to said pneumatic tool, a drum carried by said arm, rollers carried by said post and a connection leading from the end of said arm around said rollers to said drum.

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Witnesses:

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