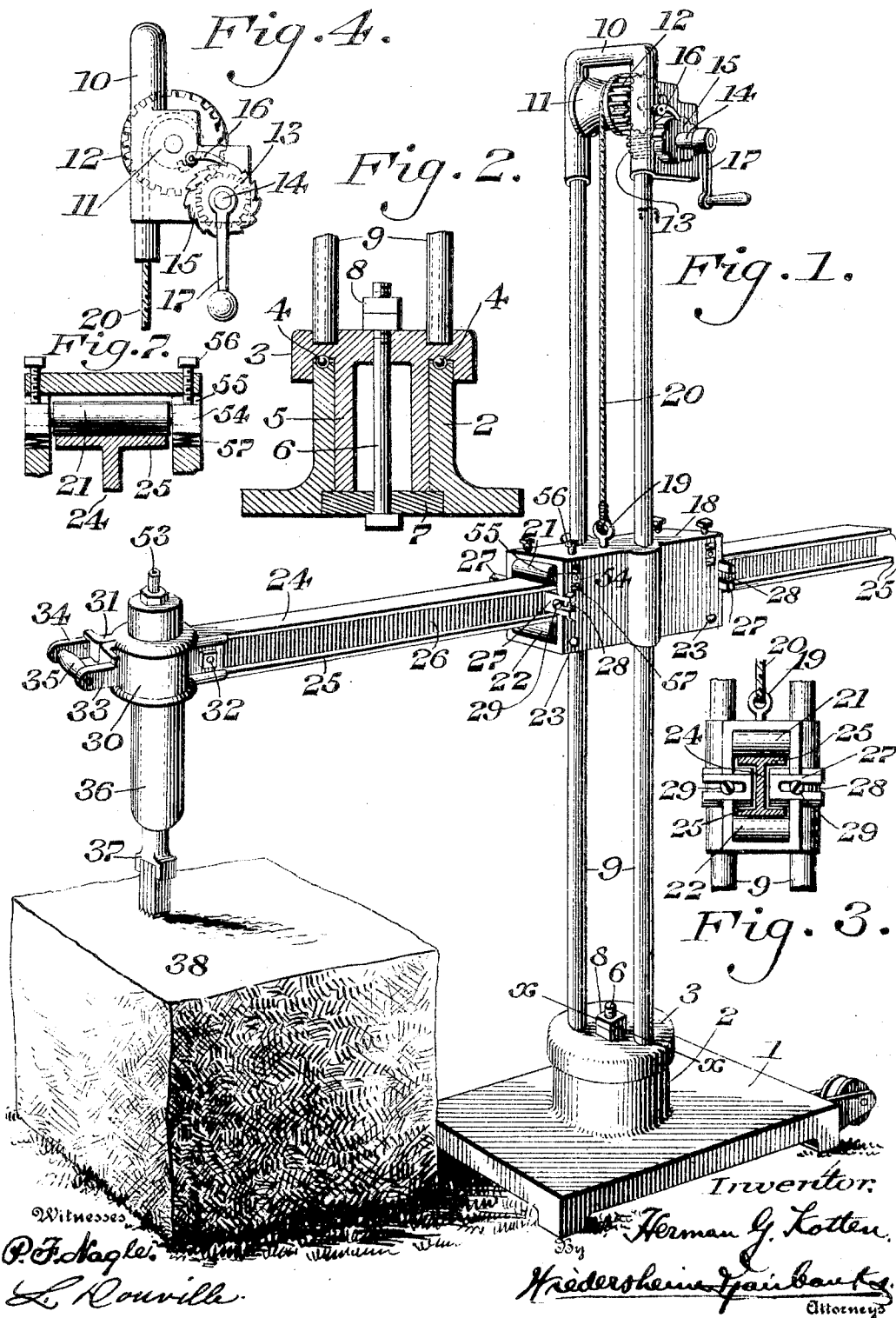


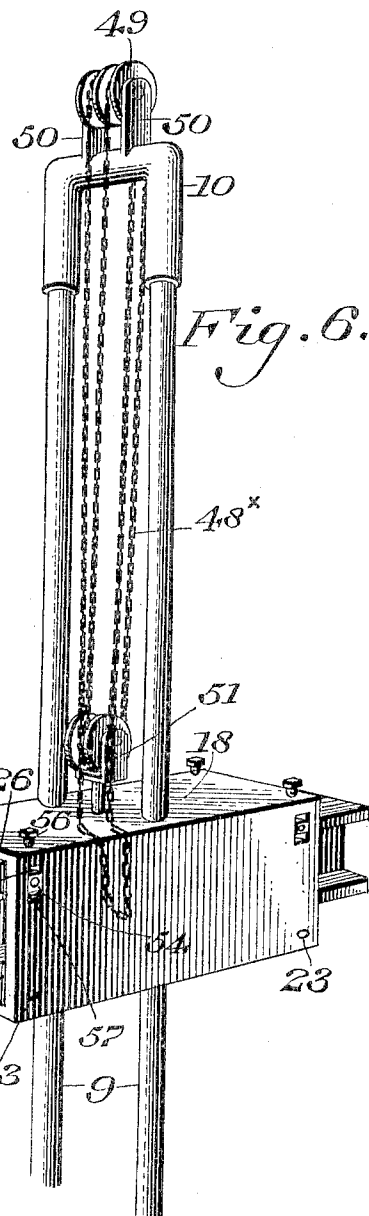
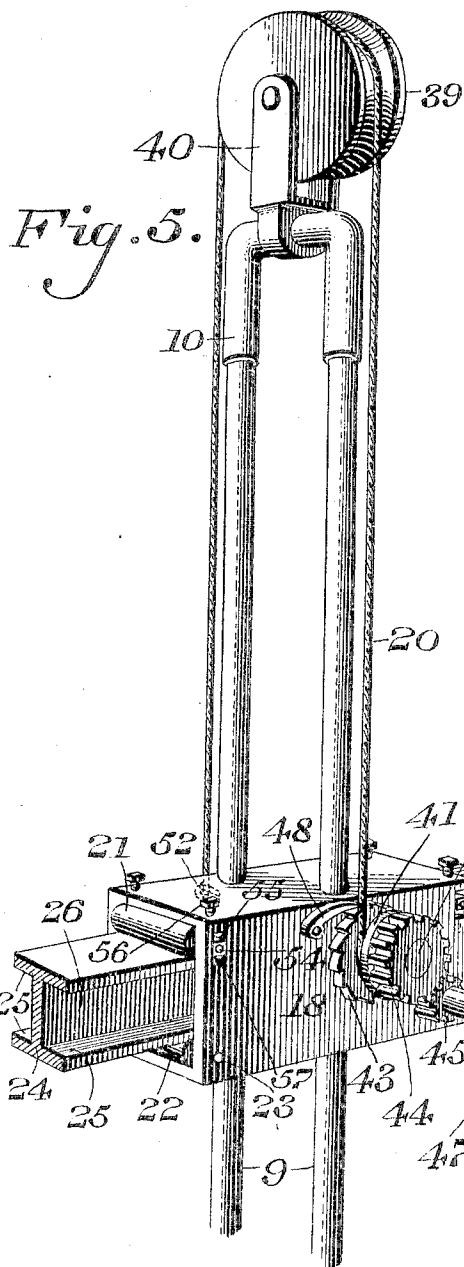
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PNEUMATIC SURFACER FRAME.  
APPLICATION FILED MAY 3, 1905.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## PNEUMATIC-SURFACER FRAME.

No. 802,457.

Specification of Letters Patent.

Patented Oct. 24, 1905.

Application filed May 3, 1905. Serial No. 258,736.

*To all whom it may concern:*

Be it known that I, HERMAN G. KOTTEN, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Pneumatic-Surfacer Frame, of which the following is a specification.

My invention consists of a novel construction of a pneumatic-surfacer frame in which a pneumatic tool of the Kotten or similar type is suitably secured to a laterally-extending arm which is movably mounted in an adjustable carrier, the present invention more particularly relating to the simplifying and cheapening of the prior devices employed, whereby I am enabled to dispense with complicated hoisting and lowering mechanism and can reduce the expense of construction to a minimum.

It also consists of a novel construction of a carrier provided with adjustable guide-plates and in novel means for rotatably supporting, raising, and lowering the carrier.

It also consists of a novel construction of rotatable post composed of a plurality of uprights on which the carrier is vertically adjustable, the extremities of said uprights being assembled and secured in a novel manner.

It further consists of other novel features of construction, all as will be hereinafter set forth.

Figure 1 represents a perspective view of a pneumatic-surfacer frame embodying my invention. Fig. 2 represents a sectional view on line *xx*, Fig. 1. Fig. 3 represents an end elevation of the carrier and its adjuncts, showing the arm carried thereby in section. Fig. 4 represents a side elevation of the hoisting mechanism. Figs. 5 and 6 represent perspective views of other embodiments of my invention. Fig. 7 represents a section of the roller-bearings.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates the base or bed provided with a boss or upwardly-extending hollow bearing or projection 2, between which and the cap 3 are ball-bearings 4.

5 designates a depending sleeve on the cap 3, adapted to fit and have its bearing within the boss 2.

6 designates a bolt the shank of which is adapted to pass through the plate 7 and through the cap 3 and is provided with the nuts 8, whereby the relation of the cap and the base is properly adjusted.

9 designates rods or uprights mounted on the cap 3, held together at their upper ends by the bracket 10, on which is mounted a drum 11, having secured thereto a gear 12, adapted to engage a pinion 13, mounted on a shaft 14, to which is fixed a ratchet 15, adapted to coact with a pawl 16 to prevent improper rotation of said drum 11, said shaft 14 being adapted to be actuated by means of the handle or crank 17, secured thereto.

18 designates a carrier mounted on the uprights 9, which pass therethrough, said carrier being provided with a hook, eyebolt, or equivalent device 19, to which is secured one end of a flexible connection 20, the other end thereof being suitably secured to the drum 11, whereby the carrier is raised and lowered as desired by the rotation of said drum.

21 and 22 designate upper and lower rollers mounted on bearings 23 in the carrier 18 and between which is adapted to move a laterally-extending arm 24, preferably composed of an I-beam having upper and lower flanges 25 extending outwardly therefrom, forming channels or grooves 26, with which the guides or guide-plates 27 are adapted to engage.

28 designates a slot in the guides 27, which are provided with screws or bolts 29, whereby said guides are adjustably secured to the carrier 18.

30 and 31 designate two clamping members suitably secured to the arm 24, as by a bolt 32, and having projecting portions 33 and 34, in the forward portion of which is located a handle 35, said members 30 and 31 supporting a pneumatic tool 36, which may be constructed according to any approved type; but I preferably construct the tool in accordance with the prior Kotten patents heretofore granted to me for stone-dressing tools.

The pneumatic tool 36 is provided with a working tool 37 of any approved or suitable type, which is adapted to be used on the block of stone or other material 38. In the embodiment shown in Fig. 5 instead of mounting the gearing of the hoisting mechanism on the bracket 10 or its equivalent it is mounted on the carrier 18, and instead of mounting the ratchet on the shaft 14 I mount it on the same shaft as the gear corresponding to the gear 12, heretofore referred to.

39 designates a pulley mounted in the ears or other supports 40, secured to the bracket 10, and over which the flexible connection 20 passes to the drum 41, mounted on the shaft 42, on which is also carried a ratchet 43 and

a gear 44, said gear engaging with a pinion 45, mounted on the shaft 46, which is actuated by the handle 47, said ratchet 43 coacting with a pawl 48, secured to the carrier 18, whereby improper rotation of the drum 41 is prevented.

In the embodiment shown in Fig. 6 I employ a chain-hoist 48<sup>x</sup>, the upper pulleys 49 being mounted in the ears or support 50 of the bracket 10, the lower pulleys being mounted in a support 51, secured to the carrier 18, the chains of the hoist 48 passing on either side of the bracket 10. I have deemed it unnecessary to describe in greater detail the construction and operation of the chain-hoist, as the same will be familiar to those skilled in this art.

It is obvious that the flexible connection 20 may be secured to the carrier 18 by an eye-bolt, as seen in Fig. 1, or by a hook 52, as seen in Fig. 5, or by other means, and that the gearing of the hoisting mechanism may be secured to either the bracket 10 or the carrier 18 without departing from the spirit of my invention.

The operation is as follows: The operator by means of the handle 35 can move the pneumatic tool as desired over the block of stone or other material which is being dressed, the laterally-extending arm 24 permitting the tool to be moved toward or away from the operator. As the cap 3, to which the uprights 9 are secured, is mounted on ball-bearings on the base 1, it is apparent that the tool may be very easily rotated as desired, it being understood that motive fluid is led from any desirable source to the pneumatic tool, as at 53, in order to actuate the same. When it is desired to raise or lower the tool, this can be easily and readily done by actuating the handle 17 or by means of the chain-hoist 48<sup>x</sup>, as seen in Fig. 6, whereupon the carriage 18, the laterally-extending arm 17 carried thereby, as well as the tool secured to said arm, will be correspondingly raised or lowered, the pawls 16 and 48 preventing improper movement of the drums 11 and 41.

It will be clear from the foregoing that in my present invention the bed and its adjuncts are adapted to be conveniently shifted to different points in a stone-yard, since the concrete unitary device is light and portable and capable of being readily moved by a single operator to the desired points.

By the novel construction of supporting-post, which in the present instance is composed of a plurality of rods 9, secured at their upper and lower extremities, a frame of great stiffness and rigidity is obtained, which is at the same time light and portable.

By the provision of the rotatable cap 3, provided with the ball-bearings and the inwardly-extending bearing-sleeve 5, it will be apparent that upon loosening the bolts 8 the carrier, cap, uprights, and laterally-extending arm

can be quickly adjusted to the desired extent and upon tightening the bolts 8 the arm 25 and the tool 36 can be moved toward and away from the uprights in a rectilinear line, according to requirements.

By the provision of the guide-plates 27 and their adjuncts, which are arranged so as to cooperate with the laterally-extending arm, any binding of the arm in its movements is prevented, as is evident.

By constructing the laterally-extending arm of an I-beam or T-beam a device of great stiffness and rigidity is obtained which is very essential in devices of this character, since it is necessary that the outer extremity of the arm which carries the pneumatic tool must not sag, but must travel always in substantially the same horizontal plane.

I have found in practice that the work done by my novel machine is more uniform than hand-work, and the machine is particularly adapted for use in a quarry for dressing granite and other hard stone, leaving it free from all waves and imperfections, and it is also used with the best of results where large building operations in stone are in progress, where it effects a great saving in time and labor by finishing the large stone used in the construction-work.

So far as I am aware I am the first in the art to produce a concrete unitary structure embodying the combination of a plurality of uprights secured at their lower extremities to a rotatable cap provided with bearings, as described, and having a carrier guided at two points upon the rods or uprights, as 9, and my claims to these features are therefore to be interpreted with corresponding scope.

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

In practice I prefer to mount the upper rollers 21 in journal-boxes 54, adapted to move in slots 55, and having screws 56 for the adjustment of the boxes, the latter preferably resting on the springs 57.

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

1. In a surfacer-frame, a base, a cap rotatably mounted thereon, a plurality of uprights secured to said cap, a carrier movably mounted on said uprights, an arm having a pneumatic tool secured thereto, said arm being laterally movable in said carrier and means for raising and lowering said carrier.

2. In a surfacer-frame, a base, a bearing thereon, a cap rotatably mounted on said bearing, ball-bearings for said cap, uprights secured to said cap, a carrier vertically movable on said uprights, an arm having a pneumatic tool secured thereto laterally movable in said

carrier, and means for raising and lowering said carrier.

3. In a pneumatic-surfacers frame, a base, a bearing thereon, comprising a hollow projection, a cap carried thereby, ball-bearings intermediate said cap and the upper portion of said projection, a sleeve depending from said cap and extended within said bearing, a plate located below said sleeve and a clamping device common to said plate and cap in combination with a stone-surfacing device supported above said cap.

4. In a pneumatic-surfacers frame, a base, a bearing thereon, comprising a hollow projection, a cap carried thereby, ball-bearings intermediate said cap and the upper portion of said projection and a depending sleeve within said bearing and integral with said cap, a clamping device common to said bearing and cap and uprights secured to said cap, a carrier vertically movable on said uprights, and an arm laterally movable carried by said carrier and to which a pneumatic tool is secured.

5. In a surfacer-frame, a base, a bearing therefor, a cap rotatably mounted thereon, ball-bearings for said cap, a plate adapted to engage said base, a bolt passing there-through, and through said cap, a nut for said bolt, uprights secured to said cap, a carrier vertically movable on said uprights, an arm laterally movable carried by said carrier and to which a pneumatic tool is secured and means for raising and lowering said carrier.

6. In a surfacer-frame, a base, a cap rotatably mounted thereon, uprights mounted on said cap, a carrier movably mounted on said uprights, upper and lower rollers mounted in said carrier, a laterally-extending arm adapted to travel between said rollers, a pneumatic tool secured to said arm, upper and lower flanges on said arm, channels formed there-between, guides adjustably secured to said carrier and engaging said channels and means for raising and lowering said carrier.

7. In a device of the character described, a base, a cap rotatably mounted thereon, uprights secured to said cap, a carrier movable on said uprights, rollers mounted in said carrier, an arm engaging said rollers, guides secured to said carrier adapted to coact with said arm, a pneumatic tool secured to said arm, a bracket secured at the upper end of said uprights, a drum mounted therein, a flexible connection secured to said carrier and to said drum, and means for actuating said drum.

8. In a device of the character described, a base, uprights rotatably mounted thereon, a carrier vertically movable thereon, upper and lower rollers mounted on said carrier, a

laterally-extending arm adapted to travel between said rollers, upper and lower flanges extending outwardly from said arm, guides for said arm adjustably secured to said carrier, a bracket fastened to said uprights, a drum mounted in said bracket, a flexible connection secured to said carrier and to said drum, a gear fixed to said drum and means for actuating said gear.

9. In a surfacer-frame, a carrier, means for supporting and raising and lowering said carrier, upper and lower rollers mounted in the latter, an arm adapted to travel between said rollers and having flanges thereon, slotted guide-plates carried by said carrier and adapted to project between said flanges and a pneumatic tool secured to said arm.

10. In a surfacer-frame, a base, a bearing thereon, a cap rotatably mounted on said bearing, an upright supporting device secured to said cap, a carrier guided on said supporting device, an arm laterally movable in said carrier, a pneumatic tool secured to said arm and means for raising and lowering said carrier.

11. In a surfacer-frame, a base, a bearing thereon, a cap rotatably mounted on said bearing, ball-bearings for said cap, means for clamping said cap with respect to said base, an upright supporting device secured to said cap, a carrier guided on said supporting device, an arm laterally movable in said carrier, guides secured to the latter and adapted to coact with said arm, a pneumatic tool secured to said arm, and means for raising and lowering said carrier.

12. In a surfacer-frame, a base, a cap rotatably mounted thereon, an upright supporting device mounted on said cap, a carrier guided on said supporting device, rollers mounted in said carrier, adjusting devices for said rollers, an arm engaging said rollers, guides secured to said carrier and adapted to coact with said arm, a pneumatic tool secured to said arm, and means for raising and lowering said carrier.

13. In a surfacer-frame, a carrier, means for supporting and raising and lowering said carrier, upper and lower rollers mounted in said carrier, journal-boxes for said rollers, springs under said boxes, adjusting devices for said boxes, an arm located between said rollers, guides secured to said carrier and adapted to coact with said arm, and a pneumatic tool secured to said arm.

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Witnesses:

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