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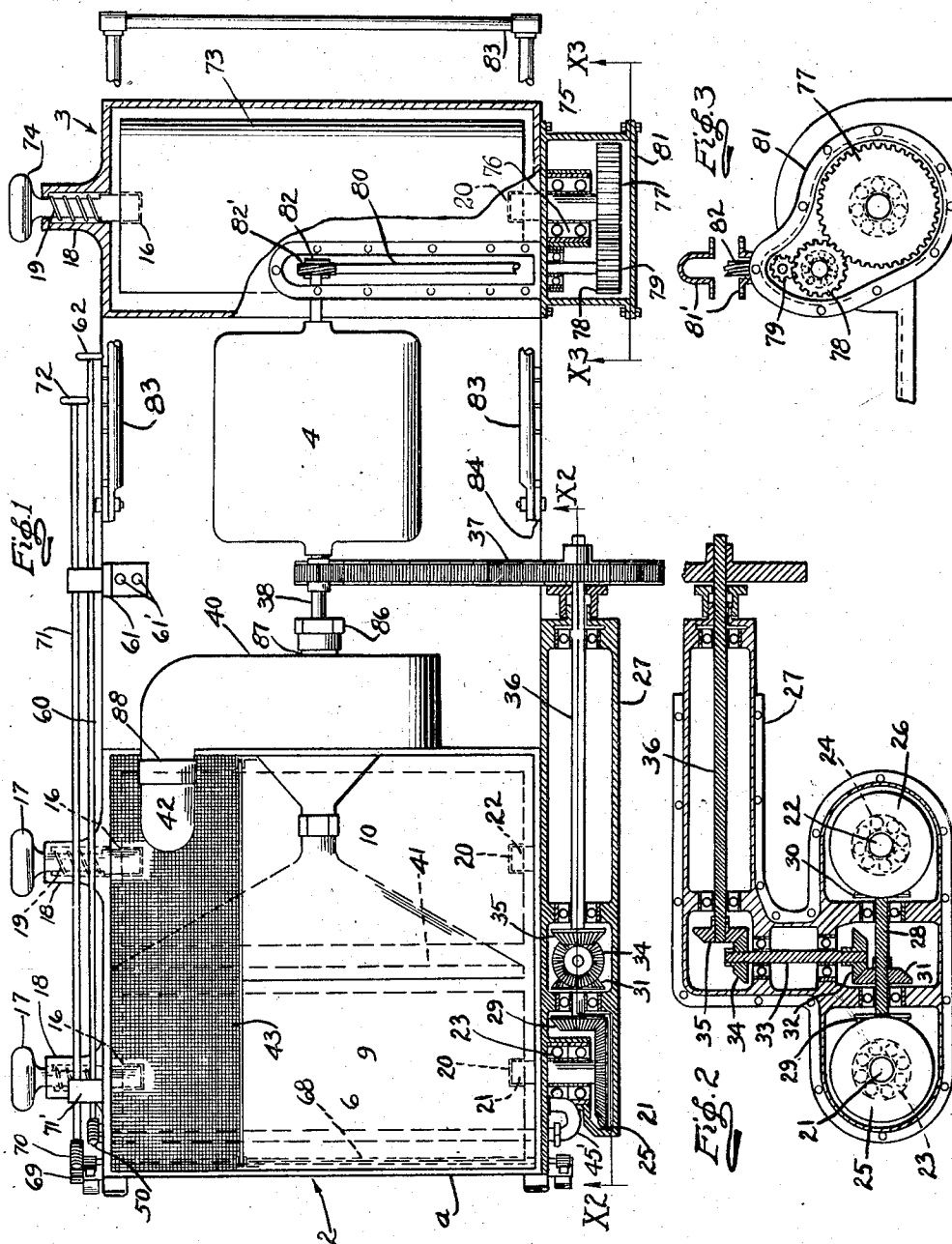
S. STRADER

1,644,859

SCRUBBING MACHINE

Filed April 4, 1925

4 Sheets-Sheet 1



WITNESS
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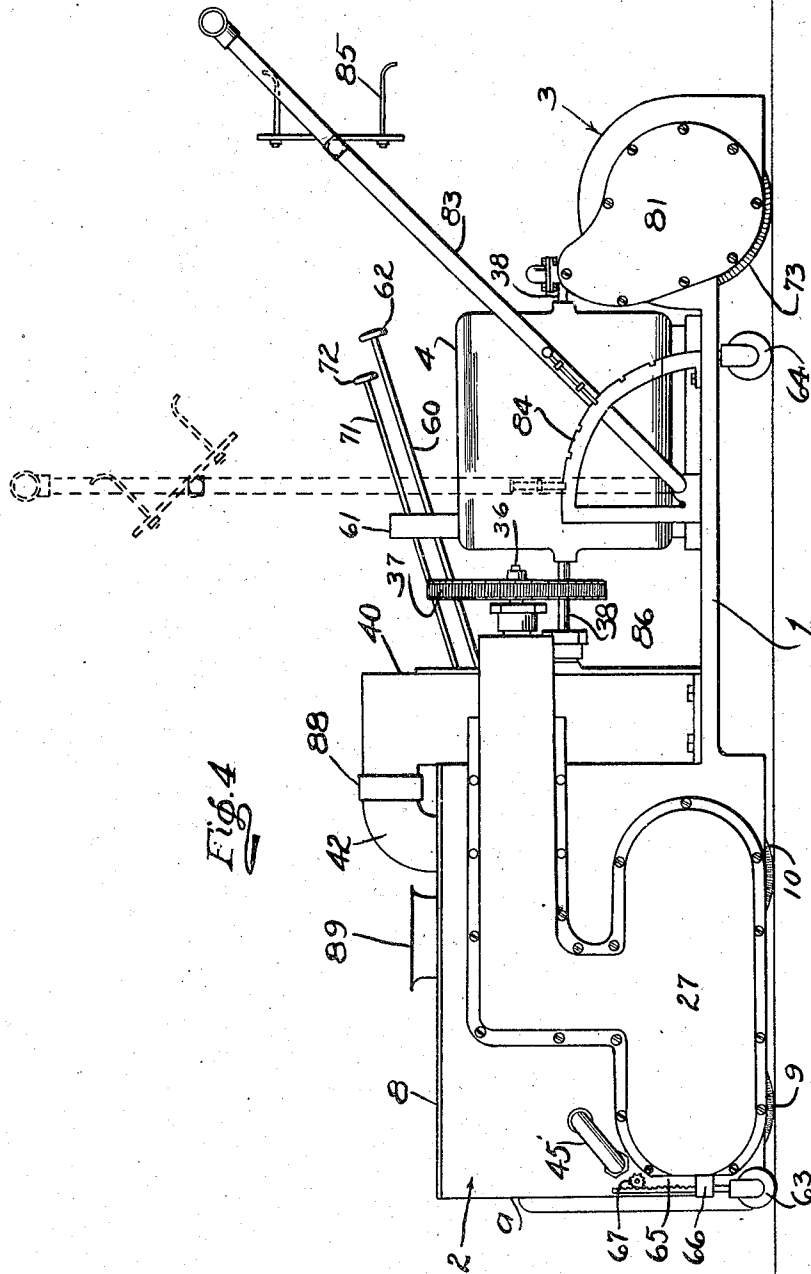
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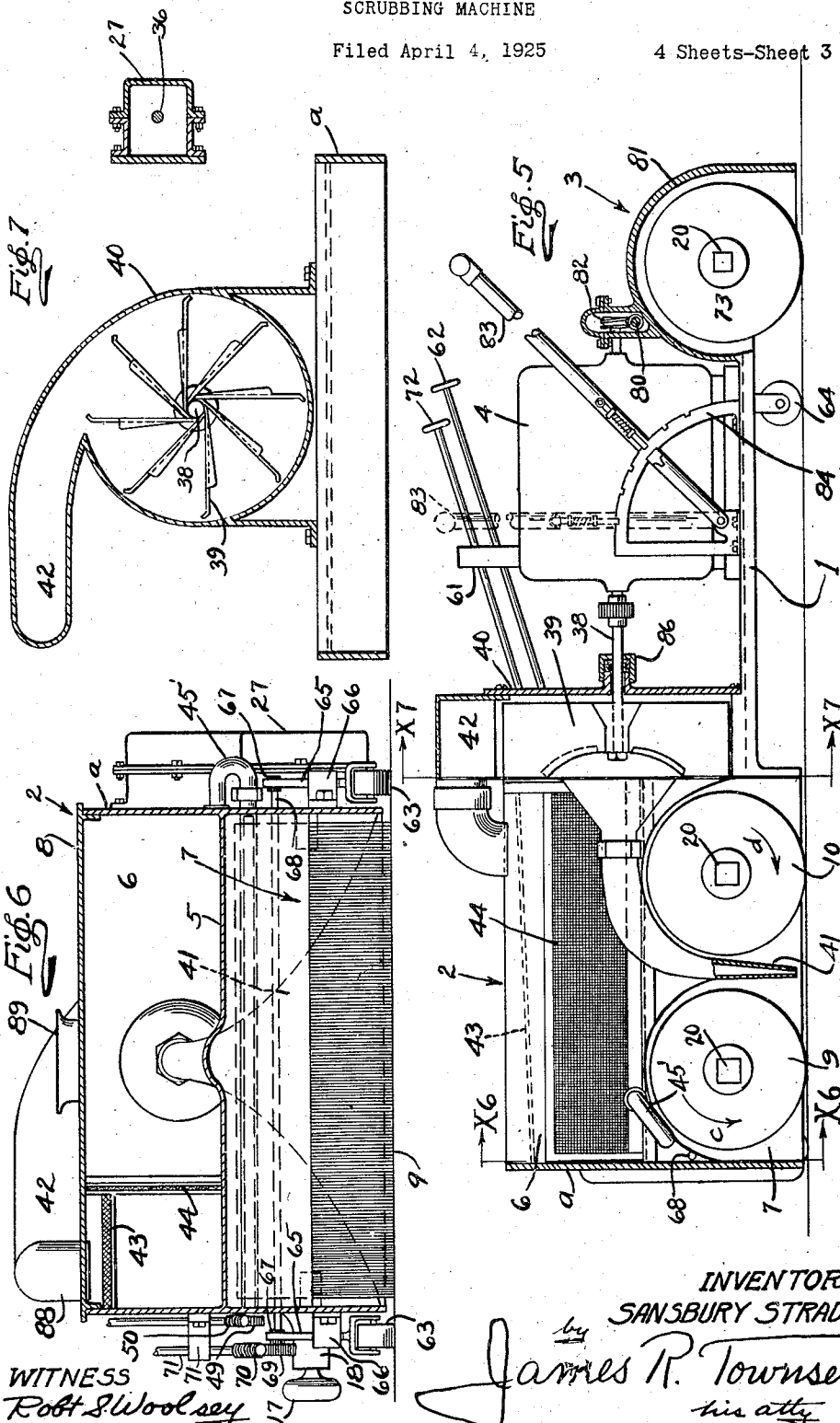
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4 Sheets-Sheet 3



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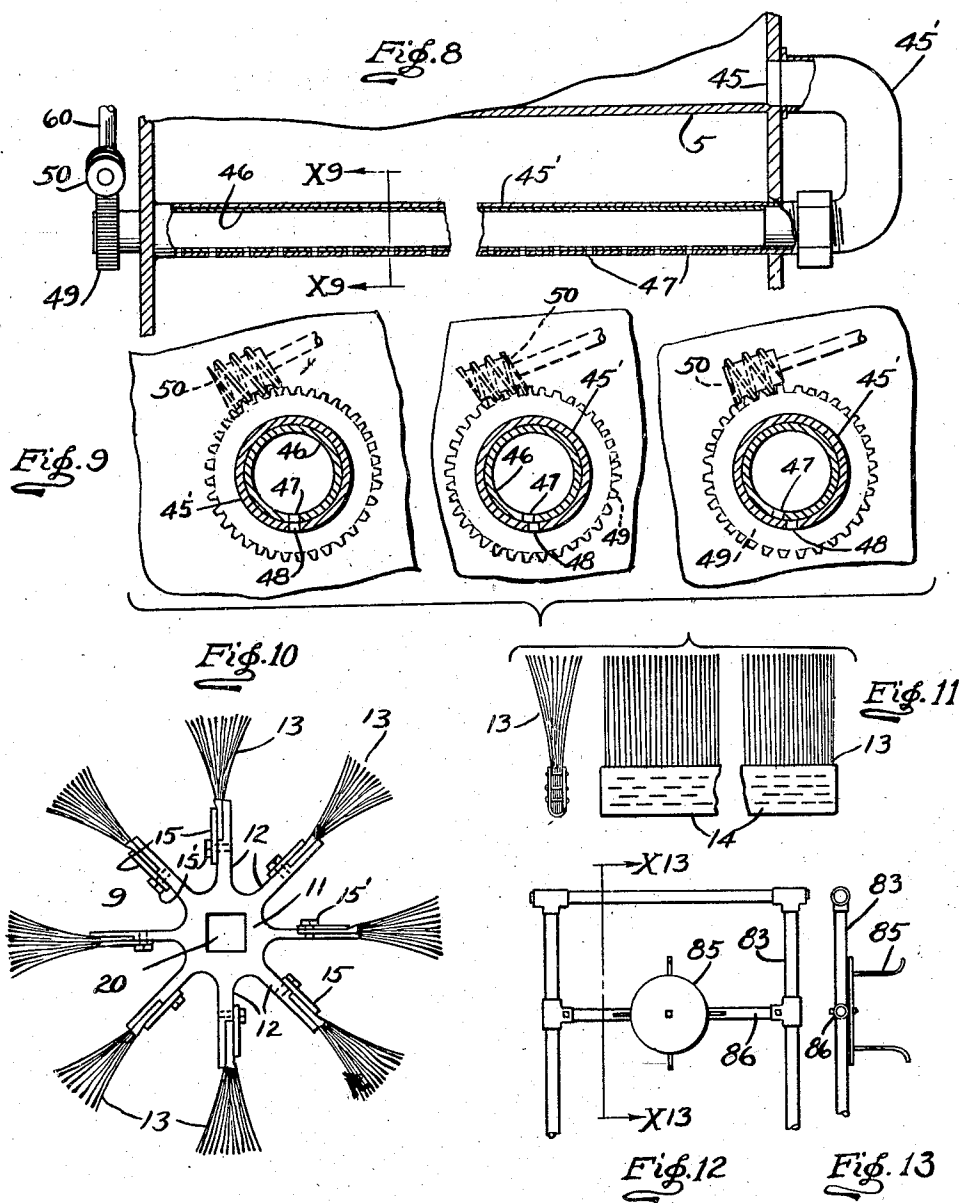
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE.

SANSBURY STRADER, OF LOS ANGELES, CALIFORNIA.

SCRUBBING MACHINE.

Application filed April 4, 1925. Serial No. 20,698.

An object of my invention is to provide a novel scrubbing machine, which may be manually adjusted by a single adjustment to suit various conditions.

Another object is to provide an efficient means of cleansing the return water in the scrubbing machine prior to its reuse.

A feature is to provide means to adjust the nozzle with relation to the floor.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claims.

The accompanying drawings illustrate the invention.

Figure 1 is a plan view of my machine, with the tank cover removed, and the gear cases broken away, to show the interior construction.

Fig. 2 is a sectional view on irregular line x^2-x^2 , Fig. 1.

Fig. 3 is a sectional view on line x^3 , Fig. 1.

Fig. 4 is a side elevation of my machine.

Fig. 5 is a longitudinal sectional view of the same.

Fig. 6 is a sectional view on line x^6 , Fig. 5.

Fig. 7 is a sectional view on line x^7 , Fig. 5.

Fig. 8 is an enlarged front elevation partly in section of the water distributor.

Fig. 9 is a series of views on line x^9 , Fig. 8, showing the water supply tube in various adjusted positions.

Fig. 10 is an end view of a scrubbing brush that may be used in my machine.

Fig. 11 is a grouped end and fragmentary side view of one of the removable brush units.

Fig. 12 is a fragmentary front view of the handles.

Fig. 13 is a sectional view on line x^{13} , Fig. 12.

The scrubbing machine α comprises a base 1 on the forward end of which a hood 2 is mounted and on the rear of which a hood 3 is mounted. A motor 4 is secured to the base 1, and is adapted to drive the various parts of the machine through suitable reduction gears, which will be hereinafter described.

A transverse horizontal wall 5 divides the hood 2 into an upper water tank 6 and a lower brush compartment 7. A suitable cover 8 closes the tank 6.

A pair of brushes 9 and 10 are mounted in the compartment 7 and extend transversely across the machine. The brushes may be of any desirable type or material formed practically, but are preferably cylindrical in form, and I have illustrated one type in Figs. 10 and 11, which comprises a multiple armed body 11 having arms 12 thereon, and on the end of each of the arms a brush tuft 13 is mounted.

The bristles in the tufts 13 are securely fastened in a base 14, and plates 15 are bolted by bolts 15' to the arms 12 and engage the base 14 to hold the tufts in position.

This construction also provides easy replacement of the tufts when necessary, by the removal of the plates 15. Recesses 16 are provided in one end of each of the brush bodies 11, and are adapted to receive spring actuated pins 17.

The pins 17 are yieldably mounted in bosses 18 formed on one side of the hood 2, and springs 19 surround said pins and urge them inwardly into the recesses 16, and the brushes are journaled on the said pins. Squared holes 20 are formed in the other end of the brush bodies 11, and pintles 21 and 22 extend into said holes in the brushes 9 and 10, respectively, and are journaled in bearings 23 and 24, respectively, which bearings are preferably ball type.

Gears 25 and 26 are secured to the outer ends of the pintles 21 and 22 respectively, and are enclosed in a gear case 27. A shaft 28 is journaled in the case 27, and gears 29 and 30 secured to the ends thereof, mesh with the gears 25 and 26, respectively.

A gear 31 is secured to the shaft 28, and meshes with a gear 32 secured to a vertical shaft 33, which shaft is journaled in the housing 27.

A second gear 34 secured to the shaft 33 meshes with a gear 35 secured to a horizontal shaft 36 journaled in the housing 27.

Suitable reduction gearing 37 connects the motor shaft 38, and shaft 36 to drive the shaft 36 and the gearing above described to rotate the pintles 21 and 22 and brushes 9

and 10 towards each other in the direction of the arrows *c*, *d*, in Fig. 5. The brushes may be readily removed if desired, by retracting the pins 17 from the holes 16, and withdrawing the brushes from the pintles 21 or 22.

A suction fan 39 is mounted in a case 40 adjacent the rear of the hood 2, and is secured to the motor shaft 38 by which it is directly driven. The inlet of the fan 39 is connected to a nozzle 41, mounted in the hood 2 and extending between the brushes 9 and 10.

The mouth of the nozzle flares outwardly so that it extends the width of the machine, and is adapted to catch and draw the water swept towards it by the rotation of the brushes 9 and 10.

The outlet 42 from the fan 39 extends through the cover 8 and returns the water to the tank 6 from the nozzle 41. A horizontal screen 43 is positioned in the tank 6 under the outlet 42, and a piece of burlap, not shown, is placed over the screen 43 to eliminate sand and any foreign particles from passing into the tank outlet. A vertical screen 44 further strains the water on its way to the outlet 45 and prevents any foreign matter that may accidentally pass the screen 43 from entering the tank 6.

A pipe 45' extends from the tank 6, and is bent to extend transversely of the hood 2 above the brush 9. A second pipe 46 fits within the pipe 45 and is provided with perforations 47, which are adapted to register with holes 48 in the pipe 45 to permit water to flow from the tank 6 onto the brush 9. The pipes 45' and 46 provide a conduit that extends from said tank and discharges adjacent the brush 9.

It will be seen that by adjusting the holes 47, 48 with relation to each other, as shown in Fig. 9, varying amounts of water may pass therethrough.

This adjustment is accomplished by a gear 49 fixed to the pipe 46, and a worm 50 meshing therewith. The worm 50 is fixed to one end of a shaft 60 which extends rearwardly and is journaled on a bracket 61 rising from the base 1 to which it is secured by bolts 61'. A handle 62 on the end of the shaft 60 provides a hand grip to rotate the shaft 60 to adjust the openings 47, 48.

The machine travels on front rollers 63 and back rollers 64. The front rollers 63 are mounted on racks 65 which racks extend through bearings 66 secured to the hood 2 adjacent the forward end thereof.

Pinions 67 fixed to a shaft 68 mesh with the racks 65. A gear 69 secured to the shaft 68, is engaged by a worm 70, which is fixed to a shaft 71, that extends rearwardly therefrom and is supported in the bracket 61, and the bracket 71'.

A handle 72 on the shaft 71 provides a

hand grip to rotate the shaft 71 to adjust the rollers 63, through the worm 70, gear 69, pinions 67, and racks 65.

By raising and lowering the rollers 63 the mouth of the nozzle 41 is adjusted with relation to the floor, to suit various conditions.

A mop cylinder 73 is mounted in the hood 3. One end of the mop is journaled on a spring pin 74, identical in construction to the pins 17 already described, and the other end is coupled to a pintle 75, which is journaled in a suitable bearing 76. A gear 77 is secured to the pintle 75 and meshes with an idler gear 78, which in turn meshes with a pinion 79 fixed to one end of a horizontal transverse shaft 80, the other end of which is provided with a worm 82 that is in engagement with a suitable reduction gear 82' connected to a rearward extension of the motor shaft 38. A housing 81 encloses the gear train 77, 78, 79; and a housing 81' encloses the shaft 80, worm 82, and gear 82'.

Handles 83 are pivotally mounted on the base 1, and are angularly adjustable on segments 84. A reel 85 is mounted on a cross member 86 between the handles 83, and is adapted to have the electric cord, not shown, that is connected to the motor, wound thereon.

A gland nut 86 is threaded to the boss 87 and prevents water leaking from around the shaft 38 that drives the suction fan 39.

A flexible connection 88 is removably secured to the outlet 42 and extends through the cover 8 and may be detached therefrom to permit the cover 8 to be removed from the tank 6.

A filling spout 89 provides means whereby the supply of water in tank 6 may be replenished and also serves as a vent to permit escape of air that may be forced into the tank by the suction fan 39.

I claim:

1. A scrubbing machine comprising a frame, a hood on said frame, a pair of brushes journaled in said hood, means to rotate said brushes; a nozzle between said brushes, suction means connected to said nozzle; a tank, said suction means having an outlet to said tank; means to simultaneously adjust said rollers to space said nozzle from the floor; said adjusting means comprising racks to which said rollers are secured, pinions meshing with said racks, a common shaft, said pinions being mounted on the common shaft; and means to rotate said shaft.

2. A scrubbing machine comprising a frame, a hood on said frame, a pair of brushes journaled in said hood, means to rotate said brushes; a nozzle between said brushes; suction means connected to said nozzle; a tank in said hood, said suction means having an outlet extending to said tank; rollers on said frame; means

to simultaneously adjust said rollers to space said nozzle from the floor; said adjusting means comprising racks to which said rollers are secured, pinions meshing
5 with said racks, a common shaft, said pinions being mounted on the common shaft; a gear on said shaft; a worm meshing with said gear; a shaft extending from said worm and a handle on said last named shaft whereby the shaft may be rotated. 10

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 27th day of March, 1925.

SANSBURY STRADER.