(No Model.) 2 Sheets—Sheet 1.

G. ROTH.

CAN CLEANING MACHINE.

No. 477,703. Patented June 28, 1892.

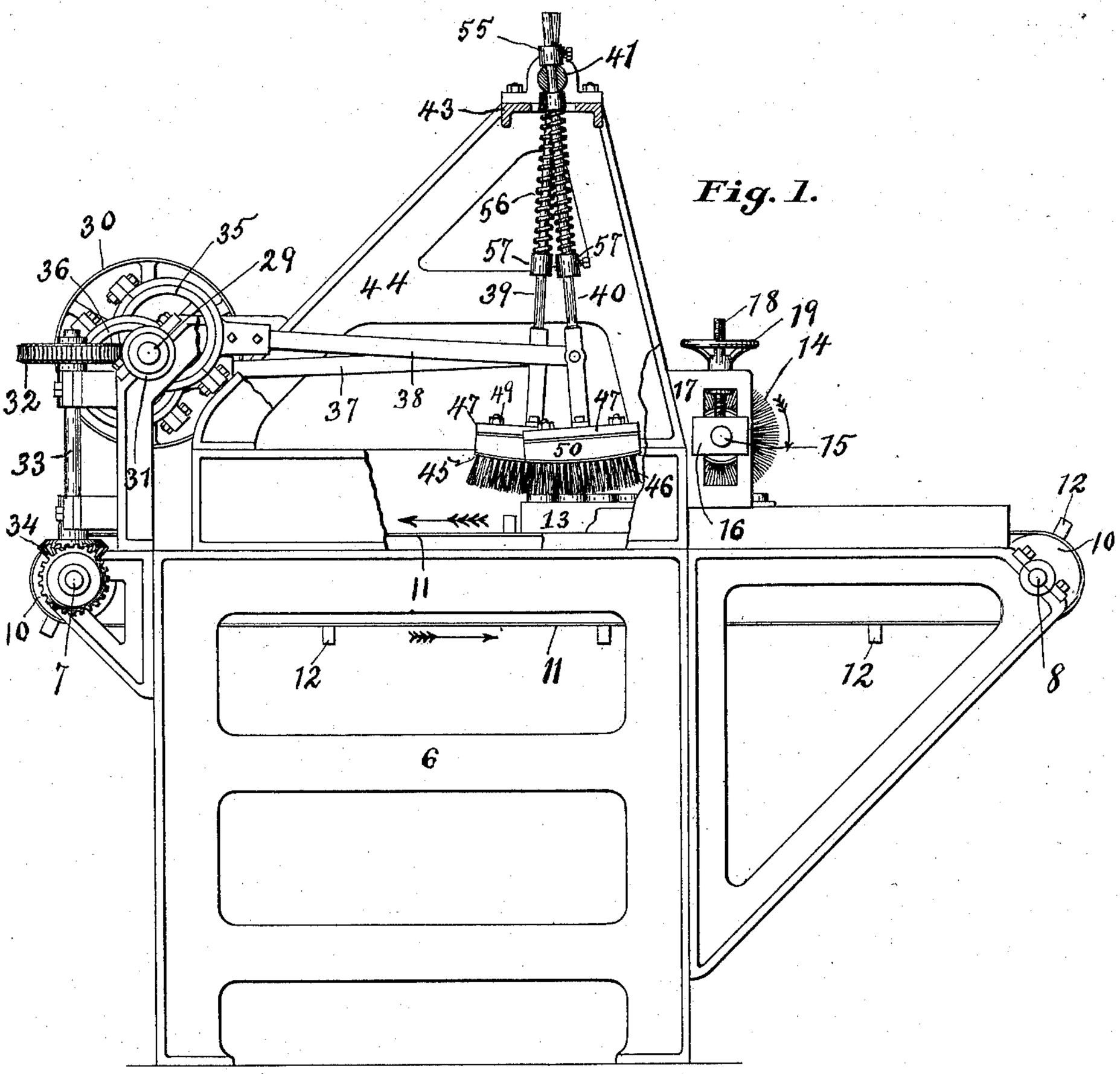

Fig. 1.

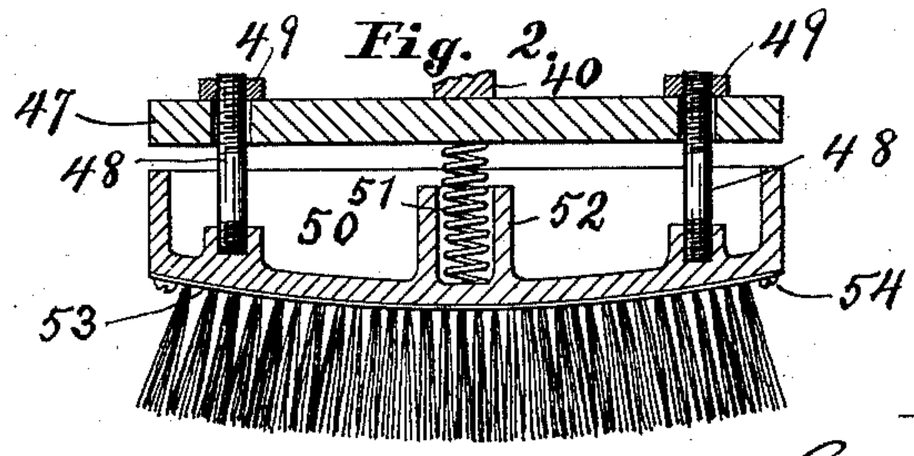

Fig. 2.

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Fig. 3.

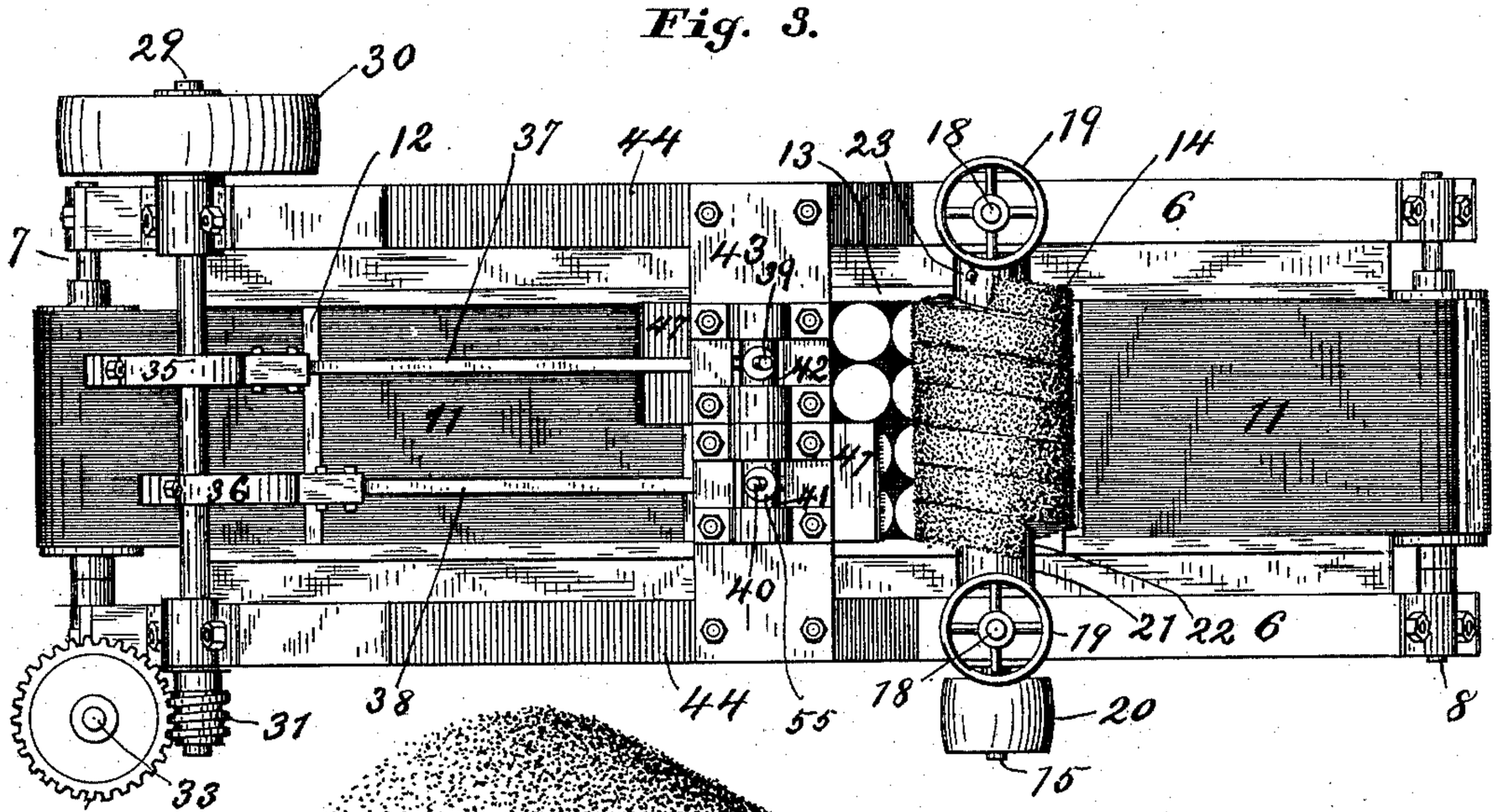
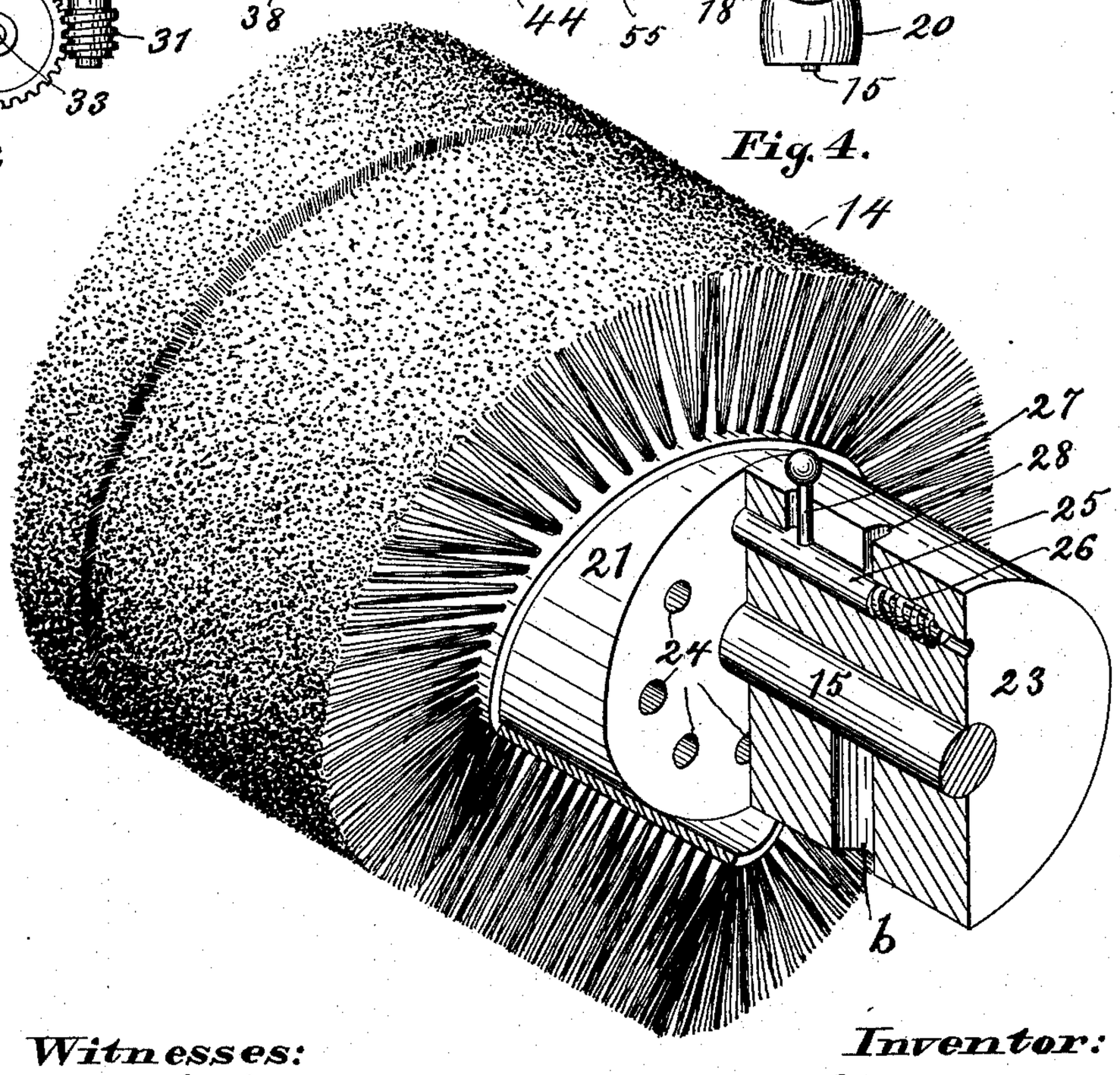


Fig. 4.



Witnesses:

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Edward C. Lenturiler.

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UNITED STATES PATENT OFFICE.

GEORGE ROTH, OF HIGHLAND, ILLINOIS.

CAN-CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,703, dated June 28, 1892.

Application filed July 3, 1891. Serial No. 398,326. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROTH, a citizen of the United States, residing at Highland, county of Madison, and State of Illinois, have invented a certain new and useful Can-Cleaning Machine, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The invention will be best understood by referring to the accompanying drawings, in which—

Figure 1 is a side elevation of a can-cleaning machine made in accordance with my invention. Fig. 2 is a sectional view, on an enlarged scale, of the reciprocating brushes in detail. Fig. 3 is a plan view of the machine, and Fig. 4 is an isometric projection illustrating the rotating brush in detail.

The same marks of reference indicate the same parts throughout the several views.

6 is the frame of the machine, which supports at each end shafts 7 and 8, each carrying a pulley 10, over which passes an endless conveyer or belt 11, having suitably-projecting cross-pieces 12 thereon at equal distances apart.

The cans to be cleaned are placed in a box 13, which is positioned upon the conveyer 11 between two of the projecting cross-pieces 12, the rear one of which pushes the box carrying the cans forward beneath the cleaning-brushes.

I preferably first subject the cans to the action of a rotary brush 14, carried by a shaft 15, supported by bearings 16, each end of which bearings may be adjusted up and down in an upright part 17 of the frame by means of a screw-threaded rod 18 and a hand-wheel 19 in order to have the rotary brush press upon the cans with more or less force. The shaft 15, carrying the rotary brush 14, is driven by a pulley 20, actuated in any suitable way.

The brush 14 is made as shown in Figs. 3 and 4 and is formed upon a cylindrical block 21, rigidly affixed to the shaft 15. The said brush is made upon a flexible backing in a continuous strip, one end of the strip being attached to the cylindrical block 21 at 22 and then coiled spirally around the cylindrical block 21, the other end thereof, after coiling being fastened to a circular block 23, loose upon the shaft 15. The end of the circular block 21 adjacent to the block 23 is provided with holes 24, and the circular block 23 carries a bolt 25, the nose of which is adapted to take in any one of the holes 24. The said bolt 25 is furnished with a spiral spring 26, which maintains it in and returns it to its normal position, and is also furnished with a pin 27, extending through a slot in the block 23, whereby the said bolt may be conveniently manipulated. A notch 28 is made in the block 23, adjacent to and leading from the slot therein, so that the bolt 25, when withdrawn from the holes 24, may be rotated and locked by the pin 27 in its retracted position. The block 23 is further provided with a hole *b*, in which may be inserted a pin or rod to readily rotate the block 23 in one or the other direction. By turning the block 23 the coils of the brush 14 may be tightened or loosened and the bolt 25 allowed to enter one of the holes 24, locking the coils of the brush and the block 23 in position.

At the left of the machine, and carried by the frame thereof, is a shaft 29, which is driven by a pulley 30. This shaft has a worm 31 upon it, which drives a worm-wheel 32, carried by a vertical shaft 33, and transmits its motion by means of beveled gearing 34 to the shaft 7, that drives the endless conveyer 11, hereinbefore referred to. Upon the shaft 29 are arranged two eccentrics 35 and 36, which drive connecting-rods 37 and 38, that are articulated, respectively, to oscillating brush-handles 39 and 40, swung at their upper ends upon short spindles 41 and 42, journaled in bearings carried by a cross-piece 43, suspended by an upright part 44 of the frame of the machine. The lower end of these brush-handles carry brushes 45 and 46, and are fastened to a plate 47, to which the brushes are secured by means of screw-threaded rods 48, which work loosely through the plate 47, and are held thereto by nuts 49 upon the protruding upper ends of the screw-threaded rods 48, the lower ends of which take into the base-plate 50 of the brush proper. Between the plate 47 and the base 50 of the brush is a spiral spring 51, held in a socket-piece 52, extending from the upper side of the said base. By

tightening or loosening the nuts 49 the spring 50 may be compressed or allowed to expand and hold the brush at the required height. It will be noted that the rods 48, passing loosely through the plate 47, permit the brush to raise at each side and yield should it encounter any obstacle. The brush itself is formed upon a thin backing 53, which is secured around the edges by screws 54 to the base-plate 50, so that the brushes may be removed, when occasion requires, by taking off the nuts 49. The upper ends of the brush-handles 39 and 40 pass freely through the spindles 41 and 42, so that it is necessary to provide some means to suspend the handles from said spindles, and for this purpose the brush-handles at their upper ends are provided with collars 55, held thereto by set-screws. The brush-handles are also provided with spiral springs 56 in order to give the brushes a spring action and allow them to yield in a vertical direction. The lower ends of the spiral springs bear against collars 57, secured to the brush-handles, and the upper ends thereof come against the spindles 41 and 42. Thus it will be seen the brushes may play freely up and down in a vertical direction. By moving the collars 55 and 57 the springs 56 may be compressed or allowed to expand, and this will cause the brushes to bear with more or less force upon the cans to be cleaned or adapt them for cans of different heights. It will be evident from the construction set forth that the brushes 45 and 46 are reciprocated back and forth over the cans.

As before stated, the cans to be cleaned are placed in a box or receptacle 13, which is put upon the conveyer 11, traveling in the direction of the arrow in Fig. 1. The projecting pieces on the conveyer carry the box containing the cans forward, and as the cans pass along they are first subjected to the sweeping action of the rotary brush 14, which revolves in the direction of the arrow, and after they pass from such brush they then encounter the reciprocating brushes 45 and 46, which give them a thorough scrubbing. After leaving the brushes 45 and 46 the receptacle containing the cans may be removed, and another receptacle containing cans to be cleaned placed upon the conveyer.

It of course makes no difference so far as my invention is concerned whether the cans be subjected to the action of the reciprocating brushes after being run under the rotary brush, or whether they be treated with the reciprocating brushes first or whether one or the other brushes only be used.

Having fully set forth my apparatus, what I desire to claim and secure by Letters Patent of the United States as my invention is—

1. A can-cleaning machine embodying a suitably-driven endless conveyer for feeding the cans, a rotary brush driven by the apparatus, and yielding-reciprocating brushes suitably actuated, whereby the cans are subjected to a sweeping and scrubbing action and are permitted to yield when obstructions are encountered.

2. A rotary brush for a can-cleaning machine, made up of bristles mounted upon a flexible backing, having one end thereof fixedly secured to and coiled around a cylinder and the other end thereof attached to a movable piece, whereby the coils of the brush may be tightened or loosened, substantially as and for the purpose described.

3. A rotary brush for a can-cleaning machine, made up of bristles mounted upon a flexible backing, having one end thereof fixedly secured to and coiled around a cylinder and the other end thereof attached to a movable piece journaled upon a shaft projecting from said cylinder and provided with a spring-bolt adapted to register with perforations in the end of the cylinder, substantially as and for the purpose described.

4. An oscillating or reciprocating brush for a can-cleaning machine, comprising a spring-pressed adjustable brush-handle freely suspended at its upper end and carrying a spring-pressed adjustable brush at the lower end thereof, substantially as described.

5. An oscillating or reciprocating brush for a can-cleaning machine, comprising a brush-handle suspended at its upper end, a plate connected to the lower end thereof, and means for movably uniting the brush to said plate, and a spring between said plate and brush, substantially as and for the purpose described.

6. An oscillating or reciprocating brush for a can-cleaning machine, comprising a brush-handle suspended at its upper end, a plate 47, connected to the lower end thereof, rods 48 for uniting the base 50 of the brush to said plate and passing freely through the latter, and a spring 51, contained in a socket 52 on the base of said brush, interposed between the plate and brush, substantially as described.

7. The combination, to form a can-cleaning machine, of an endless conveyer for feeding the cans, a rotary adjustable brush arranged above the travel of the cans and suitably driven by the apparatus, and reciprocating brushes driven by eccentrics from a suitably-actuated shaft of the machine, the said latter brushes freely suspended at their upper ends and provided with yielding connections, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal, this 15th day of June, 1891, in the presence of the two subscribing witnesses.

GEORGE ROTH. [L. S.].

Witnesses:

ADOLPH LEUTWILER,

EDWARD C. LEUTWILER.