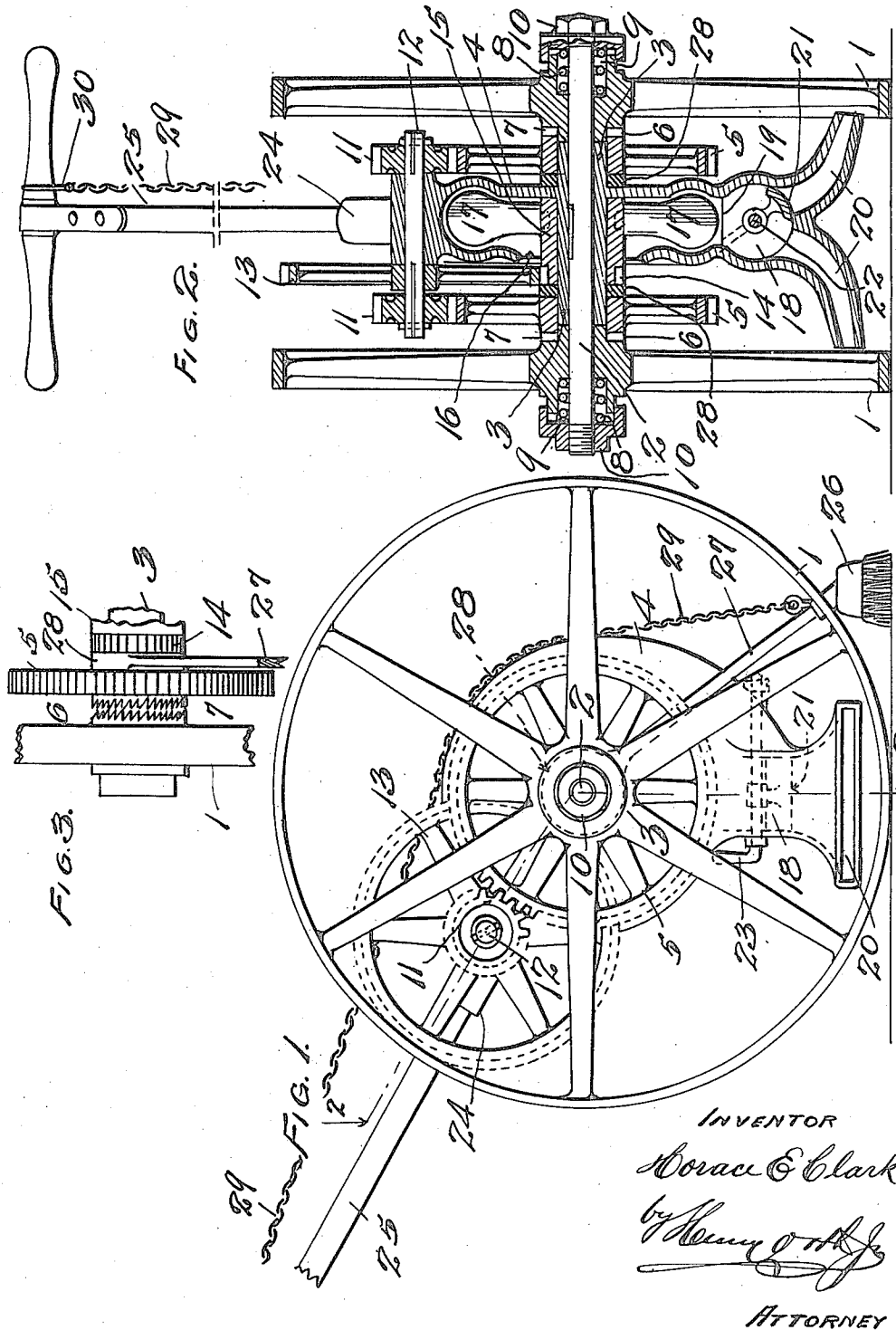


H. E. CLARK.
PORTABLE BLOWER.
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Patented July 24, 1917.



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PORTABLE BLOWER.

1,234,446.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HORACE E. CLARK, a citizen of the United States of America, residing at Kirkwood, De Kalb county, Georgia, have invented certain new and useful Improvements in Portable Blowers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

15 The object of my invention is to provide a portable air blast apparatus particularly adapted for use in cleaning large factories and mills.

My apparatus is designed more especially for the purpose of blowing the cotton droppings from under the spinning frames in cotton mills where such droppings are difficult to reach by the aid of a broom.

By the use of my apparatus the droppings are blown from beneath the machines to the sides of the building into a long pile, so that the work of gathering is greatly facilitated, and a great saving of labor is effected.

The invention consists in mounting a fan case and the blade driving mechanism on two supporting wheels which constitute the prime driving members of said mechanism, and in providing means for automatically throwing the driving members and mechanism into and out of operative relation.

The invention further consists of the novel construction, combination, formation and arrangement of parts, as will be hereinafter more fully described and claimed.

40 In the accompanying drawings—

Figure 1 is a side elevation of a blower embodying my invention.

Fig. 2 is a section on the line 2—2 of Fig. 1, and

45 Fig. 3 is a detail view of the ratchet mechanism.

1 designates the supporting wheels which constitute the prime driving members of the blower. These wheels are rotatably mounted on an axle 2 on which is fixed an auxiliary axle 3 which carries an annular fan case 4.

On the auxiliary axle 3, on each side of the case 4, is rotatably mounted a large gear wheel 5, and each gear has a lateral clutch member 6 adapted to be engaged by a clutch

member 7 on the inner end of the wheel hubs. The clutch members preferably consist of ratchets having teeth so arranged that when the wheels are driven forward the ratchet teeth on the hubs will operatively engage with the ratchet teeth of the gears and when said wheels are moved backward the teeth of the ratchets will not operatively engage.

To provide an automatic coupling and uncoupling of the ratchets 6 and 7, when the direction of movement of the apparatus is changed, the wheels 1 are axially movable on the axle 2, and are yieldingly pressed inward toward the gears 5 by means of spiral springs 8 mounted on the ends of the axle within annular grooves 9 formed in the outer ends of the wheel hubs. These springs are held under tension by being pressed against the bottom of the grooves 9 by means of nut caps 10 screwed onto the ends of the axle.

The gears 5 mesh with small pinions 11 fixed on a shaft 12 journaled in a bearing formed on the outer periphery of the case 4.

Fixed on the shaft 12 between the fan case and one of the small pinions 11, is a large gear 13 of substantially the same diameter as the gears 5. This gear 13 meshes with a small pinion 14 formed on one end of a sleeve 15 journaled on the auxiliary axle 3. The sleeve 15 forms the hub of a rotary fan and extends into the fan case through an air intake opening 16 in one of the side walls thereof, and has fixed thereon, within the casing, a plurality of radially disposed fan blades 17.

The fan case has an air blast conduit 18 which communicates with the interior thereof through a peripheral opening 19 and extends to a point beneath the case where it terminates in two oppositely diverging branch conduits 20.

A valve is provided in the conduit 18 to cut off the discharge of air from either one of the branch conduits. This valve consists of a plate 21 conforming to the cylindrical contour of the conduit 18 and is carried on a spindle 22 journaled in the conduit. The spindle extends through the wall of the conduit and has a crank arm 23 by means of which the valve may be positioned over either branch conduit, or adjusted to allow the air to pass through both.

A socket 24 is formed in the fan case to receive an operating handle 25. This provides

a rigid connection between the handle and casing so that the operator may, by raising or lowering the handle, rock the casing on its axis and move the front or rear ends of the branch conduits close to the floor.

A brush, 26, is provided for sweeping the floor space between the wheels, said brush being mounted in front of the conduits 20, so that any sweepings that are not carried along by the brush, but swept to the sides, will be blown away by the air blast.

The brush is mounted on the free lower ends of rods 27 the upper ends of which are pivotally connected to the auxiliary axle 3 by means of bearing rings 28. These rings are adapted to fit over the auxiliary axle 3, one ring being held between the outer end of the sleeve 15 and one of the gears 5, the other ring being held between the side of the fan case and the other gear 5. The brush may be raised off the floor by means of a chain 29 connected at one end to the brush head and provided at the other end with a hook 30 adapted to secure the chain to the cross bar of the operating handle 25 and hold the brush in raised position.

When the apparatus is pushed forward, the ratchets 7 on the supporting wheels will, owing to the position of the teeth, engage the ratchet 6 on the gears 5 so as to rotate the latter on the auxiliary axle 3. The wheels 5 meshing with pinions 11 rotate the latter together with the gear 13 at a relatively high speed, and the gear 13 drives the smaller gear 14 together with the sleeve 15 at an increased speed, thereby driving the fan blades at a very high speed and creating a strong air blast, which may be directed to both or either side of the apparatus through the branch conduits.

When the apparatus is pulled backward the teeth of the ratchets 7 will ride over the teeth of the ratchets 6, as the springs 8 on the axle will permit an outward movement of the wheels with their ratchets.

I claim:

1. A portable blower, comprising a pair of supporting wheels, a rotary fan revoluble around the axis of the wheels, and a driving gear for the fan driven by the wheels.

2. A portable blower comprising a pair of supporting wheels, a rotatable member mounted between and concentric to the axis of the wheels, fan blades carried by said

member, a driving gear connecting the latter with the wheels a pivoted fan casing surrounding the blades, air conduits communicating with the casing, and an operating handle rigidly connected to the casing adapted to control the position of the casing and conduits.

3. A portable blower comprising a pair of supporting wheels, a rotatable member mounted between and concentric to the axis of the wheels, a pinion on said member, fan blades carried by the latter, a fan casing inclosing the blades, a shaft journaled in the fan casing parallel to said axis, a gear wheel fixed on the shaft and meshing with the pinion, and gearing operated by the wheels for rotating said shaft.

4. A portable blower comprising a pair of supporting wheels, a rotatable member mounted between and concentric to the axis of the wheels, a pinion on said member, radial fan blades carried by the latter, a fan casing inclosing the blades and having a lateral opening surrounding the rotatable member, air conduits communicating with the casing, a shaft journaled in the fan casing, a large gear wheel fixed on said shaft meshing with said pinion, a small pinion on each end of said shaft, and large gear wheels connected with the supporting wheels meshing with the small pinions.

5. A portable blower comprising a pair of supporting wheels, a rotatable member mounted between and concentric to the axis of the wheels, a pinion on said member, radial fan blades carried by the latter, a fan casing inclosing the blades and having a lateral opening surrounding the rotatable member, air conduits communicating with the casing, a shaft journaled in the fan casing, a large gear wheel fixed on said shaft meshing with said pinion, a small pinion on each end of said shaft, large gear wheels connected with the supporting wheels meshing with the small pinions, and mechanism to prevent a reverse movement of said rotatable member.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

HORACE E. CLARK.

Witnesses:

B. F. McLAUGHLIN,
W. P. PARTRIDGE.