Nov. 4, 1941. F. H. ROSELLE 2,261,565

SANDBLASTING MACHINE

Filed Nov. 13, 1939 2 Sheets-Sheet 1

Fig. 1

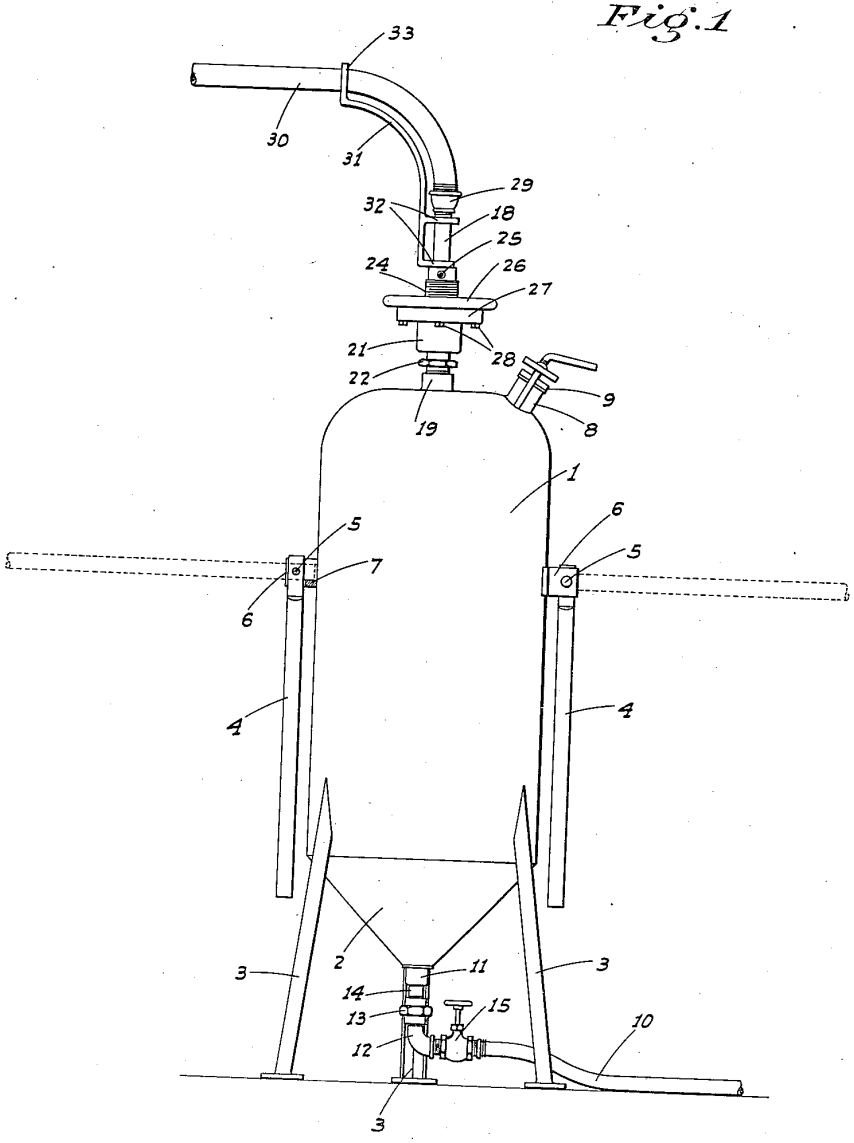

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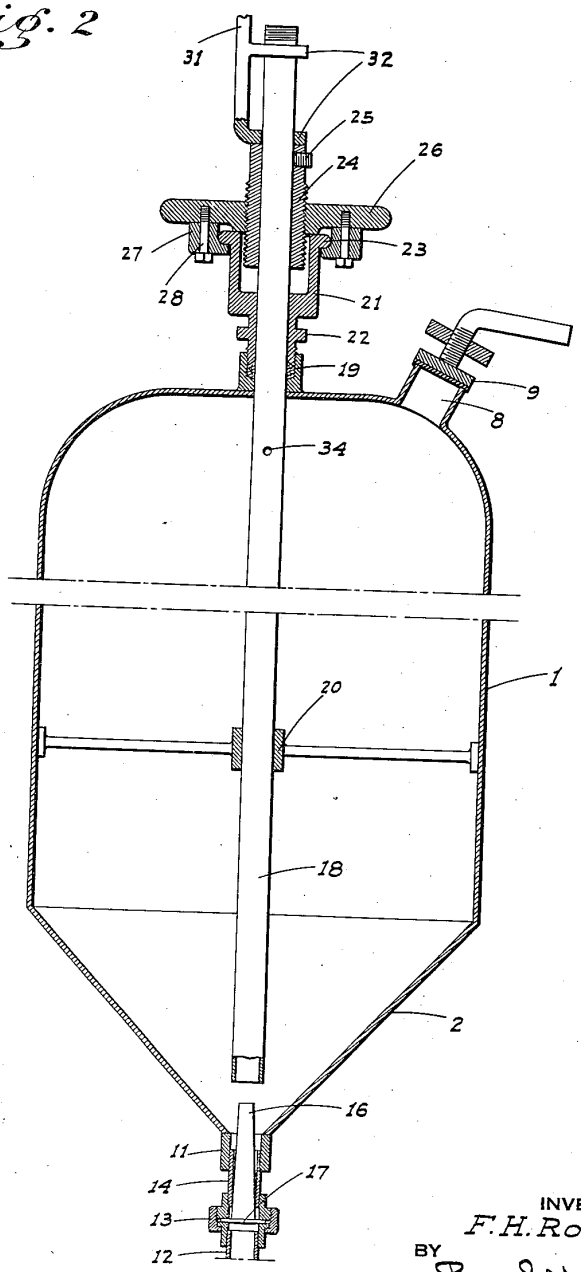
Fig. 2



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SANDBLASTING MACHINE

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5 Claims. (Cl. 51—12)

This invention relates in general to sand blasting apparatus, and in particular the invention is directed to improved mechanism in apparatus of the type described to feed the sand into the stream of compressed air.

Heretofore, the general practice has been to feed the sand from a tank or reservoir through a lead pipe into the lateral side of a T-fitting; said T-fitting being interposed in the compressed air line. This arrangement has been subject to the objection that there is a tendency for the sand to plug in the T-fitting during operation of the apparatus.

It is therefore the principal object of this invention to provide mechanism which is arranged to prevent plugging of the sand in any part of the apparatus, such object being accomplished through the medium of a unique sand and air mixing assembly.

Another object of the invention is to provide mechanism for the regulation of the proportion of sand mixed with the compressed air and fed into the hose and sand blast nozzle of the apparatus.

A further object of the invention is to provide means in the apparatus arranged so that the supply of sand can be entirely shut off when desired, so that air alone passes into the sand blast hose and nozzle.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side elevation of the apparatus.

Figure 2 is a fragmentary sectional elevation of the apparatus.

Referring now more particularly to the characters of reference on the drawings, the device comprises a vertical and elongated tank or reservoir 1, the bottom of which is of inverted frusto-conical configuration, as at 2. This tank 1 is supported by suitable legs 3, and is provided on opposed sides with carrying handles 4 which normally depend from pivots 5 carried by brackets 6, said brackets including stop elements 7 adapted to engage the inner ends of the handles and to limit outward and upward swinging movement of said handles to a horizontal position, as clearly shown in dotted lines in Fig. 1.

At its upper end, but offset from the vertical axis thereof, the tank 1 is provided with a filling neck 8 which includes a pressure-tight but removable cap indicated generally at 9.

A compressed air supply hose 10 extends from the source of compressed air (not shown) to a point beneath the tank 1, and from said point is connected with a fitting 11 on the bottom of the inverted frusto-conical portion 2 of the tank 1 by means of an elbow 12, union 13, and nipple 14; a valve 15 being interposed between the end of the hose 10 and elbow 12. A vertical nozzle or jet 16 is fitted within nipple 14 and extends from a flanged lower end 17 secured in the union 13 upward to a termination within the tank portion 2 some distance above fitting 11.

A pipe 18 having an internal diameter somewhat greater than the diameter of the upper or discharge end of nozzle 16 is disposed axially and vertically in tank 1; the lower end of said pipe 18 being disposed adjacent nozzle 16, while the upper end portion of the pipe slidably extends through and projects some distance beyond a packing gland 19 in the upper end of the tank 1. Within the tank 1, the pipe 18 is slidably supported by means of a spider 20.

An upwardly opening cup 21 is formed integral with the nut 22 of packing gland 19, and surrounds a pipe 18 above said gland 19; this cup 21 at its upper edge being formed with an outwardly projecting annular flange 23. An exteriorly threaded sleeve 24 is fixed on pipe 18 by means of a set screw 25, and extends upward about said pipe 18 from within cup 21. A hand wheel 26 is threaded on sleeve 24 above cup 21, and this hand wheel 26 is provided with an annular collar 27 secured in place by bolts 28; such collar engaging beneath cup flange 23.

At its upper end, pipe 18 is provided with a bell reducer 29 and a flexible hose 30 is connected at one end by suitable means in said reducer 29. A swinging hose supporting bracket 31 is formed with a fork 32 mounted on pipe 18 between sleeve 24 and reducer 29; said bracket 31 above the fork curving upwardly and outwardly and at its upper end being formed with an eye 33 through which the hose 30 projects. This swinging bracket 31 prevents kinking or rupturing of the hose adjacent the reducer 29, and which would otherwise occur when the hose 30 was swung about during a sand blasting operation. The sand blast nozzle (not shown) is attached to the free end of hose 30 as is usual.

In operation, a quantity of sand is disposed in tank 1 through filling neck 8, and cap 9 is then

secured in place in pressure-tight connection with said neck. Thereafter, said valve 15 is opened and the compressed air from hose 10 passes through vertical jet 16 and blows into the lower end of pipe 18. As the compressed air blows through into the lower end of pipe 18, it carries with it a quantity of sand from the tank 1, the lower end of said pipe 18 being spaced above the upper end of nozzle 16 somewhat and so as to permit the sand to so pass into said pipe 18.

In order to regulate the amount of sand being carried into pipe 18 by the force of the compressed air from jet 16, said pipe 18 is raised or lowered as desired, and this is accomplished by rotating hand wheel 26; rotation of the hand wheel 26 causing the sleeve 24 and connected pipe 18 to raise or lower, depending on the direction of rotation of the hand wheel 26.

During operation of the apparatus, a head of compressed air builds up in the upper portion of tank 1 above the surface of the supply of sand, and when the valve 15 is shut off to stop operation of the device, such head of compressed air would force a plug of sand into nozzle 16 and upward into pipe 18 if means were not provided to relieve such head of air. To provide such relief, a bleed opening 34 is formed in pipe 18 at a point adjacent the upper end of tank 1. When the valve 15 is closed, the head of compressed air in the tank 1 immediately bleeds out through opening 34 and thus no plug of sand occurs in jet 16 or pipe 18.

If it is desired that compressed air alone shall pass into pipe 18, the hand wheel 26 is rotated in a direction to lower pipe 18 until the lower end of said pipe projects over the upper end portion of nozzle 16, and rests on the bottom or lower end of tank portion 2.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. In sand blasting apparatus, a sand receiving tank, a vertical nozzle projecting into the tank through the bottom thereof, a pipe projecting through the upper end of the tank and depending to a termination at its lower end adjacent but normally spaced from said nozzle, the nozzle and said pipe being disposed in axial alignment, means mounting the pipe for vertical sliding movement, and manually operative means to effect such movement from exteriorly of the tank.

2. In sand blasting apparatus, a sand receiving tank, a nozzle in the tank, means to supply compressed air to said nozzle, a pipe extending into the tank and terminating at one end in adjacent axially alined relation to the discharge end of said nozzle, means mounting said nozzle and pipe for relative axial movement at their adjacent ends, and manually operative means to effect such movement from exteriorly of the tank.

3. In sand blasting apparatus, a sand receiving tank, a nozzle in the tank, means to supply compressed air to said nozzle, a pipe extending into the tank and terminating at one end in adjacent axially alined relation to the discharge end of said nozzle, means mounting the pipe in connection with the tank for axial movement at said one end, and a hand member movably mounted in connection with the tank exteriorly thereof and operative to effect said axial movement of the pipe at said one end.

4. In sand blasting apparatus, a sand receiving tank, a nozzle in the tank, means to supply compressed air to said nozzle, a pipe extending into the tank and terminating at one end in adjacent axially alined relation to the discharge end of said nozzle, and means mounting said nozzle and pipe for relative axial movement at their adjacent ends; said last named means comprising a sleeve fixed on the pipe exteriorly of the tank, and a hand wheel threaded on said sleeve and mounted in rotatable but axially immovable relation to said sleeve.

5. In sand blasting apparatus, a sand receiving tank, a nozzle in the tank, means to supply compressed air to said nozzle, a pipe extending into the tank and terminating at one end in adjacent axially alined relation to the discharge end of said nozzle, and means mounting said nozzle and pipe for relative axial movement at their adjacent ends; said last named means comprising a sleeve fixed on the pipe exteriorly of the tank, a hand wheel threaded on said sleeve, a packing gland on the tank through which said pipe slidably extends, an outwardly facing cup formed with said packing gland and surrounding the pipe, the inner end of said sleeve projecting into said cup, an annular flange formed on and projecting laterally outward from the outer end of said cup, and an annular collar on the hand wheel and engaging under said flange.

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