This invention relates to cotton handling equipment and more particularly to new and useful improvements in suction telescopes for transferring seed cotton from conveyances into a gin.

The principal object of the invention is to improve upon the suspension means or mounting for suction telescopes, primarily by simplifying their installation on a gin house wall and through the provision of a mounting which permits of flexible connection between the horizontal transition tube supporting the suction telescope and the gin duct through which cotton is transported to the gin stands.

Another object of the invention is to provide an angle brace constituting the only needed support for the suction telescope and transition tube and which is capable of vertical adjustment from a conveniently accessible position on the ground to raise and lower the suction telescope while in no wise interfering with the ability of the latter to swing in a wide arc whose radius insures ample suction range under normal conditions.

Still another object of the invention is to provide means in the elbow junction between the suction telescope and transition tube to minimize frictional wear at this point caused by violent contact therewith of cotton and seeds under influence of suction, as well as to reduce damage to the seed by such contact, which results in a lowering of the grade of the seed.

With the foregoing and other objects in view, the invention has reference to certain features of accomplishment to become manifest as the description proceeds, taken in connection with the accompanying drawings wherein:

Figure 1 is a perspective view of the invention shown installed on a gin house wall, the latter being broken away.

Figure 2 is a top plan view.

Figure 3 is a sectional view taken on line 3—3 of Figure 1.

Figure 4 is a transverse sectional view of the suction telescope taken on line 4—4 of Figure 1.

Figure 5 is a sectional view of the elbow joining the suction telescope and transition tube, and

Figure 6 is a side elevational view of a modified form of supporting means on a reduced scale.

Continuing with a more detailed description of the drawing, reference numeral 10 denotes a wall, usually that of a gin house in which the cotton cleaning and ginning equipment is installed. In this wall an opening is made to accommodate the flanged conform section 11 of a diaphragm housing, the said section being stationary in the wall 10 and in communication with a duct 12, leading to the gin stands, cleaners or storage, not shown, within the gin house.

Surrounding the flange of the housing section 11 is a ring 13. This ring is attached to the flange by means of diametrically opposed pivot pins 14 so disposed that the ring will oscillate on a horizontal axis defined by the pins.

A substantially funnel shaped, rubber diaphragm 15 is secured about its perimeter to the housing flange by a retaining ring 16 having annularly spaced bolt holes in register with like holes in the diaphragm flange to receive bolts 17. The neck portion 18 of the diaphragm is formed with an annular bead 19 and a collar 20 surrounds the neck to confine the same onto the end of a transition tube 21. The bead 19 not only serves to reinforce the outer portion of the diaphragm but also prevents the rubber from being displaced from under the retaining collar 20 as the tube 21 is manipulated, as permitted by the high flexibillity of the diaphragm 15.

Affixed to the transition tube at one end is an angular brace 22 (Fig. 1), the opposite end of the brace being secured to the ring 13 at a point spaced 90° from either of the pivotal pins 14. Thus, a form of gimbal mounting is effected to attach the transition tube 21 to the diaphragm housing 11.

To support the transition tube 21 for swinging displacement on a horizontal plane as well as for vertical adjustment, a pair of downwardly convergent members 23 constitute an angular supporting arm. The upper ends of the members 23 lie one on each side of the tube 21 and each is connected to the tube through the medium of a pivot pin 24. The pivot pins are in the form of bolts threaded into bosses 25, welded or otherwise affixed to a collar or yoke 26 secured to the tube 21. The convergent lower ends of the arm members 23 are pivotally retained by a bolt 27, extending through a sleeve or bushing 28 (Fig. 3), the latter being a part of or welded to a collar 29.

The collar 29 is interiorly threaded so as to be controlled in its longitudinal movement on a threaded rod 30, the latter being journaled at its upper and lower ends in vertically spaced brackets 31. The lower end of the screw rod 30 carries a universal joint 32 (Fig. 1) and to the lower section of the universal joint is pivoted the upper end of a crank 33. The arm of the crank is held against other than rotative movement by a bracket 34, affixed to the wall 10, as are the mounting members 31 of the screw rod 30.

It is clearly apparent from the foregoing that by rotating the crank 33, the screw rod 30 will
be rotated to cause the collar 29 to travel up and down thereon, thereby raising and lowering the transition tube 21 through the medium of the supporting arm 23. The weight of the tube 21 and its dependent elements to be presently described, which ordinarily would be borne by the screw rod 30 is actually assumed by a guide rail 35 whose end are welded to the mounting brackets 31 of the screw rod. By virtue of the V-shape of the guide rail 35 in which the collar 29 operates, frictional resistance between these elements is materially reduced.

The outer end of the transition tube 21 carries an elbow 36 on which is formed an annular flange 37. A rubber diaphragm 38, which may be identical to and interchangeable with the diaphragm 15, is secured at its perimeter to the flange 37 of the elbow by means of bolts 39 passing through a retaining ring 40. The neck of the diaphragm is slipped over the upper end of the upper section 41 of the suction telescope. A ring clamp 42 embraces the neck of the diaphragm above the head 43 thereof and secures the diaphragm onto the suction telescope. The head 43 serves in the capacity of a shock absorber or bumper for the upper end of the lower telescope section 44 when the latter is moved upwardly.

The lower section 44 of the suction telescope is slidable longitudinally on the exterior of the upper section in a conventional manner and carries on its lower end a collar 45 to which is welded, in circumferentially spaced relationship, a series of agitating fingers 46, certain of which are parallel with the longitudinal axis of the telescope throughout their lengths, while the remainder are curved outwards. These fingers are effective to dislodge packed cotton so that it may be readily caught up in the suction and drawn upwardly through the telescope. Suitable manipulating handles 47 are provided on the lower telescope section at a point spaced upwardly from its lower end.

The voluntary upward passage of material through the telescope causes the same to strike curve of the elbow 36 with considerable violence. This results in some damage, especially to seed, cracking them and reducing their grade. To minimize such damage, a covering 48 of rubber is placed on the underside of the curve in the elbow and is held in place by a rectangular, curved frame 49 and screws 50. The material in passing through the elbow will strike the rubber covering and thus the shock of contact will be cushioned, resulting in a material not only for the commodity but also obviates requirement for replacement of frictionally worn elbows.

The suction telescope is provided with a counterbalance consisting of a pair of cables 51, their upper ends being secured to diametrically opposed eyes 52, on the upper end of the lower telescope section 44. The cables then pass over pulleys 53, mounted on the flange of the elbow 36, hence across to the wall 13 and over pulleys 54 thereon. The cables extend downwardly along the wall 13 and on each side of the mounting for the adjusting screw 30 and on each cable is suspended a weight 55.

In Figure 6 is shown on reduced scale a modified form of means for suspending the suction telescope. The same reference numerals are employed to designate like parts in the preceding views but the supporting arms 23 for the transition tube 21 are substituted by a cable 56, one end of which is affixed at 57 and extends over a pulley 58 attached to a yoke 59 on the transition tube 21. The cable then extends rearwardly and over pulleys 50 and 56A, affixed to the inside and outside surfaces respectively of the gin house wall 10, thence downwardly at an angle to escape the transporting duct 12 and is wound on a windlass 61. By operating the windlass, the outer end of the transition tube and consequently the suction telescope, is raised and lowered.

The described arrangement obviates the necessity for an elaborate and costly mounting for a suction telescope yet provides a highly flexible system for transferring cotton and other commodities from one point to another, allowing for maximum range of the suction end of the telescope and operable with minimum effort.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed to fail within the scope of the appended claim is also considered to be within the spirit and intent of the invention.

What is claimed is:

In an adjusting support for a pneumatic material handling pipe the combination comprising a vertical support for said pipe, a yoke embracing said pipe having oppositely directed pivotal pins, a pair of upwardly divergent angular arms pivoted at their upper ends to the pivoted pins of said yoke, an interiorly threaded collar carried by the lower ends of said arms, a pair of vertically spaced brackets affixed to said vertical support below said pipe, a screw rod having its ends rotatably journaled in said brackets and on which said collar is adapted to move longitudinally, a substantially V-shaped guide rail welded at its ends to said brackets and adapted to be engaged by said collar to assume the weight of said pipe imposed on said screw rod through said arms, a universal joint carried by the lower end of said screw rod, a crank connected to said universal joint for rotating said screw rod and means embracing the shank of said crank to hold the same against other than rotational movement to raise and lower said pipe.

JOSEPH N. FENDER.

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