Sept. 7, 1937. T. H. OPPENHEIM 2,092,134

BLOWER PIPE SUPPORT AND REMOVABLE ELBOW THEREFOR

Filed May 21, 1935 3 Sheets-Sheet 1

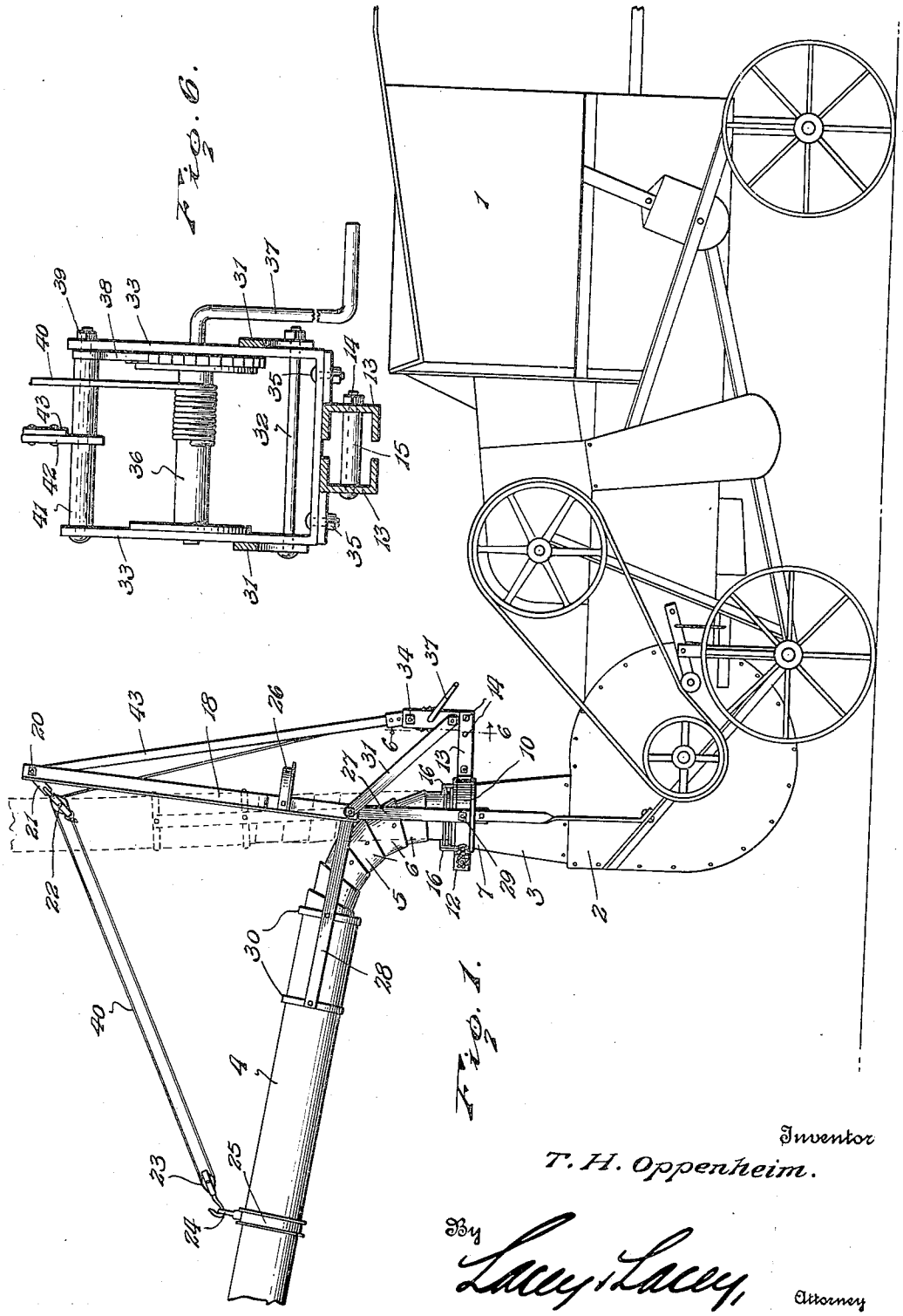


Fig. 6.

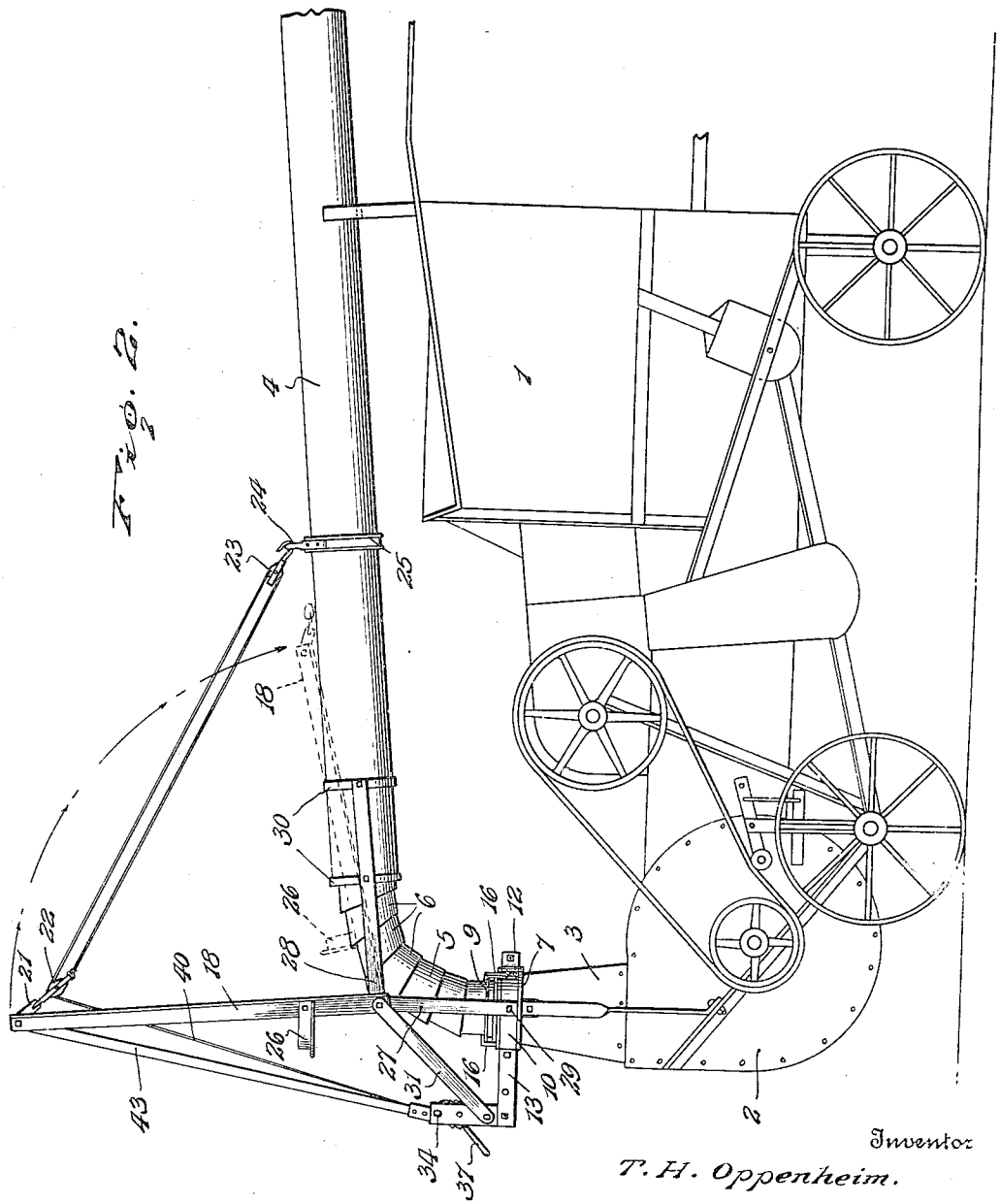
Fig. 1.

Inventor
T. H. Oppenheim.
By Lacey & Lacey, Attorney

Sept. 7, 1937. T. H. OPPENHEIM 2,092,134

BLOWER PIPE SUPPORT AND REMOVABLE ELBOW THEREFOR

Filed May 21, 1935 3 Sheets-Sheet 2



Inventor
T. H. Oppenheim.

By Lacey & Lacey, Attorneys

Sept. 7, 1937. T. H. OPPENHEIM 2,092,134

BLOWER PIPE SUPPORT AND REMOVABLE ELBOW THEREFOR

Filed May 21, 1935 3 Sheets-Sheet 3

Fig. 3.

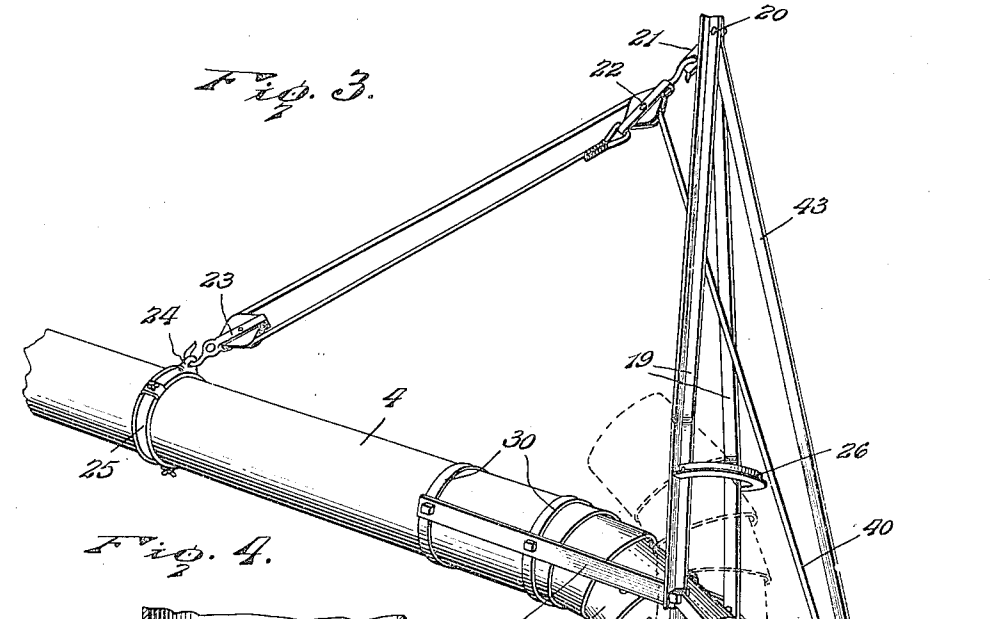


Fig. 4.

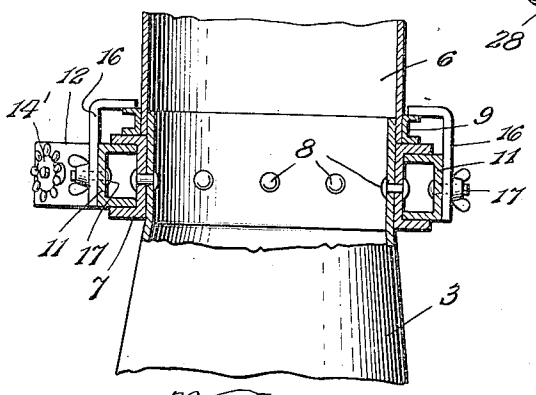
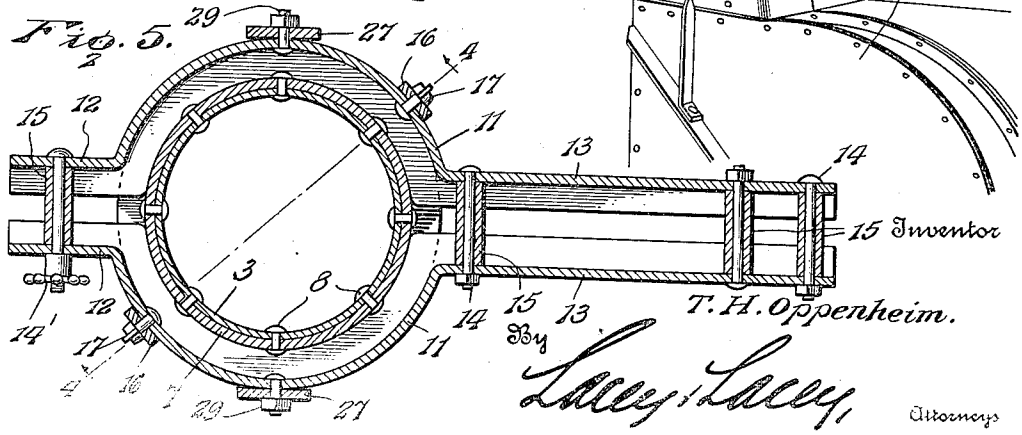


Fig. 5.



Inventor

T. H. Oppenheim.

By Lacey & Lacey

Attorneys

Patented Sept. 7, 1937

2,092,134

UNITED STATES PATENT OFFICE

2,092,134

BLOWER PIPE SUPPORT AND REMOVABLE ELBOW THEREFOR

Theodore H. Oppenheim, Coldwater, Ohio, assignor to The New Idea Spreader Company, Coldwater, Ohio, a corporation of Ohio

Application May 21, 1935, Serial No. 22,662

9 Claims. (Cl. 302—9)

This invention relates to an improved blower pipe which has been illustrated as an element of a husker shredder, but it is to be understood that the blower pipe may be used in connection with thrashing machines or any other machine to which it may be applied.

The invention particularly relates to an improved means for connecting a blower pipe with the delivery pipe or spout of a blower forming part of the husker shredder or other machine, and more particularly relates to a blower pipe having an improved type of elbow connecting it with the delivery pipe of the blower and improved means for mounting a boom pole or derrick by means of which the blower pipe is supported.

In many kinds of husker shredders it is necessary to use a boom pole or derrick for supporting the blower pipe but it has been found that when the derricks are mounted in accordance with present day practice the derrick and the blower pipe cannot have movement in a complete circle about the delivery pipe and, therefore, it is often very difficult to dispose the blower pipe in the proper position after the machine has been moved into place.

Therefore, another object of the invention is to provide improved means for mounting the derrick about the delivery pipe of the husker and permit the blower pipe and derrick to swing in a complete circle and thus allow the blower pipe to be very easily moved into a desired position.

Another object of the invention is to so construct and mount the derrick that the blower pipe may be swung vertically from a substantially horizontal position to a substantially vertical position and thus allow the blower pipe to extend either vertically for delivering material into the top of a silo or cause the material to be formed in a pile or stack in a loft or on the ground.

Another object of the invention is to so form the derrick that when the machine is to be stored in a barn or under a shed having a low roof, the blower pipe may be disposed longitudinally over the machine and the braces for the derrick released so that the derrick itself may be moved to a substantially horizontal position and not interfere with movement of the machine into the barn or the shed.

Most of the blower pipe elbows now in use are subject to occasionel clogging, especially when long stover has to be forced through the pipes or when the speed of the exhauster or blower is suddenly reduced, say due to the slippage of the blower belt or stalling of the tractor and on such occasions the entire blower pipe and especially the elbow is apt to fill up.

Therefore, another object of the invention is to construct a blower pipe assembly from which the elbow, which sometimes becomes clogged, can be easily and quickly removed for cleaning or inspection without dismantling the blower pipe proper or the parts between the blower and the elbow.

The invention is illustrated in the accompanying drawings, wherein

Figure 1 is a side elevation showing a husker shredder of a conventional construction equipped with a blower pipe and derrick constructed in accordance with this invention.

Figure 2 is a side elevation showing the blower pipe swung into position to extend horizontally over the husker shredder and the dotted lines indicating the position of the lowered derrick.

Figure 3 is a perspective view of the blower pipe and derrick, the dotted lines indicating the manner in which the elbow is removed when necessary.

Figure 4 is an enlarged fragmentary sectional view illustrating the manner in which the derrick and blower pipe are mounted to rotate about the delivery pipe of the machine, the view being taken along the line 4—4 of Figure 5.

Figure 5 is a sectional view upon an enlarged scale taken along the line 5—5 of Figure 3.

Figure 6 is a fragmentary view taken along the line 6—6 of Figure 1.

The blower pipe may be of any length desired and while it has been illustrated as a single tube, it will be understood that it may consist of telescoping sections. The inner end of the blower pipe is connected with the delivery pipe 3 of the blower by an elbow 5 which consists of a plurality of sections 6 which telescope one into another and are pivotally mounted with respect to each other so that the blower pipe 4 may be moved from a substantially horizontal position, as shown in full lines in Figures 1, 2 and 3, to the vertical position indicated by dotted lines in Figure 1. The forward section of the elbow fits into the rear end of the blower pipe and the rear section of the elbow fits about the upper end of the delivery pipe 3, as shown in Figure 4, where it rests upon a collar 7. This collar may be formed of channel metal and is firmly secured about the delivery pipe by rivets 8 with the flanges of the collar or ring projecting outwardly from the delivery pipe. The ring or collar is disposed in spaced relation to the upper end of the delivery

neck in order that the projecting upper end portion of the delivery pipe may have telescoping fit within the rear section of the elbow and in order to provide a good bearing for the elbow, its rear section carries a ring or collar 9 which is also formed of angle metal and has flat contacting engagement with the upper face of the ring 7. It will thus be seen that the elbow will have its rear section reinforced and it will be firmly supported about the upper end of the delivery pipe 3 and may turn easily about this pipe.

A yoke, indicated in general by the numeral 10, fits about the ring collar 7 which may be referred to as an annular track surrounding the delivery pipe and upon referring to Figures 4 and 5 it will be seen that this yoke consists of companion sections 11, each of which is formed from a strip of channel metal having its flanges facing inwardly and in such spaced relation to each other that when the yoke is in place the flanges of the sections 11 will fit snugly between the outstanding flanges of the ring or track 7. The end portions of the strips of channel metal from which the sections 11 are formed are bent to provide arms 12 and 13 which extend somewhat radially from the ring or track 7 and through these arms are passed bolts 14 carrying spacing sleeves 15 which limit movement of the companion arms toward each other. Therefore, the bolts may be tightened to firmly bind the arms against the ends of the spacing sleeves and the arcuate portions of the arms will be held in their proper positions about the ring or track 7. The bolt 14 holding the yoke ends 12 together can be loosened and then, without loosening the bolts in the yoke ends 13, the channel metal yoke will spring open at its curvature and it will be possible to rotate the yoke and the entire blower pipe assembly to a desired position. After such adjustment has been effected, the nut 14' of the bolt 14 in the yoke ends 12 which is in the form of a hand wheel can be tightened to hold the assembly tightly clamped with the pipe extending in the desired direction. Therefore, the yoke will be mounted for turning movement about the track and may be turned in this track for an entire circle about the delivery pipe. Retainers 16, which are in the form of hooks formed from flat strips of metal, have their shanks formed with openings through which bolts 17, carried by the arcuate portions of the yoke, pass. These hooks are to extend vertically with their bills projecting inwardly to overlie diametrically opposed portions of the bearing ring 9 of the elbow and when the wing nuts of the bolts 17 are tightened, the hooks will be retained in overlying engagement with the ring 9 and prevent the rear section of the elbow from slipping upwardly out of engagement with the delivery pipe of the blower. The yoke and the elbow may both turn about the delivery pipe of the blower and, therefore, the blower pipe may be positioned to extend longitudinally away from the machine, as shown in Figure 1, transversely thereof or over the machine, as shown in Figure 2, the blower pipe being in the position shown in Figure 2 when the machine is not in use.

A derrick is employed in order to support the blower pipe and cause it to assume a desired angle when in use. This derrick, which is indicated in general by the numeral 18, has side bars 19 which are formed of channel metal, as shown in Figure 3, and have their upper ends connected by a bolt 20 which also serves to secure a plate or hanger 21. This plate 21 projects at an incline from the upper ends of the side bars 19 and is formed with an opening through which engages the hook of a pulley 22 forming part of a block and tackle, the other pulley 23 of which has its hook engaged through the eye 24 of a collar 25 secured about the blower pipe in spaced relation to the inner end thereof. The side bars of the derrick diverge downwardly and are retained in the desired diverging relation to each other by a transversely extending brace 26 which is arcuate, as shown clearly in Figure 1, so that when the blower pipe is moved to a vertical position, the brace will not be in the way and interfere with movement of the blower pipe to the desired position. This arcuate formation of the brace also permits the elbow to be released from the delivery pipe or neck of the blower and then moved out of engagement with the blower pipe, as indicated by dotted lines in Figure 3 without disturbing the derrick of the blower pipe. Struts 27 and bars 28 are secured to lower ends of the side bars 18 of the derrick, the struts 27 extending downwardly in a vertical position with their lower ends secured to diametrically opposed portions of the yoke by bolts 29 and the bars 28 extending horizontally at opposite sides of the elbow and blower pipe and firmly secured to rings or collars 30 which fit about the rear or inner end portion of the blower pipe in spaced relation to each other longitudinally thereof. The bolts which connect the struts 27 and bars 28 with the side bars of the derrick also serve to secure bracing bars 31 which extend at a downward incline and have their lower or rear ends engaged about a bolt 32 carried by the side arms 33 of a U-shaped frame 34 which is disposed transversely of the arms 13 of the yoke and firmly secured by bolts 35. A drum 36 having a crank handle 37 is rotatably mounted between the arms of the frame 34 and one head of the drum is formed with ratchet teeth for engagement by a pawl 38 carried by a bolt 39 extending between the upper ends of the arms 33. By turning the drum, the cable 40 of the block and tackle may be wound upon the drum and since the pawl will prevent retrograde rotation of the drum until deliberately moved to a drum releasing position, the blower pipe will be supported either in a vertical or horizontal position or any angle between the vertical and horizontal positions. The sleeve 41 through which the bolt 39 passes, carries an arm 42 to which is anchored the lower end of the bracing bar or strip 43 leading to the upper end of the derrick where it is secured between the side bars 19 by the bolt 20 and serves to retain the derrick in an upright position for use. By withdrawing the bolt 39, the brace 43 will be released from the bracket 34 and the derrick may then be swung downwardly to a lowered position in which it will rest upon the blower pipe, as indicated by dotted lines in Figure 2. Therefore, when the blower pipe is disposed horizontally over the machine and the derrick is swung downwardly to a horizontal position in which it rests upon the blower pipe, the machine may be very easily moved from one place to another without danger of the blower pipe or derrick striking tree limbs and other obstructions and also the machine may be stored in a barn or shed having a low roof. If the blower pipe should become choked when the machine is in use, it is merely necessary to release the hooks 16 so that they may be swung about the bolts 17 out of engagement with the ring 9 and the elbow may then be first moved forwardly and upwardly until its rear end is out of engagement with the upper end of the delivery

pipe or neck 3 and then drawn forwardly and downwardly to detach it from the rear end of the blower pipe, as indicated by dotted lines in Figure 3. After the elbow has been detached, a stick carrying a hook or having a nail driven through it to serve as a hook may be thrust through the blower pipe and moved back and forth through the pipe to dislodge the choked material. If the elbow is choked instead of the blower pipe, the elbow can be very easily cleaned after it has been removed. With the elbow removed it is easy to reach down into the delivery pipe 3 and dislodge any material that may have choked this part of the assembly. After the cleaning operation has been completed, the elbow will be replaced and the machine will be again ready for use.

It will thus be seen that by having the blower pipe and derrick constructed and mounted as shown, the blower pipe may be swung in a complete circle about the delivery pipe or neck of the blower and may be swung to vertically adjusted positions between a horizontal and a vertical position.

It will also be seen that the elbow is easily and quickly removable for dislodging chokes or for purpose of inspection without dismantling the blower pipe proper and without changing the position of the blower pipe.

Having thus described the invention, what is claimed as new is:

1. In a machine of the character described, a blower having a delivery pipe extending upwardly therefrom, a collar secured about said delivery pipe in spaced relation to the upper end thereof and constituting an annular track, a blower pipe, a flexible elbow having one end detachably engaged with the blower pipe and its other end fitting about the upper end portion of the delivery pipe and resting upon said collar, a yoke engaged with said collar and rotatable about the same, means carried by said yoke for holding said elbow in place about the delivery pipe, a derrick carried by said yoke, and means carried by said derrick for supporting the blower pipe and retaining the blower pipe in an angularly adjusted position.

2. In a machine of the character described, a blower having a delivery pipe extending upwardly therefrom, a collar about said delivery pipe secured thereto in spaced relation to the upper end thereof, a blower pipe, a flexible elbow having one end telescoped into the inner end of the blower pipe and its other end fitting about the delivery pipe above said collar, a reinforcing ring about said elbow resting upon said collar, a yoke secured about said collar and adapted to rotate entirely about the collar, fasteners carried by said yoke and engaging said ring to retain the elbow in place about the delivery pipe, a derrick carried by said yoke and movable about the collar with the yoke, said derrick having its upper portion mounted for adjustment from a vertical position to a reclining position, and means carried by said derrick for supporting the blower pipe and retaining the blower pipe in an angularly adjusted position.

3. In a machine of the character described, a blower having an upwardly extending delivery pipe, a collar secured about the delivery pipe in spaced relation to the upper end thereof and formed with outstanding upper and lower flanges defining a track, a blower pipe, a flexible elbow having its outer end telescoped into the inner end of the blower pipe and its inner end fitting about the upper end of the delivery pipe, a reinforcing ring secured about the inner end of said elbow and resting upon the upper flange of said collar, a yoke having an annular portion fitting about the collar and engaged between the flanges thereof and an arm extending from the annular portion, bars rising from the annular portion at opposite sides thereof, arms extending from said bars and connected with said blower pipe, a derrick carried by said bars, a frame carried by the arm of said yoke, braces for the bars and derrick connected with said frame, a drum carried by said frame, and a block and tackle carried by said derrick and having a pulley connected with the blower pipe and its cable wound upon said drum.

4. In a machine of the character described, a blower having a delivery pipe extending upwardly therefrom, a collar secured about the delivery pipe, a blower pipe, a flexible elbow having its outer end detachably engaged with the inner end of the blower pipe and its inner end detachably and rotatably engaged with the delivery pipe and resting upon said collar, a yoke rotatable about said collar, a derrick having a lower portion carried by said yoke and an upper portion pivoted to the lower portion, arms extending from the lower portion of the derrick at opposite sides of the flexible elbow and connected with the blower pipe, a brace for supporting the upper portion of the derrick in a vertical position detachably secured whereby the upper portion of the derrick may be swung from a vertical position to a reclining position, and means carried by the derrick for supporting the blower pipe in an angularly adjusted position between a horizontal and a vertical position.

5. In a machine of the character described, a blower having a delivery pipe extending therefrom, a blower pipe, a flexible elbow detachably engaged with the blower pipe and rotatably engaged with the delivery pipe, an annular track secured about the delivery pipe, a yoke rotatably engaged about said track and having an arm extending radially therefrom, a frame carried by said arm, a drum rotatably carried by said frame, bars carried by said yoke at opposite sides of said elbow, arms extending from said bars along opposite sides of the elbow and blower pipe, rings carried by said arms and disposed about said blower pipe, braces extending from said bars and secured to said frame, a derrick rising from said bars and pivoted thereto, a brace for said derrick connected with said frame and detachable therefrom, a collar secured about said blower pipe, a pulley carried by the derrick, a pulley connected with the collar of the blower pipe, and a cable trained about the pulleys and wound upon said drum for adjusting the angle of the blower pipe and supporting the blower pipe in an adjusted position.

6. In a machine of the character described, a blower having a delivery pipe, a blower pipe, and an elbow extending between the delivery pipe and blower pipe with its outer end telescoped into the blower pipe and its inner end rotatably engaged about the delivery pipe, said elbow consisting of a plurality of sections fitting one within another and pivotally connected with each other, a collar secured about the rear end section of the elbow, a collar secured about said delivery pipe and engaged under the rear end of the elbow and the collar carried thereby to rotatably support the elbow, a yoke movable about the collar of said delivery pipe, fasteners carried by

said yoke and movable into and out of position to engage the collar of the elbow and detachably hold the elbow about the delivery pipe, and a support for said blower pipe carried by said yoke and straddling the elbow.

7. In a machine of the character described, a blower having a delivery pipe, a collar secured about said delivery pipe and constituting an annular track, a blower pipe, a flexible elbow having one end detachably engaged with the blower pipe and its other end resting upon said collar about the adjacent end of the delivery pipe, a yoke rotatable about the collar, releasable means for holding said elbow in place upon the collar, a derrick connected with said yoke and moving therewith, and means carried by said derrick for supporting the blower pipe and retaining the blower pipe in an adjusted position.

8. In a machine of the character described, a blower having a delivery pipe, a blower pipe, a flexible elbow having one end telescoped into the inner end of the blower pipe and its other end loosely engaged about the delivery pipe and rotatable about the same, a collar about said delivery pipe supporting said elbow, a yoke rotatable about said collar, a derrick having a lower section carried by said yoke and an upper section pivoted to the lower portion for vertical swinging movement from a raised position to a reclining position, means to secure the upper section upright, supporting means for the inner end portion of said blower pipe pivoted to the lower section of said derrick, and means carried by said derrick for supporting the blower pipe in a vertically adjustable position from the upper section of the derrick.

9. In a machine of the character described, a blower having a delivery pipe, a blower pipe, an elbow extending between the delivery pipe and blower pipe with one end detachably carried by and rotatable about the delivery pipe, said elbow consisting of a plurality of telescoping sections pivoted to each other and tiltable transversely of the longitudinal axis of the elbow, the section forming the outer end of the elbow being telescoped into the inner end of the blower pipe and frictionally held therein and being slidable longitudinally into and out of engagement therewith, a yoke rotatable about said delivery pipe, a derrick straddling said elbow and having a lower portion carried by said yoke and an upper section pivoted to the lower section for vertical swinging movement from a raised position to a reclining position, means to secure the upper section upright, supporting means for the inner end portion of said blower pipe pivoted to the lower section of said derrick, and means carried by said derrick for supporting the blower pipe in a vertically adjusted position from the upper section of the derrick.

THEODORE H. OPPENHEIM.