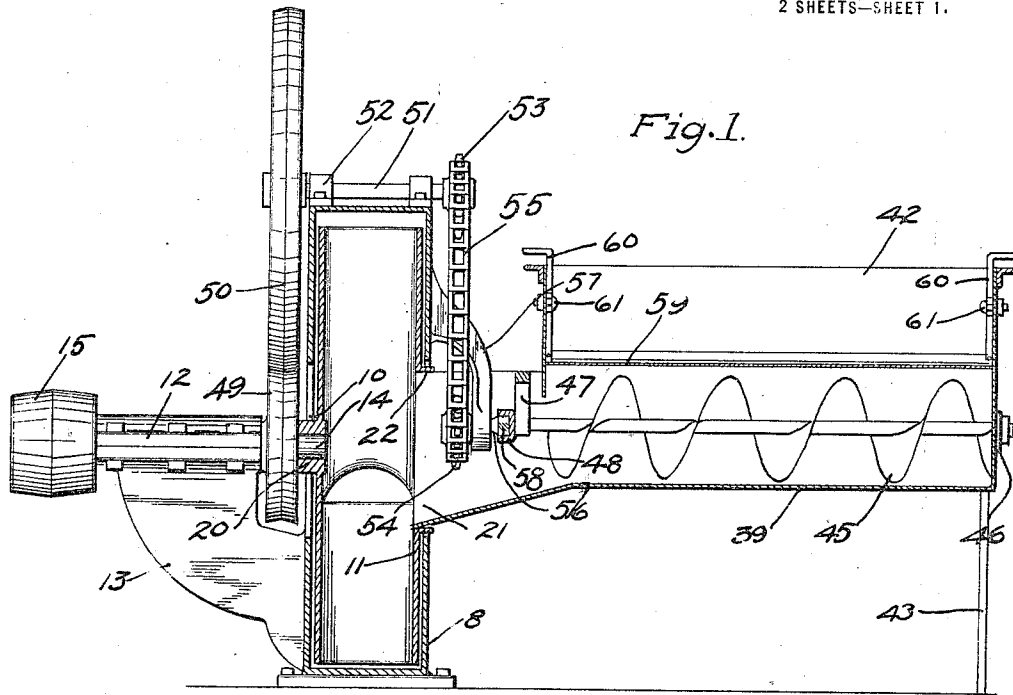
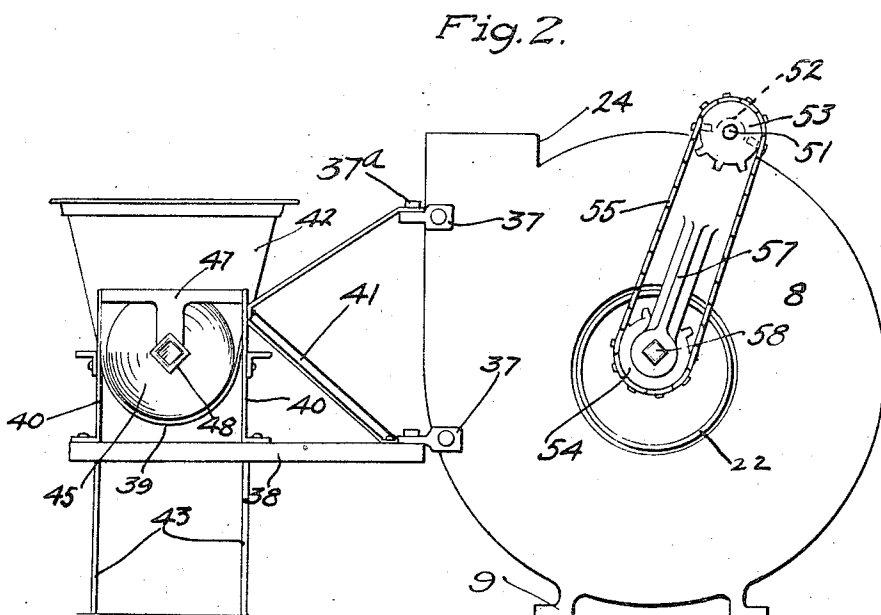


H. J. CARSON.
PORTABLE ELEVATOR.
APPLICATION FILED APR. 23, 1914.

1,189,663.

Patented July 4, 1916.
2 SHEETS—SHEET 1.



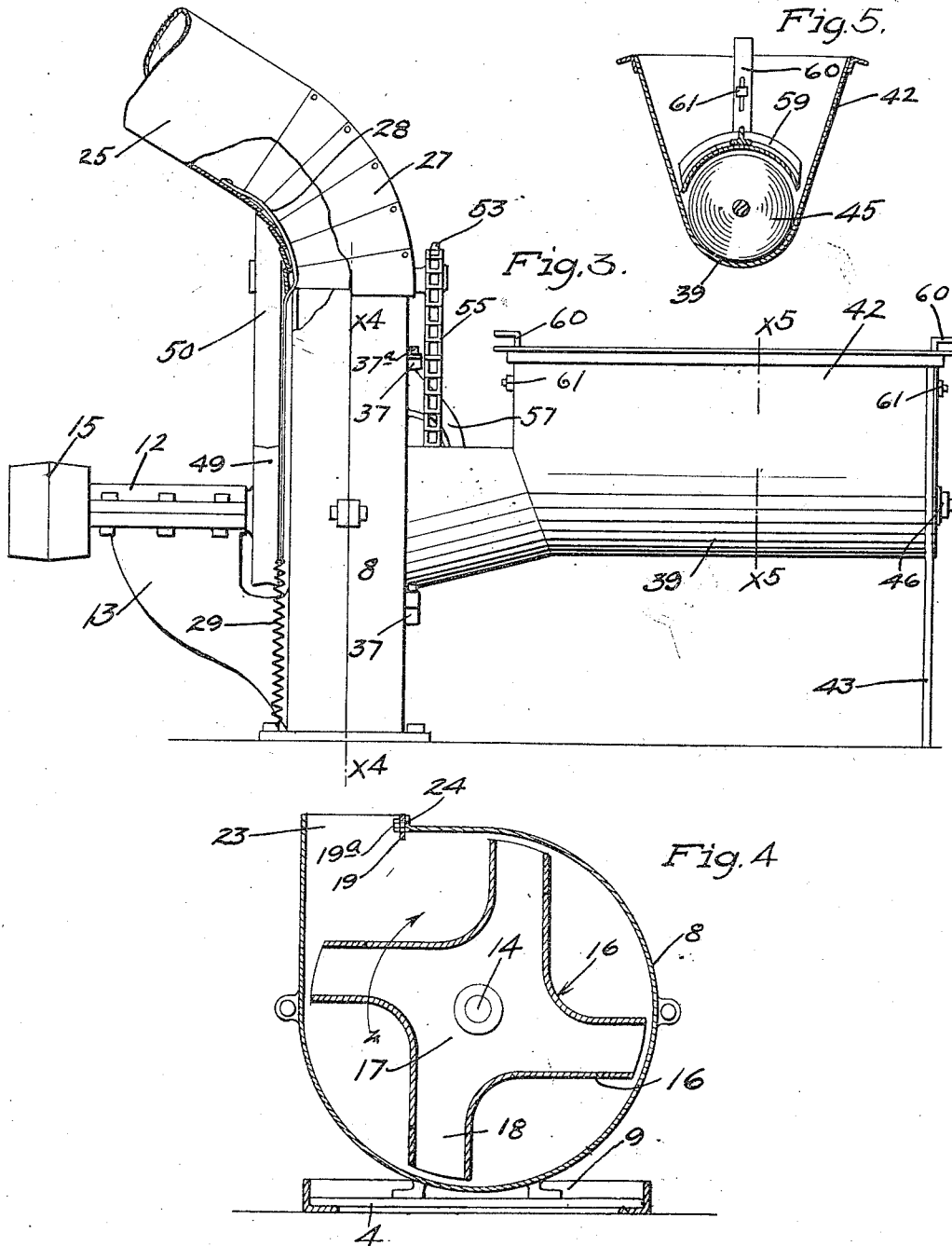
WITNESS
E. C. Skinkle

INVENTOR
Hugh J. Carson
BY HIS ATTORNEYS
Williamon & Merckel

H. J. CARSON.
PORTABLE ELEVATOR.
APPLICATION FILED APR. 23, 1914.

1,189,663

Patented July 4, 1916.
2 SHEETS—SHEET 2.



WITNESS
E. C. Skinkle

INVENTOR
Hugh J. Carson
BY HIS ATTORNEYS

William M. Merchant

UNITED STATES PATENT OFFICE.

HUGH J. CARSON, OF FAIRFAX, MINNESOTA.

PORTABLE ELEVATOR.

1,189,663.

Specification of Letters Patent.

Patented July 4, 1916.

Application filed April 23, 1914. Serial No. 833,681.

REISSUED

To all whom it may concern:

Be it known that I, HUGH J. CARSON, a citizen of the United States, residing at Fairfax, in the county of Renville and State of Minnesota, have invented certain new and useful Improvements in Portable Elevators; 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.

My invention has for its object to provide a self-contained and portable grain elevator, especially adapted for use on farms, for delivering grain into granaries; and, to this end, the invention consists of the novel devices and combinations of devices herein-after defined and described in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:—Figure 1 is a view principally in longitudinal vertical section taken centrally through the invention; Fig. 2 is an end elevation with the feed spout swung into an inoperative position; Fig. 3 is a side elevation of the parts shown in Fig. 1, with some parts broken away and with some of the exposed parts shown in section; Fig. 4 is a vertical section taken on the line $x^4 x^4$ of Fig. 3; and Fig. 5 is a detail view in vertical section taken on the line $x^5 x^5$ of Fig. 3.

The numeral 4 indicates a supporting base on which is mounted a fan casing 8, as shown, preferably composed of two upright sections detachably secured one to the other, and having formed therein axially aligned eyes 10 and 11. Each section of said casing is provided with a supporting foot 9 rigidly secured to the supporting base 4. A two-part horizontally extended bearing sleeve 12, axially aligned with the eyes 10 and 11, is secured to the lower section of the fan casing 8 by a bracket 13, integrally formed therewith on the same side as the eye 10. Intermediately journaled in the bearing sleeve 12 is a shaft 14, the inner end of which extends through the eye 10 into the fan casing 8, and the other end of which has rigidly secured thereto a driving pulley 15.

A centrifugal fan 16, of novel construction, is mounted within the fan casing 8 and is formed with a common central cham-

ber 17 and a plurality of radial hollow blades 18 leading from said chamber, the said hollow blades 18 having flat driving faces. The side of the fan chamber 16, adjacent to the eye 10, has integrally formed therewith a horizontally extended hub 20 keyed to the inner end of the shaft 14. The other side of the fan chamber 17 is provided with an eye or an air and grain intake 21, surrounded by a laterally projecting flange 22, which extends through and works within the eye 11 of the fan casing 8.

Preferably, a gas engine is employed for driving the fan 16, in which case a belt will be arranged to run over a pulley on the engine shaft and over the pulley 15, but, for the purpose of this case, it is not thought necessary to illustrate either the gas engine or the belt.

In the top of the fan casing 8 is formed a grain discharge opening 23 surrounded by an upwardly extended collar 24. Within this opening is mounted a cut-off blade 19, provided for preventing the air and grain from passing between the ends of the fan blades 18 and the casing, after said blades have passed the opening 23. This cut-off blade 19 is held in different vertical adjustment by a set bolt 19^a, in order that the same may be adjusted from time to time, to take up wear on the ends of the fan blades. A discharge grain spout 25, preferably made in two sections, detachably connected at 26 by a bayonet joint or other suitable means, not shown, is, at its lower end, connected to the casing 8 by a flexible joint 27. This joint is made up of pivotally connected members of well-known construction, the lower of which is telescoped onto the collar 24. The members of the flexible joint 27 are preferably made rectangular in cross section, and the lower sides thereof are covered by a flexible metal plate 28, rigidly secured, at its upper end, to the lower portion of the flexible joint 27, and having its lower end passed between the collar 24 and the flexible joint 27. The plate 28 is yieldingly held in engagement with the joint 27 by a long coiled spring 29, anchored to said plate, and to the supporting base 4. Obviously, this spring will permit the plate 28 to move during the adjustment of the joint 27. Any suitable means, not shown, may be provided for supporting the upper end of the discharge spout 25.

A pair of alined vertically spaced hinge lugs 37 are integrally formed with the section of the fan casing 8 having the eye 11. One end of a supporting arm 38 is pivoted to the lower hinge lug 37 for horizontal swinging movement. The inner end of a horizontally extended feed spout 39 is supported on the arm 38, by a pair of legs 40, for horizontal swinging movement therewith. A V-shaped brace rod 41 is provided for holding the arm 38 from sagging. The upper end of this rod 41 is pivoted, at 42, to the upper hinge lug 37, and the lower end thereof is rigidly secured to the arm 38. At its intermediate portion, the rod 41 is rigidly secured to the upper end of the inner leg 40. On the outer end portion of the feed spout 39 is a longitudinally extended open bottom hopper 42 arranged to discharge into the said feed spout and a ground-engaging leg 43. As shown in Fig. 1, the feed spout 39 is supported by the leg 43 in a position to permit the hopper 42 to swing under the rear end of the wagon box, and into a position to receive the grain dumped or shoveled from said wagon box, after the end gate thereof has been removed or opened.

The grain delivered into the spout 39 is carried to the fan 16 by a spiral conveyer 45, mounted in the feed spout 39, with one end of its shaft journaled in a bearing 46 on the outer end of said spout, and in a bearing bracket 47 suspended within the inner end portion of said spout. On the inner end of the conveyer shaft is a head 48 having a rectangular socket, the purpose of which will presently appear.

The conveyer 45 is driven from the shaft 14 by the following connections, to wit:—Keyed to the shaft 14 is a relatively small grooved friction wheel 49, which meshes with a relatively large beveled friction wheel 50, keyed to one end of a counter-shaft 51 journaled in bearings 52 on the fan casing 8. To the other end of the counter-shaft 51 is keyed a sprocket wheel 53, over which sprocket wheel and an alined sprocket wheel 54 runs a sprocket chain 55. The sprocket wheel 54 is keyed to a short shaft 56, alined with the shaft of the conveyer 45, and journaled on a bearing bracket 57 integrally formed with the fan casing 8. On the end of the shaft 56, adjacent to the conveyer 45, is a rectangular head 58 adapted to fit within the socket of the head 48 when the conveyer spout 39 is swung into an operative position, and thereby lock the conveyer and shaft 56 for common rotary movement. Obviously, when the spout 39 is swung into an inoperative position, the driving connection between the shaft of the conveyer 45 and the shaft 56 is broken, by the separation of the interlocking heads 48 and 58.

To regulate the flow of grain from the

hopper 42 to the conveyer 45, is mounted within the said hopper, and overlying the said conveyer, a segmental hood 59 having, at each end, an upwardly projecting slotted arm 60. These arms are secured in different vertical positions to the hopper 42 by clamping bolts 61 passed through the slots in said arms. Obviously, by raising or lowering the hood 59, the space between the longitudinal edges thereof and the sides of the hopper 42 may be varied; and said hood and hopper co-operate to afford a feed regulator, to determine the amount of grain to be fed to the conveyer 45 from said hopper. The upper ends of the arms 60 are, as shown, bent laterally outward to afford hand pieces by which the hood 59 may be raised or lowered within the hopper.

The operation of the device may be briefly stated as follows:—When the device is not in use, the feed spout 39 is swung to one side on the arm 38, so that a wagon may be driven close to the supporting base 4. The feed spout 39 is then swung into an operative position with the hopper 42 slightly under the rear end portion of the wagon box, in a position to receive the grain as the same is shoveled or dumped from said wagon. The fan is now started and, when the same has reached the required speed, the end gate of the wagon is opened and the grain allowed to flow into the hopper 42, and directly onto the hood 59, and is fed therebetween and the upwardly diverging sides of the hopper 42 into the feed spout 39. Obviously, by vertically adjusting the hood 59, the amount of grain fed to the conveyer 45 may be varied at will. From the spout 39, the grain is moved by the conveyer 45 to the delivery end of the spout, from where it is sucked by the fan into the central chamber 17 of said fan 16 through the air port 21, where it is caught by the hollow blades 18 and thrown through the opening 23 into the discharge spout 25. From thence, the grain thrown from one blade 18 will be blown, by the force of the air from the fan of the next following blade 18, through the spout 25. Air for the fan will be drawn through the eye 10 and also through the eye 11 over the grain in the spout 39. By the proper adjustment of the delivery spout 25, the grain may be deposited in the granary where desired.

What I claim is:—

1. In a device of the kind described, the combination with a fan casing provided with a discharge spout, of a fan journaled, at one side, to one side of said casing, means for driving said fan, the said fan having a common central chamber and radial tubular blades leading from said chamber, the said tubular blades having flat driving faces, a cut-off blade mounted on said casing for co-operation with said fan blades after they have passed said discharge spout, said cas-

ing and fan having coincident eyes, and a feed spout arranged to deliver through said eyes.

2. In a device of the kind described, the combination with a fan casing provided with a discharge spout, of a fan journaled, at one side, to one side of said casing, means for driving said fan, the said fan having a common central chamber and radial tubular blades leading from said chamber, the said tubular blades having flat driving faces, an adjustable cut-off blade mounted on said cas-

ing for coöperation with said fan blades after they have passed said discharge spout, said casing and fan having coincident eyes, 15 and a feed spout arranged to deliver through said eyes.

In testimony whereof I affix my signature in presence of two witnesses.

HUGH J. CARSON.

Witnesses:

EMILY MAY KING,
HARRY D. KILGORE.