

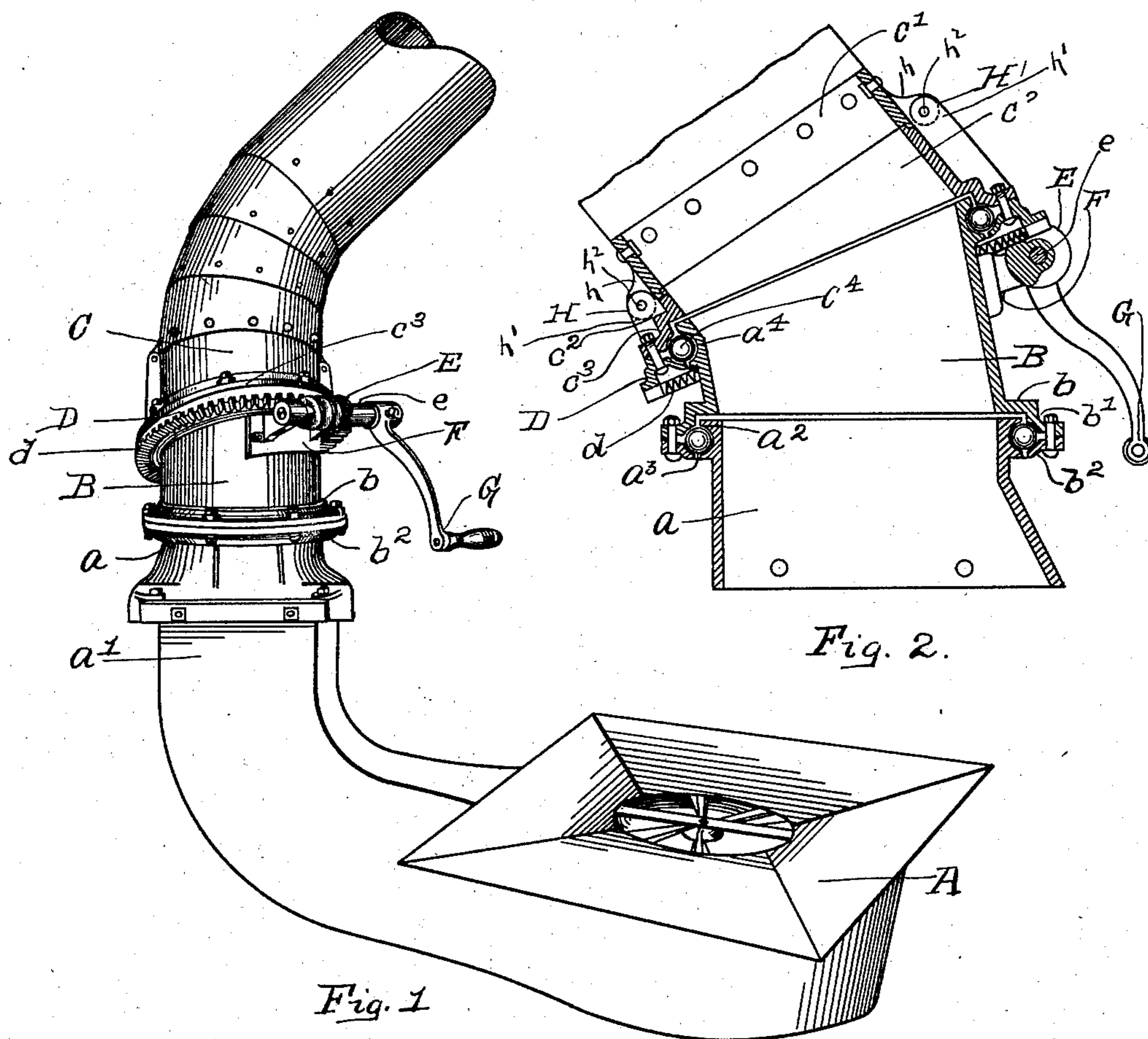
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G. F. CONNER.
CONVEYER CHUTE.

APPLICATION FILED MAY 15, 1902.

NO MODEL.



WITNESSES

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GEORGE F. CONNER, OF PORT HURON, MICHIGAN.

CONVEYER-CHUTE.

SPECIFICATION forming part of Letters Patent No. 741,770, dated October 20, 1903.

Application filed May 15, 1902. Serial No. 107,427. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. CONNER, a citizen of the United States of America, residing at the city of Port Huron, in the county of St. Clair and State of Michigan, have invented new and useful Improvements in Conveyer-Chutes for Pneumatic Blowers, Fans, and the Like, of which the following is a full, clear, and exact specification.

This invention relates to conveyer-chutes for pneumatic blowers, fans, and the like, and especially to means for changing the direction and elevation of the chutes.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

As hereinafter described and illustrated, a pneumatic chute embodying the features of the invention is shown in connection with a pneumatic blower adapted for threshing-machines, the chute itself being adapted for a straw-stacker.

In the drawings, Figure 1 is a view in perspective of a device embodying the features of the invention mounted on a pressure-blower. Fig. 2 is a central vertical section through the chute.

Referring to the drawings, A represents a pneumatic blower or fan for a threshing-machine of any type or preferred design, which is adapted to gather the straw from the discharge of the machine and force it out for stacking. An annular casing a , preferably of cast-iron, at the mouth of the outlet a' of said blower is connected to the mouth of the blower and forms a base on which the chute is carried. Said base a may be rigidly secured to the blower proper or, as herein indicated, may be designed to be supported by independent means, as the frame of a thresher. Said base a is provided with a circular raceway and friction-balls a^3 . Seated on said base a is a sleeve B. Said sleeve may be secured to said base by a friction-bearing, which preferably is constructed as follows: The lower end of said sleeve is provided with an outwardly-extending flange b with a depending lip b' . The inner face of said lip is grooved to form a raceway complementary to the raceway a^2 . An annular flange b^2 , securely bolted to the lower face of the flange b' , is likewise provided with an inner grooved

face, which retains the balls a^3 in place and holds the collar in position. The flanges b and b^2 overlap and closely approach the base a , so as to form a comparatively tight joint between the sleeve and the outlet of the blower. Said sleeve, while cylindrical in section, is preferably so disposed in reference to the outlet a' that its axis is oblique to the axis of said outlet. The plane of the upper end of said sleeve is also oblique to the plane of its lower end. A raceway a^4 is formed in its flanged upper end similar to the raceway a^2 .

Resting on the upper end of the sleeve B is a chute-collar C. Said chute-collar C may be continuous, but as herein shown, and preferably, consists of two sections c and c' , fitted closely at their contiguous ends and detachably secured by hinged joints H and H', by means of which ready access may be had to the chute. A simple and preferred form of construction for said hinges comprises radial lugs h on one section mating with corresponding lugs h' on the other section, pivot-bolts h^2 being passed through apertures in the lugs. The removal of either bolt permits the chute to be swung on the other bolt. Obviously any form of hinged joint may be used, although the simplicity of the one illustrated makes it preferable. The lower end of the lower section c of said collar is preferably provided with a bearing which reduces the friction between the parts and retains the collar against lateral displacement. A desirable form of such bearing is obtained by forming the section c with a flange c^2 , provided with a depending lip c^3 , whose inner face registers with the raceway a^4 and provides a bearing for the collar C on friction-balls c^4 . A ring D is secured to the lower face of said lip c^3 by bolts or other suitable means, the inner face of said ring being adapted to retain the balls c^4 in their raceway and to prevent displacement of the collar C. The plane of the flange c^2 is oblique to the main axis of the collar C. Owing to this disposition of the connecting parts of the collar and sleeve, the axes of the latter are oblique to each other. In order to secure interrotation of the parts, so as to obtain the desired elevation of the chute, means coacting with said sleeve and collar are se-

cured thereto at points convenient for the use of the operator. A number of devices may be employed for this purpose. The construction herein shown, which is preferable, is as follows: Gear or rack teeth d are formed in the lower face of the collar D and are in mesh with a horizontal worm E. The latter is secured by the usual means on a shaft e , which is journaled in a suitable bracket F, bolted or otherwise fastened to the sleeve B. A convenient means of rotating said shaft is afforded by a crank and handle G.

The lower end i of the main body of the chute I is secured to the upper section c' of the collar C. Said chute is preferably made of sheet metal, and in adapting it for use as a stacker the chute, as herein shown and illustrated, is provided with an elbow i' , so that the main axis of the chute is oblique to the main axis of the collar C. An important feature of this form of construction is the fact that the base on which the sleeve revolves supports the entire chute without any exterior rigging, the sleeve acting as a rigid and inflexible connection between the chute proper and the supporting-base. While the joints connecting the parts permit their free interrotation, they maintain the chute rigidly in any desired position.

From the above description it is readily seen that the chute as a whole may be readily turned in any direction relative to the lower mouth by simply rotating the sleeve B upon the outlet-collar of the blower-outlet a , the ball-bearing allowing easy manipulation of the parts. In case it is desired to elevate or depress the chute the relative position of the sleeve and the chute-collar is readily changed by means of the worm and gear, the ball-bearing joint between the two reducing the friction and preventing cramping of the parts. This rotation of the parts varies the angle between the axis of the collar and the chute, thereby permitting adjustment of the latter at the required elevation. When so placed, the parts maintain their relative positions without further attention, thereby obviating the necessity of clutches, stops, or detents.

The construction herein shown does away with the levers, pulleys, cords, and counterweights on the outside of the chute, which are cumbersome and become easily displaced or clogged with dirt. The elevating device is integral with the chute, and the multiplicity of bearings and other working parts, which are features of the usual devices employed for the purpose indicated, are thereby avoided. The worm and gear operating means can be made to give sufficient power to handle any size or length of chute desired, and the angle of its elevation can be rapidly and accurately adjusted. By the use of a single rotatable sleeve further simplicity and avoidance of working joints are attained, while the discharge-pipe can turn freely in any direction without reference to the supporting-base.

The joints between the parts are so arranged that the seams are at an acute angle with the line of the blast, thereby minimizing leakage, while the peculiar arrangement of the raceways in the ball-bearings precludes the possibility of dust and dirt settling therein.

It will be understood that the details of construction herein shown may be varied without departing from the spirit of the invention, and I do not limit myself to specific forms and arrangement of parts except as set forth in the appended claims.

I claim as my invention—

1. A conveyer-chute for a pneumatic blower, comprising a sleeve rotatively secured to and supported on the blower-outlet, a discharge-pipe rotatively secured to and supported by said sleeve, and means for rotating said discharge-pipe on said sleeve, the plane of rotation of said discharge-pipe on said sleeve being oblique to the plane of rotation of said sleeve on said blower-outlet.

2. A conveyer-chute for a pneumatic blower, comprising a sleeve rotatively secured to and supported on the blower-outlet, a discharge-pipe rotatively secured to and supported by said sleeve, and means on said sleeve engaging said discharge-pipe adapted to rotate said pipe on said sleeve, the plane of rotation of said discharge-pipe on said sleeve being oblique to the plane of rotation of said sleeve on said blower-outlet.

3. A conveyer-chute for a pneumatic blower, comprising a sleeve rotatively secured to and supported on the blower-outlet, a discharge-pipe rotatively secured to and supported by said sleeve, a circular rack secured to said pipe, and a worm rotatively secured to said sleeve in mesh with said rack, the plane of rotation of said discharge-pipe on said sleeve being oblique to the plane of rotation of said sleeve on said blower-outlet.

4. A conveyer-chute for a pneumatic blower, comprising a base on the blower-outlet, a sleeve rotatively secured on said base, a friction-bearing secured to the outer end of said sleeve, and a discharge-pipe rotatively secured to and supported by said friction-bearing, the axes of revolution of said sleeve and pipe being oblique to each other.

5. A conveyer-chute for a pneumatic blower, comprising a base forming a blower-outlet, a bearing thereon, a sleeve rotatively secured to said bearing, a bearing secured on the outer end of said sleeve, a discharge-pipe rotatably secured to and supported by said outer bearing, and means on said sleeve engaging said discharge-pipe to revolve said pipe, the axes of revolution of said bearings being oblique to each other.

6. A conveyer-chute for a pneumatic blower, comprising a base on the blower-outlet, a bearing secured thereon, a sleeve rotatably secured to said bearing, a bearing secured to the outer end of said sleeve, a discharge-pipe rotatably secured to and supported by said outer bearing, a circular rack secured to said

pipe, and a worm rotatably secured on said sleeve in mesh with said rack, the axes of revolution of said bearings being oblique to each other.

5 7. A conveyer-chute for a pneumatic blower, comprising a base on the blower-outlet, a sleeve rotatably secured to said base whose axis is oblique to the axis of the blower-outlet, an annular bearing on the outer end of
10 said sleeve lying in a plane oblique to the plane of the base-bearing, a discharge-pipe rotatably secured to said annular bearing and supported by said sleeve, and means on said sleeve adapted to rotate said pipe.

15 8. A conveyer-chute for a pneumatic blower, comprising a bearing-base secured to the blower-outlet, a sleeve rotatably secured on said base, the axis of said sleeve being oblique to the axis of said base, a bearing on the outer
20 end of said sleeve lying in a plane oblique to the plane of the base-bearing, a discharge-pipe rotatably secured to said sleeve-bearing and supported by said sleeve, and means on said sleeve adapted to rotate said pipe on said
25 sleeve.

9. A conveyer-chute for a pneumatic blower, comprising a sleeve rotatively secured to the blower-outlet, a discharge-pipe rotatively secured to said sleeve, the plane of rotation of
30 said discharge-pipe on said sleeve being oblique to the plane of rotation of said sleeve on said outlet, and articulated connections in said pipe adapted to permit the latter to be folded back upon itself.

35 10. A conveyer - chute for a pneumatic blower, comprising a sleeve rotatively secured to and supported on the blower-outlet, a discharge-pipe rotatably secured to and supported by said sleeve, the plane of rotation of said
40 discharge-pipe on said sleeve being oblique to the plane of rotation of said sleeve on said blower-outlet, and means adapted to give access to the interior of the chute, comprising a hinged joint in said pipe whereby said pipe
45 may be folded back upon itself.

11. A conveyer - chute for a pneumatic blower comprising a sleeve, means rotatively supporting said sleeve at the blower-outlet, a discharge-pipe inflexibly and rotatively connected to and supported by said sleeve in oblique relation thereto, said sleeve and pipe
50 having an unobstructed interior, and means on said sleeve adapted to rotate said pipe relative to said sleeve.

55 12. A conveyer - chute for a pneumatic blower comprising a sleeve rotatively secured at the blower-outlet, a discharge-pipe inflexibly and rotatively secured to and supported by said sleeve in oblique relation thereto, said
60 sleeve and pipe having an unobstructed interior, and means secured on said sleeve adapted to rotate said pipe relative to said sleeve.

13. A conveyer - chute for a pneumatic

blower, comprising a sleeve, means rotatively 65 supporting said sleeve at the blower-outlet, a discharge-pipe inflexibly and rotatively connected to and supported by said sleeve in oblique relation thereto, and means on said sleeve adapted to rotate said pipe relative to 70 the said sleeve, said sleeve, pipe and operating means being disposed in such manner as to afford an unobstructed passage-way having practically continuous and unbroken walls.

14. A conveyer - chute for a pneumatic blower comprising a base secured to the blower-outlet provided with a bearing at its outer end, a sleeve whose lower end is rotatively secured in said bearing, and whose outer 80 end is provided with a bearing lying in a plane oblique to the plane of said base-bearing, the axis of said sleeve being oblique to the axis of said base, a worm rotatively secured to said sleeve, a collar rotatively secured in said outer 85 sleeve whose lower flanged end overlaps said sleeve, a circular rack in the lower face of said flange meshing with said collar, and a discharge-pipe connected by an elbow to said collar. 90

15. A conveyer - chute for a pneumatic blower comprising a base secured to the blower-outlet provided with a bearing at its outer end, a sleeve whose lower end is rotatively secured in said bearing, and whose outer 95 end is provided with a bearing lying in a plane oblique to the plane of said base-bearing, the axis of said sleeve being oblique to the axis of said base, a worm rotatively secured to said sleeve, a collar comprising two detachably-secured sections, the lower of said sections being 100 rotatively secured in said sleeve - bearing, a flange on said lower section overlapping said sleeve, a circular rack on the lower face of said flange, a worm rotatively secured on said 105 sleeve in mesh with said rack, and a discharge-pipe connected by an elbow to the upper section of said sleeve.

16. A conveyer-chute for pneumatic blowers comprising a supporting-sleeve, a discharge- 110 pipe, means rotatively securing said discharge-pipe to said sleeve and supporting it thereon, the axes of said sleeve and pipe being oblique to each other, a bearing rotatively securing said discharge-pipe to said sleeve, 115 and supporting it thereon, means on said sleeve adapted to rotate said pipe, a base at the blower-outlet, and a bearing rotatively securing said sleeve to said base and supporting it thereon. 120

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE F. CONNER.

Witnesses:

D. E. PURDY,
H. E. HALL.