

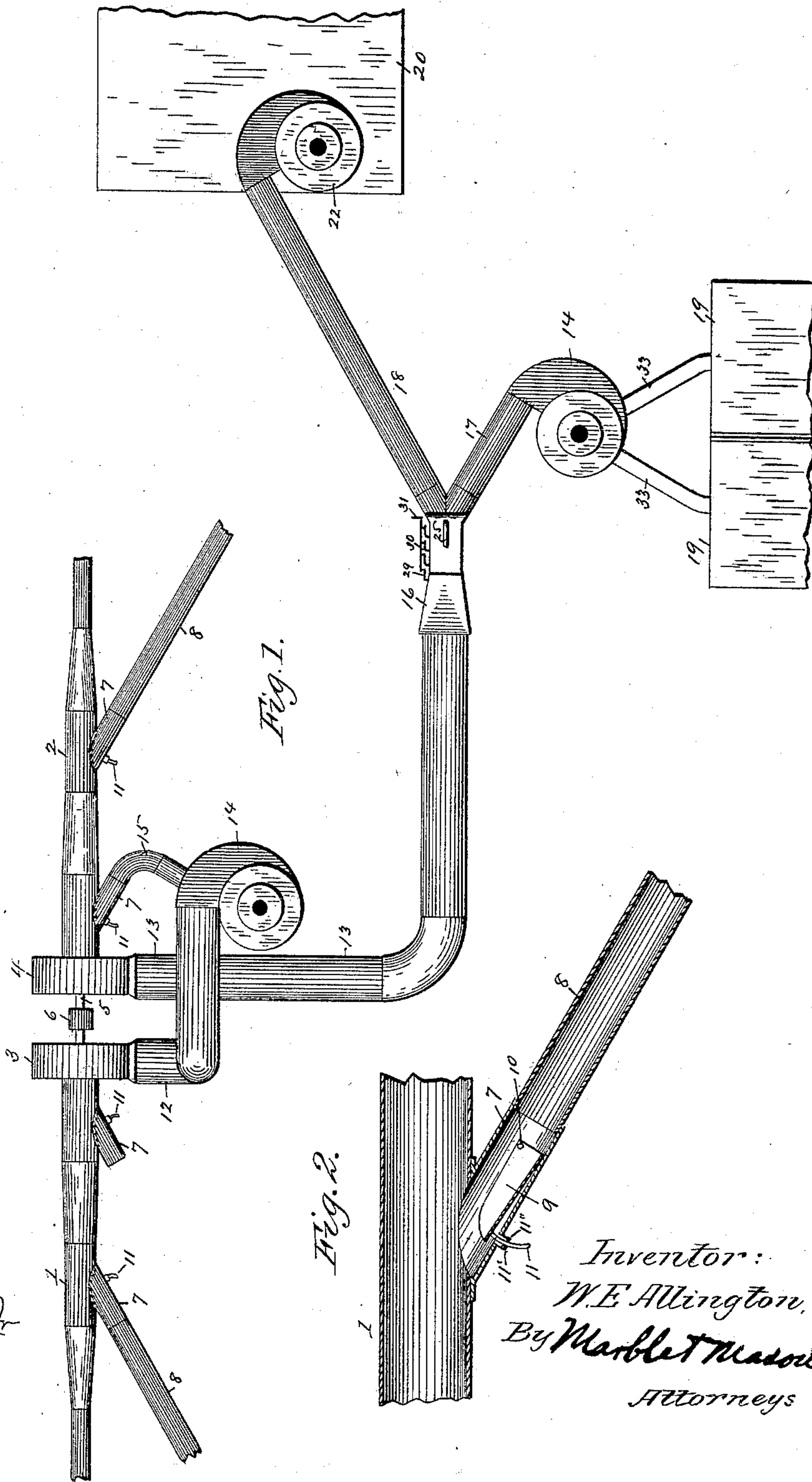
(No Model.)

4 Sheets—Sheet 1.

W. E. ALLINGTON.  
PNEUMATIC FUEL FEEDING APPARATUS.

No. 426,611.

Patented Apr. 29, 1890.



Witnesses:  
T. R. Stuart.  
J. M. Fowler Jr.

*Inventor:*  
*W E Allington.*  
*By Marblet Mason*  
*Attorneys*

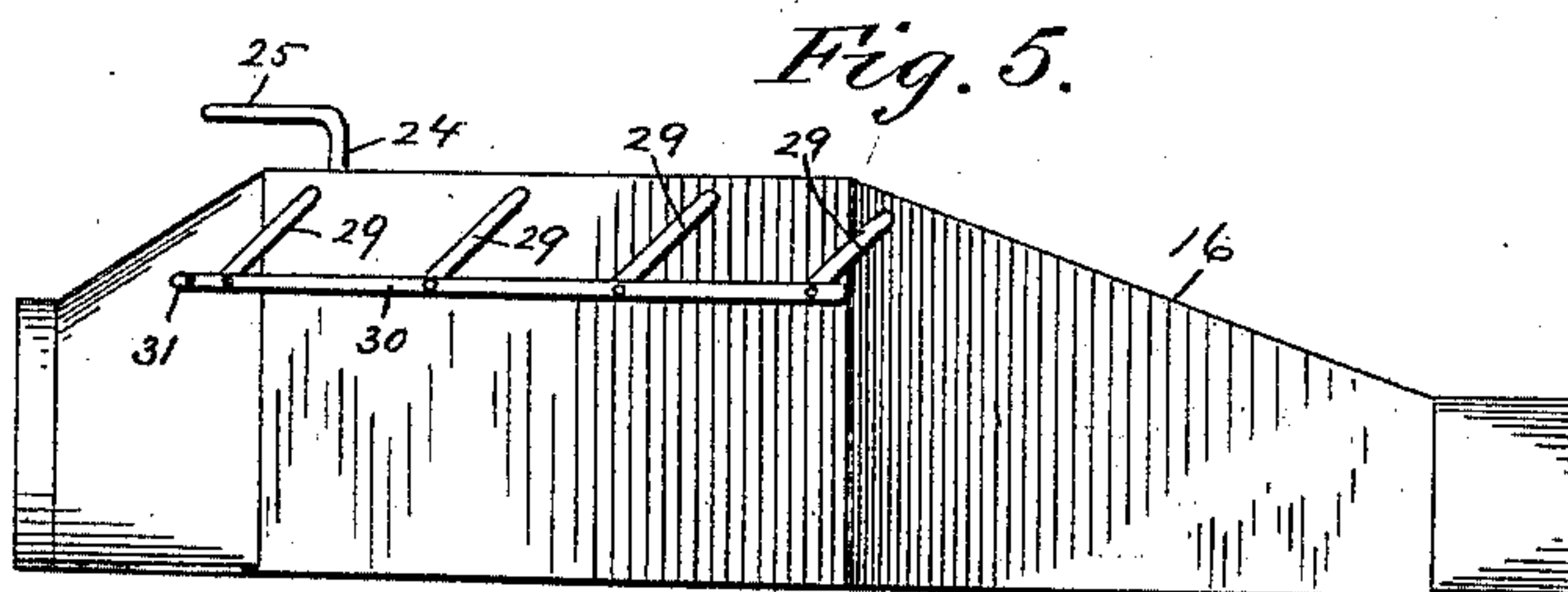
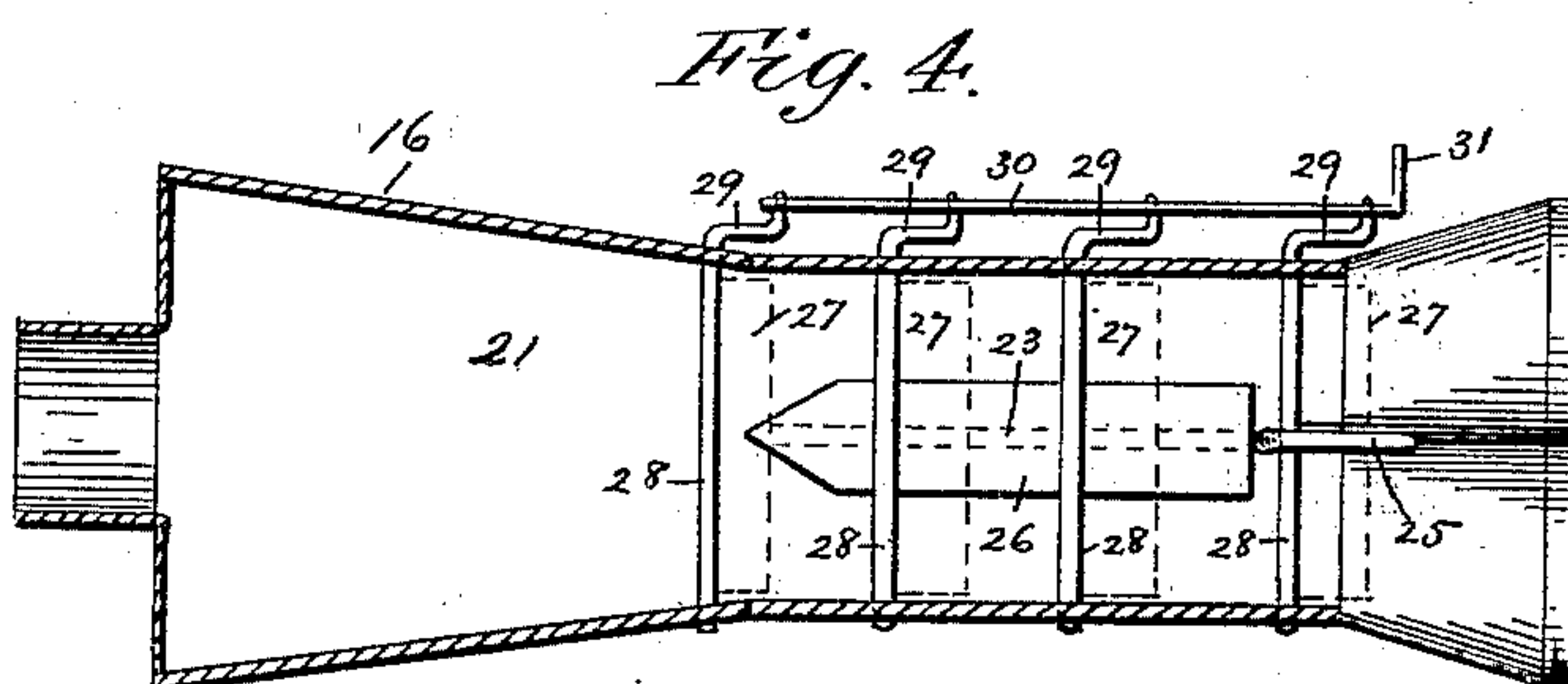
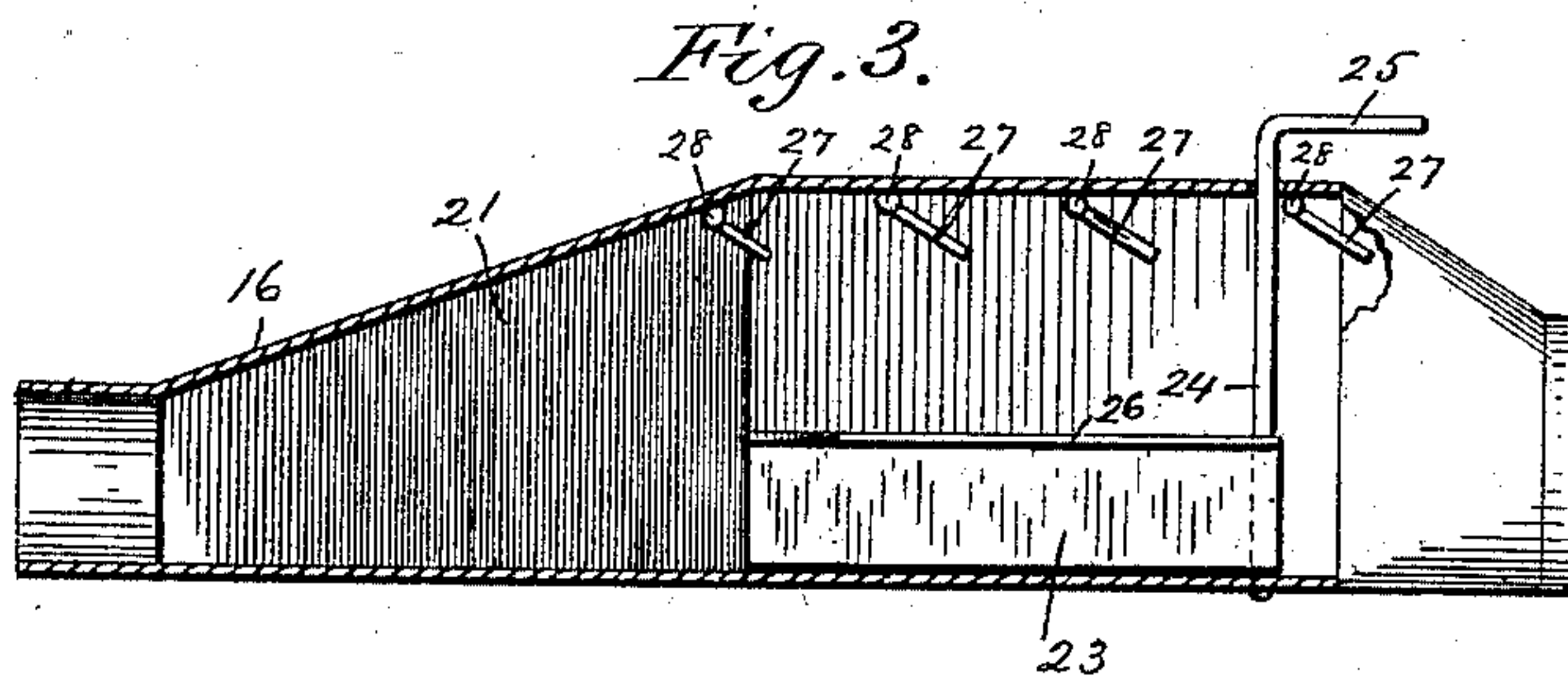
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4 Sheets—Sheet 2

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Fig. 6.

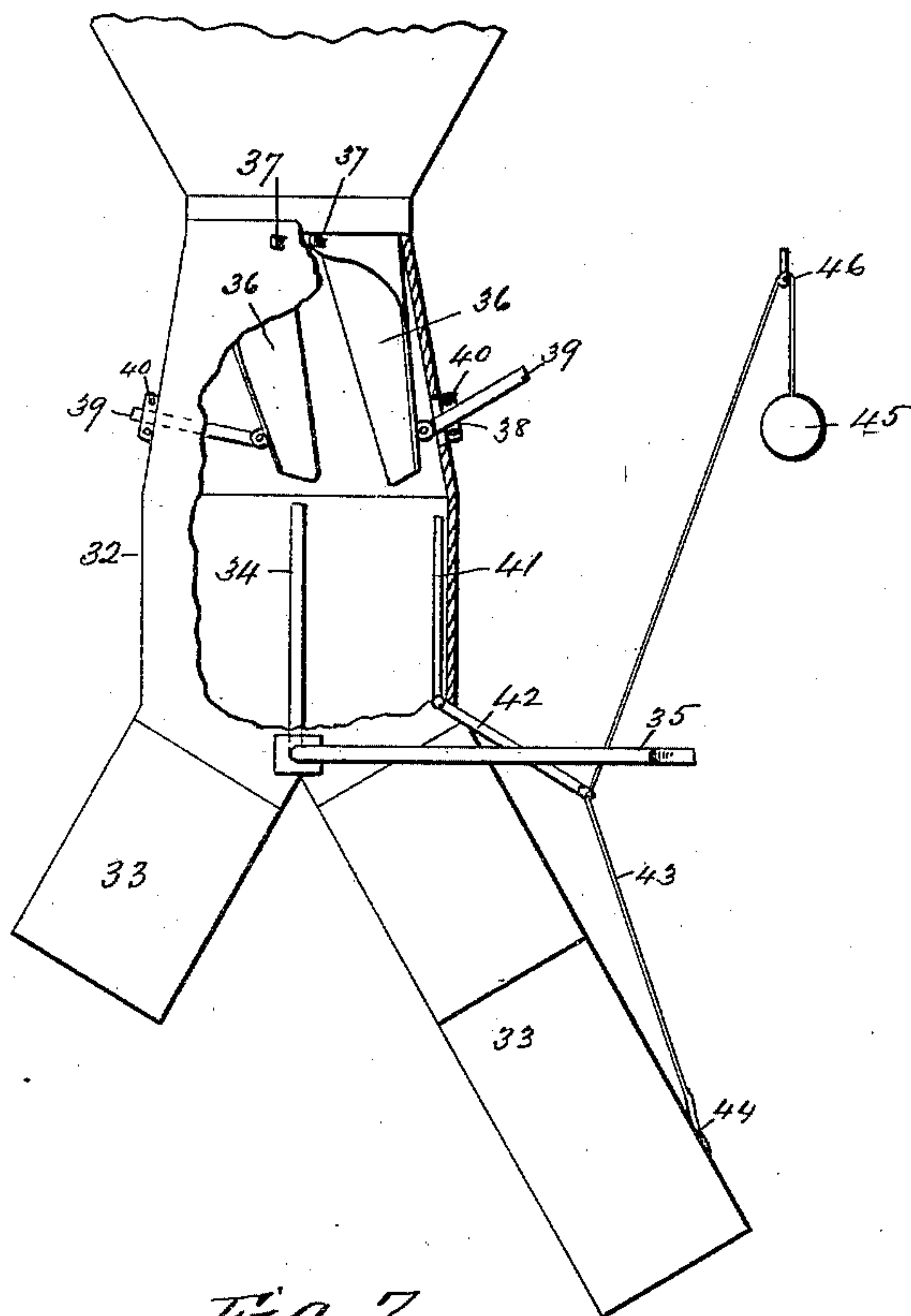
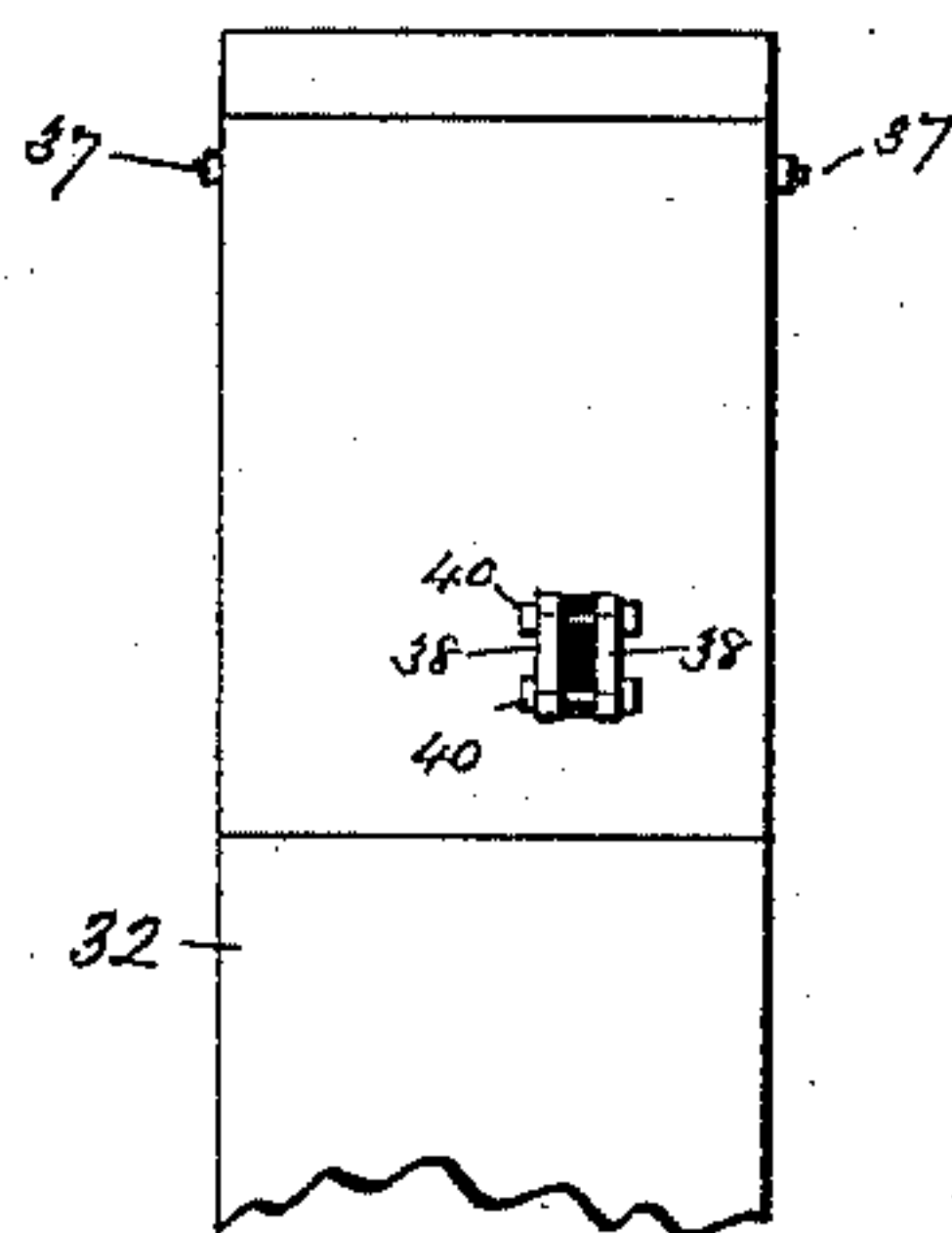


Fig. 7.



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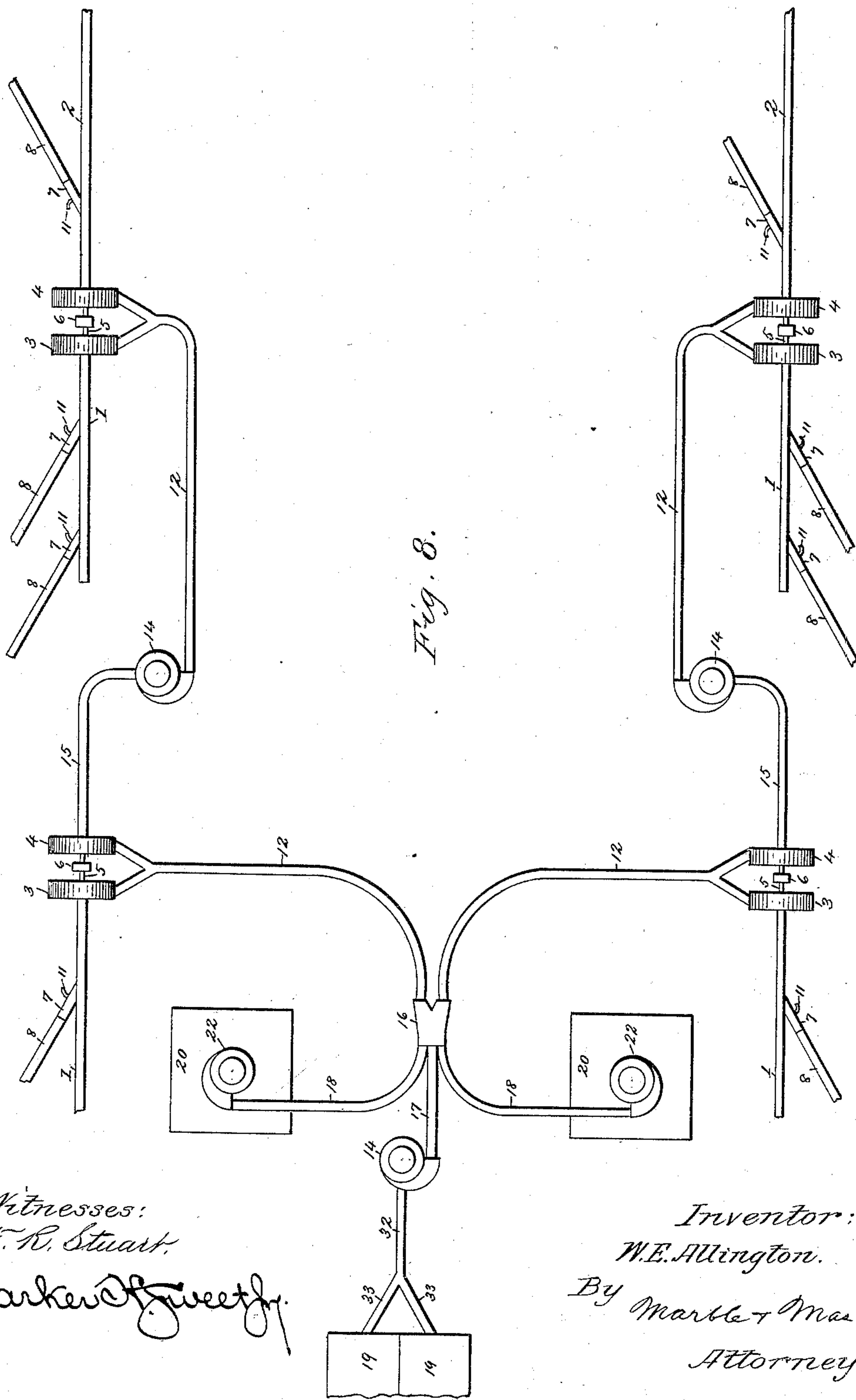
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4 Sheets—Sheet 4.

W. E. ALLINGTON.  
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No. 426,611.

Patented Apr. 29, 1890.





# UNITED STATES PATENT OFFICE.

WILLIAM E. ALLINGTON, OF EAST SAGINAW, MICHIGAN.

## PNEUMATIC FUEL-FEEDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 426,611, dated April 29, 1890.

Application filed January 7, 1890. Serial No. 336,183. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. ALLINGTON, a citizen of the United States, residing at East Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Pneumatic Fuel-Feeding Apparatus; 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 relates to pneumatic fuel-feeding apparatus, and is designed to be employed in connection with planing and similar machines in lumber-mills and similar wood-working establishments for separating shavings, sawdust, and similar solid materials from the air while they are being delivered into storage-vaults and also into furnaces, where they are consumed as fuel for generating steam for driving the machinery connected to the boilers of said furnaces, the separators used in connection with the other parts of my apparatus being of the class in which the air, laden with solid materials, receives a rapid rotating or whirling motion, said solid materials being thus driven out of the air-current and against the inner surfaces of said separators by centrifugal force, whence they pass downward by gravity and are discharged through openings in the lower ends or hoppers of said separators, while the air, wholly or partially purified, is discharged at their upper ends.

The object of my invention is to fit up or supply lumber-mills and similar wood-working establishments employing planing-machines, sawing-machines, and the like with a novel and useful pneumatic apparatus for perfectly separating the shavings, sawdust, and similar heavy materials from the air and then conveying or feeding such materials to storage-vaults, furnaces, and similar structures, the principle involved in my invention, which mainly comprises a system of main and branch suction-pipes, double exhaust or suction fans, blast, conveying, and feeding pipes, their adjuncts or belongings, and separating-machines of the centrifugal class, being applicable to wood-working establishments generally or of any length and breadth or dimen-

sions and having their machines located in any necessary or desired positions.

My invention consists, first, in a pneumatic fuel-feeding apparatus, of the combination, with the main and branch suction-pipes, of the double exhaust or suction fans, the blast-pipes connected to said fans, and the separators for separating the air and fuel which have passed through said suction-pipes, fans, and blast-pipes; second, of the novel or improved construction and combination or arrangement of the main and branch suction-pipes, the double exhaust or suction fans, the blast-pipes, the conveying and feeding pipes, the separators, the storage vault or vaults, and the furnaces, and, third, of the other improved constructions and combinations of parts hereinafter disclosed in the description, drawings, and claims.

In the accompanying drawings, which form a part of this specification, and in which the same numerals of reference indicate the same or corresponding parts, Figure 1 represents a plan view of my pneumatic fuel-feeding apparatus, showing the double exhaust or suction fans, the main suction-pipes, the branch suction-pipes, the blast-pipes, the conveying-pipes, the separators, the furnace feeder-pipes, parts of two furnaces, and a part of one of the storage-vaults, the novelty in the construction of the apparatus being shown in detail in the other figures; Fig. 2, a sectional view of a part of one of the main suction-pipes and of one of the couplings for connecting the same and one of the branch suction-pipes, showing also the adjustable deflector in said coupling; Fig. 3, a longitudinal vertical sectional view of the coupling between one of the blast-pipes and the conveying-pipes, showing the devices for regulating the passage of the air and material there-through, whereby they can be directed either to the storage-vaults or furnaces, or both, and in the same or varying amounts; Fig. 4, a plan view of said coupling with its upper plate or portion removed; Fig. 5, an elevation of the opposite side of the same, showing the devices for connecting and operating the adjustable or swinging partitions or aprons therein; Fig. 6, a detail partly-broken side elevation of the hopper of the separator and



the main bifurcated furnace feeder - pipe, showing the dividing-valve and the deflectors adjusted into different positions with respect to said dividing-valve for directing the entire quantity of material into one of the branch pipes, and also showing the safety-valve and the devices for operating the same; Fig. 7, a broken side view of said main feed-pipe, showing the clamping-lugs, between which are passed and held the adjusting stems or rods of the deflectors; and Fig. 8, a diagrammatic view of my pneumatic fuel-feeding apparatus as applied for conveying materials to distant points in wood-working establishments, which may be of any length and width and have their planing or other machines located in any necessary or desired positions.

In the drawings, the reference-numerals 1 and 2 designate the main suction-pipes, which are connected with the eyes or inlet-openings of the casings of the double exhaust or suction fans 3 and 4, the fans being mounted upon the same shaft 5 and driven by the same pulley 6, which may be operated from any suitable source of power. To these main suction-pipes are attached couplings 7, having connected thereto the branch suction-pipes 8, which lead to the usual hoods around the cutters of planers, or to similar machines producing materials suitable for fuel. Any desired number of these main and branch suction-pipes may be employed, it being only necessary to place the same, the double exhaust or suction fans, and the other parts of the apparatus (which may be duplicated or multiplied as desired, as shown in Fig. 8 and hereinafter described) in such positions as may be found most convenient, as circumstances may require, or as the shape and size of the apartments and the locations of the machines therein may necessitate. The couplings 7, to which the branch suction-pipes 8 are connected, are circular in form and secured to the main suction-pipes at an angle thereto, as shown in Figs. 1 and 8. Each of these couplings is provided with an interior deflector 9, which is semicircular or curved in cross-section and tapered toward its rear or free end in the form of a scoop, its front end being pivoted at each corner to the sides of said coupling, as at 10; also, its rear end is provided with a stem or rod 11, which passes through a slot in said coupling and between two lugs 11', which are rendered laterally adjustable by screw-bolts 11'', so as to hold or clamp said stem or rod in any position in which it and the deflector may be moved or adjusted. The purpose of adjusting these deflectors is to regulate the angle of their deflection with respect to the openings in the main suction-pipes, in order to make said openings of about the same area as the passages of the branch suction-pipes when they are receiving and conveying uniform quantities of air and shavings or other materials, and to change their angle of de-

flection to accord with the amount of the air desired to pass through said branch suction-pipes and into the main suction-pipes.

To the blast-spouts of the double exhaust-fans 3 and 4 are connected the blast-pipes 12 and 13, the pipe 12 receiving the materials from the main suction-pipe 1 and the fan 3 and conveying the same to the tangential inlet-spout of the adjacent separator 14, wherein the heavier materials are separated from the air and lighter materials and passed out through the bottom or hopper of said separator into the exhaust-pipe 15, which connects with the main suction-pipe 2 and delivers said heavier materials into the same to be passed through the fan 4, the lighter dust and air escaping through the opening in the top of said separator, as usual. The separators used in connection with my pneumatic fuel-feeding apparatus need not be herein described in detail, as their construction forms no part of my present invention and is well known.

The blast-pipe 13 receives the material from the main suction-pipe 2 and the fan 4, as shown in Fig. 1, and conveys the same to the coupling 16, wherein it may be directed through the conveying-pipes 17 and 18 either wholly into the furnaces 19 or the storage-vault 20, or partly into each, as may be necessary or desired. This coupling comprises a chamber 21, which is substantially rectangular in form, but gradually narrows horizontally from its front end toward its rear end for about one half of its length, and also for this same distance it gradually increases in area vertically, it being for the other or rear half of its length truly rectangular in shape. The object of constructing said chamber in this shape is to reduce the velocity of the air-current entering the same and allow the heavier particles suspended therein to descend to the strata of air passing along near the bottom thereof. (See Figs. 3, 4, and 5 for the form of this coupling and its chamber.) To the rear end of the coupling are secured two or more of the branched conveying-pipes 17 and 18, the former leading to the separator 14, which communicates with the furnaces 19, and the latter leading either directly to the storage-vault 20 or to the separator 22, which communicates therewith. I prefer to first deliver the material into the separator; but this is sometimes not necessary—as, for instance, when the air has been mainly removed from the material before it reaches said separator. When this is the case, the material can be delivered directly into said vault; also, if three of the branched conveying-pipes be secured to the coupling, two of them can lead to two vaults 20 or separators 22, corresponding to those shown in Fig. 1, and arranged as desired.

A valve 23 is secured at its rear end to a pivoted stem 24, which passes through the upper wall of the coupling 16, and is provided with an arm 25 for adjusting or regulating the position of said valve and causing the



same to direct and control the passage of the air and material through said coupling. This valve is of about the same length as the rear half of the coupling, in which part it is located, and of about one-third the height thereof; also, it is provided with a cap or flange 26 upon its upper edge, which projects over its sides for its entire length, the purpose of said flange being to prevent the heavier particles of material from passing over or above said valve and cause the same to be deflected by the latter either wholly or partially into either of the conveying-pipes 17 and 18; also, and at the same time, this flange and the limited height of said valve will permit equal or nearly equal volumes of air to escape thereover and pass continuously into and through said pipes.

A series of swinging partitions or aprons 27 are pivoted in the sides of the coupling 16 just beneath the top thereof, and project downward into the chamber 21 a distance about equal to one-fourth of its height when they are lowered to their fullest extent. The purpose of these partitions or aprons is to adjustably reduce the area of said chamber, so as to guard against the velocity of the air being lessened to such an extent as to fail to carry the heavy particles of material through said chamber and into the conveying-pipes. The velocity or force of the air can thus be increased or decreased in accordance with the extent to which the aprons are lowered or raised, as will be readily understood. The pivots 28 of these partitions or aprons are provided with rigidly-secured or integral depending arms 29, which are pivotally attached at their lower ends to the horizontal connecting-rod 30, which is provided with an operating-arm 31, whereby all of said partitions or aprons can be adjusted simultaneously.

To the lower end of the hopper 14' of the separator 14, which is adjacent to the furnaces 19, and which, as stated, is of the centrifugal class, is connected the main feed-pipe 32, as more clearly shown in Fig. 6, which receives the material or fuel to be delivered into said furnaces, and which is bifurcated at its lower portion and connected to the branch pipes 33, which lead to and feed the material into said furnaces. A dividing-valve 34 is pivoted in the crotch or bifurcation of said main feed-pipe for dividing the material fed through the pipes 33 and into the furnaces. This valve is provided with an arm 35, by which it is adapted to be tilted for dividing the material between the pipes 33, as may be desired or found necessary.

For the purpose of directing the material descending from the separator 14 toward the center of the dividing-valve 34 and of easily dividing the same into halves without throwing said valve very far from a perpendicular position, the deflectors 36 are employed. These deflectors are two in number, are located in the upper portion of the main feed-pipe just beneath the hopper of the separator, are piv-

oted at their upper ends upon small removable screw-bolts and nuts 37, and extend downward to points which on a horizontal line are just above the dividing-valve 34 when the same is in vertical position. They are slightly curved transversely or have a configuration corresponding to the wall of said main feed-pipe, each having an area which is about equal to one-fourth of the superficial area of said pipe. At points nearly opposite the lower ends of said deflectors the main feed-pipe is formed with two openings in each side, which are equidistant from each other, and at the sides of each are secured two adjustable lugs 38, which operate as guides, and also as clamps for holding the stems or rods 39, which are pivotally connected to the deflectors, and by which they are adjustable into different positions. The clamping or holding effect of these lugs upon the stems or rods of the deflectors is produced by the small screw-bolts and nuts 40. As the deflectors are pivoted upon the small removable screw-bolts 37, it will be obvious that said deflectors can be detached and transposed or interchanged. In other words, they can be removed and pivoted at any of four equidistant points in the upper portion of the main feed-pipe, the adjusting-stems or rods passing through either of the four openings in the sides of said pipe. By thus removing and transposing or interchanging said deflectors they will direct the material in any direction desired. Before commencing to feed the furnaces said deflectors are drawn out close to the inner surface of the main feeder-pipe. Then, after starting the feed and observing the course the material takes, either or both of said deflectors may be moved in toward the top of the dividing-valve, as may be required, so as to direct the material in the quantity desired through either or both of the branch pipes 33.

In case of great heat—say of 160° Fahrenheit—passing up from the furnaces 19 through the branch pipes 33 the same is arrested before it reaches the separator 14 by the safety-valve 41, which, as shown in Fig. 6, consists of a plate or disk secured to the pivoted arm 42. Attached to the outer end of this arm is a cord or wire 43, which is connected at its lower end to a fusible link 44, secured to the outside of the pipe 33, and at its upper end to a weight 45, which is beneath a suitably-supported guide-ring 46 for said cord or wire. These parts normally hold the safety-valve open; but when the link 44, which is composed of a fusible metal or alloy that will melt at a temperature exceeding the safety limit, becomes melted said valve will be closed by the drop of the weight 45 and the rise of the arm 42, thus closing the pipe, cutting off communication between the furnace and separator, and preventing the upward escape of an injurious degree of heat. Only one safety-valve and its appurtenances are



shown in Fig. 6; but it is obvious that they can be and are duplicated when two furnaces are being fed through the branch pipes 33.

The operations of the several parts of my improved pneumatic fuel-feeding apparatus, in addition to those hereinbefore specified, are as follows: The double exhaust or suction fans 3 and 4 being in operation, the shavings, &c., will be drawn from the machines by which they are produced through the branch suction-pipes 8 and the main suction-pipes 1 and 2 and into the fan-casings; thence they will be forced out by the fans through the blast-pipes 12 and 13, the former conveying them into the separator 14, which is adjacent to the fan 4, and which separates them from a portion of the air and delivers them into the main suction-pipe 2 through the suction or exhaust pipe 15, which communicates with the outlet at the lower end or hopper of said separator. Then, after delivery into said main suction-pipe 2 and joining the other material passing through the same, they are drawn into the casing of the fan 4 and forced out of the same through the blast-pipe 13. If desired, a blast-pipe, separator, and suction or exhaust pipe (the same as those numbered 12, 14, and 15 in Fig. 1) may be connected to the fan 4 and the main suction-pipe 1 for operation in the same manner. After the air and material enter the blast-pipe 13 from the fan 4 they are forced into the chamber 21 in the coupling 16, where, owing to the configuration of said chamber, the force of the air-current entering the same is reduced for allowing the heavier particles of material therein to descend to near the bottom thereof; also, owing to the proper adjustment of the swinging partitions or aprons 27, the area of said chamber can be regulated, so as to guard against the velocity of the air being reduced to an extent that will cause it to fail to carry the heavier particles of material onward, and, also, owing to the adjustment of the valve 23, the heavier particles of the material can be directed, either wholly or partially, into either of the conveying-pipes 17 and 18. Such of the material as enters the latter is conveyed either into and through the separator 22, which removes the remaining air therefrom, or directly into the storage-vault 20, as may be desired. On the other hand, such of the material as enters the conveying-pipe 17 is delivered into the separator 14 at the end thereof, where the separation of the air and material again takes place, as before, the latter being discharged from the lower end or hopper of said separator into the main feed-pipe 32, where it comes into contact with the removable, interchangeable, and adjustable deflectors 36 and the adjustable dividing-valve 34, by which it is deflected, divided, and delivered into the branch feed-pipes 33, which lead to and feed it into the furnaces 19, a part thereof, if desired, being led off through another similar pipe into another storage-vault, as is common. The operation

and purpose of the safety-valve 41 are described above.

My pneumatic fuel-feeding apparatus for conveying materials to distant points in wood-working establishments, which may be of any length and width and have their planing or other machines arranged in any desired positions, or as circumstances may demand, as shown, for instance, in the diagrammatic view in Fig. 8, embodies the same principle or mode of operation as the apparatus shown in Fig. 1, the only difference being in the arrangement and duplication or multiplication of the main suction-pipes, the branch suction-pipes, the double exhaust or suction fans, the blast-pipes, the separators, the exhaust-pipe, the conveying-pipes, the storage-vault, and the accessorial devices of the parts named, as shown in the other figures of the drawings. In this system of pneumatic fuel-feeding, 1 and 2 designate the main suction-pipes; 7, the couplings connecting the same and the branch suction-pipes 8 3; and 4, the double exhaust or suction fans; 12, the blast-pipes, which are forked at the ends, connected to the discharge-openings of the casings of said fans; 14, the separators, with which said blast-pipes communicate tangentially; 15, the suction or exhaust pipes, which receive the heavy materials from the bottoms or hoppers of said separators and convey the same into the eyes of the casings of said suction-fans, and 16 the coupling which contains the chamber, the valve, the pivoted and adjustable partitions or aprons, as shown in detail in other figures of the drawings and fully described. Through this coupling and chamber the air and material pass and are directed into the conveying-pipes 17 and 18, which lead, respectively, into the separators 14 and 22. 20 designates the storage-vaults, in connection with which the separators 22 may or may not be employed as desired or necessary; 32, the main feed-pipe, with which is connected the dividing-valve, the deflectors, the safety-valve, and their operating devices, as shown in Fig. 6 of the drawings, and 33 the branch feed-pipes, which lead to and feed the furnaces 19. Further description of the operation of this pneumatic apparatus for conveying and feeding material or fuel to distant points is deemed unnecessary, since, as stated, it involves the same principle or mode of operation as the apparatus shown in the other figures of the drawings and fully described.

Having thus fully described my pneumatic fuel-feeding apparatus, the construction and arrangement or combination of its several parts, and its operation, what I claim as new is—

1. In a pneumatic fuel-feeding apparatus, the combination, with the suction-pipes, of the double exhaust or suction fans, the blast-pipes, and the separators, substantially as described.

2. In a pneumatic fuel-feeding apparatus, the combination, with the suction-pipes, of



the double exhaust-fans, the blast-pipes, the separators, and one or more exhaust-pipes connecting the lower ends or hoppers of said separators to said suction-pipes, substantially as and for the purpose described.

3. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of the double exhaust or suction fans, the blast-pipes connected to said fans, and the separators for separating the air and fuel which have passed through said suction-pipes, fans, and blast-pipes, substantially as described.

4. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of the double exhaust or suction fans, the blast-pipes connected to said fans, the conveying-pipes, and the separators for separating the air and fuel, substantially as described.

5. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of the double exhaust or suction fans, the blast-pipes connected to said fans, the valved coupling, the conveying-pipes connected thereto, and the separators communicating with said pipes, substantially as described.

6. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of the double exhaust or suction fans, the blast-pipes connected to said fans, the valved coupling, the conveying-pipes, and the separators and storage vault or vaults communicating therewith, substantially as described.

7. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of the double exhaust or suction fans, the blast-pipes connected to said fans, the valved coupling, the conveying-pipes, the separators, the main and branch feed-pipes, and the furnaces, substantially as described.

8. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of the double exhaust or suction fans, the blast-pipes connected to said fans, the separators, and one or more exhaust-pipes connecting with the lower ends of the hoppers of said separators and communicating with said fans, substantially as described.

9. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of one or more couplings connecting the same, each being provided with an adjustable curved deflector, which is pivoted at the corners of its front end and formed with a scoop-shaped rear or free end, substantially as and for the purpose described.

10. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of the couplings provided with the adjustable curved deflectors which are pivoted at the corners of their front ends to said couplings and formed with scoop-shaped rear or free ends, and the double exhaust or

suction fans, substantially as and for the purpose described.

11. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch suction-pipes, of the couplings provided with the adjustable curved deflectors which are pivoted at the corners of their front ends to said couplings and formed with scoop-shaped rear or free ends, the stems or rods secured to said deflectors, and the adjustable holding or clamping lugs, between which said rods extend, substantially as and for the purpose described.

12. In a pneumatic fuel-feeding apparatus, the combination, with the blast and conveying pipes, of the coupling formed with the substantially rectangular chamber, which gradually narrows horizontally for about one-half its length from its front end and gradually increases in area vertically for the same distance, and which is truly rectangular in form for the remainder of its length, substantially as and for the purpose described.

13. In a pneumatic fuel-feeding apparatus, the combination, with the blast and conveying pipes, of the coupling formed with the substantially rectangular chamber, as described, and provided with an adjustable valve of less height than said chamber and of about the length of one-half of the same, substantially as and for the purpose described.

14. In a pneumatic fuel-feeding apparatus, the combination, with the blast and conveying pipes, of the coupling formed with the substantially rectangular chamber, as described, and provided with an adjustable valve having a flange upon its upper edge which projects over its sides, substantially as and for the purpose described.

15. In a pneumatic fuel-feeding apparatus, the combination, with the blast and conveying pipes, of the coupling formed with the substantially rectangular chamber, as described, and provided with the flanged valve, and the series of adjustable pivoted partitions or aprons arranged above said valve, substantially as and for the purpose described.

16. In a pneumatic fuel-feeding apparatus, the combination, with the blast and conveying pipes, of the coupling formed with the substantially rectangular chamber, as described, and provided with a series of partitions or aprons which are pivoted in its upper portion, and with devices for connecting and simultaneously operating said aprons, substantially as and for the purpose described.

17. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch feed-pipes, of two curved and adjustable deflectors which are arranged in the upper portion of said main feed-pipe, and devices for permitting them to be removed and interchanged or transposed into four different positions within said pipe, substantially as and for the purpose described.



18. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch feed-pipes, of two adjustable deflectors which are pivoted at their upper ends and arranged  
5 in the upper portion of said main feed-pipe, and a dividing-valve pivoted in the crotch of said branch feed-pipes and just beneath said deflectors, substantially as and for the purpose described.

10 19. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch feed-pipes, of two curved and adjustable deflectors which are arranged in the upper portion of said main feed-pipe, devices for per-  
15 mitting them to be removed and interchanged or transposed, and a dividing-valve pivoted in the crotch of said branch feed-pipes and just beneath said deflectors, substantially as and for the purpose described.

20 20. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch feed-pipes, of two curved and adjustable deflectors which are arranged in the upper portion of said main feed-pipe, the stems or rods  
25 pivoted thereto, and the adjustable clamping or holding lugs, substantially as described.

21. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch feed-pipes, of one or more pivoted safety-  
30 valves, each of which is arranged to remain normally open, and devices for automatically closing the same in case of excessive heat passing through said branch feed-pipes, substantially as described.

22. In a pneumatic fuel-feeding apparatus, 35 the combination, with the main and branch feed-pipes, of one or more pivoted safety-valves, each of which is arranged to remain normally open, a fusible link attached to said branch feed-pipe, and devices for connecting 40 said link and valve and for closing the latter in case of the former becoming melted, substantially as described.

23. In a pneumatic fuel-feeding apparatus, the combination, with the main and branch 45 feed-pipes, of one or more pivoted safety-valves, each of which is arranged to remain normally open, a fusible link attached to said branch feed-pipe, an arm projecting from said valve, a cord or wire connecting said arm and 50 link, and a weight attached to the upper end of said cord or wire, substantially as described.

24. In a pneumatic fuel-feeding apparatus, the combination, with the furnaces, the separators, and the main and branch feed-pipes, 55 of one or more pivoted safety-valves, each of which is arranged to remain normally open, a fusible link attached to said branch feed-pipe, an arm projecting from said valve, a cord or wire connecting said arm and link, and 60 a weight attached to the upper end of said cord or wire, substantially as described.

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

WILLIAM E. ALLINGTON.

Witnesses:

JAMES H. GRIDLEY,  
J. MIDDLETON.