

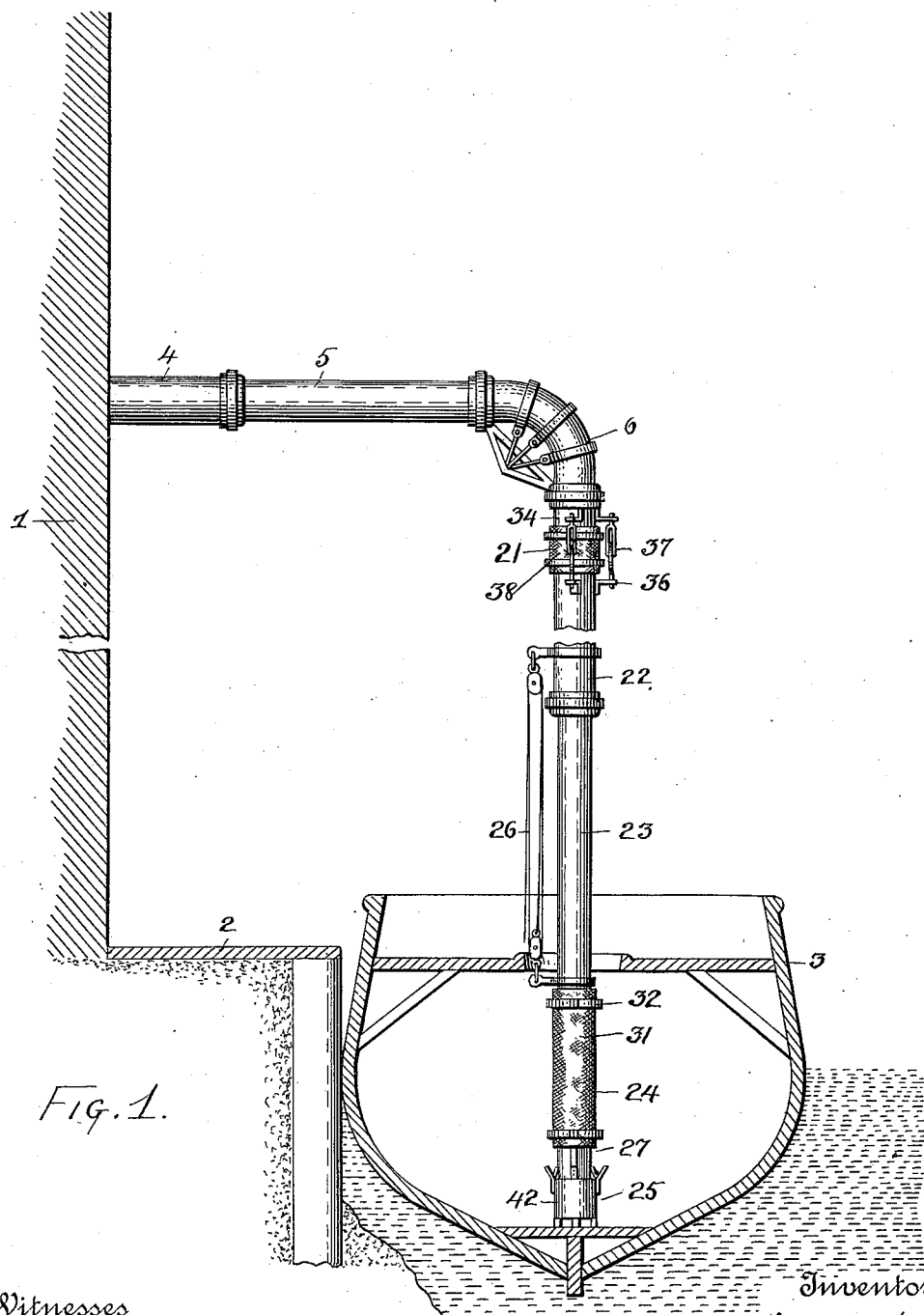
(No Model.)

2 Sheets--Sheet 1.

F. J. WEBER.
ELEVATOR MARINE LEG.

No. 594,449.

Patented Nov. 30, 1897.



Witnesses

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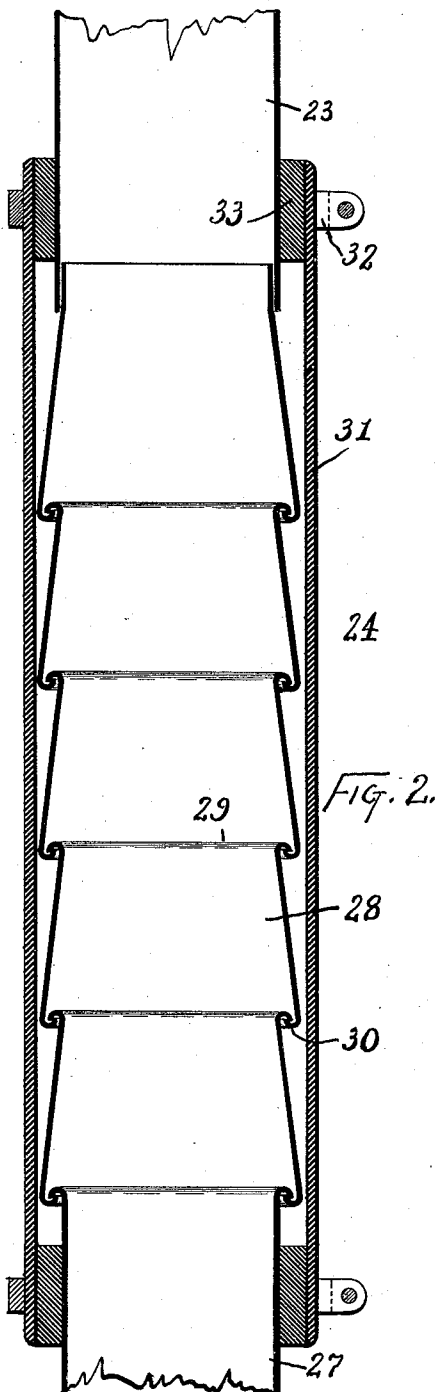
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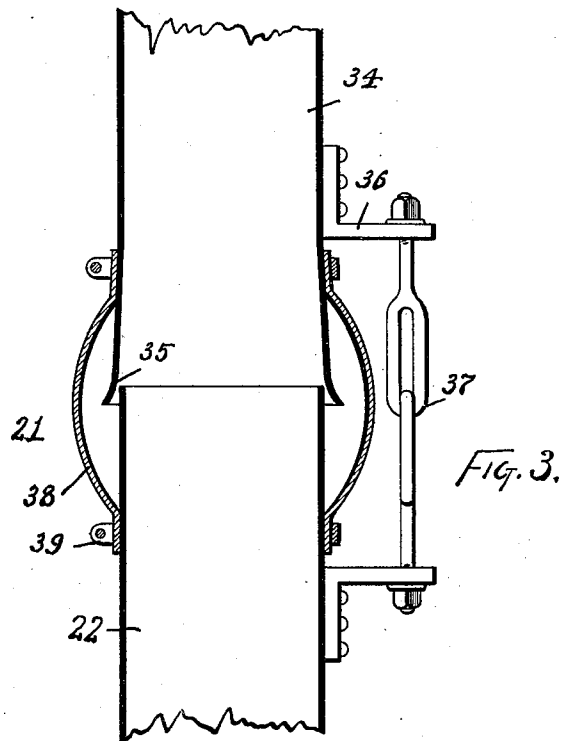
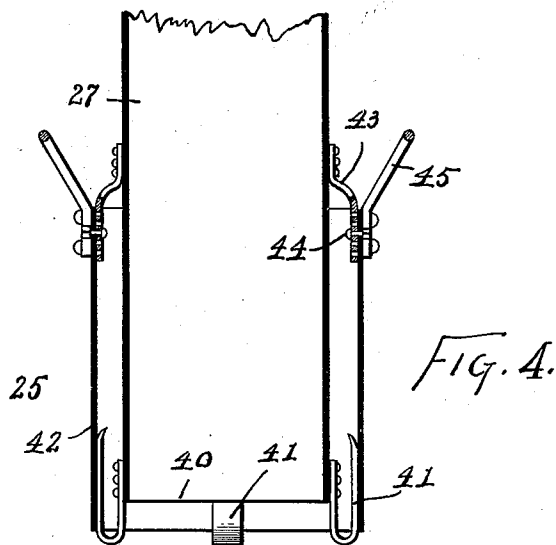
F. J. WEBER.
ELEVATOR MARINE LEG.

No. 594,449.

Patented Nov. 30, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

FREDERICK J. WEBER, OF CONNERSVILLE, INDIANA.

ELEVATOR MARINE LEG.

SPECIFICATION forming part of Letters Patent No. 594,449, dated November 30, 1897.

Application filed January 29, 1897. Serial No. 621,174. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK J. WEBER, of Connorsville, Fayette county, Indiana, have invented certain new and useful Improvements in Elevator Marine Legs, of which the following is a specification.

This invention pertains to improvements in marine legs for grain-elevators; and the improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a marine leg exemplifying my improvements; Fig. 2, a vertical section of the flexible portion of the vertical pipe; Fig. 3, a vertical section of the flexible joint at the top of the vertical pipe, and Fig. 4 a vertical section of the mouthpiece.

In the drawings, 1 represents the wall of the elevator structure; 2, the dock; 3, the vessel; 4, receiving-pipe projecting horizontally from that portion of the elevator structure at that point where the grain is to enter; 5, a pipe projecting outwardly from and telescoping within receiving-pipe 4, pipes 4 and 5 to be given suitable support by any appropriate or usual means; 6, a rigid elbow on the outer end of telescope pipe 5; 21, a flexible joint in the vertical pipe at the base of elbow 6 and having a construction to be later explained; 22, a vertical pipe suspended from the elbow 6 by means of the flexible joint 21; 23, a vertical pipe projecting downwardly from and sliding telescopically within pipe 22; 24, a flexible pipe-section forming a downward prolongation from vertical sliding pipe-section 23; 25, a mouthpiece of a construction to be later explained at the lower end of flexible pipe-section 24; 26, rope-tackle attached to pipe-section 22 and to the base of the vertical pipe 23 and serving to elevate section 23 and the parts carried by the hand-rope of this tackle falling near the mouthpiece; 27, pipe-section connecting the lower end of flexible section 24 with the mouthpiece 25; 28, Fig. 4, a series of short frusto-conical pipe-sections with the small end of one section projecting within the large end of its neighbor, this series of short sections connecting sections 23 and 27; 29, an outwardly-turned hook-shaped flange around the small end of each of sections 28; 30, an inwardly-turned

hook-shaped flange at the large end of each of sections 28, the flanges 29 and 30 of contiguous sections loosely intermembering, the sections being assembled, for instance, before the flanges 30 are completely turned; 31, a flexible tubular jacket, as of rubber, extending from pipe-section 23 to section 27 and inclosing the series of sections 28; 32, a draw-band at each end of jacket 31 and serving to secure the jacket to the sections 23 and 27; 33, a thick elastic ring, as of rubber, within each end of jacket 31 and fitting the sections 23 and 27, these rings being disposed within the draw-bands, whereby the contraction of the draw-bands serves in clamping the jacket to the sections 23 and 27, rings 33 forming elastic bushings at the ends of the jacket; 34, that section of the vertical piping immediately above flexible joint 21; 35, an outward flare at the base of section 34, this flare fitting loosely over the upper end of section 22; 36, brackets projecting outwardly from the contiguous ends of sections 22 and 34; 37, suspension-links connecting the brackets 36 and serving as the means by which pipe-section 22 is suspended flexibly from section 34; 38, a flexible jacket, as of rubber, attached to the contiguous ends of pipe-sections 22 and 34 and loosely surrounding the immediate pipe-juncture at flare 35; 39, draw-bands clamping the ends of jacket 38 to the respective pipe-sections; 40, the extreme lower end or mouth of the vertical pipe; 41, U-shaped springs secured to the outer surface of the lower end of mouthpiece 40, the bows of these springs projecting downwardly from the lower end of mouthpiece 40, the free outer portions of the springs projecting upwardly; 42, the mouthpiece-jacket surrounding mouthpiece 40 and leaving an annular space between the mouth-pipe and the jacket, the base of this mouthpiece-jacket having sliding engagement with the outer portions of springs 41; 43, brackets secured to mouth-pipe 40 at the top of jacket 42, the outer portions of these brackets fitting within the upper portion of the jacket; 44, bolts passing through jacket 42 and through selective ones of a vertical series of holes in the brackets 43, and 45 handles on the mouthpiece-jacket.

The vessel is to be moored to the dock in

such position that the vertical pipe is substantially over the hold of the vessel, section 23 being telescoped up within section 22 while the vessel is being gotten into position.

5 Tackle 26 is now to be operated to lower the mouthpiece into the hold. The leg is now ready for the withdrawal of grain from the hold of the vessel into the elevator structure by the action of suction air-currents in the

10 manner usual in pneumatic grain-moving apparatus, the pipe system described forming the conduit for the incoming air and grain. The mouthpiece can be lowered as desired to suit the depth of grain in the hold, and the

15 flexibility of section 24 permits of the mouthpiece being moved around in the hold to reach the grain, flexible joint 21 permitting free movement of the lower end of section 23 in all directions. The air-current passes in at

20 the top of mouthpiece-jacket 42 and goes down within the jacket and then turns up into mouthpiece 40, carrying the grain with it. The mouthpiece receives some support on springs 41, which keep the lower end 40 of

25 the mouth-pipe elevated a short distance above the base of jacket 42, thus maintaining the air-conduit from the jacket into the mouthpiece. Bolts 44 may be shifted in brackets 43 and thus vary the projection of

30 the base of the jacket below the base of the mouth-pipe.

Flexible joint 21 finds its suspension capacity in links 37, the pipe engagement at flare 35 permitting flexation of the pipe, and

35 jacket 38 securing air-tightness at the joint. Flexible section 24 is rendered air-tight by its jacket 31, the flanging engagement of the frusto-conical pipe-sections permitting free flexation of the general pipe at their location.

40 I claim as my invention—

1. The combination, substantially as set forth, of an elevator structure, a pipe projecting outwardly therefrom, an elbow at the outer end of said pipe, a flexible pipe-joint

45 at the base of said elbow, a pipe-section suspended from said flexible joint, a telescopic pipe-section sliding within said suspended pipe, a flexible pipe-section at the base of said telescopic pipe, a mouthpiece at the base

50 of said flexible pipe-section, and rope-tackle supported direct by said suspended pipe and connected with the pipe parts below it and having its hand-rope near said mouthpiece.

2. The combination, substantially as set forth, of two pipe-sections, a series of short frusto-conical pipe-sections connecting the first-mentioned pipe-sections and having intermembering inner and outer hook-shaped flanges, and a flexible jacket surrounding

60 said series of frusto-conical sections and attached at its ends to the first-mentioned pipe-sections.

3. The combination, substantially as set forth, of a pair of pipe-sections, elastic rings surrounding the ends thereof, a flexible

65 jacket surrounding said elastic rings and extending from one ring to the other, and drawbands encircling said jacket exterior to said rings and compressing said jacket and rings.

4. The combination, substantially as set forth, of a pipe-section having its end formed directly with an outward flare, a pipe-section with its end fitting loosely directly within

70 said flaring end, brackets rigidly secured to and projecting from said pipe-sections, suspension-links connecting said brackets, and a flexible jacket connected with said pipe-

75 sections and inclosing their juncture.

5. In a flexible joint connection the combination of a pipe-section having a flared end, 80 with a second pipe-section fitting loosely and directly within said flaring end, oppositely-disposed brackets rigidly secured to and projecting from the pipe-sections, oblong interlocking links connecting said brackets, and a

85 flexible jacket connected with said pipe-sections and inclosing their juncture.

6. A mouthpiece for pneumatic grain-tubes consisting of the open end of the tube in combination with a jacket surrounding and

90 adjustably supported upon the tube with an annular space between the tube and jacket, the lower end of the jacket projecting below the lower end of the tube, and spacing means interposed between the tube and jacket and

95 projecting slightly below the latter, substantially as described.

7. The combination, substantially as set forth, of a mouth-pipe, a jacket surrounding the same and leaving an annular space outside the mouth-pipe, brackets secured to and projecting outwardly from the mouth-pipe within and into engagement with the jacket, and means for securing said jacket at selective heights directly to said brackets consisting of pins passing through holes in the jacket and entering one of a series of holes in each bracket.

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8. The combination, substantially as set forth, of a mouth-pipe, a jacket surrounding the same and leaving an annular space around the mouth-pipe, brackets connecting the top of the jacket with the mouth-pipe, and bows within the annular space around the mouth-pipe and engaging the mouth-pipe and jacket

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and projecting below the end of the mouth-pipe and serving to maintain the end of the mouth-pipe free of a supporting-surface below it.

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