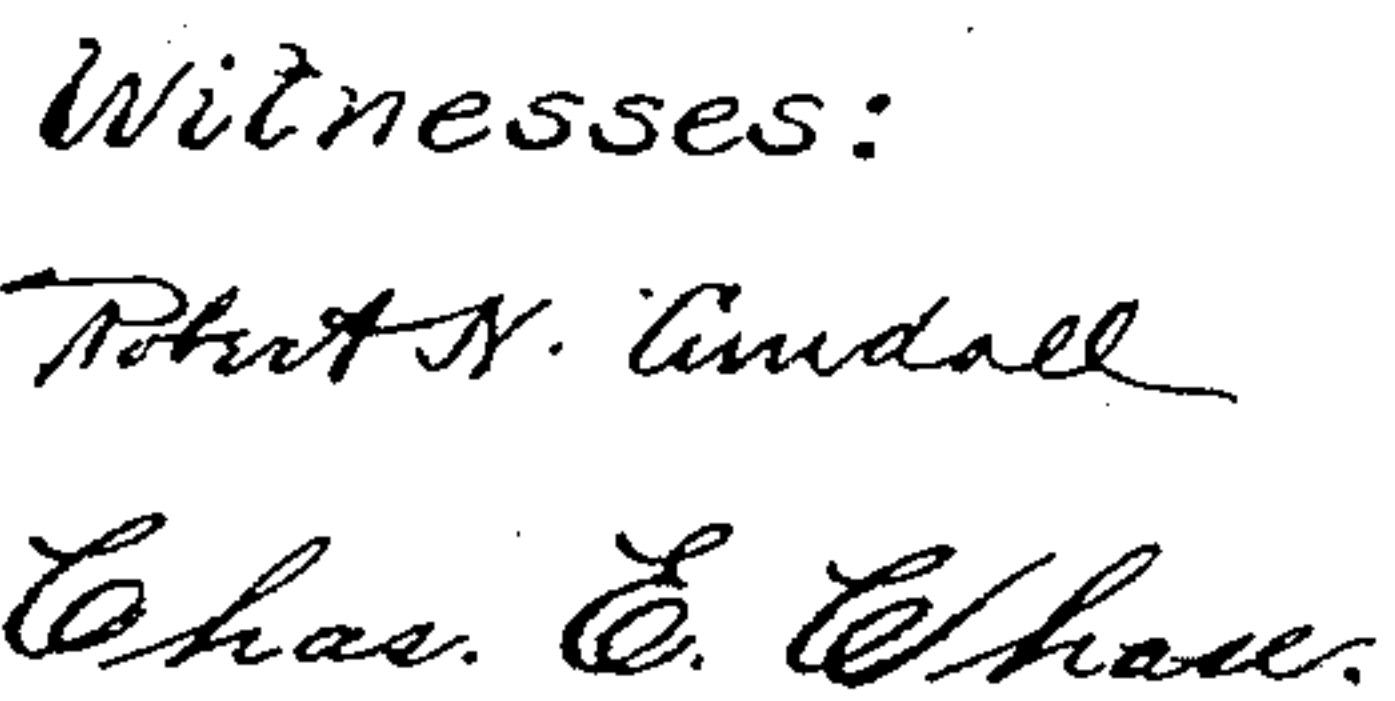


940,312.

3 SHEETS—SHEET 1.



Inventor:

Johan Hanson.

By O. G. Craft Atty.

J. HANSON.
AUTOMATIC PUMPING SYSTEM.
APPLICATION FILED SEPT. 29, 1908.

940,312.

Patented Nov. 16, 1909.

3 SHEETS—SHEET 2.

Fig. 4.

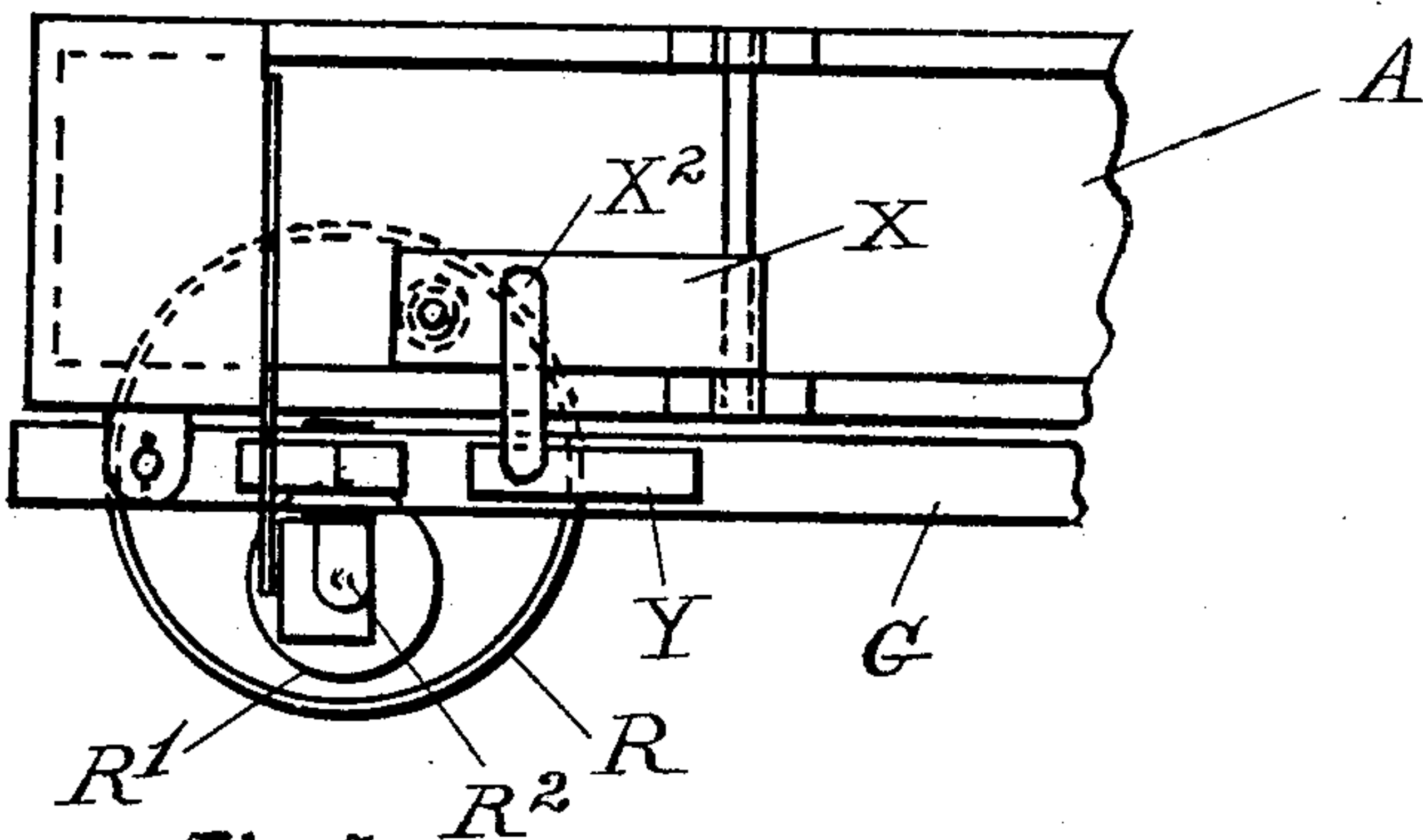


Fig. 5.

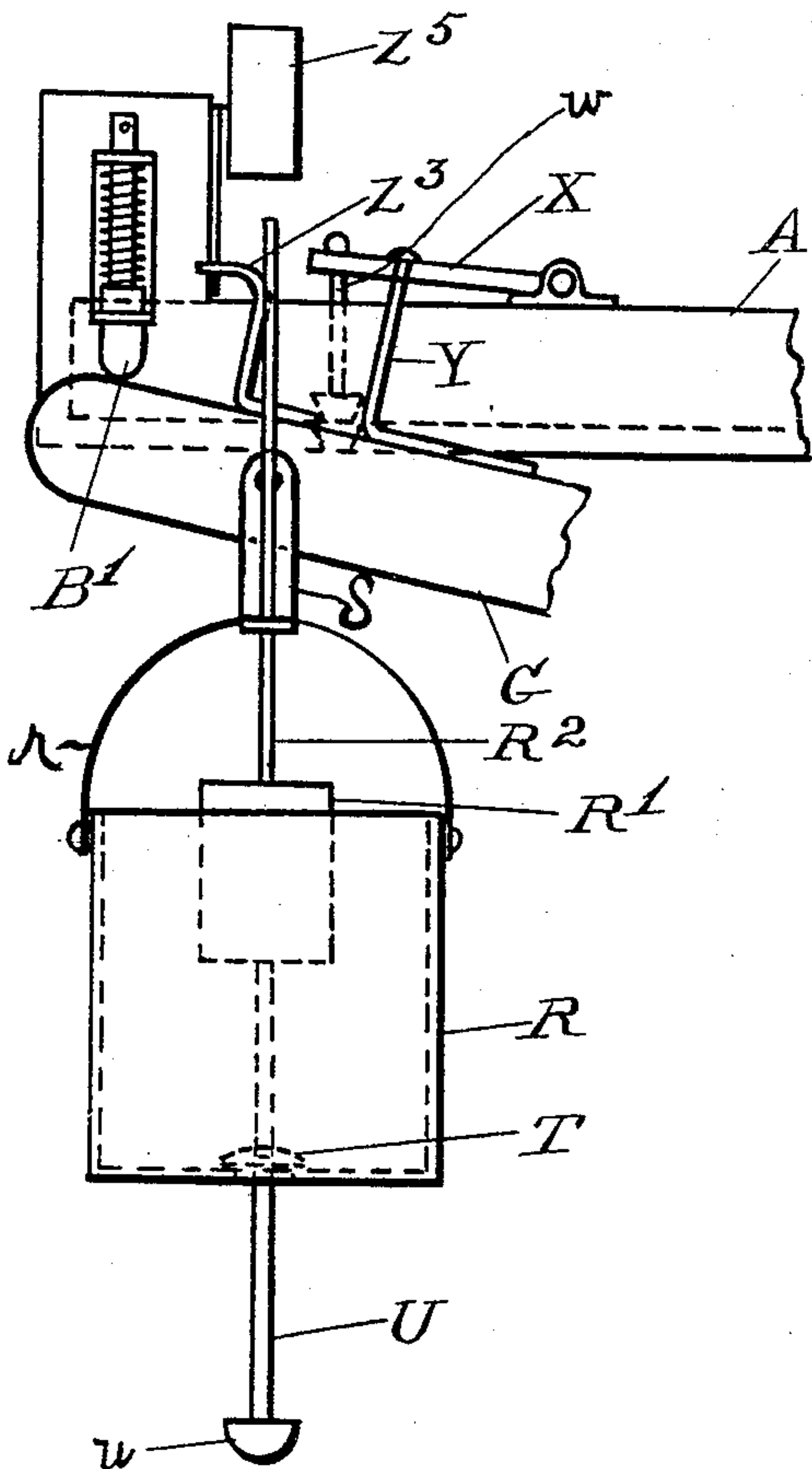
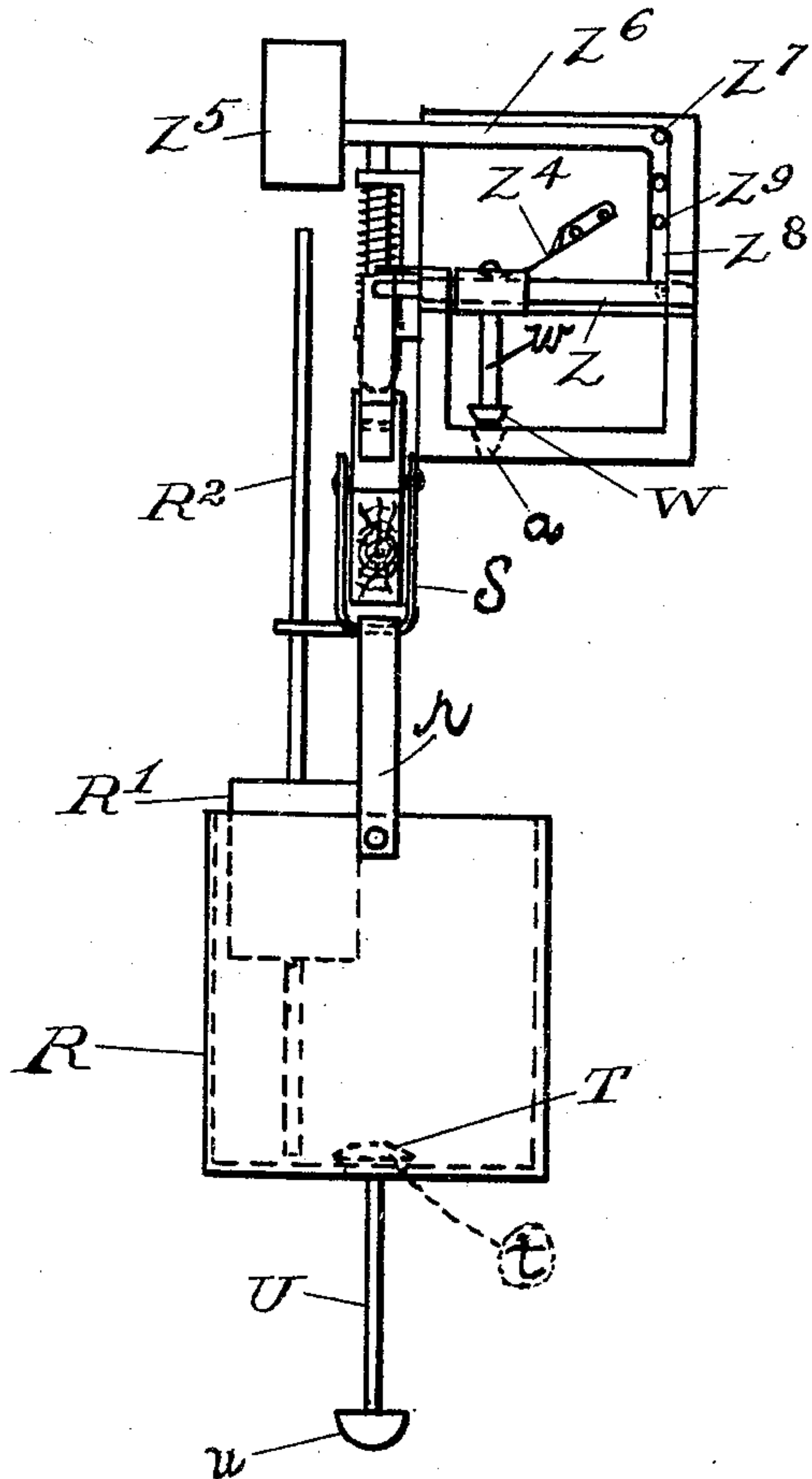


Fig. 6.



Witnesses:

Robert N. Cundall

Chas. E. Chase.

Inventor:

Johan Hanson.

By O. H. Taft Atty.

J. HANSON.
AUTOMATIC PUMPING SYSTEM.
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3 SHEETS—SHEET 3.

Fig. 7.

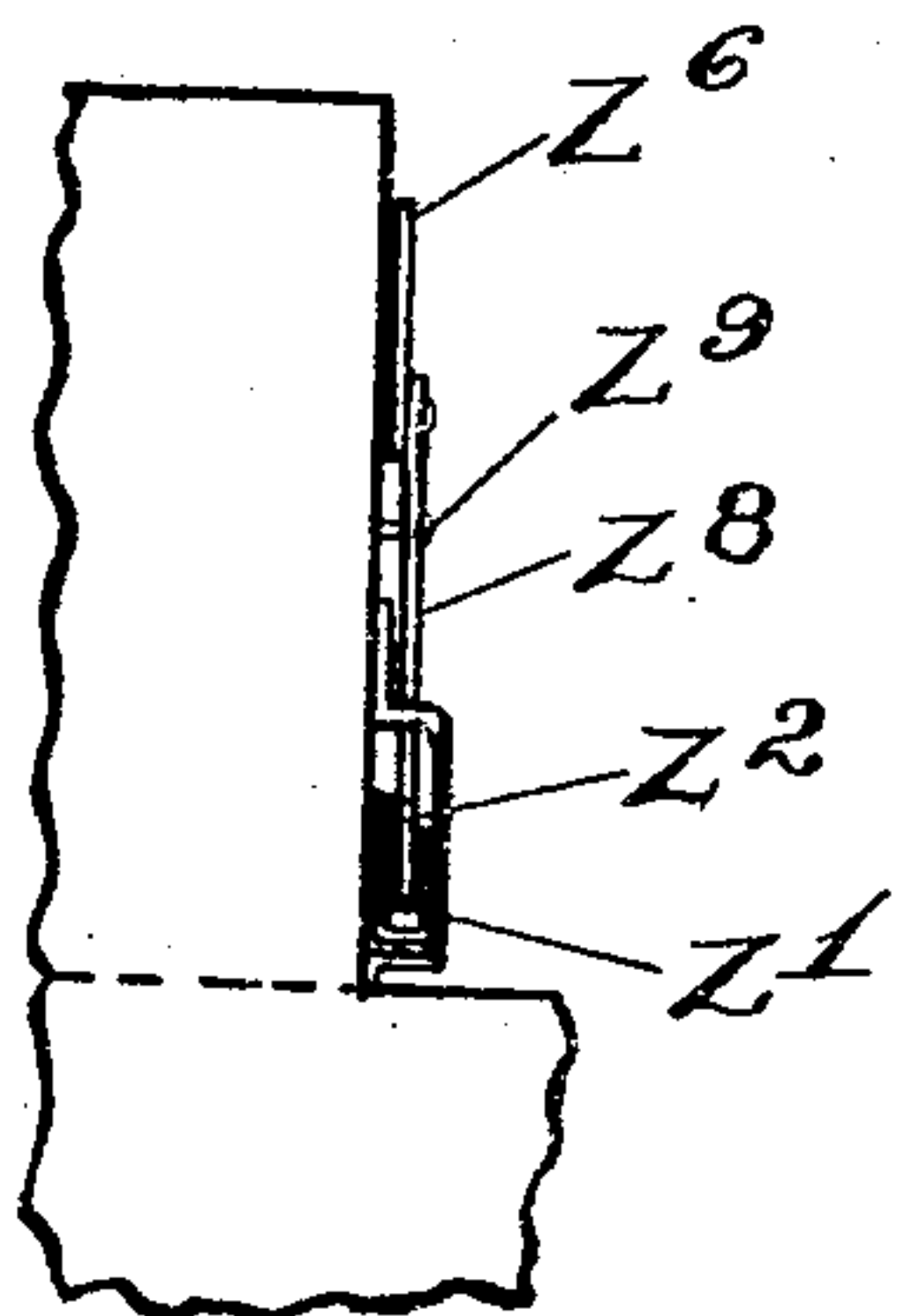


Fig. 8.

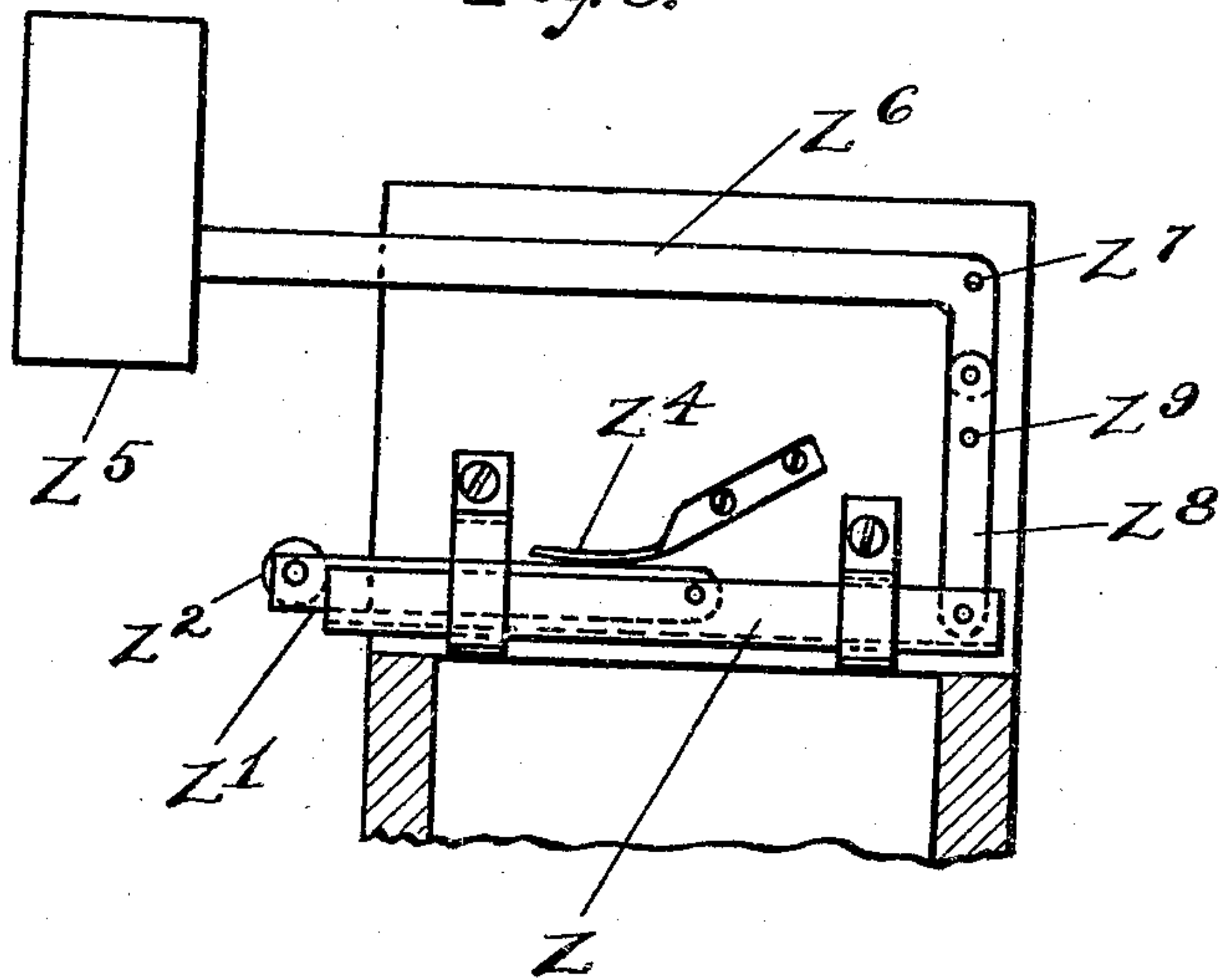
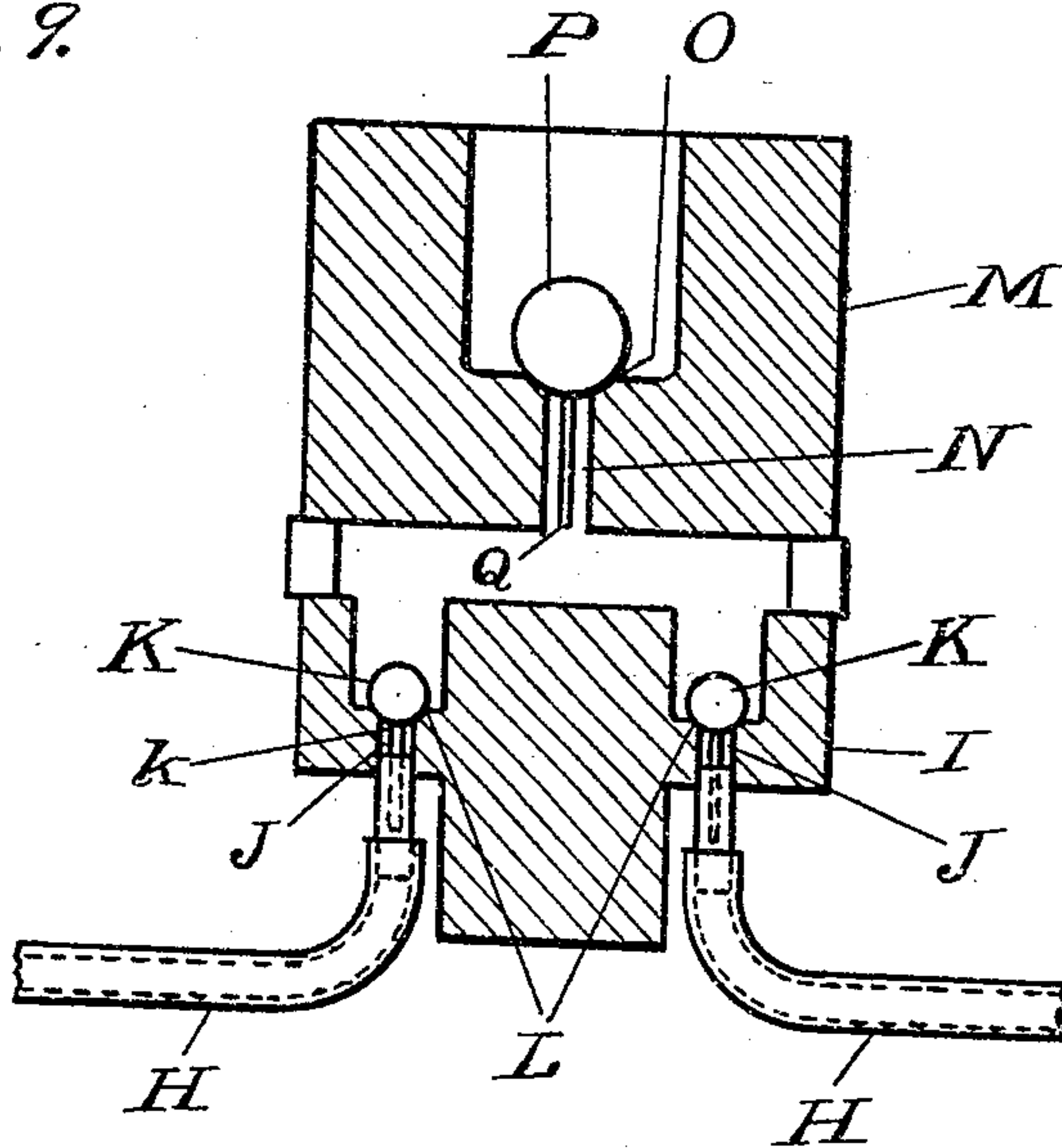


Fig. 9.



Witnesses:

Robert N. Cundall
Chas. E. Chase.

Inventor:

Johan Hanson.
By O. H. Jeff Att'y.

UNITED STATES PATENT OFFICE.

JOHAN HANSON, OF AUBURN, MASSACHUSETTS.

AUTOMATIC PUMPING SYSTEM.

940,312.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed September 29, 1908. Serial No. 455,266.

To all whom it may concern:

Be it known that I, JOHAN HANSON, a citizen of Denmark, residing at Auburn, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Automatic Pumping Systems; and I do hereby declare that the following is a full, clear, and exact description of the same.

10 This invention relates to water distribution and particularly to an automatic pumping system.

15 An object of this invention is to provide novel means for lifting and distributing liquid preferably water, the said apparatus being operated hydraulically and having means for filling receptacles which, owing to their weight, descend and operate pumping mechanism for lifting and distributing
20 water.

A further object of this invention is to provide novel means for temporarily supporting the receptacles in an elevated position, means being also provided for tripping
25 the supporting mechanism when the receptacle has been filled to a predetermined degree.

30 A further object of the invention is to provide novel valve operating mechanism under the influence of the receptacle supporting means whereby when the said receptacle is brought into operative relation with a tank the said valve is open to permit the liquid to flow from the tank into the
35 receptacle.

40 A still further object of this invention is to provide a water lifting device operated through the agencies just described, the said lifting device having suitable valves for controlling the flow of the liquid there-through.

45 With the foregoing and other objects in view, the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

50 In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification wherein like characters denote corresponding parts in the several views, in which—

55 Figure 1, illustrates the apparatus by a top plan view; Fig. 2, illustrates the said apparatus in side elevation; Fig. 3, illustrates an end view thereof; Fig. 4, is a plan view on an enlarged scale showing a portion

of the apparatus; Fig. 5, illustrates a side elevation of the parts shown in Fig. 4; Fig. 6, illustrates an enlarged detail view of the end of the apparatus shown in Fig. 5; Fig. 60 7, illustrates an enlarged detail view of the receptacle supporting means; Fig. 8, is an enlarged detail view illustrating the same in side elevation; and Fig. 9, illustrates a sectional view of the base of the water dis- 65 tributing members.

In these drawings A, denotes an elevated tank supported by a standard B, the said standard rising from a base tank C, having a normal water line on the dotted line D, the
70 said base tank C, being provided with a drain pipe *d*, for the discharge of the water in the event of its rising above the normal water line D.

The tank C, is provided with two pump 75 cylinders E, having the piston rods F, rising therefrom and connected to a walking beam G, pivotally mounted on the standard B. As the said walking beam G operates the pump rods F, F, are alternately reciprocated
80 and the pumps are thereby operated to draw water from the tank C, and force it through the pipes H, H, to the base I, of the distributing apparatus. The base is provided with ports J, J, and said ports are controlled by
85 the valves K, K, each of which has a stem *k* depending into its port in order that the said valve may be guided to its seat L, after the liquid has passed through the port.

90 The base I, is provided with a discharge pipe M, having a port N, in its base which communicates with the ports of the base I. The pipe M, has a valve seat O, for the valve P, and the said valve has a stem Q, for guiding it with relation to its seat. As the pump
95 pistons are operated, liquid is forced through the ports of the base and the valves are alternately seated and unseated to permit water to flow therethrough and the pressure attained by the pumps is sufficient to cause the
100 liquid to rise in the pipe M to be distributed to any suitable service system or through the end *o*, of the pipe.

105 As a means for operating the walking beam G, I employ the receptacles R, having bails *r*, supported from the hangers S, which hangers are pivotally connected to the walking beam. The receptacles are provided with valves T, guarding the openings *t*, in the bottom of said receptacles and each
110 valve T, is provided with a valve stem U, which projects through the opening *t*, and is

provided with an enlarged head u . In the bottom of the tank C, I provide blocks V, against which the heads of the valve stems abut as the receptacles descend and when the ends of the valve stems contact the said blocks, the valves are unseated from the bottom of the receptacles and the contents of the said receptacles is free to be discharged therefrom into the base tank C. As each receptacle receives a predetermined supply of liquid it descends and the receptacle on the opposite end is elevated into position to receive a supply of liquid while the contents of the one which has descended is being discharged.

As a means for supplying the liquid to the elevated receptacles, the elevated tank A, is provided with discharge openings a, a , controlled by valves W, it being understood that these parts are duplicated at each end of the tank. Each valve W, is provided with a valve stem w , to which is attached a pivotally mounted arm X, which arm has a projection X^2 , extending transversely beyond the side of the tank and is adapted to be elevated when the end of the walking beam G, rises. As a means for moving the pivoted arm X, and the valve with it, the walking beam G, has a bracket Y, projecting above its upper surface and as the walking beam is elevated, the end of the bracket Y, contacts the pivoted arm X, and causes the valve to be unseated. The contents of the elevated tank A, is thereby allowed to flow into the receptacle R, until said receptacle is filled to a predetermined degree.

The ends of the walking beam are held elevated by means of latches, one at each end of the tank A, and as these parts are practically duplicates, only the apparatus at one end will be described. The latch comprises a reciprocating member Z, suitably guided and having pivotally connected thereto, a bolt Z' , provided with an anti-friction roller Z^2 , which is adapted to operate in conjunction with an angular bracket Z^3 , near the end of the walking beam. As the bracket Z^3 , is elevated, it comes in contact with the bolt and lifts it slightly to cause it to move out of its path of travel after which said bolt drops into a horizontal position again where it is held by the spring Z^4 . The angular end of the bracket then rests on the bolt as the receptacle R, is being filled and while the opposite receptacle is discharging its contents. When a predetermined amount of liquid has passed into the receptacle R, the float R' , is elevated and the top rod R^2 , on the float rises to contact the block Z^5 , on the right-angled lever Z^6 , said right-angled lever being pivoted at the point Z^7 . When the outer end of the lever is thus elevated, its inner end swings the intermediate lever Z^8 , on its pivot Z^9 , and as the said intermediate lever Z^8 , is connected to the member Z the

said member is moved rearwardly and the bolt is retracted until it clears the end of the angular bracket Z^3 , and the receptacle is free to descend as heretofore described, that is to say, the filled receptacle being heavier than the empty receptacle on the opposite end of the walking beam, the filled receptacle will gravitate to the base tank C, until the end of the valve stem U, contacts the end of the block and its valve is unseated to permit the liquid to flow into the base tank C. As the opposite receptacle is lifted, the weight of the valve causes it to again seat to close the opening in the bottom of the receptacle and the elevated receptacle may then be filled in like manner.

As a means for cushioning the movement of the walking beam, spring-held buffers B' , are attached to the outer surface of the tank and as the ends of the walking beam contact the buffers, the springs will yield sufficiently to prevent undue shock and vibration during the operation of the pumping apparatus.

As it will be observed that the pumps are operated simultaneously with the walking beam, it follows that the liquid which has been delivered to the base tank C, by the receptacles will be pumped out of the said base tank C, through the pipe M. Through this mechanism the pump will be automatically controlled and operated so long as the supply of liquid is delivered to the tank A, through a pipe or other conductor X^3 . As a means for preventing the overflow of the elevated tank A, a drain pipe X^4 , is provided to carry off the excess supply of water, and in order to prevent splashing the machinery, I connect the pipe through the side wall of the elevated tank A, and have it extend downwardly in order that it will discharge into the base tank C, and as heretofore explained, the base tank C, is provided with a drain pipe D, so that the excess water or liquid is conveyed away from the apparatus.

I claim:

1. An automatic pumping device, provided with a base tank, a standard extending from said base tank, said standard supporting an elevated tank and a walking beam, buckets at each end of said beam, means to fill and empty said buckets, buffers mounted on vertical extensions on the extreme ends of said elevated tank, blocks attached to right angled levers, said right angled levers being fulcrumed on said vertical extensions, latches reciprocated by said right angled levers and intermediate brackets attached to the opposing ends of said walking beam, said brackets being elevated and extending over the ends of said latches and means for releasing said latches.

2. An automatic pumping device, provided with a base tank, a standard on said

base tank, a walking beam and elevated tank mounted on said standard, receptacles provided with hangers pivotally connected to opposite ends of said walking beams, means
5 to fill and empty said receptacles, floats provided with upwardly and downwardly projecting rods located within said receptacles, blocks disposed above the top rods of said floats, right angled levers attached to said
10 blocks, and intermediate levers, latches pivoted to said intermediate levers, bolts with friction rollers thereon, pivoted to said latches, brackets attached to the opposite ends of said walking beam, said brackets
15 elevating and riding over said bolts, springs contacting said bolts, for the purpose as specified.

3. An automatic pumping device comprising upper and lower tanks, a standard connecting said tanks, pumps in the lower tank,
20 a walking beam pivoted on said standard, rods connecting said walking beam with said pump, U-shaped brackets on opposite ends of said walking beam, projections on said
25 brackets, receptacles supported by said brackets, floats in the receptacles, said floats having rods extending upwardly and downwardly therefrom, said upwardly extending rods passing through and guided by said
30 projections, means for filling said recep-

tacles from the upper tank, means whereby an end of said walking beam is retained in a raised position, means comprising said floats for releasing said walking beam, and means for emptying said receptacles into the
35 lower tank.

4. An automatic pumping device comprising upper and lower tanks, a standard connecting said tanks, pumps in the lower tank, a walking beam pivoted on said standard,
40 rods connecting said walking beam with said pumps, receptacles carried on the ends of said walking beam, the opposite ends of said upper tank having apertures with valve seats therein, plates pivotally mounted on said
45 tank, depending rods on said plates, valves carried by said rods, said valves adapted to be seated in said valve seats, brackets carried by said walking beam adapted to contact
50 said plates and raise said valve, whereby said receptacles are filled, and means for emptying said receptacles into said lower tank.

In testimony whereof I have signed my name in the presence of two witnesses.

JOHAN HANSON.

Witnesses:

OSCAR HANSON,
IRENE KNIGHT.