J. H. CHAMP.

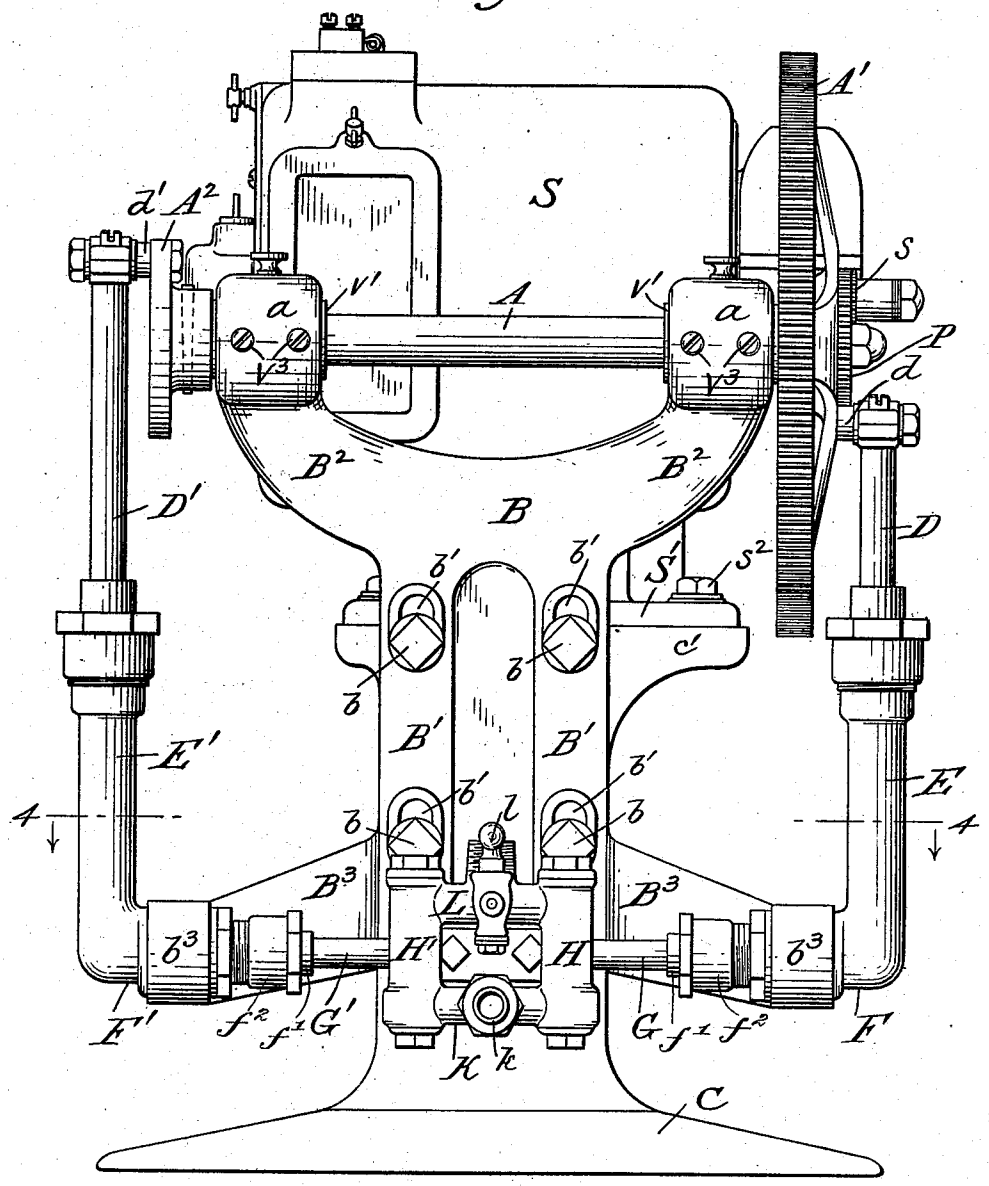
PUMP.

APPLICATION FILED SEPT. 25, 1905.

899,513. **Patented Sept. 29, 1908.**

5 SHEETS—SHEET 1.

Fig. 1.



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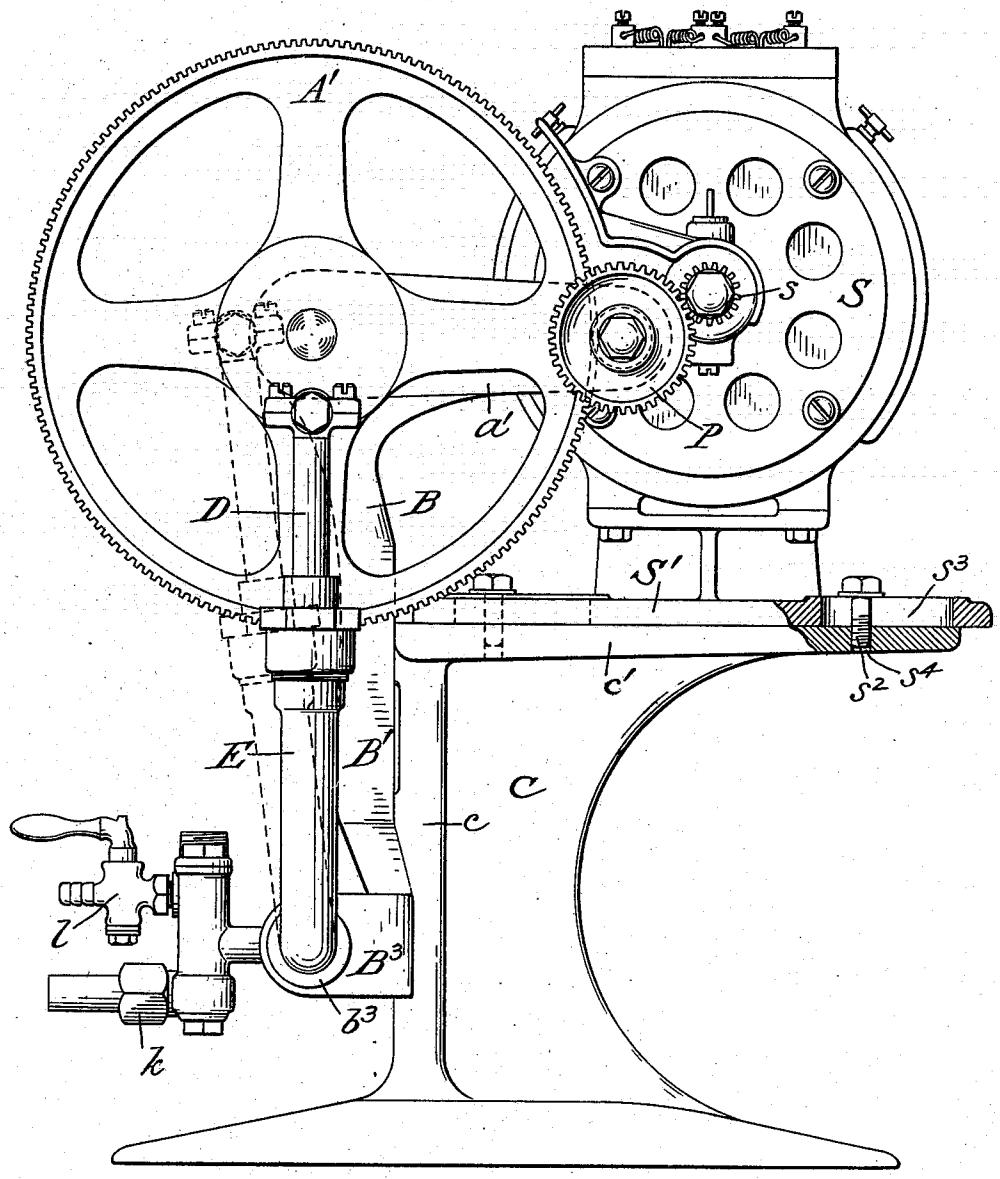
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5 SHEETS—SHEET 2.

Fig. 2.



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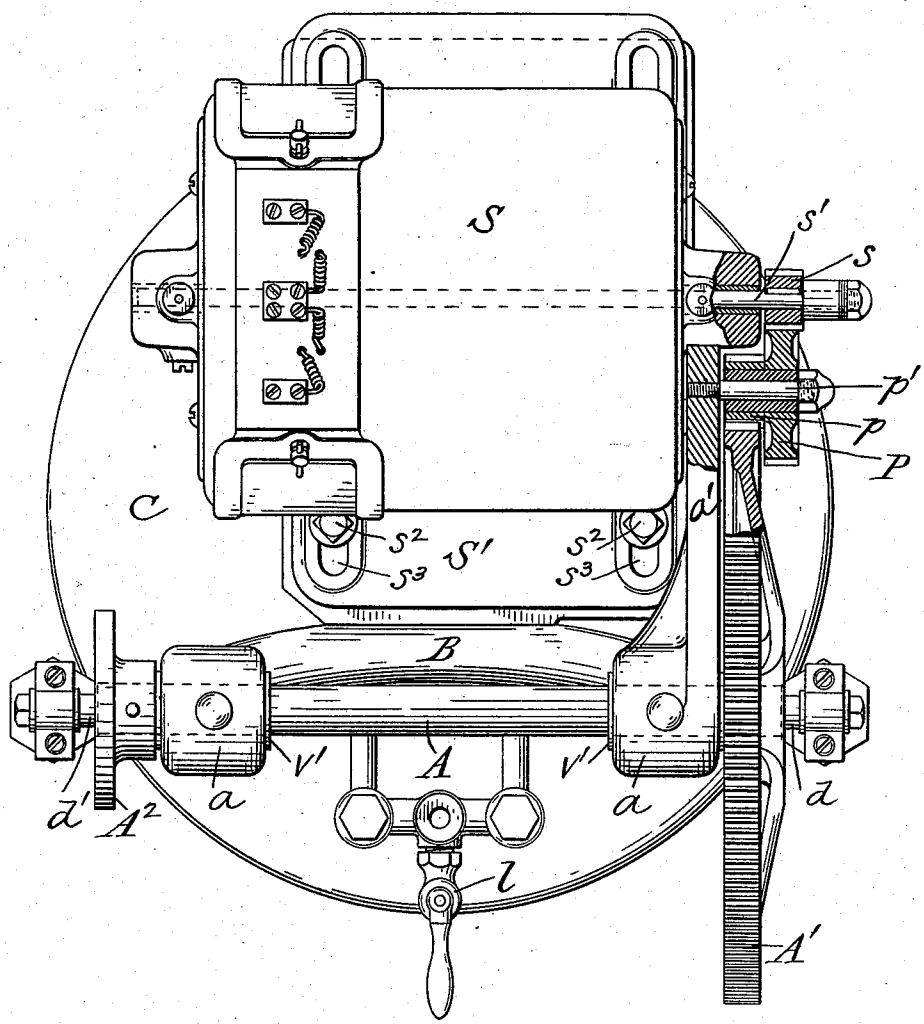
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5 SHEETS—SHEET 3.

Fig. 3.



Witnesses:

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5 SHEETS—SHEET 4.

Fig. 8.

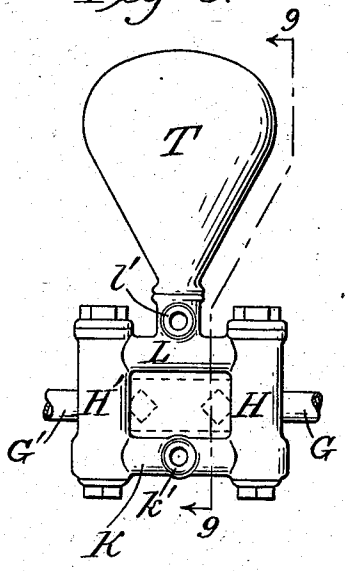


Fig. 9

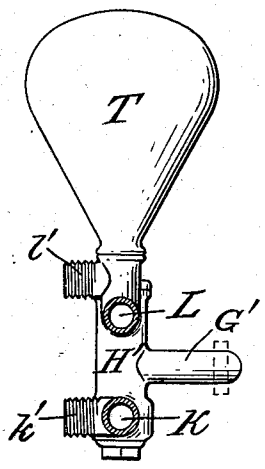
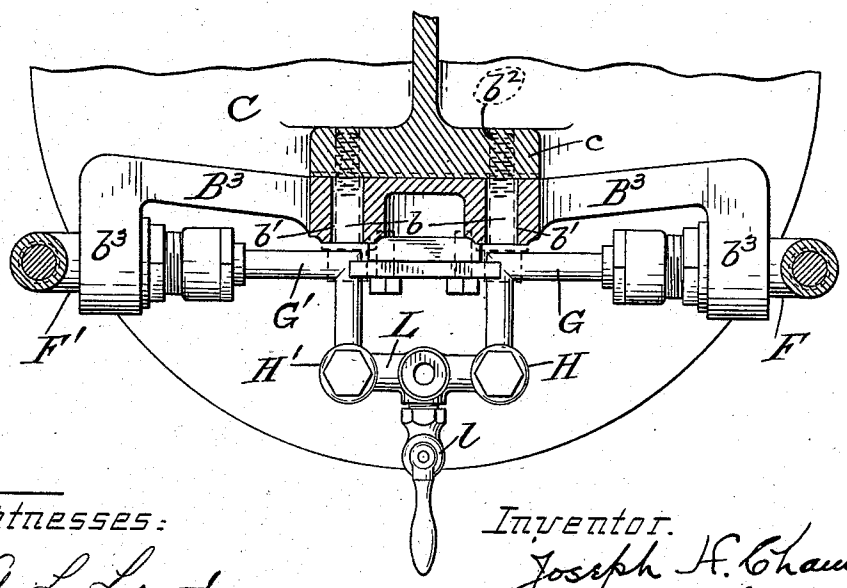


Fig. 4.



Witnesses:

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APPLICATION FILED SEPT. 25, 1905.

899,513. Patented Sept. 29, 1908.

5 SHEETS—SHEET 5.

Fig. 6.

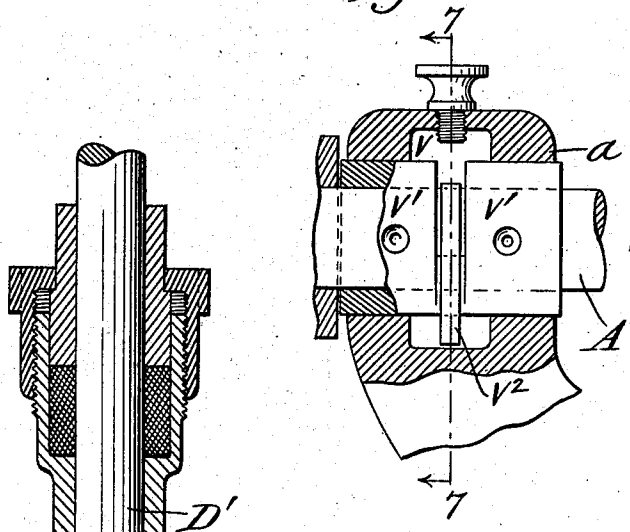


Fig. 7.

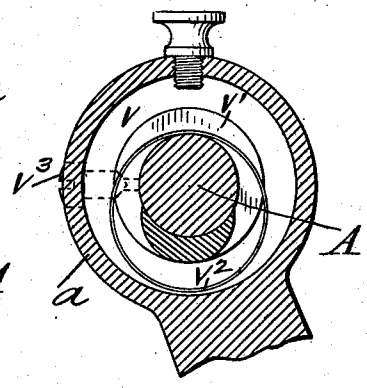


Fig. 5.

Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH H. CHAMP, OF CLEVELAND, OHIO.

PUMP.

No. 899,513. Specification of Letters Patent. Patented Sept. 29, 1908.

Application filed September 25, 1905. Serial No. 279,917.

To all whom it may concern:

Be it known that I, JOSEPH H. CHAMP, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Pumps, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The object of the invention is to provide an improved pump; particularly adapted for application as a carbonating pump; also particularly adapted for application as a lift pump.

The invention consists of the means hereinafter described, and particularly pointed out in the claims.

In the drawings: The first five figures illustrate the invention as applied to a carbonating pump. The last two figures illustrate certain modification of the foregoing, in using the invention with a lift pump. The intermediate two figures illustrate an oiling device for the main shaft.

Figure 1 is a front elevation. Fig. 2 is a side elevation, with portion broken away. Fig. 3 is a top plan, with portion broken away, and having gear hood omitted Fig 4 is a detail, in top plan, on line 4—4 of Fig. 1. Fig. 5 is a detail, partly vertical section and partly front elevation,—of plunger and valves and connecting passages. Fig. 6 is a detail, partly vertical section and partly front elevation,—of the journal box having the oiling device. Fig. 7 is a vertical cross section on line 7—7 of Fig. 6. Fig. 8 is a detail, in front elevation, illustrating certain modification for using the invention with a lift pump,—as distinguished from use with a carbonating pump, as illustrated in the first five figures. Fig. 9 is a view, partly side elevation and partly vertical cross section, on line 9—9 of Fig. 8.

The horizontal main driving counter-shaft A has its two end portions running in journal boxes *a*, respectively formed on the upper extremities of an upright bracket support B. Such bracket support is vertically adjustable on the main supporting body C of the machine, by the following clamping mechanism: Horizontal bolts *b* pass loosely through vertical slots *b'* formed in the upper and lower portions of the two side members B' of said bracket support; and are screwthreaded in corresponding holes b^2 formed in the face of the central upright portion *c* of said main supporting body C. Said pair of journal boxes are formed on the upper ends of a pair of horns B^2 constituting the upper extremities of said bracket support B. The lower extremities of said side members B' are respectively formed with two laterally diverging arms B^3, each of the latter being provided with a sleeve b^3, in which is journaled the horizontal portion of the corresponding plunger cylinder. The vertical adjustment of the bracket support B thereby carries the countershaft A, with its plunger equipment, together with the plunger cylinders having suction and force equipment.

One extreme outer end of shaft A is provided with gear wheel A'; the opposite end of such shaft being provided with disk A^2. A wrist pin *d*, projecting outwardly from an eccentric portion of gear wheel A', provides journal bearing for the upper end of plunger D; while a wrist pin *d'*, projecting outwardly from an eccentric portion of disk A^2, provides journal bearing for the companion plunger D'.

Plunger D works in vertical cylinder E. Plunger D' works in vertical cylinder E'. The lower portion of cylinder E is formed with a horizontally extending portion F to which reference has been made above as being journaled in sleeve b^3 of arm B^3. The inner end of such horizontally extending portion F is rotatably secured to a pipe G laterally projecting from vertical valve chamber H, by a suitable fluid tight connection comprising a packing ring *f*, a gland *f'* and stuffing box f^2, Figs. 1 and 5. Pipe G is formed with a passage that is thus adapted to afford communication between the cylinder E and the central portion of the valve chamber in question. The lower portion of cylinder E' is formed with a horizontal passage F' extending towards, and connected by passage G' with the central portion of, vertical valve chamber H'. The lower portions of such two valve chambers H and H' are connected together by horizontal inlet passage K; and their upper portions are connected together by horizontal outlet passage L.

The connection of passage G with valve chamber H is centrally between connection of inlet passage K and connection of outlet passage L, with such chamber H. The connection of passage G' with valve chamber H' is centrally between connection of inlet pas-

sage K and connection of outlet passage L, with such chamber H'.

The plunger D, the plunger cylinder E, and passage connection of the latter with valve chamber H, are respectively identical with plunger D', plunger cylinder E', and passage connection of the latter with valve chamber H'. One of such duplicate mechanisms is represented in Fig. 5, showing plunger D' as operating in connection with valve chamber H' and the intermediate construction,—as follows: Valve seat *m* is formed in the upper portion of the valve chamber, above the connection of such chamber with its plunger cylinder. The portion of the valve chamber below such plunger cylinder connection, is formed with a valve seat *n*. A valve M is adapted to seat downwardly upon said valve seat *m*. A valve N is adapted to seat downwardly upon said valve seat *n*.

Gear wheel A' meshes with pinion *p* formed integral with spur wheel P, which latter meshes with pinion *s*. Said spur wheel and pinion casting P *p* is journaled loosely on a horizontal pin *p'*; the latter projecting from the rear portion of the outer face of the rearwardly extending arm *a'* formed in same piece with the journal box *a* adjacent to gear wheel A'. Pinion *s* is fast on pin *s'* projecting outwardly from the end of the armature shaft of an electric motor S. Said gear wheel A' being fast to the counter-shaft A, and said pinion *s* being fast to the armature of the electric motor S; while the intermediate spur and pinion casting P *p* is loose on its journal pin *p'*. The said motor is provided with bed plate S', which is supported on upper horizontal rear extension *c'* of the main supporting body C of the machine. Clamping bolts s^2 pass loosely through horizontal slots s^3, right angular to counter-shaft A, formed in said bed plate S'; and are threaded in suitable vertical holes s^4 formed in said horizontal rear extension *c'*.

From the foregoing description it will be obvious that the pump-mechanism proper may be readily adjusted to be operated by any of the various styles of motor adapted to the service here required. This is a matter oftentimes of considerable convenience inasmuch as where a special design of motor is needed for use in a machine of this kind such motor is not always readily available to the user and frequently obtainable by the manufacturer of the special machine only after annoying delays and with general dissatisfaction as a result.

An oil chamber *v* is formed centrally in each journal box *a*. A bronze bushing *v'* is fitted in said box, respectively to opposite sides of such oil chamber. A thin brass ring v^2 rests loosely on shaft A, and has its lower portion depending below said shaft, within said oil chamber. A set screw v^3 passes through the wall of the journal box, opposite each bronze bushing; and has pin end bearing against the corresponding bushing, to prevent the latter from turning.

Figs. 8 and 9 represent certain modification, when the invention is to be applied to a lift pump, as distinguished from a carbonating pump. In such application, the supply coupling *k* and the pet cock *l*, used when the invention is applied to a carbonating pump, are omitted. An iron supply pipe *k'*, having a screwthreaded extremity, is substituted for said supply coupling *k;* an iron discharge pipe *l'*, having a screwthreaded extremity, is substituted for said pet cock *l;* an air dome T is connected with such discharge pipe *l'*.

What I claim is:

1. In a pump, the combination of a suitable base, pumping mechanism vertically adjustable on one face of said base, such mechanism including a driving shaft and a gear mounted thereon; and a motor transversely adjustable upon the top of said base and bearing a pinion adapted to mesh with said pump gear.

2. In a pump, the combination of a suitable base, a bracket vertically adjustable on one face of said base; pumping mechanism wholly supported by said bracket, such mechanism including a driving shaft and a gear mounted on said shaft; and a motor transversely adjustable on the top of said base, said motor having its armature shaft alined with said driving shaft and provided with a pinion adapted to mesh with said gear.

3. In a pump, the combination of a suitable base, a bracket vertically adjustable on one face of said base; two valve chambers mounted on said bracket, said chambers having their corresponding extremities respectively connected with an inlet and an outlet passage and being provided with horizontally extending lateral connections intermediate of such extremities; plunger cylinders having horizontally extending portions respectively rotatively secured to said lateral connections, said valve chambers having valve seats respectively to opposite sides of said connections; valves respectively adapted to such valve seats; a driving shaft mounted in said bracket; a gear mounted on said driving shaft; plungers in said cylinders eccentrically connected with said shaft so as to be reciprocated thereby; an idle gear mounted on said bracket and meshing with said driving-gear; and a motor transversely adjustable on the top of said base, said motor having its armature shaft alined with said driving shaft and provided with a pinion adapted to mesh with said idle gear.

Signed by me, this 22d day of September, 1905.

JOSEPH H. CHAMP.

Attested by—
D. T. DAVIES,
H. W. YEOMANS.