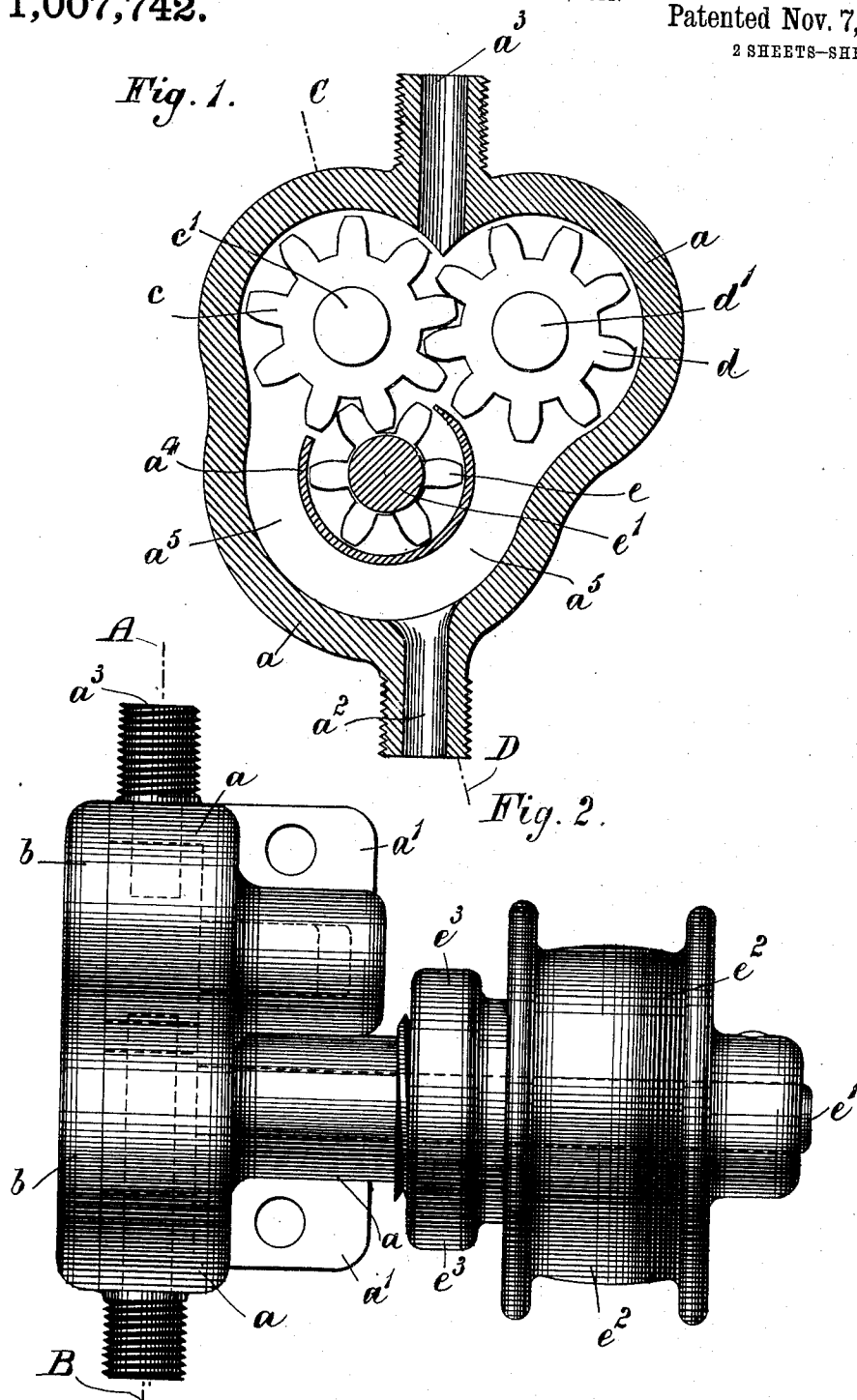


J. SMITH.
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 APPLICATION FILED AUG. 25, 1911.
 1,007,742.

Patented Nov. 7, 1911.
 2 SHEETS—SHEET 1.



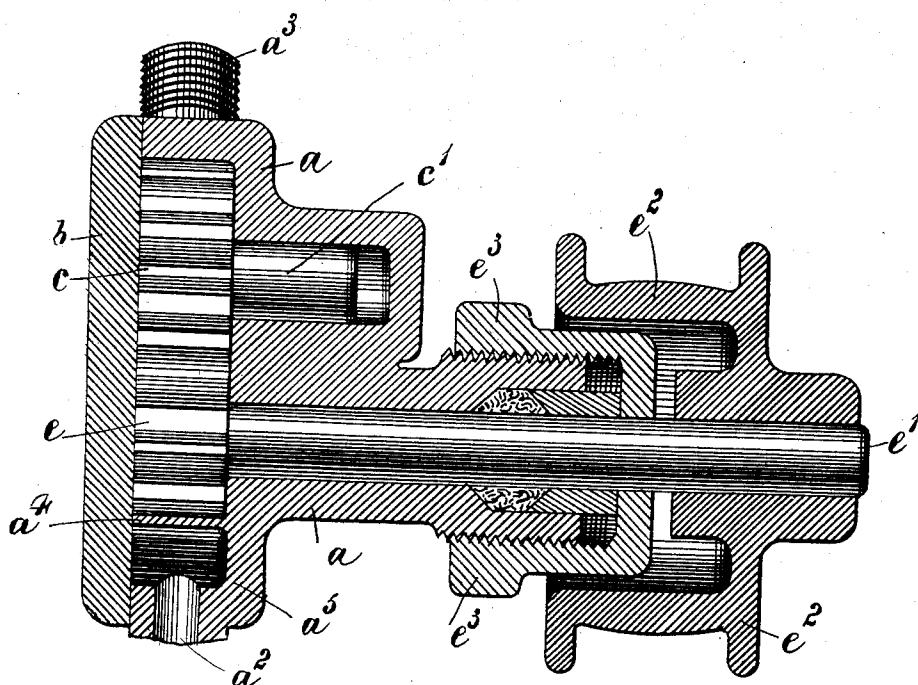
WITNESSES:
 John H. Hoving.
 R. P. Appleton

Inventor,
 John Smith,
 by A. H. Berrigan,
 Attorney.

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Fig. 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN SMITH, OF BIRMINGHAM, ENGLAND.

ROTARY PUMP FOR MACHINE-TOOLS AND OTHER PURPOSES.

1,007,742.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed August 25, 1911. Serial No. 646,064.

To all whom it may concern:

Be it known that I, JOHN SMITH, a subject of the King of Great Britain, residing at Richard street, Birmingham, in the county of Warwick, England, have invented a new and useful Improvement in Rotary Pumps for Machine-Tools and other Purposes; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention comprises improvements in rotary pumps for machine tools and other purposes, and refers to that class of such which employ two spur wheels, the inlet to the pump chamber being on one side of the engaging part of the wheels, while the liquid is discharged on the opposite side. This type of pump is commonly employed on lathes and other machine tools for pumping up soap suds or oil from the pan at the bottom of the machine for use again on the cutting tool; and for this purpose it has been the practice to provide a driving pulley on one wheel shaft, such shaft passing through the wall of the pump chamber and being provided with a stuffing box. When running at a high speed there is such a pressure inside the pump chamber that the liquid is forced out through the stuffing box and the pump leaks. In this type of pump it has been proposed to employ a third and driving wheel engaging one of the pumping wheels, said driving wheel being between the pumping wheels and the outlet and having on its spindle a driving pulley; but in such case the driving wheel spindle is still open to the pressure from the pumping action with consequent liability to leakage.

According to my invention in a rotary pump for machine tools and other purposes in which a third and driving wheel engaging one of the two pumping wheels is employed the driving wheel is located between the pumping wheels and the inlet, and is shielded from pressure for the purpose of avoiding leakage.

Referring to the drawings, Figure 1. is a section through the pump taken at A—B in Fig. 2. Fig. 2. is a plan of same, and Fig. 3. is a section at C—D in Fig. 1.

In carrying my invention into practice as illustrated upon the accompanying drawings, the pump body consists of a cast body part a , having a seating a^1 whereby it may be bolted to the machine frame, an inlet

opening a^2 at one side, and an outlet a^3 at the opposite side, the pumping wheels being between the inlet and outlet; while the body is provided with the usual cover plate b . The pumping is effected by the rotation of two spur wheels c , d , meshing together, and carried on shafts entering bearings on the interior of, but not projecting through, the walls, so that leakage is impossible.

In addition to the pumping wheels c , d and between same and the inlet, I employ a third, or driving, wheel e engaging one pump wheel c , the second pump wheel d being driven by the first. Around the driving wheel extending for about two thirds of its circumference on the inlet side thereof I provide an annular wall a^4 , thus providing two passages a^5 , a^5 for the incoming liquid, one extending in each direction around the annular wall and communicating with the main part of the pump chamber wherein the pump wheels are located.

One end of the driving wheel shaft e is mounted in the same way as the pump wheel shafts c^1 , d^1 while the other end extends through the pump casing and carries a driving pulley e^2 , a stuffing box joint e^3 being employed at this point.

In practice the incoming liquid passes through the two diverging passages around the annular wall, without coming into contact with the driving wheel, to the main part of the chamber and pumping wheels, and as the said pumping wheels are pumping away from the driving wheel it will be obvious that there is no pressure of liquid in this wheel and no tendency to leak at the stuffing box joint.

What I claim then is:—

1. In a rotary pump, the combination of a casing, an inlet, an outlet, a pair of intermeshing pumping wheels located between the inlet and outlet, a driving wheel meshing with one of the pumping wheels, and means for shielding said driving wheel from the pressure caused by the force of the current; substantially as set forth.

2. In a rotary pump, the combination of a casing, an inlet, an outlet, a pair of intermeshing pumping wheels located between the inlet and outlet, a driving wheel meshing with one of the pumping wheels, and an annular wall partly surrounding said driving wheel and shielding same from pressure caused by the force of the current.

3. In a rotary pump, the combination of
a casing, an inlet, an outlet, a pair of inter-
meshing pumping wheels located between
the inlet and outlet, a driving wheel mesh-
5 ing with one of said pumping wheels and
located between said pumping wheels and
the inlet, and an annular wall located be-
tween the inlet and the driving wheel and
partly surrounding said driving wheel for
10 the purpose of shielding same from pressure
caused by the force of the current; substan-
tially as set forth.

4. In a rotary pump, the combination of
a casing, an inlet, an outlet on the opposite
15 side of the casing to the inlet, a pair of in-
termeshing pumping wheels located between
the inlet and outlet, spindles carrying said
pumping wheels, bearings formed in the
interior walls of said casing but not extend-

ing through same, a driving wheel meshing 20
with one of said pumping wheels and lo-
cated between said pumping wheels and the
inlet, a spindle carrying said driving wheel
and extending through the casing, a stuffing 25
box joint on said spindle at the position
where it passes through the casing, and an
annular wall located between the inlet and
the driving wheel and partly surrounding
said driving wheel for the purpose of shield- 30
ing same from pressure caused by the force
of the current; substantially as set forth.

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

JOHN SMITH.

Witnesses:

HAROLD J. C. FORRESTER,
NORMAN S. BARLOW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."