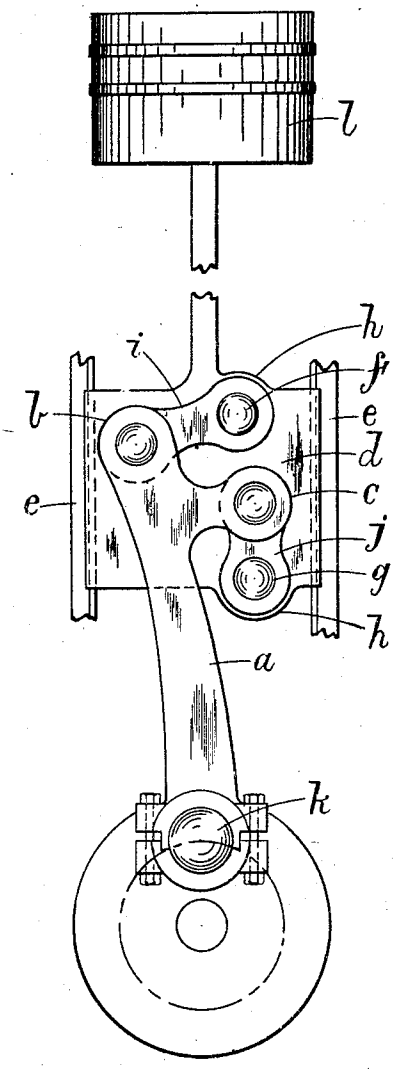
March 24, 1931. C. BAXTER 1,797,493

COMPRESSOR

Filed Aug. 11, 1928



Witness.

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COMPRESSOR

Application filed August 11, 1928, Serial No. 299,084, and in Great Britain August 31, 1927.

This invention relates to improvements in single or double acting or other known types of fluid pumps or compressors, and has for its object to provide a simple and efficient mechanism for imparting a variable speed to the piston or plunger, thereby effecting a saving in motive power for driving the compressor.

A further object of this invention is to reduce the frictional losses and consequently improve the efficiency of the pump or compressor.

A fluid pump or compressor according to this invention is provided with a connecting rod with an articulated outer end being pivotally connected by means of members to a cross head or piston, at a suitable distance from the longitudinal axis, which said distance may vary according to the size of the pump or compressor, whereby a saving in motive power for driving the pump or compressor is obtained.

By pivotally mounting the outer end of the connecting rod to the cross head or piston out of the longitudinal axis, a "leverage" action is imparted thereto, and a variable speed is applied to the piston or plunger at each stroke; furthermore the frictional losses between the crosshead and guide or guides is reduced to an absolute minimum, by reason of the fact, that the force acting on the crankshaft is transmitted at all moments directly through the longitudinal axis of the crosshead and piston during the revolving of the crankshaft.

The accompanying drawing is an elevation of one form of my invention for use with a single acting fluid pump or compressor.

The connecting rod *a* is provided with two limbs *b* and *c* at the outer end, which extend to the opposite sides of a crosshead *d* operating between guides *e*.

The crosshead *d* has two pivot pins *f* and *g* disposed at each end, at a suitable distance from the longitudinal axis, and said crosshead *d*, is formed with an extension *h* at the respective ends, so as to strengthen the crosshead *d* around the pivot pins *f* and *g*.

The limb *b* extends to the side adjacent to the pivot pin *f* on the crosshead *d* and is connected thereto by means of a link *i*.

The laterally disposed limb *c* being shorter in length than the limb *b* extends to the same side as the pivot pin *g* and is secured thereto by means of a rearwardly extending link *j*, whereby the rod *a* is connected to the extreme ends of the crosshead *d* at a suitable distance from the longitudinal axis as shewn in the accompanying drawing.

The connecting rod *a* is mounted upon the crankshaft *k*, in a well known manner, and the piston *l* is integral with the cross head *d* in the usual way.

By the above described construction, a variable speed is imparted to the piston *l*, which is obtained by the oscillatory movement of the links *i* and *j* upon the pivot pins *f* and *g*, whereby on the forward stroke, the speed of the piston *l* is slowly retarded in comparison with its movement when operated by an ordinary type of connecting rod, until it reaches about half its stroke; immediately afterwards, the piston *l* is thrust forward by the leverage action of the links *i* and *j*, consequently imparting an increase of speed to the piston *l*, whilst a constant speed is being maintained on the crankshaft, and a corresponding cycle of operation take place on the return stroke thereof, being applicable to a double acting compressor.

The mechanism is applicable to any well known type of fluid pump and compressor, as it is only necessary to provide a connecting rod and crosshead as herein set forth.

The operation of a compressor provided with the above described mechanism may be more readily understood by comparing same with the movement of a standard or well known type of compressor of substantially the same size. The length of the movement of the piston *l* from the commencement of the stroke to shortly before the exhaust port is opened, is less than the movement of a piston in the standard compressor for the corresponding number of degrees of movement of both crankshafts, and on further movement of the crankshaft *k*, the piston *l* will arrive at the top dead centre at the same moment as the piston in the standard compressor reaches

this point, by an acceleration resulting from the leverage action resulting from the links *i* and *j* acting on the pivot pins *f* and *g*, and for the complete stroke of the piston *l*, less energy is expended in rotating the crankshaft *k* as compared with the one fitted to the standard compressor thereby effecting a saving in motive power.

I claim:

A fluid pump or compressor having a connecting rod, two limbs formed at the outer end, a reciprocating member, a pivot pin at each end near one side thereof, one limb of the connecting rod extending to the side adjacent to the forward pivot pin, a link pivotally connected to said limb and forward pivot pin, the second limb being laterally disposed and shorter than the first mentioned limb extends to the same side as the rear pivot pin and a rearwardly extending link connected to said laterally disposed limb and rear pivot pin.

In witness whereof I affix my signature.

CHARLES BAXTER.