J. PLATTENBURG.

Motor.

No. 212,977. Patented Mar. 4, 1879.

Fig. 1.

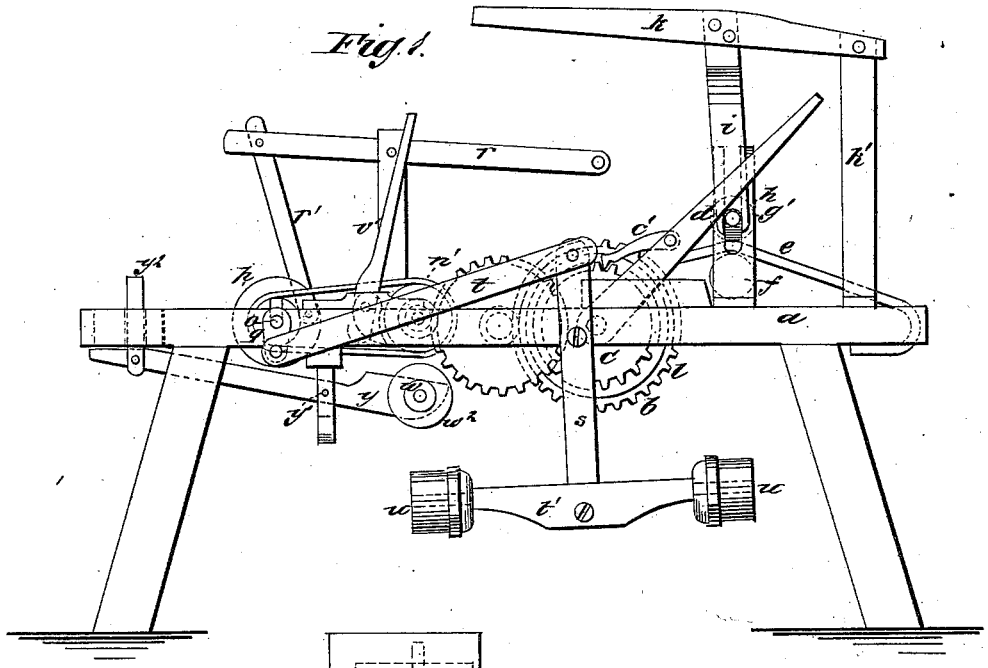


Fig. 2

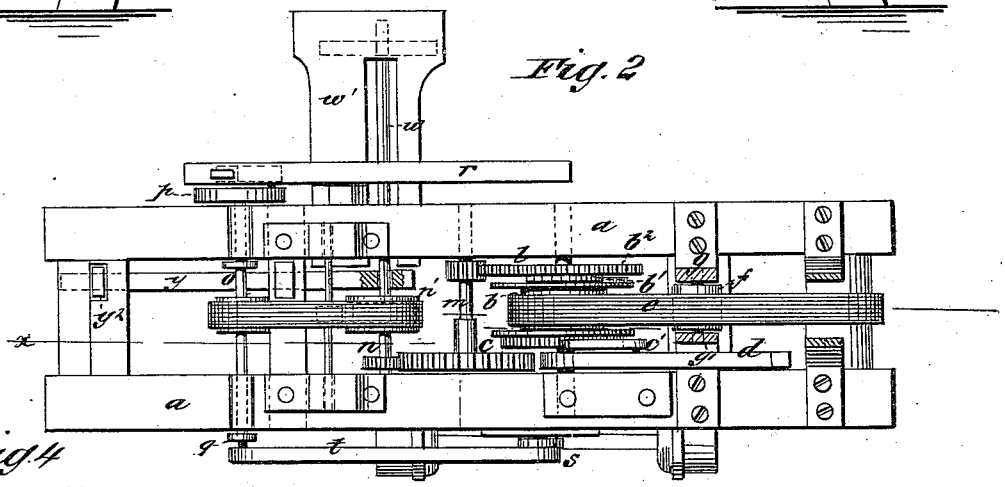


Fig. 4

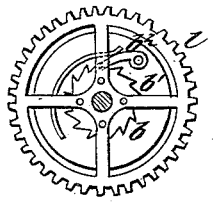
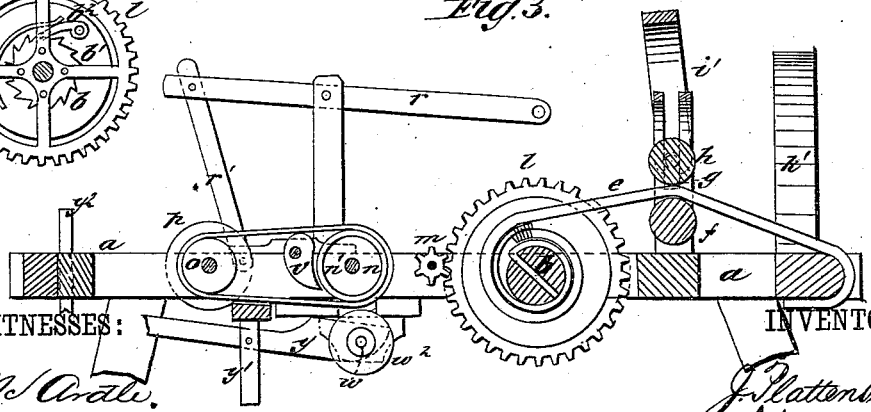


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH PLATTENBURG, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN MOTORS.

Specification forming part of Letters Patent No. **212,977**, dated March 4, 1879; application filed December 31, 1878.

To all whom it may concern:

Be it known that I, JOSEPH PLATTENBURG, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Motor, of which the following is a specification:

The object of my invention is to furnish a motor adapted for use in driving machinery, and especially for pumping and other purposes where a steam-engine would be too expensive.

In carrying out the said object I construct an apparatus whereby hand-power is utilized to stretch a vulcanized rubber belt of suitable size and tension, and wind the belt in its stretched condition on a drum. The power is then taken as required from the drum by suitable mechanism, and regulated and controlled by a weighted lever to render it uniform, and the tension of the belt in winding is regulated by pressure-rollers.

The apparatus will be described in detail in connection with the accompanying drawings, wherein—

Figure 1 is a side elevation of my apparatus as adapted for pumping purposes. Fig. 2 is a plan view. Fig. 3 is a sectional elevation on line *x x* of Fig. 2. Fig. 4 is a view of the ratchet that connects the drum to its shaft.

Similar letters of reference indicate corresponding parts.

The operative parts of the machine are mounted upon a bed or stand, *a*. Upon a shaft that is fitted in suitable bearings on bed *a* is a loose drum, *b*, having flanges, as shown, and fitted at opposite sides outside the flanges with ratchet-wheels b^1 *c*, the teeth of which stand in opposite directions. A pawl, b^2, engages with the teeth of ratchet b^1 to cause the drum *b* and shaft to turn together in one direction and permit independent movement of the drum in the other direction. The ratchet *c* is engaged by the dog or pawl *c'*, that is hung on lever *d*, which lever is hung loosely on the shaft of drum *b*. One end of a vulcanized-rubber belt, *e*, is connected to the drum *b*, and the other end extends to and is connected firmly to the end of frame *a*. At an intermediate point between the two connections the belt passes over a friction-roller, *f*, which is journaled in the standards *g g'*, that rise from bed *a*. These standards *g g'* extend above roller *f*, and are slotted to receive the journals of a pressure-roller, *h*, which rests upon belt *e*, above roller *f*, and is capable of vertical movement in the slots of the standards *g g'*. The journals of roller *h* project outside the standards *g*, and upon them rest the forked arms *i i'*, that are connected to a lever, *k*, whereby more or less pressure may be applied to roller *h*. The lever *k* is fulcrumed in a standard, *k'*, and suitable pressure can be obtained by weights or springs applied upon its moving end.

Keyed to the shaft of drum *b* is a large gear-wheel, *l*, which meshes with a pinion on an intermediate shaft, *m*, carrying a gear-wheel, which meshes with a pinion on the driving-shaft *n*, which shaft *n* will thereby have a rapid rotation compared with drum *b*, and from which the power is taken for the work to be done.

I have shown a pulley, *n'*, on shaft *n*, belted to a pulley on a shaft, *o*, that has keyed upon one end a crank-wheel, *p*, and upon its opposite end a crank, *q*.

r is the walking beam of an oil-well pump of usual character, which should be weighted to balance the sucker-rods of the pump, but when used for pumping water would not need to be balanced. This beam is operated by a pitman, *r'*, from wheel *h*. Upon the side of frame *a* is fulcrumed a lever, *s*, the upper and short arm of which is connected by a rod, *t*, with crank *q* on shaft *o*, and upon its lower end is a cross-bar, *t'*, that carries upon its outer end weights *u*. This lever *s* forms a weighted pendulum, that is vibrated by the revolution of shaft *o*. It is shown connected to shaft *o*, but in case that shaft was not used can be connected in the same manner with shaft *n*.

v is a brake, fitted to act on pulley *n'* by movement of lever *v'* to check or stop the apparatus.

The operation of the above-described parts is as follows: To stretch belt *e* and wind it upon drum *b*, the lever *d* is first depressed to its lowest point, and pawl *c'* engaged with ratchet *c*. Then by raising lever *d* the drum is turned, which winds belt *e* and stretches it

at the same time. The tension at which the belt is wound is regulated by the pressure of roller *h* on the belt, the length of belt between *b* and *h* being first stretched and wound until it is of sufficient tension to overcome the pressure of *h*, and then the remaining part of the belt will be drawn beneath *h* and taken up by the drum as fast as stretched.

After the belt is wound to the desired extent the pawl *c'* should be disengaged, and the tension of the belt will act to turn the drum, and by the gearing described the beam *r* will be operated. The weighted lever *s* will act as a governor upon the apparatus to render the action uniform and prevent jerking action of the cranks.

When the apparatus is used in connection with oil-wells, it is essential that some means be provided for raising the sucker-rods from the wells. For this purpose I attach the shaft *w*, one end of which is fitted in a side frame, w^1, and the inner end is journaled at the end of a lever, *y*, that is fulcrumed at *y'* on frame *a*. The inner end of shaft *w* carries a friction-wheel, w^2, which, by depressing lever *y*, can be brought in contact with pulley *n'*, and shaft *w* thereby rotated. The shaft *w* should carry a drum for a rope passing over a sheave at the top of the derrick and connected to the sucker-rods; and for convenience of operating lever *y* a slide, *y'*, is connected therewith, its opposite end projecting above frame *a* adjacent to where the operator will stand in using the apparatus.

The power developed by the apparatus described will be in proportion to the size of the belt *e* and the extent to which it is stretched. By making the lever *d* of suitable proportions, and, if necessary, by the use of gearing intermediate to the lever and drum, immense power can be stored up in the drum by operating the lever a short time and gradually expended in the manner described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination herein described of the drum, the pawls and ratchets, the lever *d*, the elastic belt *e*, and the rolls *f h*, all arranged as shown and described.

2. The combination, with the drum *b*, elastic belt *e*, lever *d*, and dog *c'*, of the friction-roller *f*, pressure-roller *h*, arms *i*, and lever *k*, substantially as and for the purposes set forth.

3. The combination, with the drum *b*, elastic belt *e*, and means, substantially as described, for stretching and winding the belt upon the drum, of the weighted lever *s*, connected to a crank on the secondary shaft, *o*, substantially as and for the purposes specified.

4. The combination, with the drum *b*, elastic belt *e*, and means, substantially as described, for stretching and winding the belt upon the drum, of the crank-shaft *o*, operated by intermediate gearing from drum *b*, the beam *r*, and rod *r''*, substantially as and for the purposes set forth.

5. The combination, with the drum *b*, elastic belt *e*, lever *d*, dog *c'*, shaft *n*, and intermediate gearing, the whole constituting a motor, operating as described, of the drum-shaft *w*, friction-wheel w^2, and lever *y*, substantially as described and shown, and for the purposes specified.

JOSEPH PLATTENBURG.

Witnesses:

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