

A POWER PUMP WITH VARIABLE CAPACITY.

More than one objection can be urged against the usual way of regulating the capacity of a power pump by starting and stopping. There is always a certain amount of wear and tear in starting machinery of any kind, and in a pump the action of air and water are both to be considered, in addition to the purely mechanical features. A pump in good working order, doing its work properly, is apt to continue to work well; whereas if it had to be often started and stopped, the case might be different.

A power pump, the capacity of which can be regulated with the greatest nicety, has been patented by Mr. F. L. Stone, of Brockton, Mass. In this pump, front and rear views of which are shown in the illustrations, the crank disk is provided with a radially slotted wing to which the base of the crank pin is fitted. A screw supported in bearings in the slideway fits a threaded opening in the crank pin block. One end of the screw is provided with a spur wheel, which is engaged by a spur wheel on a shaft journaled in the crank disk parallel with the screw. The inner end of the shaft is provided with a bevel wheel, which is engaged on diametrically opposite sides by bevel wheels placed respectively on a central spindle and a sleeve passing through the tubular crank shaft of the pump.

for communicating motion from the crank pin to the piston rod renders the pump very compact, and, at the same time, avoids friction, thus saving power.

This pump is being introduced by Mr. Frank F. Phinney, Box 1181, Boston, Mass.

A series of tests with this pump have been conducted at the Worcester Polytechnic Institute, the results of which are said to have been very satisfactory.

Tools on Locomotives.

Mr. H. D. Lynch, storekeeper, Providence division N. Y., N. H. and Hartford Railroad, writes as follows to the Railroad Gazette:

The recent topical discussion at the New York Railroad Club on the question of locomotive tools developed nothing precisely in a line with what we are doing here. As I have had considerable experience on a locomotive, I have had pretty good opportunities to judge of the condition of locomotive equipment when left wholly in the care of the engineman, and think our practice may be of interest.

The efficiency of a locomotive, upon the road, is greatly enhanced by having a complete set of the requisite tools, in good condition. To attain this end, with the least possible expense, our people at this point have deemed it necessary that the engineman of every

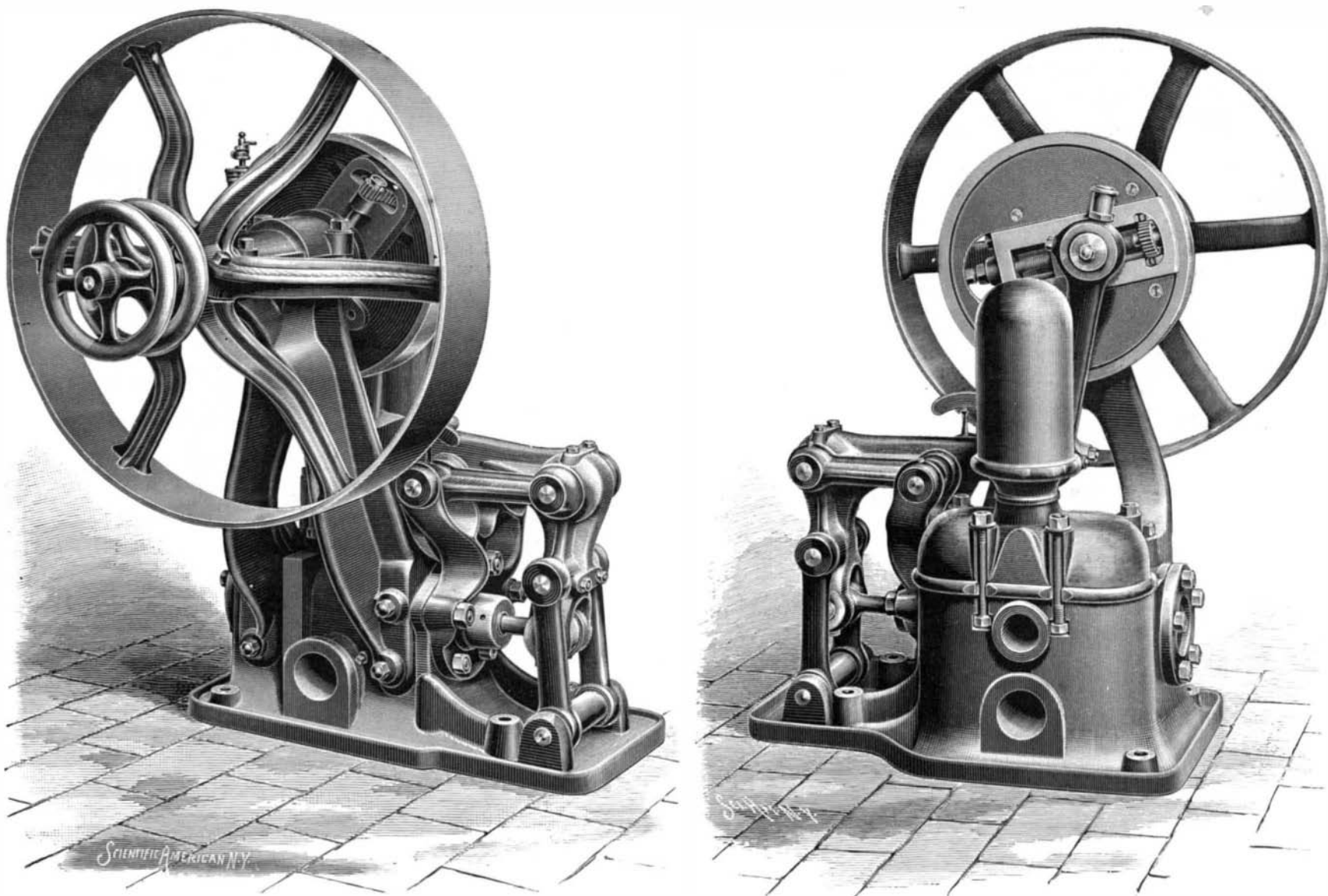
tern being lighted two or three times each week. One day each month the contents of all red lanterns are emptied into the tank. The lanterns are then filled with fresh oil.

We have not had occasion to issue a new lantern, hammer, chisel, engine or valve oil can for the past four months, as daily inspection throws defective articles out for repairs.

Train numbers for headlights were a constant source of annoyance and expense—whenever a locomotive was placed on a strange train, the numbers of that train could not be found. The men had been in the habit of keeping them in divers places, from the headlight to the back end of the tank. We now have a complete set, well painted, in a box, on each locomotive.

Our issues of new coal scoops are confined to heavy, fast passenger and freight locomotives. After a scoop has had three inches worn from the blade we trim it up and issue to suburban and switching locomotives.

When a locomotive comes into the shop for general repairs, everything in the shape of tools is taken off, sharpened and repaired at the expense of the locomotive from which it came and delivered to the storekeeper to be put into stock. When a locomotive leaves the shop she is furnished with a set of tools, in good



STONE'S POWER PUMP, WITH VARIABLE CAPACITY.

The outer end of the sleeve is furnished with a hand wheel, and the outer end of the spindle which projects beyond the sleeve is also furnished with a hand wheel. By means of these hand wheels either of the central bevel wheels may be turned.

When it is desired to change the stroke of the pump, the screw in the slideway is made to turn in one direction by revolving the inner hand wheel, thus moving the crank pin in one direction, lengthening the stroke; by turning the outer wheel the crank pin is moved in the opposite direction, shortening the stroke of the pump. By increasing or decreasing the stroke of the pump its capacity may be regulated, and this may be easily accomplished while the pump is in operation.

By means of this construction the pump is made to throw much or little water, according to the requirements. When the adjustment is effected while the machine is in motion, it is only necessary to hold one or the other of the hand wheels, allowing the adjustment to be accomplished by the rotation of the crank disk.

In addition to the stroke-adjusting mechanism of the pump, a new parallel motion is provided, which obviates the necessity of ways and long connecting rods, and insures a direct pull on the piston rod of the pump. The parallel motion consists of a right-angled lever mounted on links pivoted to an arm projecting upwardly from the pump cylinder. The shorter arm of the right-angled lever is pivoted to links swinging in bearings attached to the base. This arrangement

locomotive, immediately upon arrival at the engine house, must deliver the following articles, in good condition and carefully wiped, at the storeroom:

One red signal lantern, six fuses and eight torpedoes attached, one red lantern, one white lantern, one engine oil (stock) can, one valve oil can, one screw wrench, eighteen inches, one screw wrench, twelve inches, one box train numbers, one hand hammer, one hand chisel, one set screw wrench, one pail (tools and box of numbers in pail).

Engineman of departing locomotive, thirty minutes previous to departure, will upon presentation of check, showing amount of oil required, be furnished with a set of equipment, in good condition; he being held personally responsible for the safe return of the same. Any oil returned in the cans is credited to the locomotive from which it came.

Locomotives in service the entire twenty-four hours must exchange equipment when they draw oil.

At outside engine houses, where two or more locomotives are housed overnight, sets are left in a secure place under the watchman's care.

We find it the only method that insures a set of equipment, in serviceable condition, on every locomotive that leaves the house; and it is an efficient check on the issues, as we are enabled to locate the losses and breakages to a man, and with a saving of forty per cent in signal oil.

Constant exchanging of equipment insures each lau-

condition, with movable parts well greased, in which condition they remain for a longer time than one would expect. Any request for an article must be accompanied with the old article or such information as will enable the storekeeper to recover the same.

Paramount in the care of a locomotive should come that of her danger signals. Who among your readers that has served on the "foot-board" but can recall instances, when running light, when the only protection for the rear was that of the light from the open firebox door. Six and eight times we have had to trim lights in going fifty miles. One night in particular that comes to my mind we had been detailed to bring a disabled locomotive to the shop and she broke down on the way. Our third man, a wiper, went back with the red light, the only signal we had excepting the torch. He had been out about ten minutes when we, under the locomotive, heard him up in the cab. He had come in to fix the light, it having gone out.

MRS. MARY BROWN, one of the last remaining pensioners of the war of independence, died near Knoxville, Tenn., April 15, at the age of 91. In 1824 she married Joe Brown, a soldier of the revolutionary war, he being then 65 years old and she but 20. She was in Knoxville, March 12, to draw her pension of \$12 a month, and though feeble seemed able to last many years.