

IMPROVED STEAM GOVERNOR.

The invention herewith illustrated is a new automatic governor for regulating the influx of steam to the engine, by the steam itself. It is set to allow steam at a given pressure to pass; should that pressure be exceeded, a lever similar to that of a safety valve is lifted, and the steam valve by suitable connection therewith is closed sufficiently to allow less steam to go to the engine, so that the pressure admitted to the cylinder is in this way maintained uniform.

Steam from the boiler is led to the rotary valve, A, in the bottom of the steamtight box, Fig. 2. In the lid of the box is a pipe in which plays a plunger attached to the lever, B, Fig. 1. The latter is pivoted at its extremity in a support, as shown, rests on another support, C, and is connected by the rod, D, to a wrist in the end of a crank, E, which is secured to the shaft of valve, A. Above and below the rod, D, on the lever, are nuts to allow of lengthening or shortening the rod to adjust the valve, and said rod also has a joint in it to prevent cramping when the lever is forced upward. F is an indicator operated by a spring and connected to the lever by a threaded rod and nut, G. This answers the double purpose of holding the lever down and to show the steam pressure. The pointer attached to the neck of the valve exhibits, on the scale on the side of the box, the position of the valve within. Steam, after passing through the device, has its exit at the pipe, H. In adjusting the apparatus, the nut, G, is first screwed down until the indicator shows the desired amount of steam. When the pressure in the boiler reaches that point, the throttle is thrown open to its full capacity, said capacity being equal to that of the governor valve, A. As long as the steam is kept at the fixed pressure, the engine will run steady. When, however, the limit is transcended, then the pressure on the end of the lever piston will raise the lever, which in turn will rotate the valve, A, and so shut off a portion of the steam from the engine. The adjustment of valve, A, so as to cause it to close faster or slower, is effected by the wrist, which passes through a slot in the crank arm.

It will be seen that the device is independent of the motion of the engine, and thus, as the inventor claims, it governs the engine, instead of the engine governing the governor, as is usually the case.

Patented May 23, 1876. For further information regarding sale of rights, etc., address the inventor, Mr. Josiah W. Clark, Iola, Allen county, Kansas.

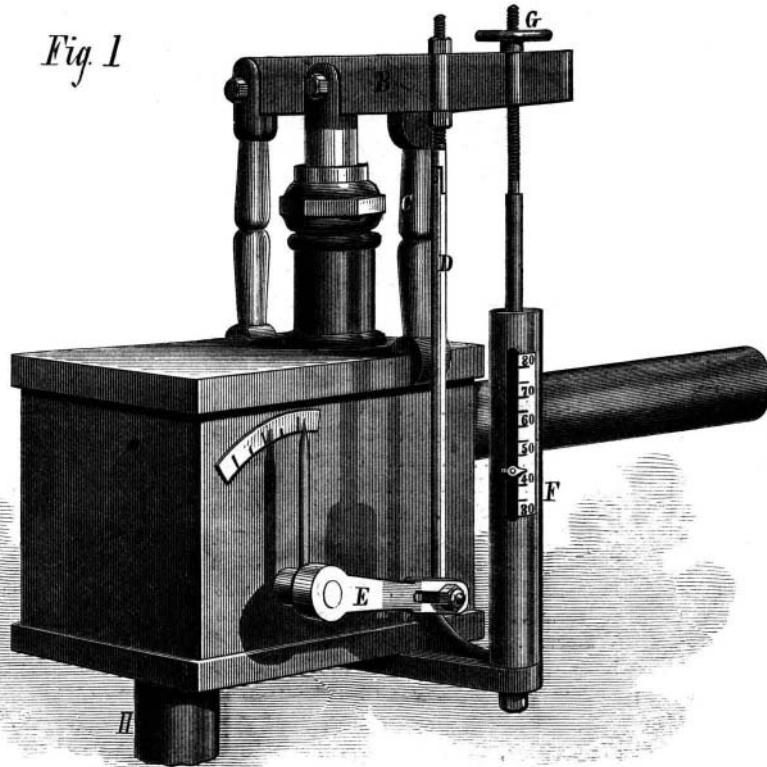
IMPROVED HYDRAULIC ANCHOR LIFT.

We illustrate herewith new mechanism for raising the anchors of spoon and other dredges by hydraulic power. To the framework of each dredge, adjacent to the anchor, a vertical metal cylinder is connected to a pump, so arranged that its power may be conveyed simultaneously to all the cylinders or to any one of them. In each cylinder is a plunger which, by water pressure, is forced upward, during which motion it grips and lifts the anchor, releasing the same on its downward movement. The general construction of the device is strong and simple, and its action is mainly automatic. The engraving, Fig. 1, represents it as located at the stern of a dredge and engaged in lifting the storm anchor.

A is the vertical cylinder which receives its water supply from, the donkey or other pump by the pipe, B. Inside the cylinder is the plunger, C, the head of which, with cup-shaped packing, which the water pressure it self serves to keep tight, is represented at D, Fig. 2. The same figure shows, at E, a valve lifting upward, which is controlled by the lever, F, the end of which enters the outboard discharge pipe for the water.

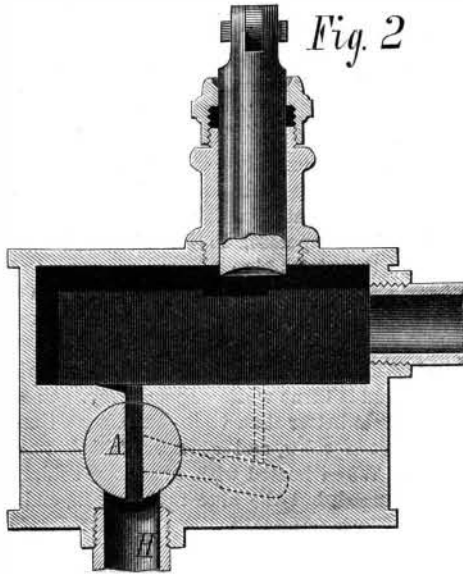
At the upper extremity of the plunger rod are arms, G, having at their ends toes which press against the anchor. Surrounding the latter are straps which likewise embrace the cam piece, H. This arrangement is such that, when the plunger is force upward, the toe and cam bind firmly and the anchor is lifted. As soon, however, as the plunger has reached the end of its stroke, it pulls upon the chain, I, so lifts the lever, F; and the valve, E, being thus raised, the water escapes from the cylinder, while that still delivered from the pump passes at once overboard. The plunger cannot proceed any higher; and if its single stroke has with drawn the anchor, its work is accomplished. If, however, it is necessary to take another lift, the operator, as shown, holds the lever up by the cord, J, when the plunger descends by its own weight to the bottom of its stroke. Mean while, to prevent the anchor falling back the cam, K, is thrown into action, and this,

Fig. 1



CLARK'S STEAM GOVERNOR.

Fig. 2



holds the anchor firmly until the device on the end of the plunger takes a new grip. The operation, as already described, is then repeated until the anchor is extricated.

The apparatus has been practically tested and adopted by Mr. John Brown and other well known Canadian contract-

Fig. 2

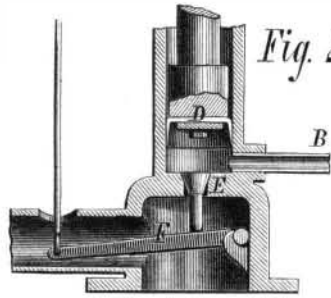
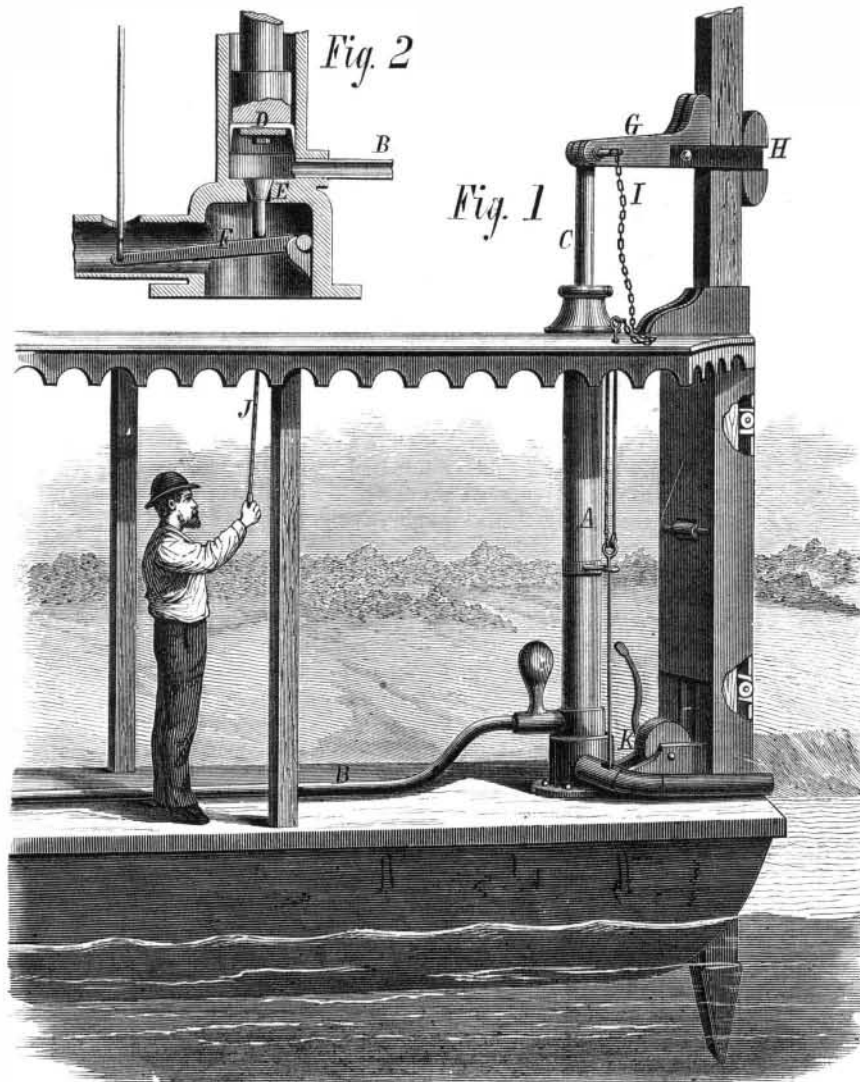


Fig. 1



CANAN'S HYDRAULIC ANCHOR LIFT.

ors. It is notably labor-saving, and will do much to facilitate the now difficult labor of raising anchors by friction drums and chains.

Patented May 16, 1876, by Mr. James Canan, of Port Colborne, Canada. For further particulars address Messrs. Burrow, Chatfield & Co., 11 to 13 St. Paul street, St. Catharines, Ontario, Canada.

The Frog.

Thus the perspiring editor of the Boston *Globe* discourses on the comfortable life of the frog:

"We feel impressed during these fervid days" says the writer, "that it would be nice to be a frog. So far as we know, the frog never toils, and we feel quite certain that he doth not spin; but he goes in swimming whenever he feels like it, and he has a passion that way that the most restless schoolboy can hardly emulate. What could be more refreshing than to plunge to the bottom of a cool pond, when the summer sun grows fierce and vindictive, and there meditate on the advantages of amphibiousness? What a luxurious place would the bottom of a lake be for passing one's Fourth of July in peace and quiet! Oh! that we were a frog. And the youthful batrachian lives in a perpetual summer retreat, in sedgy streams and by purling springs, in the cool shade of the

umbrageous trees and among tall grasses swept by the passing breeze. And he wears no exasperating fabric of wool or cotton, nor yet of insidious and sticky linen; but with the smooth coat of green and black wherewith Nature clothed him, he can enjoy the cooling shower, or sit in his bath by the hour, with no fear of ague and no sense of seething discomfort.

"Happy frog! He has no hours of labor, and he seemeth not to be oppressed with the necessity of sleeping at any set time. He can take his siesta at noonday, and his dreamy doze at early dawn, and in the cool of the evening he can sit and sing in the fullness of his joy! No mosquitoes annoy him, and he has an easy escape from pestiferous flies. As a singer he has few equals, and as a ventriloquist he is absolutely unsurpassed. He can so modulate and entune his voice as to baffle the efforts of the most persevering boy to find his whereabouts, and without question he has rare sport in thus playing with the feelings of his chief enemy, the small boy. 'Tis not alone in the refreshing and invigorating element, water, that the frog has advantages of locomotion. He will leap you a hundred times his length at a single jump. If a man could do that, what fun it would be! How exhilarating would be the daily journey to town, with the opportunity of a leap from the bridge on the way!

"The frog has many other advantages that may well make one sigh for a lot like his. It is better than any corner lot in Boston. Who ever saw a frog that was lean, or that was reduced either to beggary or the necessity of labor? His natural food swarms in his favorite haunts, eager to be swallowed. And he has no occasion to be over fastidious, for he has no sense of taste and very little of smell. It may not be generally known to the unlearned that the frog, with all his fondness for water and dampness, never drinks. To some this may seem like a disadvantage. There are degenerate men who, if they were forced to take all their liquid refreshment externally, would covet the fate of that English prince who was drowned in a butt of Malmsey wine; or if they were to be frogs, they would wish for bowls of punch and lakes of liquor.

"The frog suffers occasionally from the 'cussedness' of the small boy and the voracity of the Frenchman, but he has few enemies. For the most part he passes a life of serene joy, and never fails to keep cool in summer, while in winter he dreams the months away in a state of ecstatic torpidity. He has no occasion for overcoat or arctic shoes, and cares not for the range of the thermometer or the prognostications of 'Old Prob.' The rain never spoils his picnic or postpones his evening's entertainment. He has his place too in literature. Even old Homer sung of his conflict with rapacious rodents, and Aristophanes made him a medium for wit and music in his dramas. How many a lesson has he taught the world, with Æsop as his interpreter! He is famous in song and story he is happy and jovial in his life, and above all he is forever cool. Happy frog!"

To Join Lead Plates.

The joints of lead plates may be made as follows: The edges are brought together, hammered down into a channel cut out of wood, and secured with a few tacks. The hollow is then scraped clean with a scraper, rubbed over with tallow, and a stream of hot lead is poured into it, the surface being afterwards smoothed with a red hot plumber's iron.