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Improved Method of Operating Valves.

In the ordinary arrangement of the parts by which valves of steam engines are operated, and the point of cut-off is regulated by the governor, the means employed for tripping the valves are of such a character and their operation is attended with so much difficulty as to affect the action of the governor, and prevent it from correctly performing its functions. These defects are remedied in this simple and effective contrivance by so arranging the parts which are actuated by the governor as not to affect the operation of the same, except at the moment of tripping the valves, and then only in a very small degree.

In our engravings, Fig. 1 represents a side elevation of this improved valve gearing, and Fig. 2 is a vertical section through the steam cylinder, steam chests and valves.

The shaft, A, is provided with the usual eccentric, C, and yoke, B, from which latter extends a rod, D, connected to a wrist pin, a, on the arm, E, which is pivoted at b. The end of a hand lever, F, is attached by a wrist pin, c, to near the top of the lever, E, the opposite end of said hand lever being furnished with a handle, d, and near thereto a depression, e, that sets over a pin or stud, f, that is attached to the sliding bar, G, said sliding bar moving through guides, g g. On this bar, G, are two adjustable dogs or pins, h h, which are carried back and forth as the bar reciprocates, and operate against projections, i i, of the swinging weighted dogs, H H, said swinging dogs being attached to slides, that move forward and back alongside of and parallel with the sliding bar, G, but independently of it. The swinging dogs, H H, when moved towards their respective stops, l l, are met by the pins, h h, which strike against the projections, i i, and are then caused to turn or rock on their pivoted points, m m, until said projections are pressed down on a line with the upper edge of the bar, G, and the point or toe, n, of the swinging dog passes under the pawl J, and raising it up, throws it above the stop, l. The pawls, J J, are pivoted respectively at o o, to the arms, p p, of the levers, K, and to the other arms, q, of said levers are attached weights, L L, for bringing said levers to their former position after being rocked with their shafts, x x, by the stop or catch, l, and pawl, J, so as to enable the steam to be instantly cut off. Valves, M M. Fig. 2, are screwed to the shafts, r r, of the levers, K K, which valves oscillate past the inlet openings leading from the steam chest to the cylinder, for the purpose of cutting off the steam.

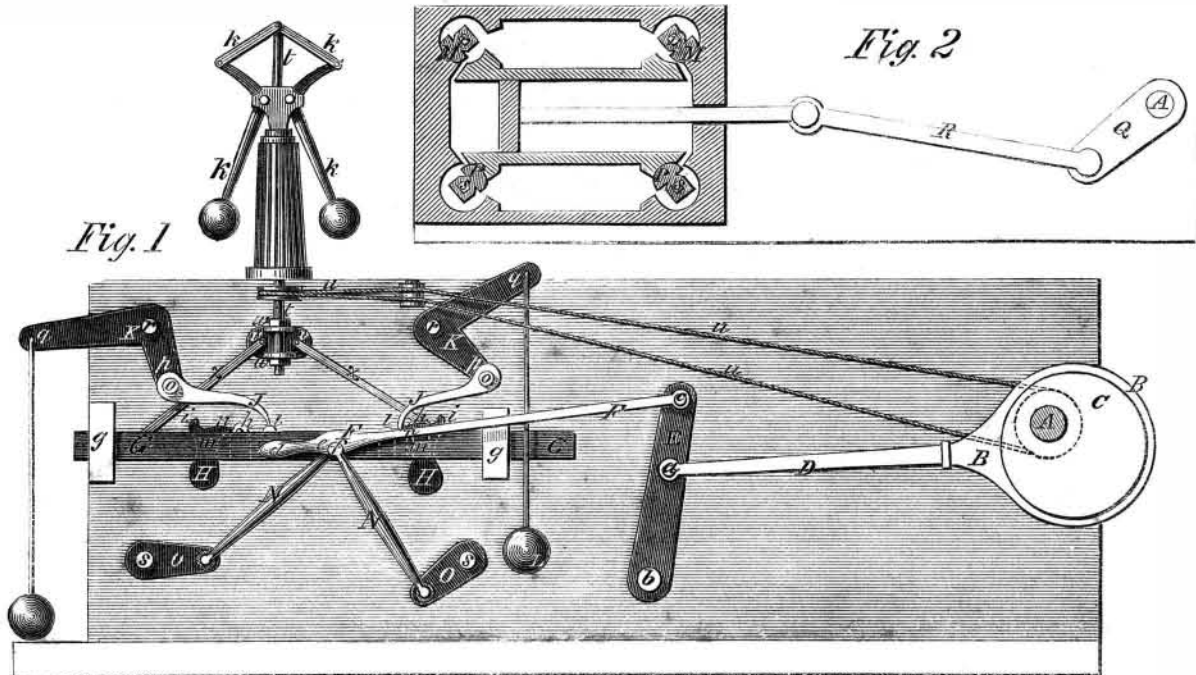
To the sliding bar, G, by the pin, f, are attached the upper ends of the connecting rods, N N, the lower end of the same being attached to the cranks, O O, which are secured to the shaft, S S, to which the exhaust valves, P P, are fastened, said valves, P, being below

the cylinder, and acting like and in concert with the valves, M. The stem, t, of the governor is rotated by an endless band, u, passing around a pulley thereon, and another pulley on the shaft, A, and the crosshead, v, is adjusted on said stem, t, by the screw nuts, w w. To this crosshead, v, are connected the upper

ends of the rods, x x, said rods extending from thence to the bars, I I, which carry the swinging dogs, H H, and which bars, I, move through proper guides, y y. By means of these rods, X X, whether by the adjustment of the crosshead, v, or by the centrifugal force of the balls of the governor, the slides, I, with

their respective dogs, H, are brought nearer to or further from each other, and thus the valves are tripped at any point in the stroke of the engine that may be desirable. It will be observed, and it is a distinguishable feature in the arrangement described, that there is no friction on the governor except at the

JAMIESON'S METHOD OF OPERATING VALVES.



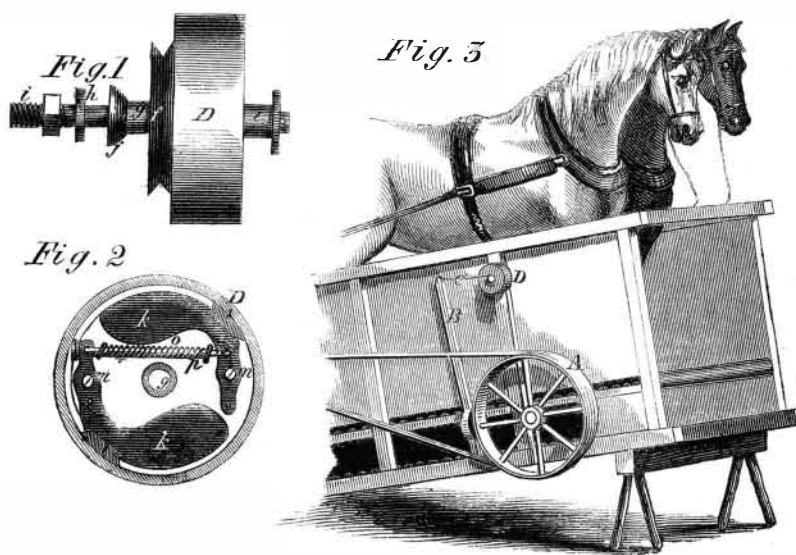
moment of tripping of the pawls, J, and then it is so light, being merely to depress the end of the swinging dog, that the governor is not affected in its regular motion thereby, as it would be were any of the parts bearing or resting upon it; and, besides, what resistance is applied against the governor is merely to

swing the hanging dog on its pivot—not to slide or move anything from one point or position to another, but simply to pendulate the dog, H. This allows the governor to move at a uniform velocity, and, of course, the tripping of the valves is correspondingly uniform, which is not the case where the governor has

other work to do, as it has when connected to the valve apparatus.

Any further information upon the subject of this highly ingenious improvement, which was patented March 16, 1858, can be had by addressing the inventor, T. S. Jamieson, Alexandria, Va.

PUSEY'S HORSE POWER GOVERNOR.



The useful little device which forms the subject of the accompanying illustration is designed to regulate the speed of horse powers, and keep the fly wheel rotating at an equal and regular rate.

Fig. 1 is a side elevation of the device. i is a shaft or axle provided with the projection, p, and passing through the center of the box, D, the journal of which, e, projects beyond it; h is a washer, by which, and the screw, i, the governor can be attached to the horse power; f is a band wheel cast to a face plate, and on a journal, g, and to which is connected the inside parts represented in Fig. 2.

To this plate, which can rotate in D are attached two pieces of metal, k, by means of screws, m, which also form a center on which k can move; on the outside of k is inserted a piece of wood, l, that serves as a brake block. These pieces, k, are connected by a bar, n, on which is a spring, o, the tension of which is rendered more or less by the bar, p, that is brought up or tightened by a screw.

The operation is very simple. The box, D, is fixed to the side of a horse power as seen in Fig. 3, and a cord, C, passed round, e, the other end being connected to a breaklever, B, that acts on the fly wheel, A. From the fly

wheel, A, a band passes round f, so that as the fly wheel is revolved, f is rotated by the band. Should the fly wheel be going too fast, then f will be rotated fast enough (the speed being regulated by the tension on the spring, o) to throw out the pieces, k, by centrifugal force, and this will bring the pieces of wood, l, in contact with the inner periphery of D, and consequently carry it round with them; but in so doing it winds up C on e, and causes the brake to act on the fly wheel, thus reducing the speed of the machine.

It will be seen from the arrangement of the parts that this is a simple and perfect regulator or governor for horse powers or similar motors, and it does not act by jerks, but with the proper regularity and precision. The inventor is Lea Pusey, of the firm of J. Pusey & Sons, of Wilmington, Del., from whom more information can be obtained. It was patented May 25, 1858.

Seasonable Information.

Apart from the advantages of bathing in salt water, the inhalation of sea air has a salubrious and beneficial effect, which is most apparent upon those who resort to the coast from towns or from inland districts. It has been shown by Prof. Faraday and other chemists that oxygen in the particular condition known under the name of "ozone," exists in large proportion in sea air. Though air impregnated with the saline of the sea is found too strong for some persons, in the great majority of cases an occasional visit to the coast is a capital restorative of vital power to those whose nerves are exhausted by long sojourn in inland towns.