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IMPROVED STEAM WHEEL.

We illustrate herewith a novel form of steam engine, to which the inventor has given the above title. While outwardly resembling a machine of the rotary type, it will be seen that, though allied nearest to that class, it is not a true rotary engine in the sense of one in which the steam follows the piston around the circle; for here the impulsive power is communicated only over a segment of the entire periphery. The advantages claimed are, besides simplicity of construction, the working of the steam at the same leverage at all points of the circle, and its use expansively "from boiler pressure down to atmospheric pressure in place of exhausting it under high pressure." The machine is intended to run slowly, and hence friction is reduced, while it is further claimed to move uniformly without back lashing, to be free from the accidents peculiar to reciprocating engines, and to save a large percentage of fuel.

Fig. 1 is an exterior perspective view, and from Fig. 2 the working parts will be understood. The wheel, the shaft of which rotates in bearings in the case, has ring flanges on the edges of its face, making a wide and deep channel thereon. Six or more arms connect the rim to the hub, midway between which and on the face of the wheel are formed deep transverse recesses, in which work the radial pistons, A. To the inner edge of each piston is attached two or more rods, B, which pass through stuffing boxes, so as to prevent any steam from leaking around them into the interior of the wheel. These rods are secured to boxes in which are placed bars, C, said bars being held out by springs. As the bars pass through slots in the ends of the boxes, the pistons are thus allowed a little play, while the springs also serve to hold them against packing, noted further on. At D are radial bars attached to the rim and the hub of the wheel. In guide slots in these the ends of bars, D, enter, and they also pass through holes in the long arms of levers, E, which are pivoted to the wheel arms. To the short arms of said levers are pivoted bars, F, which slide in keepers on the wheel rim, and have pins on their ends. These pins carry friction rollers which move in guide slots, G, in the sides of the case. The object of the jogs in said slots is to throw the pistons, A, out to receive steam, and to draw them in at the exhaust ports.

Fig. 1 is the steam chest, resting upon the upper edge of the case and fastened to packing, I, Fig. 2, which is curved upon the arc of the circumference of the wheel, and has abutments, J, to fit into the space between the rim flanges. These abutments are beveled as shown, and are provided with brasses held out against the rim by springs. The brasses have arms which, in similar manner, are pressed against the inner side of the wheel flanges. They are also so constructed that they may be expanded and contracted longitudinally to allow of nice adjustment to the wheel. On their inner side, a plate is provided, acted on by springs to prevent steam from passing between their parts when they are expanded. The packing, I, rests on a concaved block, K, which may be moved forward and back by the screw, L; it may be adjusted so as to cause the packing to bear squarely against the face of the wheel, by four set screws. The block is held down by flanges, one of which enters a keeper in the case, and the other passes out through an aperture in the end of the same. The latter flange is slotted to receive a screw for further securing. M is the exhaust port.

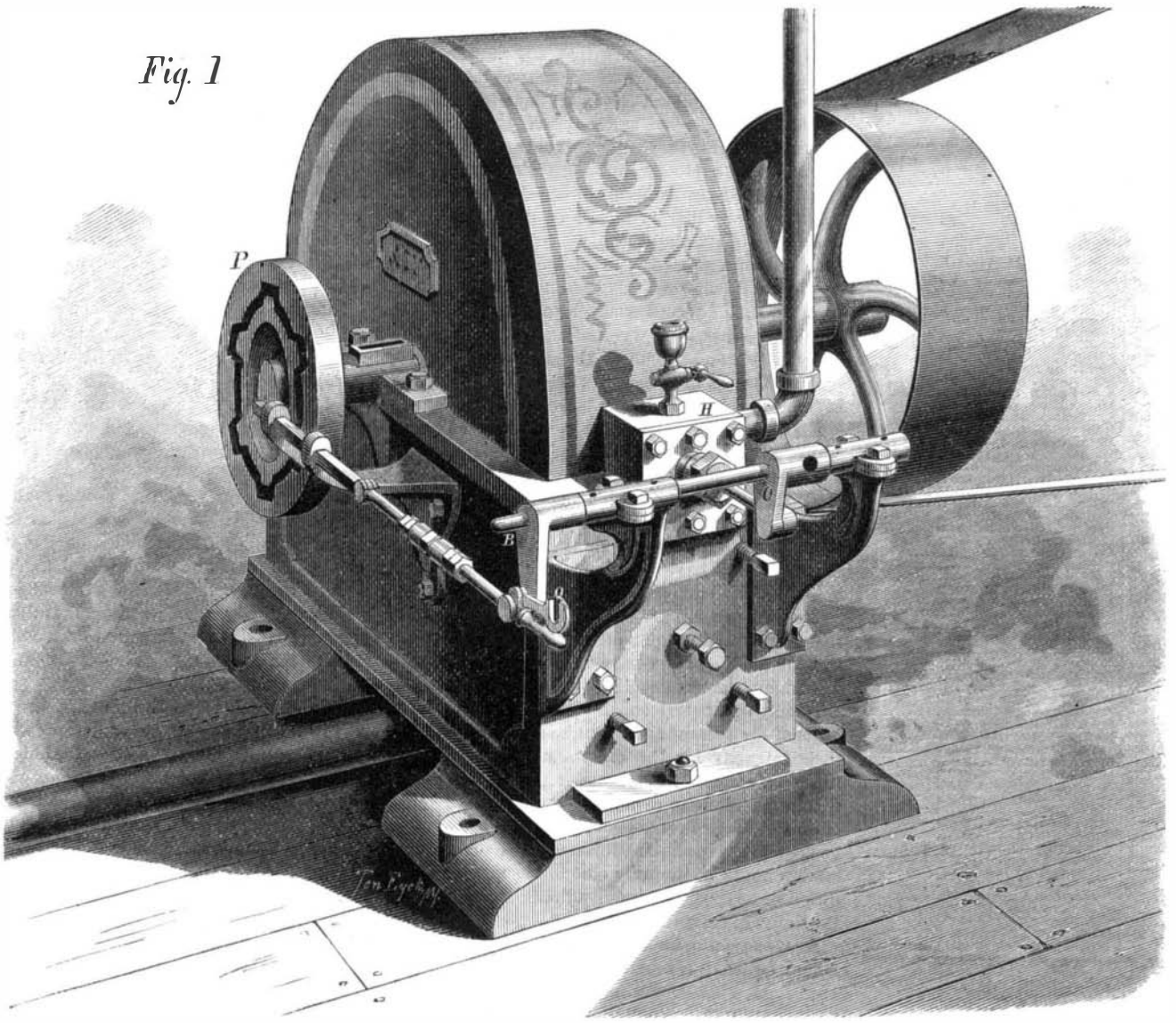
The entrance of steam through the inlet port is regulated by the valve, N, the stem of which is pivoted to an arm on the rock shaft, B, Fig. 1. A crank arm on this shaft receives a notch on the connecting rod, which is guided in a bracket on the case. A pin on the rod enters a groove in the side of wheel, P. This groove has as many offsets as there are pistons, A, and these are in such positions as to operate the valve to admit steam as each piston passes the inlet port, the length of the curve regulating the length of time in which the valve is held open.

By suitable construction, the connecting rod may be regulated to govern the throw of the valve; and by engaging the hook, Q, on the protruding end of the shaft above, the notch in the rod is raised from the crank, so that the valve may be operated to start the wheel regardless of the position of the same. The hole shown in the rock shaft is for a hand lever, so that the valve may be operated by hand for starting the wheel.

The inventor states that he has experimented on this engine for two years, and that he is satisfied that probably a saving of fifty per cent of the fuel expended in using the common forms of steam engines may be effected by using the steam wheel here illustrated.

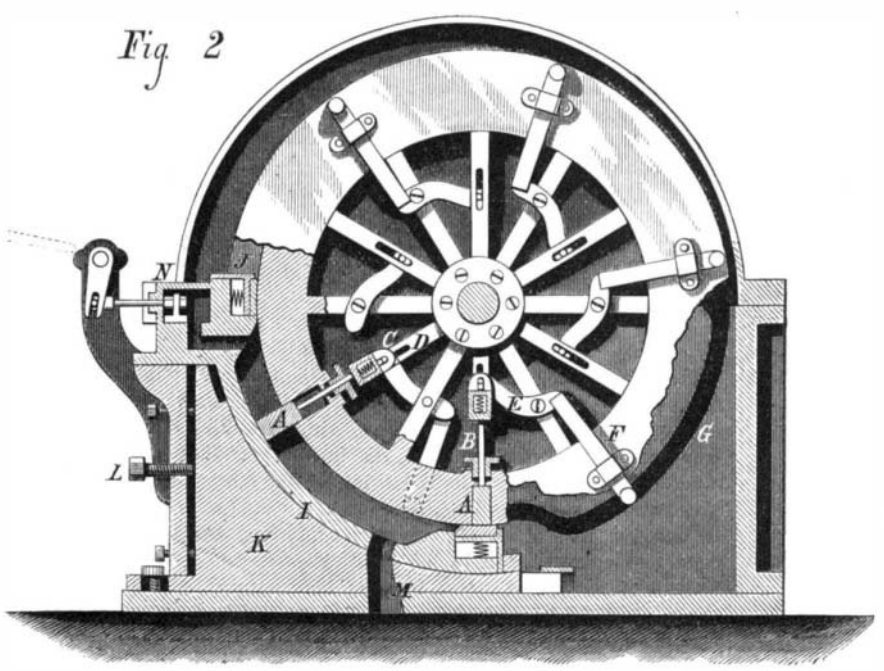
Patented through the Scientific American Patent Agency, January 30, 1877. For further information relative to purchase of patent rights, etc., address the inventor, Mr. J. C. Thomas, Carlinville, Macoupin county, Ill.

Fig. 1



THOMAS' STEAM WHEEL.

Fig. 2



THOMAS' STEAM WHEEL.

A New Life-Saving Rocket.

Captain F. F. Atkinson, of the British army, is soon to conduct a series of experiments at Sandy Hook on a new life-saving rocket. The invention has already, we learn, been adopted by the English Board of Trade. It consists of a long cylinder, in which there are four tubes filled with powder; the end of the tube is closed by a plate of iron, in which are four holes, corresponding to the four tubes; firmly fixed on the plate, so that it cannot revolve, is a four-bladed screw. When the fuse is ignited the gas generated by the combustion of the powder rushes violently against the helicoidal surfaces and imparts to the rocket a rotary motion, which gives it a steadiness similar to that of a conical rifle bullet. The war rockets have a shell head, which is filled with Greek fire, nitroglycerin, or any other explosive or inflammatory substance. In the life-saving rocket this shell may be omitted, or a magnesium light can be placed there for the double purpose of a danger signal and of showing the position of a wreck. The line is made fast to a short chain, attached to the rocket by a double swivel, thus preventing the destruction of the line by fire. The rocket is discharged from a V-shaped steel slide mounted on wheels. In the early part of December, the inventor, Mr. J. Singleton Hooper, drove six rockets a distance of 350 yards, over a vessel 60 feet in length, each rocket falling with great accuracy.