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{ \$3 PER ANNUM  
{ IN ADVANCE.

## Improved Oscillating Engine.

The oscillating engine has long been deservedly popular since it was first invented by the Messrs. Penn, of England. From that time until the present day constant effort has been made to simplify and improve it, although, from its nature, it would seem to be the most direct application of steam conceivable, and capable of very little modification.

The engravings here published represent designs for oscillating engines, and also an improved method and arrangement of the steam valve, which is intended to be free from the objections which attach to other plans wherein the oscillation of the cylinder is made the agent or means to control the action of the piston. The first engraving represents a new and highly ornate elevation of an oscillating engine on the plan described below.

In Figs. 1 and 2 (see next page) may be seen a side elevation of another engine, wherein the valve and its attachments are all below the cylinder, out of sight. The cylinder is fitted with a steam chest, as usual, and a flat valve, A, the lower half of which sets on an elastic support, adjustable by screws, and is attached to the journals, B. This valve has bearings, to which the rod, C, connects, the other end of the rod being secured to the bed-plate by a bolt and nut. Steam enters through the trunnions of the main cylinder, as usual, to the lower half of the valve; the piston then begins to move, and, by the oscillation of the cylinder with the upper half of the valve, causes the same to travel over the lower half, thus admitting live steam at the right time for a new stroke, and allowing the exhaust to open. By this novel method of letting in steam the ordinary valve chest is dispensed with, and the friction, and consequent loss of power, caused by the pressure of the steam on the slide valves in the ordinary steam engine, is entirely avoided; besides, the supply valve resting on an adjustable support, as before described, it can be set, according to the pressure of the steam used, sufficient to make it steam-tight, and no more. The construction and arrangement of this valve also allows the stroke of these engines to be made of any length. Another advantage is that the valve

and face are plane surfaces, and can be readily made and kept in order by any mechanic. This is a matter of decided importance in mining countries, or other places where skilled labor and special tools are not to be had.

We have seen these engines in operation at the

ment it can be set in such a manner that in case the belt breaks or flies off, the engine will stop entirely, or receive just sufficient steam to keep it moving, and no more, and prevent in this way the many and serious accidents which have so often occurred for want of such a contrivance. The advantage of this

regulator, which may in reality be called a safety governor, is so apparent to all who use the steam engine, that it needs no further comment.

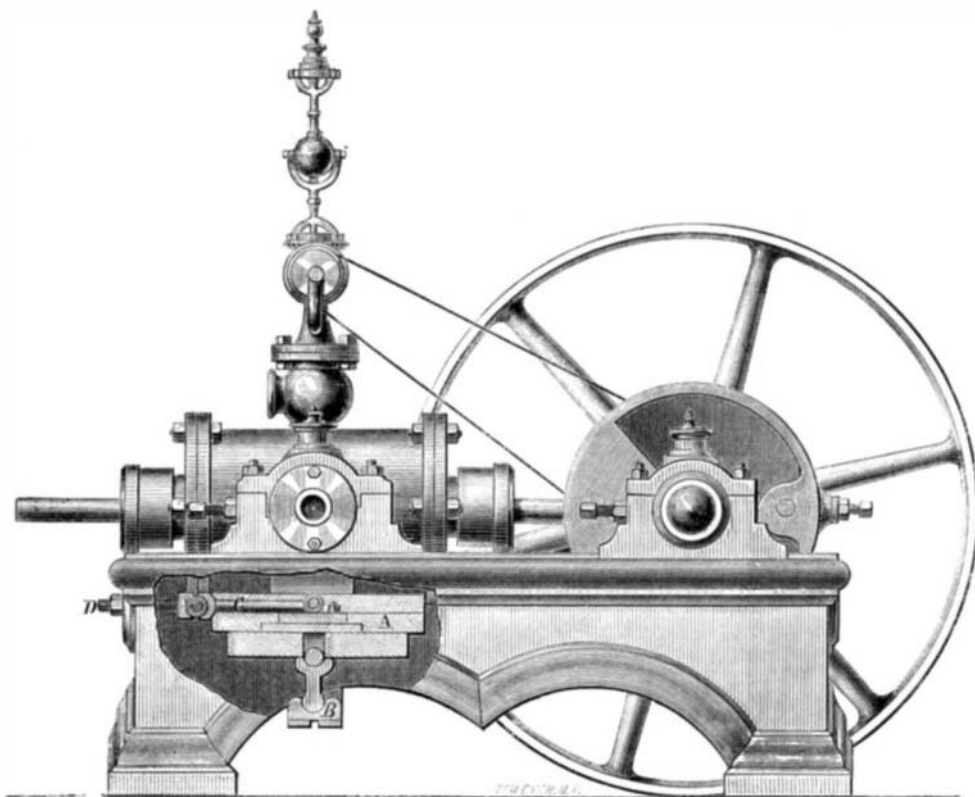
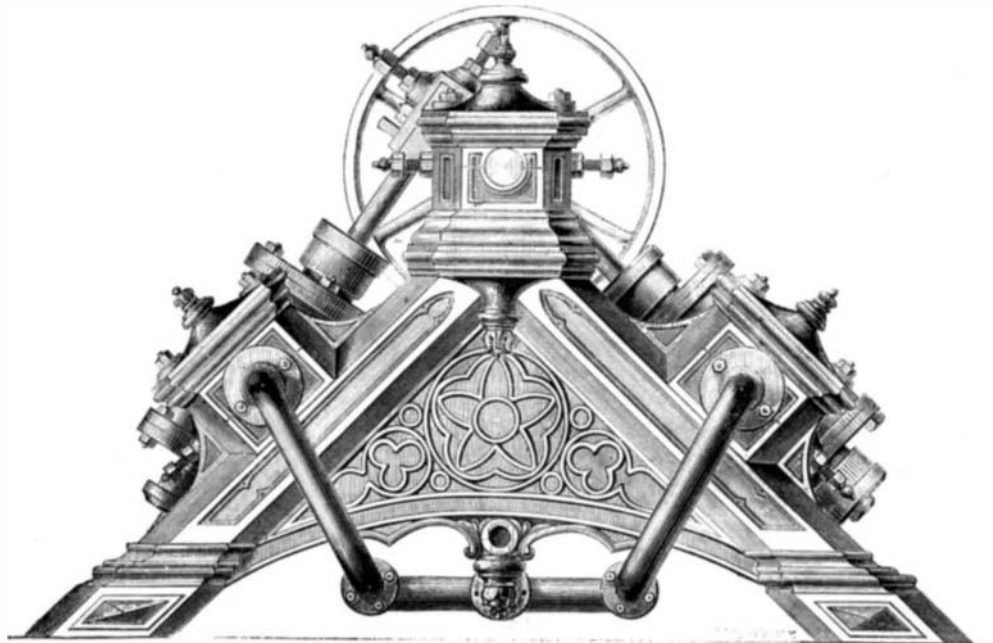
The patent for the steam engine was applied for by Felix Brown, for the firm of A. & F. Brown & Co. The patent for the governor was applied for by Augustus Brown.

For further information address Messrs. A. & F. Brown & Co., Nos. 57, 59 and 61 Lewis street, Progress Machine Works, New York City.

## English vs. French Iron-clads.

The London *Times* says in exceptional instances of speed the English ships undoubtedly beat those of France, but in collective steaming power the latter have a decided preponderance. On the whole, looking upon the iron-clads of both countries as two machines for war, every part of which in each case should act in perfect harmony with the other, as with the slides and pistons of a steam engine, we are compelled to award the palm of superiority to the ships of France over those of England, premising, however, that only those of our own ships have been taken into consideration which have been equipped to their load draught and afterward put through their trial at the measured mile. In our *Minotaur*, *Agincourt* and *Northumberland* we certainly have, and in the *Pallas*, *Bellerophon*, *Lord Warden* and *Lord Clyde*, we hope to have, ships with 12-knot sea-going qualifications. All these vessels will probably have completed their deep-draught trials within the next six months, and if they should then realize the estimates formed of their speeds, the English iron-clad fleet may be considered fully on a par with that of our Gallic allies, but until then the latter will continue to occupy the foremost place in the race of the iron navies of the world.

THE vapor of tar ignites at 200 deg.



MESSRS. BROWN'S OSCILLATING ENGINE.

Fair, and they perform well. The system seems to be a valuable one where complexity is undesirable. The centers are passed easily and without any jar or pounding, and the engines work with great regularity.

The governor on the engine is the invention of Mr. Augustus Brown. By a simple and effective arrange-