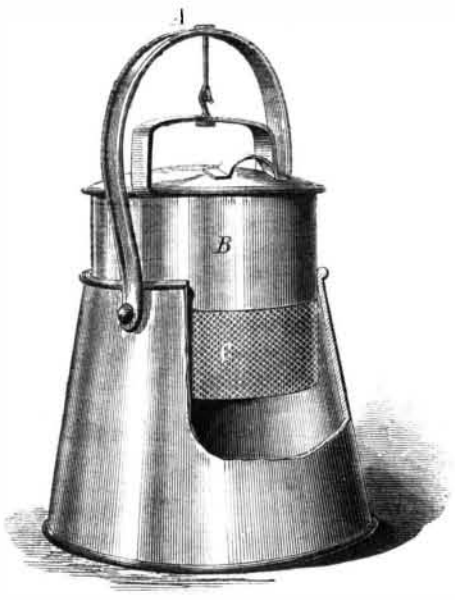
CULINARY BOILER.

We leave the question to housekeepers generally whether, in all the varied routine of the kitchen, there is anything more extremely disagreeable—soul-trying we might say—than to elevate a heavy kettle from the range and pour off the water from its contents, thereby scalding one's fingers or, in an unguarded moment, dumping the cooked articles into the sink. With the presumption that the universal response will be that there is not, we present an illustration of an invention which, by the simplest possible method, does away with the whole difficulty.

Here is a large kettle having a curved bale, A. Within is a smaller vessel, B, having a cover and bale, the lower part of which, C, instead of being solid, is perforated. This inner kettle has a flange around its top so that it fits closely into and on the outer vessel.



Water is placed in the large kettle, and the thing to be cooked in the small one, which, of course, is tightly covered, and set down in place. Then, when the boiling is finished, the inside kettle is lifted by its bale and hung by a hook to a swivel attached to the bale of the outer vessel in the position shown in our engraving, and there it is left until its contents are properly drained or steamed.

Ruth Russell, of 132 Union street, New Bedford, Mass., is the lady to whom the credit of this excellent little invention is due, and from her further particulars may be obtained. Patented January 2, 1872.

Statue of Elias Howe, Jr.

The model for the statue of the inventor of the sewing machine, Elias Howe, which is to be placed in the Central Park in this city, is now complete. It is the design of Mr. Ellis. The work is eight feet in hight and the tall figure stands erect, the weight of the body resting on the left foot. In the right leg a certain stiffness is noticeable, and the knees are closer together than perfect proportion sanctions. These peculiarities, however, belonged to Mr. Howe's physique, and demand recognition in any honest portrait of him. The right hand holds a walking stick, the left a broad brimmed hat. The costume is simply a reproduction of that of the ordinary man of business in the upper walks of life. The long and many-ringlet-d hair, which constituted so impressive a *chevelure*, is exceedingly well rendered, and the countenance expresses that intrepidity, obstinacy, patience, honesty and hope which sustained the inventor of the sewing machine through the quarter of a century through which he toiled to obtain permanent success. The statue is to be cast in bronze in Philadelphia, and is to be ready in May next. Three bas-reliefs are to adorn the pedestal. One of these is to illustrate the misery of the pre-sewing machine needlewoman, as indicated in Hood's "Song of the Shirt." The second will show Elias Howe, Jr., in his workshop pondering over his first machine. The third will indicate the perfected instrument under the easy manipulation of the average worker. These bas-reliefs will adorn three sides of the pedestal. An inscription will probably find place on the fourth.

Magnetic Iron.

Magnetic iron ore, or "magnetite," received its name in early times from its magnetic properties. A mass of the ore influences the needle at a great distance. The magnetism of the ore is polar, the same side which repels one end of the needle attracting the other, and *vice versâ* with the other side. It crystalizes in the cubical system, the octahedron and rhombic dodecahedron being common forms. It occurs in Sweden, Norway, the Ural Mountains, etc., and on a very much smaller scale in England. In the southeast corner of Dartmoor, a band of this kind of ore deranges a compass as it is carried past its vicinity, and sailors say that there is a place in Cardigan Bay where, on passing a reef of rocks, the needle is influenced, and set oscillating. A large mass of this deposit in the southeast extremity of the Island of Elba has a similar effect; in Sweden, too, deposits are discovered by means of this property. Meteorites frequently contain a percentage of iron greater than magnetite, associated with nickel and chrysolite in some cases; but the rarity of their occurrence precludes them from being classed as iron ores, by which term we understand a mineral containing iron in sufficient quantity to be economically and advantageously extracted.

OSCILLATING PUMP.

The accompanying engravings represent a new form of oscillating pump, the novelty of which consists in the use of a section of a hollow cylinder, oscillating on its longitudinal axis, in connection with a stationary packing and suitably arranged valves. By this construction it is claimed that increased efficiency of working parts is obtained, and that the usual boring out and much of the necessary fitting, incident to pumps of this class, are dispensed with

Fig. 1

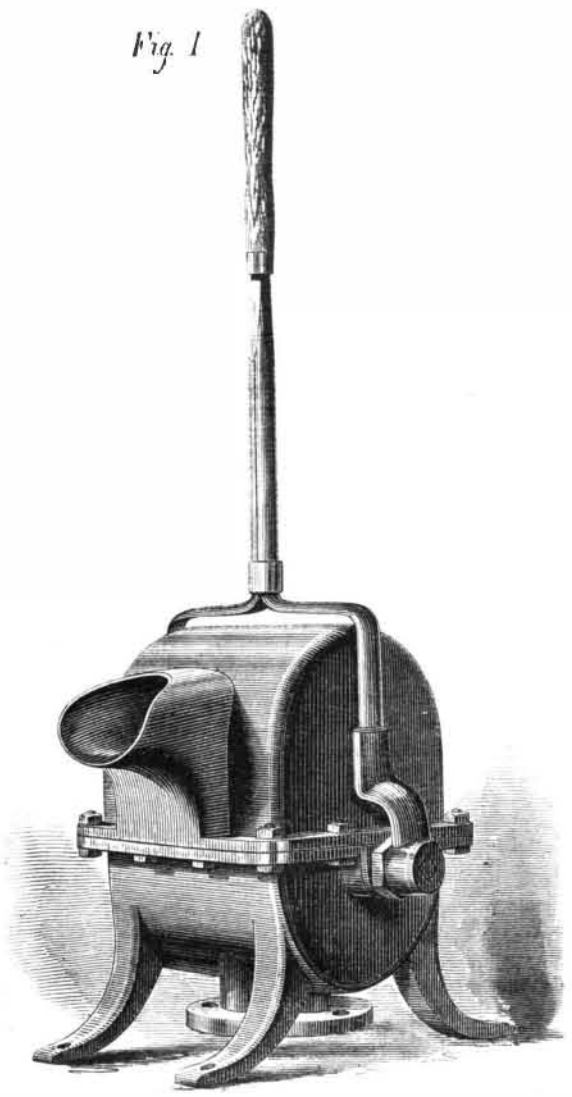
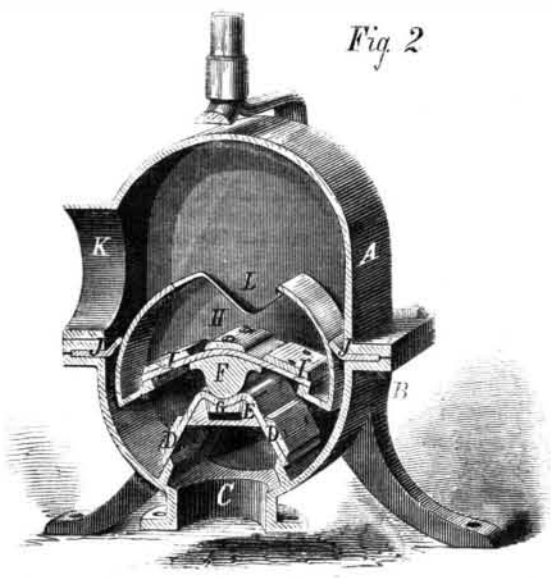


Fig. 1 affords a perspective view of the device, and Fig. 2, a representation of the interior portions. A and B are the two sections of the shell or outer casing, each provided with a flange and bolted together to form an oblong cylinder with closed ends. C is the induction chamber, in which are valves opening upwards. The leather forming these valves is in one piece, passing over the abutment, E, thereby packing the joint between it and the shaft, F. G is a plate supported on springs in a groove in the abutment and serves to hold the leather in close contact with the shaft. H is a sectional hollow cylinder connected to the shaft, F, by plates through which are ports, closed by the valves, I I, opening upwards.

The joint between the sections, A and B, is packed with leather, the inner edges of which are turned up as shown at J J, and, resting against the periphery of the cylinder, H, serve also as packing between said cylinder and the casing,

Fig. 2



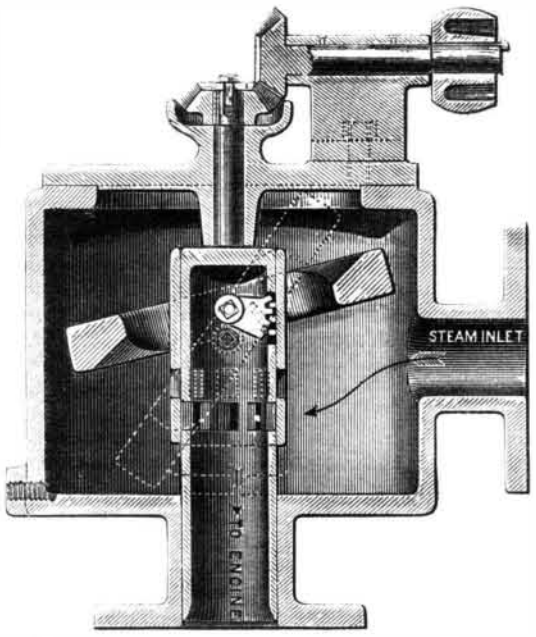
K is the discharge opening leading from the air chamber formed by the upper portion of the section, A The outer ends of the shaft, F, are squared to receive a handle, as shown, by which the cylinder, H, is caused to oscillate in its bearings. By this means, through the action of the valves, I I, the water is drawn into the interior of the cylinder, whence it passes through the opening, L, and finally escapes from the discharge, K.

The invention, as is evident from the illustration, is very simple in construction. The cylinder, H, is turned off with great facility, and as the two sections of the case are cast separately, each in a single piece, little is required beyond attaching the lower valves and bolting the flanges together. By removing the top section, the entire working parts are exposed for examination and repair.

Patented November 12, 1872. For further information address Messrs. Murrill & Keizer, machinists, No. 44 Holliday street, Baltimore, Md.

NEW GYROSCOPE GOVERNOR.

The accompanying plan of a recently invented gyroscopic governor, which we find in *Engineering*, is simple in form and very sensitive in action. The device is contained in a casing in which the steam from the boiler enters, as shown. Motion is obtained from the bevel gearing, the horizontal wheel of which is keyed to a spindle which passes through the top of the case. This spindle is made in a single piece with the tubular portion represented as extending down into the pipe through which the steam passes. The upper end of this tu



bular casting is closed, and being caused to fit tightly, by the pressure of the steam, against the lower extremity of the socket through which the spindle enters the casing, a steam-tight joint is obtained without employing a stuffing box.

A brass sleeve, sliding freely on the tubular casting has formed in it a number of ports which, when the sleeve is in a certain position, correspond to similar orifices in the casting. When the two sets of ports correspond, the steam has clear passage to the engine, but as the sleeve is raised the apertures are more or less closed until the steam way is shut off altogether. Upon a spindle which passes transversely through the sleeve and casting, is mounted a heavy "flyer," of the form shown in the cut. The spindle is attached to the sleeve and rises and falls with it, oblong holes being made in the casting to allow of such motion. At the center of the spindle is a quadrant which gears in a rack inside the tubular casting.

Suppose the various parts to be in the position indicated by the dotted lines, and the steam way full open. When the governor is set in motion, the flyer will become nearly horizontal, and in assuming such position will cause the spindle and its quadrant to partially rotate. The effect is to cause the latter to climb up the rack, lifting with it the spindle and consequently the flyer and sleeve. This motion, of course, closes the steam ports to a greater or less degree. It will be seen that the principle of the device is to oppose the constant weight of the flyer and sliding sleeve to the centrifugal force.

British Iron Manufacture in 1872.

According to *Iron*, the most noteworthy events connected with the British iron manufacture, for 1872, were the practical introduction in England of two American inventions by which the business is being rapidly revolutionized. We allude to the Rotating Puddling Furnace of Samuel Danks, of Cincinnati, Ohio, and the Chemical Puddling process of James Henderson, of New York city.

The latter consists in treating the molten iron with fluorine, by which all impurities are quickly eliminated. The common cinder ore, which the ironmasters in this country have heretofore been accustomed to haul out at much expense and throw away, will, when remelted and Hendersonized, yield fifty-five per cent of the very finest quality of iron. The great masses of this refuse, which surround the vicinity of nearly all iron works, are, by this new process, converted into deposits of precious value. One establishment in this country is said to have enough of this refuse at its doors to yield a profit of six millions of dollars over all expenses of re-working. The Henderson process produces pure iron, no matter what may be the impurities of the pig, whether phosphorus, sulphur, manganese, carbon or silicium. Even from iron pyrites the process brings out pure metal.

EBONY wood weighs eighty-three pounds to the cubic foot; *lignum vitæ*, the same; hickory, fifty-two pounds; birch, forty-five pounds; beech, forty; yellow pine, thirty-eight; white pine, twenty-five; cork, fifteen; and water, sixty-two.

THE Managers of the Nashville Industrial Exposition announce their third annual display, to take place during the whole of the month of May, 1873. Buildings have been erected specially for this exhibition, and the departments have been increased in number and extended in range. For further information, see our advertising columns.