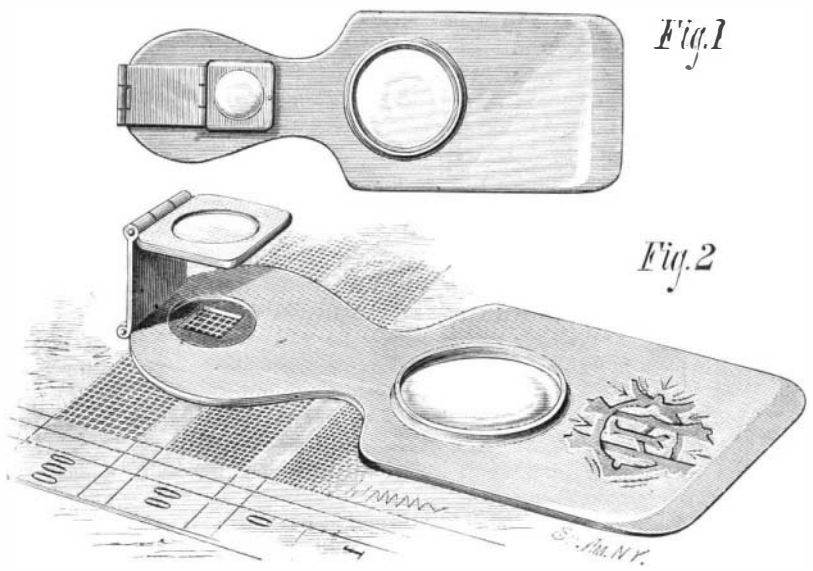
A NEW FLOUR, GRAIN, AND BOLTING CLOTH INSPECTOR.

The accompanying engraving represents a convenient little instrument, which the inventor, Mr. H. J. Deal, calls the Board of Trade flour, grain, and bolting cloth inspector. It consists of an ivory spatula, in the center of which is mounted a fine lens of sufficient power to detect anything irregular in the flour or grain. When not in use the cloth glass, which is hinged to the handle of the spatula, is folded down, as shown in Fig. 1. When it is desired to use it it is unfolded and brought over the opposite side of the handle, as represented in Fig. 2. The length of the link which supports the glass is equivalent to the focus of the lens, so that no adjustment will be required. The square aperture in the handle below the lens is equivalent to one sixteenth of a square inch, or one fourth of an inch on each side. When the handle is placed over the bolting cloth the number of its meshes may be readily counted and its quality inspected.

In using the larger lens the flour or other substance to be examined is first smoothed with the ivory spatula; the lens is then held at a suitable distance.

The instrument is designed for the use of the Board of Trade, millers, and others who have occasion to inspect grain, flour, or any similar substance.

This invention was recently patented by Mr. Henry J. Deal, who may be addressed at 35 Union Square, New York, or at Bucyrus, O.



DEAL'S FLOUR GRAIN AND BOLTING CLOTH INSPECTOR.

A Word to Insurance Officers.

The *Plumber and Sanitary Engineer* suggests to life insurance companies, that instead of merely hammering at a man's chest to find if he has a tendency to any disease, would it not be well for the medical examiners of life insurance companies to inquire if he has not got a cesspool leaking into his well, or untrapped pipes beneath his basins and closets?

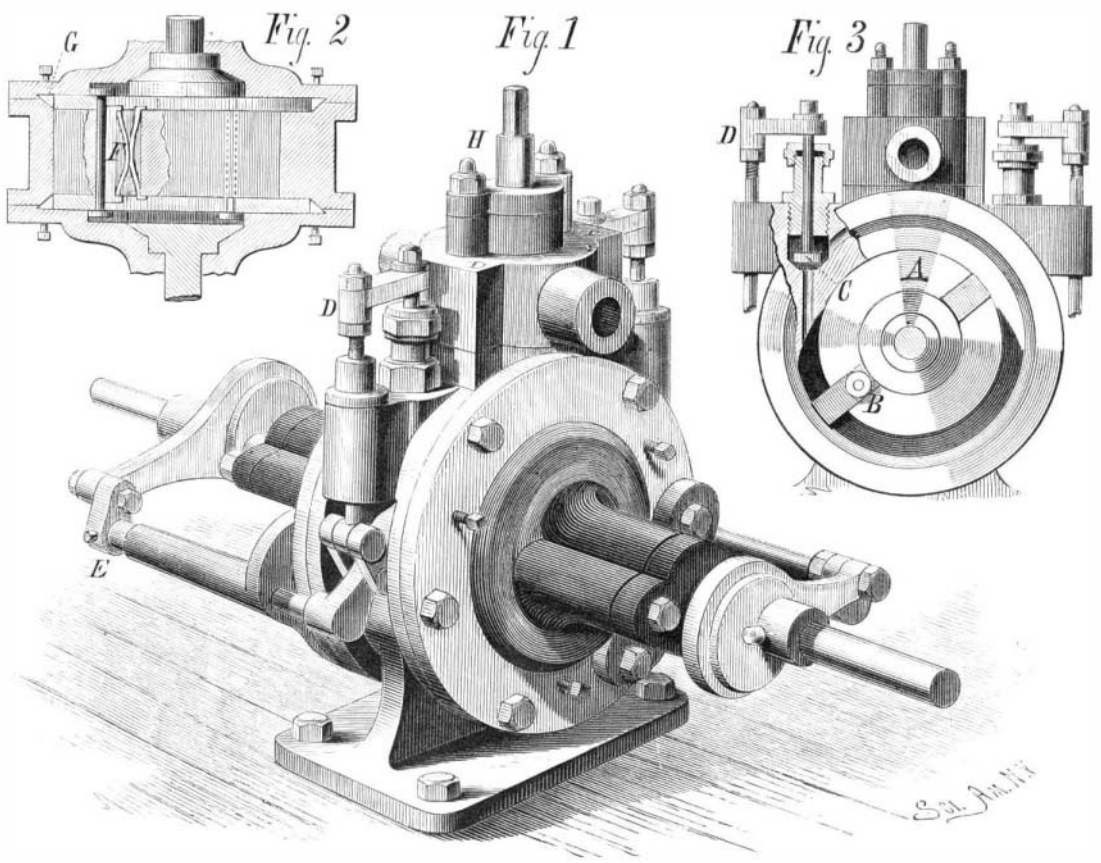
More persons die of zymotic diseases in New York than from almost any other malady, yet a man living in the midst of contagious influences, and hence daily liable to take diphtheria or typhoid fever, would yet find little trouble in getting a heavy policy on his life.

If insurance officers would give this subject their attention they might save many losses to their companies, and also benefit the public generally; for if men found that their homes were rated as "hazardous," they would soon begin to think of finding a remedy for the difficulty.

A NEW ROTARY ENGINE.

We present herewith an engraving of a rotary engine recently patented by Mr. John Henderson, Jr., of Waterbury, Conn., which possesses several novel points that seem worthy of notice. The cylinder, as will be seen in the sectional view, Fig. 2, is made in two diameters, the smaller fitting the solid hub or boss, A, secured to the engine shaft, the larger receiving the sliding wings or pistons, B, during one half of a revolution. Upon each side of the hub there are flanges which are grooved to receive pistons, and are packed around their peripheries by beveled packing rings, G, which are adjusted by set screws in the cylinder covers. The pistons are, in fact, formed on opposite ends of a single piece extending through the hub and having two mortises, F (Fig. 3), containing springs, which press outward the axles of two pairs of rollers which roll in cams formed in the cylinder heads, and move the pistons as the hub revolves, so that while one is drawn into the hub to allow it to pass the abutment, the other is projected so that it may be acted upon by steam pressure. Steam is admitted to and exhausted from the cylinder through poppet valves, C, which are operated by eccentrics on the principal shaft through the rock shafts, E, and the lifting rod, D. It will be noticed that the engine is symmetrical, that is, the valves, eccentrics, etc., are alike on both sides of the cylinder. A reversing valve, H, is placed at the top of the engine for directing the steam into one side of the cylinder or the other, as the case may require.

The inventor informs us that this engine will reverse as readily as a locomotive, and that it may be used wherever a very compact and simple motor is required. The bearing surfaces are all large and well calculated to withstand wear, and all of the parts are readily accessible and very easily adjusted. The steam joints are all arranged so that they may readily be kept steam tight without creating undue friction or wear.



HENDERSON'S ROTARY ENGINE.

MISCELLANEOUS INVENTIONS.

A lantern, for use in millstone dressing, has been patented by Mr. P. V. Coogan, of New York City. It throws a clear light upon the land or furrow of the stone, and is contrived so that the draught produced by it carries off the fine dust arising from the stone.

Messrs. P. J. Clark and Joseph Kintz, of West Meriden, Conn., have patented a novel fastening for securing the lamp fount in the drip cup. It consists in a cup having near the bottom inwardly projecting ribs or lugs, which engage a flange formed on the bottom of the fount, the flange being notched to admit of placing it in the bottom of the cup.

An improvement in the class of ice-making apparatus in which the vapor of the ammonia is driven from its solution by heat, and afterward condensed by being passed through cooling pipes, and then expanded through pipes to produce the cold by freezing, has been patented by Mr. Charles B. Lee, of Galveston, Texas.

Mr. Isaac Morgan, of Augusta, Ga., has patented an improvement in separators for flour mills. The object of the invention is to separate the half ground bran, cracked wheat cuttings, and other results of grinding from the thoroughly ground chop, and carry it off to a suitable receptacle, from which it may be taken for a second grinding.

Mr. Albert Clarke, of Sheffield, England, has devised an improvement in the manufacture of scissors, consisting in flying out scissor blanks from a sheet or strip, which has one or more projections or indentations in its sides, the projections being located so as to form the shoulder on the scissor blank.

Screw Propulsion.

A new feature in connection with the working of the screw propeller has recently been determined by Mr. R. Griffiths, whose name has long been known in connection with this method of propulsion. Hitherto screw propellers have been placed as close as possible to the stern post of vessels, but this position Mr. Griffiths has proved to be the wrong one. From a long course of careful experiments he has been led to conclude that the propeller should be placed some little distance from the stern post and close to the rudder post to get the best effect as regards speed. To demonstrate this some trials were recently made with a model boat 5 feet in length fitted with an ordinary screw driven by clockwork. The screw was four-bladed, 3¼ inches in diameter, and 3·9 inches pitch, and was, in fact, a copy of the screw with which the Peninsular and Oriental Company's new steamship, the Kaisar-i-Hind, is fitted. By fixing the screw ⅝ of an inch from the stern a speed of 100 feet per minute was obtained. By increasing the distance to ¾ of an inch the speed was increased to 104 feet per minute. Placed at 1¼ inch from the stern post, a speed of 110 feet per minute was attained. The screw was then shifted to what Mr. Griffiths considers to be the best position—namely, 2½ inches from the stern post, and this resulted in a speed of 114 feet per minute. This shows an ultimate increase of 14 feet per minute upon the first arrangement. The ordinary screw was then removed, and in its place was fitted a Griffiths four-bladed screw of similar dimensions to the one it replaced, but having the forward edge of each blade cut off. This screw was first fixed 1¼ inch from the stern post, and a speed of 116 feet per minute was made. At 2½ inches—the best position—the speed was 122 feet per minute. A part of the deadwood, 1½ inch long, was then removed from the stern, and the screw was placed 2 inches from the end of the ship thus exposed, when the speed attained was 110 feet per minute. The screw was then removed 1½ inch forward, or ½ inch from the end of the wood, and the speed was only 48 feet per minute. It will be seen that in both cases the highest speeds were attained with the screw in what Mr. Griffiths considers the best position, but that the Griffiths screw gave a higher speed than that of ordinary construction under similar conditions. So far as these experiments go, Mr. Griffiths has certainly made out a good case, and if the results of practice only correspond with those we have given, an important advance will have been made in screw propulsion.—*London Times.*

Effects of Breathing Noxious Vapors.

In some experiments lately made by M. Poincaré on the effects of poisoning by sulphide of carbon, he often found in the bloodvessels drops, apparently of this substance, condensed anew after absorption by the lungs. Still, the great volatility of the substance rendered this improbable *a priori*, and, as he had not succeeded in chemically determining what the drops were, he hesitated to express the view referred to. He has since obtained like results with other substances not miscible with blood, and which are much less volatile than sulphide of carbon, especially spirit of turpentine and nitrobenzine. The chemical determination, indeed, was as difficult as before; but from the fact that it was only in animals that had respired those vapors that free drops had been found in the circulation looking exactly like the substances furnishing the vapors, he thinks the matter worthy of attention. Workmen who respire vapors of this kind are evidently exposed to a poisonous action, variable with the vapor's composition, and also to mechanical disturbances of the circulation and nutrition, similar to those produced by embolia and the introduction of air into the veins. Thus may probably be explained the sudden deaths observed in the course of experiment with those substances; and perhaps certain fatal results from taking chloroform have been due to the same cause. The drops in question, found in nearly all the organs, are specially abundant in the liver, kidneys, and lungs.

"READ not to contradict and refute, nor to believe and take for granted; but to weigh and consider."—*Lord Bacon.*