

the boat might be sunk no further, than to admit of a man sliding the stones down one after another.

This boat, when light, draws about one foot and ten inches, and when loaded, about four feet water, which difference of two feet and two inches, when immersed, will displace a body of water equal to thirty-six tons weight, or more.

The bilge keels, attached to the bottom of the boat, are for the purpose of preventing, in some measure, its flat bottom from coming in too close contact with the mud, when deeply laden, which otherwise might prevent the boat from rising with the flood tide, when grounded in such situations; and these bilge keels being firmly united to the bottom of the boat, serve to strengthen the whole of its frame.

[*Edinburgh Journal.*]

Different Illuminating powers of strained and unstrained Oil.

SIR,—To your very useful and interesting publication I have been an original and constant subscriber, and have to thank it for many hints which have proved very serviceable to me in the adoption. I therefore owe it much. In part payment thereof, I beg to notice a trifling occurrence which has lately come under my immediate observation, for which I cannot satisfactorily account, and which I do not remember to have seen any where noticed.

I am in the constant, and nightly, habit of burning one of the sinumbra lamps, as I very much prefer its light to that of a candle. I use the best sperm oil that I can obtain. Last spring, having nearly consumed the supply which I had provided for the winter's use, and finding that, towards the bottom of the can, the oil was become thick, and would not burn with so good a light as heretofore, I strained that which remained through a thick flannel, which operation appeared to my eye, only to remove the thick and feculent matter which it contained, the oil which passed through being perfectly clear and pellucid. This *strained oil*, to my astonishment, would not burn in my lamp. Thinking that the fault might rest with the lamp, and that probably it might want cleaning, I sent it up to town for that purpose; when it returned I again tried to burn the same oil, but without success: I then emptied the lamp and introduced a supply of *unstrained oil*, which burned as well as I could wish. Since then I have given the strained oil to my servants, to burn in the stables in a common open tin lamp, with a common cotton wick: they too failed in being able to make it burn, the flame dying away as soon as the wick had burned for a few seconds. The *rationale* of this I wish to account for.

I am, Sir,

Yours respectfully,

AGRICOLA.

[*Lond. Mech. Mag.*]

The Editor has been induced to republish the foregoing notice, from the London Mechanics' Magazine, in consequence of having, in several instances, experienced a similar result, from straining oil.

He has used a night lamp, with a very small wick, requiring very good oil. Sometimes, when the oil has become thick, the lamp would require trimming in the night; upon straining the same oil, some change was produced in it, which altogether prevented its burning, the lamp going out very quickly; he has been at a loss to account for this, but of the fact, he is quite certain.

Measuring the contents of Cylindrical Vessels.

SIR,—The following easy method of ascertaining the contents of any cylindrical vessel, in gallons, was communicated to me by the late Dr. Evans, the mathematical master of Christ's Hospital.

I have a long time employed this rule to verify my purchases of oil, and it has saved me money by detecting errors; and I hope, when known, it will be of service to others.

Rule.—Multiply the diameter of the cylinder by itself; that product, multiply by the depth *in inches* and decimal parts; lastly, multiply this last product by the decimal ,0034, and from this product cut off as many figures as there are decimals in the whole, and the figures or whole numbers are gallons, and the decimals are parts of a gallon.

Example.—Suppose a cylindrical vessel to measure 21,5, say twenty-one inches and a half diameter; and the depth of the oil or other fluid is 76,25 inches, say seventy-six inches and a quarter.

Multiply - - - - 21,5 the diameter,
by itself - - - - 21,5

1075

215

430

46225

Multiply by the depth - - 76,25

231125

92450

277350

323575

352465625

Decimal fraction - - ,0034

1409862500

1057396875

119,83831250

gals. qts. pint.

Answer - - - 119 3 0½

One hundred and nineteen gallons, three quarts, and one half-pint.