Correspondence

Suggestions about Flying—The Thing Accomplished.

MESSRS. EDITORS:—Allow me to say a few words in the columns of your excellent journal upon a subject to which I have devoted years of attention, and finally with the most satisfactory results. I refer to the navigation of the atmosphere.

Since the creation of the earth, men have longed to "take to themselves wings and soar away" like the birds of the air. The thirst for amusement, for knowledge, for novelty, for fame, for wealth, in fact, for almost every object that man holds dear has conspired to incite inventors to exertion in this particular field. Especially has the almost boundless wealth which would be the reward of the successful inventor served as a powerful incentive to that proverbially poor class.

Yet, although inventive genius has accomplished results little short of miraculous in other directions, we have been, up to the present time, practically as far from the attainment of that desire as in the days of Adam. To be sure, we have the balloon, but that is a mere plaything, and, as is evident to all who have considered the subject, can never be anything more. The requisites of a serviceable "air ship" are, the ability to move in any direction, regardless of winds or currents of air, and, if need, to maintain a stationary position in the atmosphere at any place and for any required length of time.

In constructing such a maching there are three distinct points or departments of investigation and experiment to be followed up in order to attain perfection.

First, the shape and material of the hull or body of the vessel. This, although by no means arrived at as easily as might be supposed, is less difficult than —second, the construction of the propeller, or contrivance by whose action upon the atmosphere motion is given to the vessel; and, third, the motive power. This, in the absence of any specially adapted to the purpose might be supplied by some of those already known, but at a ruinous disadvantage, were it practicable.

I noticed, sometime ago, accounts of a new invention for navigating the air, called the Aeronef, by M. De Pouton, the inventor. It is said to have excited much discussion, and "made a great sensation," and yet all that has been done, admitting fully the claims of the inventor, is the elaboration or calculation of a method of propelling an air ship. *Vide* the following extract translated from *Le Mer*, by M. De La Landell:—". . . . This amounts to saying that the problem already solved by mechanical skill awaits only the aid of some sufficient physico-chemical force in order to attain a perfect development, and, Heaven be praised, the resources of modern science are of miraculous fecundity.".

Moreover, if I read correctly, no working model has been constructed, although any amount of calculation and speculation was expended, and that is about all. Only one point of the three, therefore, has been solved, and that theoretically, the whole thing—the latest and best of which any account has been published—being practically valueless, as it is fair to infer that as no model was constructed there was reason for it, and that it is one of the many wonderful discoveries which continually startle us for a time and are never afterward heard of.

Four years ago I solved the very problem now said to have been solved by this Frenchman, and constructed a machine, worked by a strong spring, embodying my principles. Having fully satisfied myself, by repeated trials, of the practicability of my inventions in the first two points, I have since devoted my attention to the third, and have finally discovered a motive power, or "physico-chemical force," specially adapted to the purpose.

I do not propose to explain here the nature of my discoveries, for obvious reasons, but will state a few facts as to the operation of the model I made four years ago. I obtained a very powerful steel spring, which, by means of proper gear attached, furnished force for about two and a quarter minutes. The hull, including spring, &c., weighed 77 pounds, and I placed an extra weight upon it of 62 pounds. The machine was fastened at a distance of 30 feet to a strong post, so as to revolve freely around it. I made, at different times, about twenty-six trials, and, allowing a quarter of a minute to get well under way, I found as the average of these trials 94 revolutions in the two minutes. The greatest number was 117. Even under all the disadvantages of first trials, new machinery and other obvious drawbacks, we have here an average motion of 8,836 feet, or over one and a half miles per minute.

Calculation, confirmed by such experiments as I have been able to make, demonstrates that increase in the size of the propeller was attended by an increase in its power or effect upon the atmosphere in the proportion of two to three respectively, so that there is no doubt in my mind but that a speed of five miles a minute is easily attainable. The same power would sustain the whole weight in the atmosphere for the two and a quarter minutes, after the first three or four seconds.

It will therefore be seen that I have not only invented a flying machine, but made a working model, which operated in a manner eminently satisfactory—being, I think, the first on record.

Some further experiments will, probably, be necessary in making the different parts on a larger scale. I would then make a machine of full size for actual and practical service. But propellers and motive powers are not invented cheaply, and they have cost me my substance.

I need capital, and would call the attention of capitalists to this as an investment which it needs no second thought to show promises a splendid return. Its value is too obvious to need even to be pointed out.

If I cannot make a satisfactory arrangement here I shall proceed to France, not doubting of success there. Persons wishing to correspond, with a view to investment, can address immediately.

CHARLES F. EDWARDS.

The Question in Relation to Expansion.

MESSRS. EDITORS:—In the SCIENTIFIC AMERICAN for Nov. 2d, I observe an extract from Mr. McElroy's communication to the Franklin Institute, criticising the report of the Board of Naval Engineers on the steam experiments made at Erie, Pa., in which the writer says:—"This is the real matter at issue, whether it is cheaper to carry high steam and expand, or to carry low steam and follow at full stroke."

In your remarks upon the subject you corroborate Mr. McElroy's views, but from which I beg to differ. There can be no question as to the relative economy of high and low steam, as all engineers are agreed upon the matter, and practical men are able to estimate, pretty nearly, the per centage of saving for each pound increase in the pressure.

The real question appears to me to be, shall we put a cut-off or not upon our engines. The economy of high pressure steam we are all agreed upon. With your permission I would like to ask Mr. McElroy the following question:—

With a given amount of work to perform, is it better to put in a small cylinder, and let the steam follow the piston all the way, or put in a larger cylinder, and apply a cut-off, the boiler pressure being the same in both instances?

To illustrate my meaning more clearly, we will suppose we have to perform the work of forty-horse power. This would require say a fourteen-inch cylinder; piston to travel three hundred feet per minute, and say fifty pounds pressure per inch. The question now arises, is it better to put this size cylinder, and let the steam follow the stroke, or put a proportionably larger cylinder, say twenty or twenty-two inches, and cut-off at one-fourth, or one-third of the stroke?

I should be glad to have Mr. McElroy's opinion upon this. JOHN WEST.

Norristown, Pa., Nov. 14, 1861.

A Coal-Oil Fire Ship.

MESSRS. EDITORS:—Let me suggest an iron vessel of war of a novel but effective kind. Let a small but swift iron steamer be fitted up with a few close iron tanks containing petroleum in the hold so that its vapor could not take fire in the vessel. This oil could be pumped from the tanks through iron pipes, and by means of an engine like a fire engine worked by steam, the liquid could be thrown to a considerable distance. By setting fire to the stream as it issued from the pipe, the whole outer surface of the stream would burst into flame, and the vessel attacked would be deluged with a liquid fire equally deadly and inextinguishable with the famed Greek fire. By having a little phosphorus dissolved in the first few gallons of light naphtha thrown, it would inflame of itself, or a little could be thrown dissolved in the bisulphide of carbon, when the petroleum afterward thrown would inflame as a matter of course.

The petroleum might have sulphur dissolved in it to produce noxious vapors, if desirable. As this substance is now worth only about ten cents a gallon it would be cheap as well as effectual. Wooden ships would be speedily consumed, and iron ones could be speedily deluged with the liquid fire, and an open porthole would ensure destruction to the inmates. A vessel could be easily made to discharge the liquid with safety to the operators. In case of a foreign war, why may not the vast depositories of petroleum in Pennsylvania and Kanawha, be turned to account in this way. The heat given off by the substance would be intense, while the explosions of the light vapor on the edge of the stream, as it mixed with the atmosphere, and the dense black smoke surrounding the vessel attacked, would realize the most vivid descriptions of conflicts between the Crescent and Cross, when infidel fleets were burned, and the tide of conquest stayed 100 years by the lucky discovery and application of an inflammable fluid principally consisting of this very petroleum. C.

The Right Glass for Lamp Chimneys.

MESSRS. EDITORS:—In your paper of Nov. 23d, page 329, under the head of "Lamp Chimneys" you speak of a patent obtained by Mr. Bailey, of Wolverhampton, England, for glass chimneys made of bottle glass. Now the evil that you complain of in the common miserable chimneys furnished for oil lamps, is produced by the very article that is named as patented, namely, bottle glass. These miserable chimneys, which cost more than the oil, are made of bottle glass, technically called lime glass. The green bottle glass is made in the following proportions:—

Bottle Glass.—Sand, 100; soda ash, 33; lime, 18 to 20.

Lime Glass.—Sand, 100; soda ash, 36 to 40; lime, 20; niter, 4.

Lead Flint Glass.—Sand, 100; lead, 30 to 35; soda ash, 25 to 30; niter, 7 to 9.

The bottle glass has the green color imparted to it from being melted in open pots in the furnace, the whole of the material being exposed to the carbon of the fuel. The lime glass is melted in covered pots or crucibles, and by that means is like lead glass in appearance, but it does not stand heats and colds like the lead glass; all glass manufacturers know these facts, but some few of them, more especially around Pittsburgh, are making nothing else but lime-glass chimneys. They send them all over the country, and sell them by auction at half the price the lead-glass chimneys can be sold for. Some little dealers are taken in by the operation, others again, buy the articles knowingly, and sell them for good lead-glass chimneys, by which short-sighted and dishonest practice they destroy the business. I have experimented with the two kinds of chimneys, and have broken six lime-glass chimneys as quick as I could replace them on the lamp; with the lead-glass chimney I have put on the lamp and turned the flame on full, it will stand that test. I again have dipped them in water and put them on the lamp, and turned on the flame full, and it stands that test. Lead-glass chimneys will average three months' use; lime or bottle glass will break, one a day.

W. T. GILLINDER.

WILLIAM ROBINSON, engineer of the propeller *Orontes*, indicted last summer for over-loading the safety-valve of that vessel, has just been convicted in the United States Court at Buffalo, and sentenced to pay a fine of $200 and be imprisoned in the Penitentiary for four months. This is the first conviction under the law.

THERE are 22,500 miles of railroad in the Union States, and 5,000 miles of canals.