

## TIPS TO INVENTORS.

There are many smart men running after perpetual motion, and such like impossible and useless things, who have brains enough to produce, if set to work on almost any practical problem, whatever is called for. The faculty of invention is a great one. It is as much a faculty as an ear for music or an eye for painting and sculpture. There are hundreds of lines in which those who have the heaven-born, inventive gift, might by a hint be made to start after some certain thing that the world really needs, would believe in when shown and would be willing to pay for when it was in practical working shape. For such men—and among our readers we doubt not that there are many hundreds at least—the following paragraphs have been prepared; and they will also serve to call the attention of specialists who are not professional and inveterate inventors, to the desirability of working in these lines.

There is a need of a device by which a train can be stopped at any point in its run from any station of a line. This is needed not only in the case of "wild" engines which have escaped control, but for trains which have gone past a signal, or have not heeded it, or are not within signaling range.

There is a chance for practical inventors to change the whole idea of railway train braking. The brake should be applied to the rail and not to the wheels of the train. Brakes applied to the wheels simply permit the train to skid, and cause flat places on the wheels. Brakes applied to the rails would ease up the momentum of the train in friction between it and something not within itself.

The whole art of making castings under pressure needs to be learned. It is but in its infancy. There is required a casting machine which will do in iron and brass what the type casting machine does in type metal.

Half-tone printing needs the inventor's aid. As it is now, ordinary presses for printing from type forms must have engraved blocks, the printing surfaces of which are either type high or below that, and print from only those portions which are type high, losing the half-tone effect.

Car starters for street railway lines have not been given enough attention. There must be something which will store up enough power when the car is in motion to start it easily when fully loaded, after it has been brought to rest. If it can be still further developed so as to store up while on down grades a certain amount of power and give it out again on the up grades in aid of the horses, there will be money in it.

The storage battery or secondary battery is far too heavy, complicated, costly, and liable to deterioration; and gives off fumes which do not commend it to proper approval. There is ample opportunity for inventors to do good and paying work here.

Strange as it may seem, there has not yet been put upon the market a good ball bearing or roller bearing for engine shafts and machinery generally. The manufacturers of bicycles seem to have got what is wanted, but in larger sizes the field is yet open.

Electric cooking has been but little more than suggested. In many houses now having electric

lights, a good device for cooking by electricity taken from the same wires which supply the light could be very readily introduced.

It is strange that the steam road wagon has been so little developed. Self-propelling steam road rollers are common enough and some of them act as traction engines, also on good roads; but the steam carriage for ordinary roads is of the near future. Perhaps the naphtha launch motor idea can be adapted to service on our ordinary streets and highways.

The rotary engine which will use steam expansively, be durable, and not give trouble from leakage, has not yet been evolved. There is a chance for it yet.

The chemist, who will make from cotton seed either a drying or a non-drying oil, should not wait for cash if he manages his affairs properly.

The superheated steam oven is an invention which should pay to develop into practical form for every day use by ordinary baking establishments. The idea of baking by steam has been tried and found very successful in large institutions. Who will give the baker around the corner, at a reasonable price, an oven which will run by steam only and give better satisfaction than the present coal heated or wood heated affairs?

Electro-deposition needs looking into. There are several metals which as yet cannot very well be deposited by the galvanic current; and the art of depositing alloys has as yet but very little practical application.

There is more money in a good cotton picker than there has been in the cotton gin, and that is saying a good deal.

An oil stove which will permit of broiling, can be used in the open air or where there are heavy draughts, and may be kept burning ten hours at a time, should find hundreds of thousands of purchasers.—*The Practical Mechanic and Electrician*.

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RUSSELL SAGE ON WEALTH.

Russell Sage carved out his own great fortune of \$50,000,000. He is a notable example of a self-made man. He is believed to have more ready money than any single individual in the world. There are larger fortunes than Mr. Sage's, but they are invested in securities, property and business. Mr. Sage has large investments, but so carefully selected that no general financial disaster would make a difference of ten per cent. in them. The reason that he keeps so much money on hand is to accommodate men and corporations that require loans. How to make money is a problem that every man tries to solve. When Mr. Sage was asked for his solution by the *New York Herald*, he replied: "I believe that any man of good intelligence can accumulate a fortune, at least a moderate one, by adopting three principles—industry, economy, and patience. I place no reliance in luck. A mind capable of directing one in the right course makes success almost certain. A young man should start out in life trusting in God and resolved to attain a position of self-dependence. He must so conduct himself as to command the respect and confidence of all with