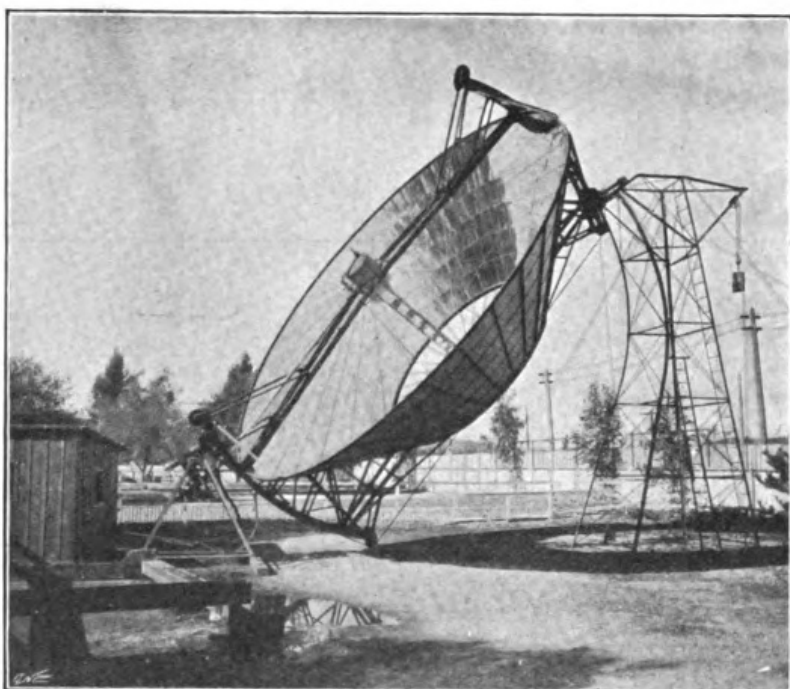


Some Wonders from the West.

XVII.—SOLAR MOTOR AT SOUTH PASADENA, CALIFORNIA.

By H. LUKENS JONES, PASADENA, CALIFORNIA.



From a] THE SOLAR MOTOR, SHOWING THE CENTRAL BOILER. [Photograph.



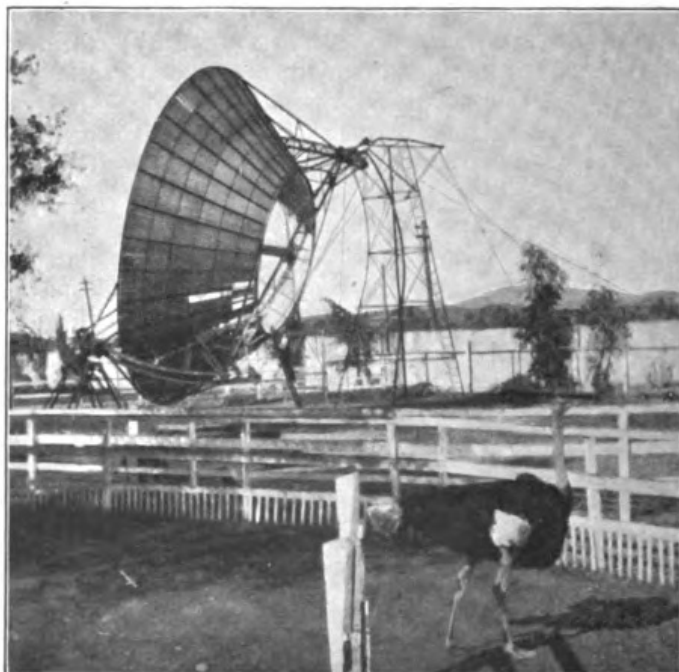
VAST amount of scientific thought and study have been lavished on the subject of solar physics, and at last a device has been perfected through the agency of which the sun's heat can be utilized in creating steam power. The new device is a solar motor.

At an extensive ostrich farm in South Pasadena, California, surrounded by a vast audience of dignified birds, that delightedly admire their wealth of plumage in the glittering expanse of mirrors, the machine is in daily operation. It may be likened to a huge umbrella, open and inverted at such an angle as to catch the sunshine on the hundreds of mirrors which compose its inside surface and reflect the heat on the long, slim boiler which takes the place of the umbrella handle. The machine is set in meridian, on two fixed supports, so as to balance the entire frame, and rests on an equatorial mounting, like a telescope, the axis being due north and south, and the machine turning east and west in following the sun. The reflector is 33ft. 6in. in diameter on top and 15ft. on the bottom. It contains 1,788 mirrors about $3\frac{1}{2}$ in.

by 24in. in size. The weight of the device is about 8,300lb.

The boiler is of tubular form, 13ft. 6in. in length, with a capacity for 100 gallons of water, and eight cubic feet additional steam space. The boiler is made of fire-box steel covered with an absorptive material, of which lampblack is one of the principal ingredients. Steam is conducted from the boiler to the engine by a flexible pipe made of phosphor bronze, and is entirely metallic. The machine is designed to withstand a wind pressure of 100 miles an hour.

The operation of the motor has been reduced to the simplest possible point, and requires very little human labour. When power is desired the reflector must be swung into focus, which is done by turning a crank. This is not beyond the power of a good-sized boy. An indicator shows when a proper focus has been obtained, and when this is done the reflector follows the sun all day, being regulated by an ordinary clock.



THE SOLAR MOTOR—BACK VIEW. THE OSTRICH IN THE FOREGROUND IS "CECIL RHODES." [Photograph.

The motor is pumping from an underground tank 12ft. deep, and lifts 1,400 gallons per minute, equivalent to 155 miners' inches. The present model is guaranteed to produce ten horse-power, but under the most

favourable conditions it will yield fifteen or twenty horse-power.

The solar motor is a complete solution of the question of making use of the surplus sunshine and underground waters of the deserts.

XVIII.—AN INGENIOUS ENGRAVER.



Mr. Samuel E. Dibb is an engraver employed by the "Grip Publishing Company," of Toronto. Mr. Dibb, although not claiming to be an expert engraver, and without any previous trials, set himself to beat the New York engraver. Just how far he succeeded the accompanying illustrations will show. Selecting an ordinary-sized pin, 1 1/8 in. long, and with a smooth head, he first drove the pin into the end of a soft wood block for convenience of handling, and then with the aid of an ordinary magnifying-glass, and with what is known among engravers as a "No. 1 tint" tool, proceeded with the engraving in the manner shown in the illustration. It is not so much to skill that Mr. Dibb attributes his success as to being the possessor of a very steady hand. On the first pin tried he engraved the alphabet, all the letters being cut in relief. Not content with this performance he next cut on the same-sized pin all the letters of the alphabet,

MR. SAMUEL E. DIBB ENGRAVING ON THE HEAD OF A PIN.
From a Photograph.

A FEW years ago a man engraved the Lord's Prayer on a United States 3-cent piece (exactly the same size as an English threepenny-piece), and the achievement was talked of all over the world. An engraver in New York undertook to beat that record, and he engraved the alphabet in capital letters upon the head of a pin. This feat was greatly talked about, the New York papers giving portraits of the engraver and drawing representing the pin in its actual size and magnified forty-five diameters. The pin was exhibited in public and optical institutions. But this performance has been quite eclipsed, and with it all previous records, by a young man in Toronto, Canada.



ENLARGEMENT OF A FIVE-CENT PIECE—THE SIZE OF A THREEPENNY-PIECE—
From a] ENGRAVED BY MR. DIBB. [Photograph.