THE DOUBLE INDUCTION MOTOR.

One of the most difficult problems in mechanics has been to produce a safe, compact, economical, and manageable motor for household and other uses requiring only a small of the sewing machine. The entire apparatus is simple in amount of power. The motive force has been sought for in various directions, and as the latest result of experience and experiment, electricity has proved itself to be the most available, and in all respects preferable to other motive agents for small power. Among motors employing electricity as a source of power we know of none so simple, so compact, or so powerful in proportion to its size and weight as the dou-

vention of Mr. William W. Griscom, and is manufactured by the Electro Dynamic Company, 121 South Third street, Philadelphia, Pa.

In describing the construction, operation, and advantages of this motor we cannot do better than use a portion of the report of the Franklin Institute of Philadelphia, in which the mechanism is described as follows:

The motor consists briefly of two semicircular electromagnets, which together form a ring; their poles project inward, and, together with the wire coils, form a cylindrical tube, with which a Siemens armature revolves. The poles extend laterally beyond the ring, forming supports for the brackets which carry the bearings of the armature and the brushes of the commutator. Iu order to reduce the wear of the journals to a minimum, the bearings are made four times the diameter of the shaft, and the direction of the wear is away from the point of nearest approach, so that the poles of the armature and magnets can never come in contact from this cause-a frequent source of annoyance and danger in former motors.

The battery consists of six one-gallon cells,

into each of which plunges a plate of zinc four inches effective; a very slight pressure of the foot on the treadle their formation cannot be promptly reported, save as it is long and two inches wide, and two plates of carbon exposing a like surface.

The large amount of liquid (electropoion) is merely to save the trouble of frequently recharging; a battery containing six drachms per cell gives equal power, but for a shorter period. It is estimated that the battery once charged will continue to supply the motor with efficient power for all ordinary use of a sewing machine, in a private family, for in actual use. In one form this is accomplished by means Atlantic, as a floating meteorological observatory, connected many months, or probably one year, without refilling. It of a spiral spring attached to either end of the bar, to which by cable with the west of Ireland.

cotton cloth at a very rapid rate. The motor is $2\frac{1}{4}$ inches in diameter 4 inches long, and its weight is but $2\frac{1}{4}$ pounds; it is securely attached by a light frame to the table its construction, excellent in all its mechanical details, and its adaptability to general use is not questioned by the committee. The battery differs from the ordinary Grenet form mainly in the automatic arrangement for removing the plates from the bath, and in the large size of the cells, holding one gallon of "electropoion" fluid each.

rapid deterioration when a constant use is required, is avoided to a great extent, while its advantages for household and occasional use are retained. These advantages are: that it generates no gases or vapors that are practically deleterious; the zinc elements do not (as in other . batteries) require frequent amalgamation or attention, and when not in use. are simply raised above the fluid, and allowed to drain.

The committee, in conclusion, recommended this electric motor and battery to the favorable consideration of the Franklin Institute, as an apparatus possessing great power The method of graduating the strength of the current, in proportion to its size, simplicity in its construction, excelble induction motor shown in our engraving. It is the in- and consequent speed of the motor, is as simple as it is lence in its mechanical details, and general adaptability to

household use,

This new electric motor is not only the most compact and powerful small motor we have examined, but it is also low in price.

Any desired information in regard to this motor may be obtained by addressing the Electro Dynamic Company as above.

Proposed Weather Charts of the North Atlantic.

The British Meteorological Office, London, announces that the Meteorological Council propose to undertake the preparation, from observations made by incoming ship masters, of daily weather charts of the North Atlantic Ocean. The work will begin August 1, simultaneously with the commencement of the concerted meteorological observations at the international Arctic stations planted by different nationalities in Kamtschatka, Siberia, Nova Zembla, Northern Scandinavia, Greenland, and Arctic America. The work proposed is tentative, and no signally important results are anticipated in the way of storm warnings, owing to the fact that most British storms come from the west, whence

As Nature puts it, no decidedly great step is likely to be stitches per minute, which it is said is considerably faster taken in the improvement of weather forecasting [for Great than is now attained by professional sewing women, while Britain] as regards time and precision, until either of two others seldom sew more than 300 or 400 stitches per minute. things be done, namely, till either a cable be laid to New-Two forms of the battery were shown, in both of which foundland, via Faröe, Iceland, and Greenland, or till science the plates are automatically raised above the bath when not has taught us to moor a ship 790 or 800 miles out in the



THE BATTERY.

suffices to start the machine as gradually as may be desired; now done by the New York Herald.

the speed may then be increased. up to one thousand or more





THE DOUBLE INDUCTION ELECTRIC MOTOR.

serves as a seat for the operator.

The power of the motor depends upon the quantity of electricity furnished by the battery; this is easily regulated by raising or lowering the zinc and carbon plates in the exciting fluid. It is found that when the plates were partially plunged in the bath sufficient mechanical power was developed by the motor for all ordinary requirements of a sewing machine, and when fully immersed it was more than sufficient to drive a large needle through sixteen layers of the main objection to the ordinary Grenet battery, viz., the ever before been found in Switzerland at such an elevation.

is inclosed in a tight box, which, covered with a cushion, | the plates are permanently fastened. In the other a similar result is attained by means of a counter weight on the small arm of the lever attached to the treadle.

The important novel feature in this battery consists in the size of the cells, which thus enables it to continue operative without recharging for a great length of time, as the current is necessarily intermittent when the motor is running, and as the plates are frequently raised and lowered by the operator, to accommodate the needs of the work of sewing,

EPIDEMIC WHOOPING COUGH IN LONDON.-During the first four months of the current year more than 2,500 children were carried off by whooping cough in London. The epidemic began toward the end of last year, and has since prevailed with exceptional fatality.



A LARGE canoe in excellent condition has been found near Bex, 4,000 feet above the sea level and nearly 3,000 feet above the valley of the Rhone. No Lacustrine relics have