

body. We cannot offer any suggestion in explanation till the report is found to be true. Lodestone is an ore of iron which exists in great quantities in our country, and can be bought of any dealer in specimens of minerals. You can find plenty of specimens at the university in your city.

(8175) J. H. Tripp asks: What is meant by "weight per mile ohm"? We find this expression repeatedly used in wire catalogues, as: Weight per mile per ohm, 5,500 to 5,800 pounds. A. That a wire one mile long and having a resistance of one ohm would have the weight given.

(8176) W. M. M. writes: I claim that the direction of armature of a multiple-connected motor cannot be changed by simply reversing the direction of current through the armature; but direction of armature can be changed only by reversing direction of current through the field. A. The direction of rotation of an armature is reversed by reversing the current through either the field or armature, but not through both.

(8177) C. T. P. asks: 1. What are "electric gases" in connection with boiler explosions? A. If gases from the decomposition of water accumulated in a steam boiler, they might be called "electrical gases." We have no personal knowledge of the formation of any such gases. 2. Is it dangerous to ground a telephone wire on a pipe running to a steam boiler? A. We can see no reason why it should be. 3. Would it be dangerous to put copper rivets or copper pipe connections on a boiler or on a digester for boiling fats with lime under 120 pounds pressure? A. There are in some fats acids which will act upon copper and form compounds at the expense of the copper. Thus the tube would be eaten away and in time become weak. It might then burst from the excess of pressure above what it could stand. 4. Would the copper against iron form electricity and dangerous "electric gases"? We have academic information that they will, but have been unable to find any practical engineer who will concede that there is anything in it. A. We do not apprehend anything of the kind is likely to happen.

(8178) O. P. McK. asks: Is there such a thing as electro-plating copper plates with a steel plating, or is there any plating for copper that it harder than copper itself? A. The operation called "steeling" is really coating a softer metal with iron. There are several metals harder than copper which can be deposited upon a surface of copper. The processes are given in Langbein's "Electro-Deposition of Metals," price \$4 by mail, a full and reliable treatise on the subject.

(8179) W. M. D. asks: 1. What is the cost of magnetizing steel blocks 1 x 1/2 inch, and how long will they keep their strength? A. Steel magnets are best made by sending a current of electricity around them. Make a coil of wire large enough to pass the bars through and connect to a battery. Pass the bar to and fro several times through the coil. If properly taken care of, the magnetism will be retained. See SCIENTIFIC AMERICAN, Vol. LX., No. 16, price ten cents by mail. 2. Is there any way to register daylight? A. There are several forms of sunshine recorder in use. Any of these will give the time during which the sun has shone while it has been exposed. See SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 277, 336, 369, 554, 662, 1156, price ten cents each, for illustrated descriptions of these instruments.

(8180) J. G. Von H. asks: 1. How large a spark from a spark coil is it necessary to have to excite a wire, say 1,000 feet away, with the Hertzian wave as used in wireless telegraphy? A. A Ruhmkorff coil is required for wireless telegraphy. While exact data are not at hand, it is probably near the truth that a spark coil giving a spark of one-half inch in length will transmit 1,000 feet. 2. Will a disruptive spark from a static machine excite a distant wire like the spark from a spark coil? A. A static machine may be used as a transmitter.

(8181) F. H. P. asks: Will you please state in the inquiry column directions for making an electrical heater? The system is the Edison three-wire, direct current, 110 volts at half ampere. A. If you wish but one-half an ampere to flow through your heater, it will not have much heating power. However, to make it, take about 625 feet of No. 26 iron wire and arrange it so that the turns do not touch each other. They must not touch anything which can be set on fire nor rest on any metal at any point. Asbestos is used to prevent the wire from coming in contact with the metal frame which must be used to support the wire.

INDEX OF INVENTIONS

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AND EACH BEARING THAT DATE.

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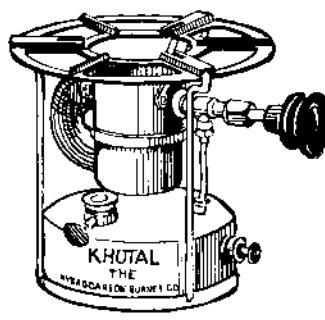
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(Continued on page 286)



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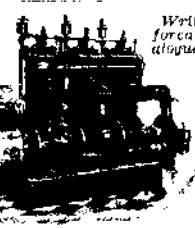
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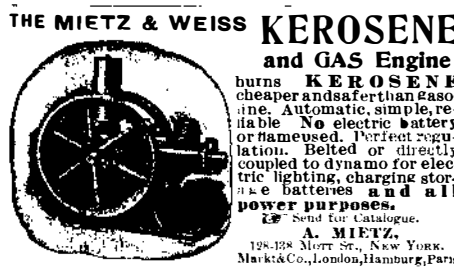
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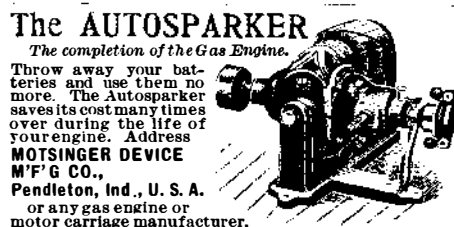


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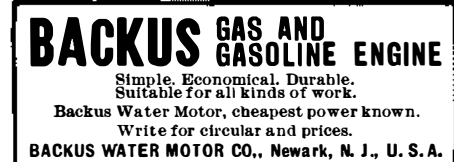
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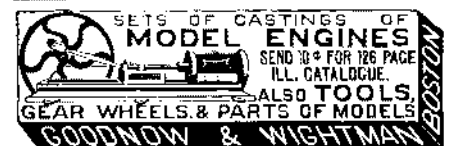
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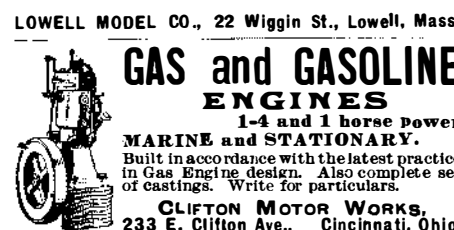
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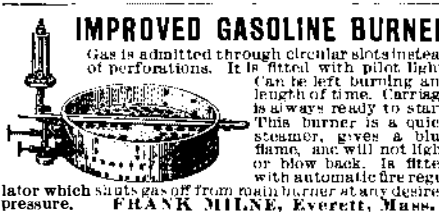
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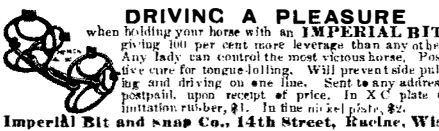


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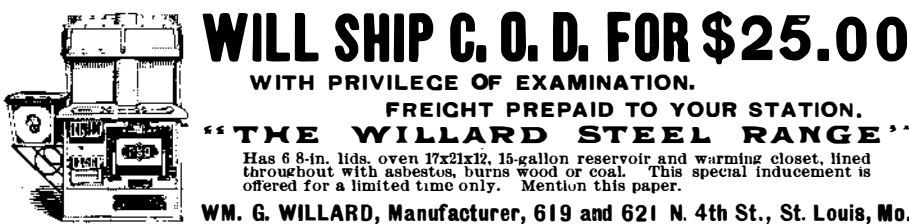
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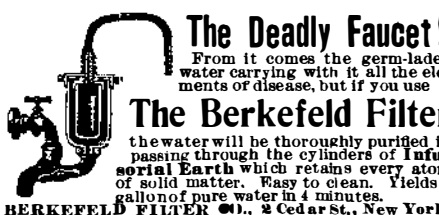
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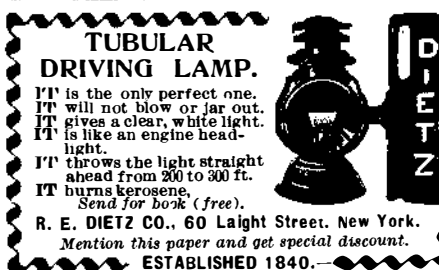
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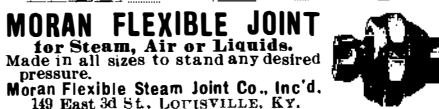
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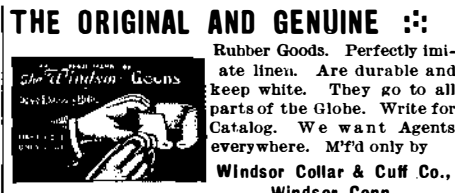


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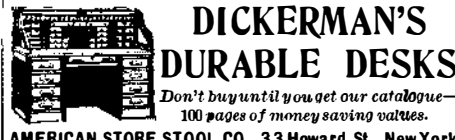


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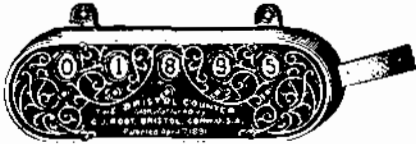
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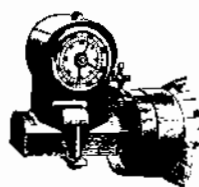
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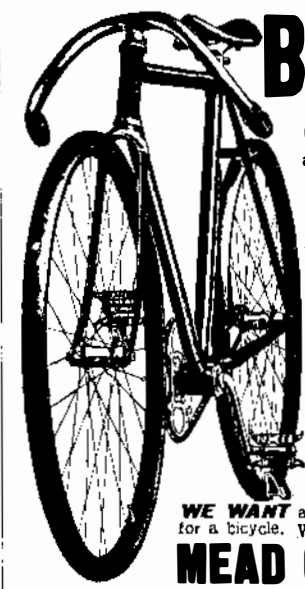
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