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(7227) J. R. asks: How many layers of No. 20 double-covered magnet wire shall I use to wind ring armature for dynamocore 4% in. in diameter, 4 in. long, with 21/4 in. hole, composed of 23 washers, with writing paper between, all turned true and bored out? It will take about 300 turns of wire for the first layer and a few more for the next ones. What size wire shall I use for field winding, the magnet waists being 51/2 in. long by 116 in. thick, composed of sheet iron bolted together and faced up smooth? I would like to run the machine in shunt or series, if it would be better. A. For the armature use 200 turns. The number in each coil will depend on the number of commutator bars. For the field use about 1,000 turns No. 26 wire, if shunt wound. We have assumed the voltage to be 110 and the speed to be 1,600 turns per minute.

(7228) P. M. N. says: Can you inform me if there is a process other than the chalk plate by which pen and ink drawings may be reproduced for news paper work? If so, is it more complicated and expensive? I wish to find a way to make my newspaper cuts in the simplest, cheapest and most expeditious manner, and desire to install the process in the office. Kindly let me know if there is any way of doing this, and oblige. A. We do not know of any process other than the chalk plate for producing cheap newspaper cuts. The process of photo-engraving is largely used by the New York daily papers. The effect is better than that of the chalk plate. It will be necessary to purchase some books on the subject, as Anderson's "Photo-Engraving," \$5; Schraubstadter's "Photo-Engraving and Copy of Photo-Engraving," \$3.25; Farquhar's "Grammar of Photo Engraving," \$2; Jenkins' "Photo-Engraving," \$2, which we mail at the prices mentioned. SUPPLEMENT No. 720, mailed on receipt of 10 cents, contains formulas for working the chalk process.

(7229) F. B. H. writes: I am an old reader of your valuable paper, and I want to ask a few questions in regard to the eight light dynamo described in SUPPLEMENT, vol. xxiv, No. 600. My question is this: Can I double the drawings in every respect and get an operative machine? I mean one, if well constructed, that would answer as well as the eight light machine. If any changes are needful, please state what they are. Be sure to state size of wire for armature and field magnets, the winding being the same as in the eight light machine. Should I double the length and diameter of armature? To be short, if I were to double or multiply by 2 all the measurements given, would my machine be out of proportion? A. The sizes given in the drawings of the eight light dynamo can be doubled. This makes the machine 4 times as large. If it is wound with the same sizes and number of turns of wire as the original, it will have the same current in amperes, but 4 times the voltage. If the field is made larger, that armature should be increased in the same degree. Now, if you also use wires twice as thick, but have the same number of turns, the carrying capacity in amperes will be increa ed 4 times, and the total output of the machine will be 16 times as great. In place of No. 20 wires use No. 14 on armature. In place of No. 18 wire use No. 12 on field.

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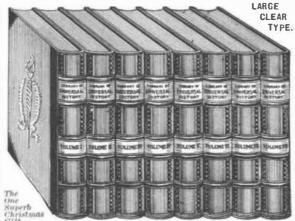
AND EACH BEARING THAT DATE.

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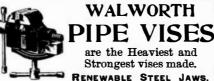
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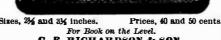


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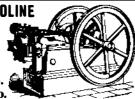
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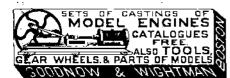
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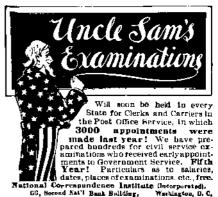
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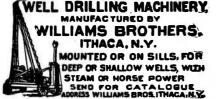
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ı	Bollers for steam and water heating systems, Ac-	-20 000
ł	waunee Boiler Company	
ı	Box naming machines, w. S. Doig	30,779
ı	Burial caskets, Detroit Casket Company	30,781
ŀ	Catbartics, W. C. Sbields	30,747
1	Cement, Portland, Hammer Society	30,769
١	Cigars, Rosenstein, Cohn Cigar Company	30,734
ı	Cigars and all tobacco cigarettes, E. Seidenberg,	
1	Stiefel & Company	30,735
į	Collars, turn down, Earl & Wilson	30,731
ı	Corsets and parts thereof, Kops Brothers	30,732
ı	Dentifrice, F. A. Sarg's Sobn & Company, K. K.	
١	Landespriv. Milly. Kerzen, Selfen, und Gly-	
ı	cerin Fabrik	30,758
١	Flour, Retail Merchants' Association, of New Jer-	
ı	sey	30,745
ı	sey	30,744
ı	Food for infants, invalids, and dyspeptics, pre-	
ı	pared, T. W. Hobron	30,742
ı	Food for infants, invalids, and dyspeptics, pre-	
ı	pared, A. P. F. Kufeke	30,743
ı	pared, A. P. F. Kufeke	.,
ı	Company	30,767
ı	Hair restoratives, M. E. Tucker	30,757
ı	Harness dressings, oils for leather goods, black-	,
ı	ing, leather grease, and other dressings, F.	
1	Tanner & Company	30,771
١	Tanner & Company Heaters, water and steam, Kewaunee Boiler Com-	,
ı	nan v	30.778
١	pany Lamp chimneys, Peerless Lead Glass Works	30,768
١	Malt extract, Tennessee Brewing Company	20 730
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pany.

Mechanical and surgical instruments and appliances, J. Pfeiffer.

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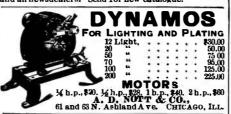
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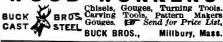
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