ery, 5 feet beam, 25 feet long, more safe than one 5 feet beam and 30 feet long? A. An increase in length for a given beam over the usual practice, or to the proportions named, may be made with safety; but precautions should be taken against shipping water in the choppy seas of the lakes. 3. What is the simplest and best way to make a sea anchor or drag, and what size should it be for launch 5 × 25? Should not care if boat drifted some. Simply wish to be in a position to be able to hold her head to sea in case of accident to machinery. A. For a sea anchor for your boat use a pine board, 1 inch thick, 18 inches wide, 4 feet long, with a couple of battens to stiffen it. Load one edge with lead or iron, so that it will float edgewise with the light edge 1 inch out of the water. Bore two holes near the bottom and ends and one hole at the top and middle. Fasten a three-part sling of ½ inch rope through the holes, so that when the anchor is held at the intersection of the three ropes it will hang level. To the apex of the sling fasten the drag rope.

(4980) T. C. S. writes: We have been considering the construction of a dam across a tolerably small stream (fed by three springs), for the purpose of making a fish pond. What is the most approved dam, expense, durability, and convenience being considered? Will add that the incline on each side of the stream is, while not abrupt, rather steep, and that the area drained by it is not more than ten or twelve acres. A. The building of a dam, however small, should have more than a casual consideration, in view of the total flow that might come from a storm. The construction should also take its strength from the height and length, as also from the nature of the ground as to its stability to hold a dam, which also may indicate the depth necessary for a foundation. A curved stone wall, backed with clay and earth, with a central spill and riprap beneath is the best. Leffell's work on mill dams gives illustrations and description of many kinds of dams. $2.50 mailed.

(4981) E. L. O. asks: What is the scientific reason for the use of storm sash? Because they close the joints around the sash, or because heat condenses more rapidly on the glass than on other portions of the building? A. The reason is not a strictly scientific one—it is more a matter of comfort and convenience, the main object being to keep out the cold air that presses through the crevices around and between the sash in windy weather. It also prevents excessive circulation of the air within the rooms by cooling against a single glass and dropping to the floor—a dangerous source of cold to persons standing or sitting near a single window in cold weather. The double glass also keeps moisture and frost from windows, from the fact that the moist air of the rooms is prevented from coming in contact with the cold outside glass, the air between the glasses holding too little moisture to produce frost or condensation on the outer glass.

SELKIRK, PA., April 17, 1893.

To the Editor of the Scientific American:

DEAR SIR: I notice in your "Notes and Queries," No. 4889, F. H. asks what to do for the crank on his 14 × 16 center crank engine. I would say we are running the same kind of engine in our sawmill and had the same trouble he complains of. We tried all kinds of lubricants, but could not overcome the difficulty. Finally I took the brasses and had them counterbored and filled with No. 1 babbitt and bored out to fit the crank pin. Now we have no trouble and can run the engine without any trouble whatever with any kind of oil. Everybody at the shops said the babbitt would pound out, but it did not. Now all the engines in the mills in this section are fixed in the same way, and nobody experiences any difficulty. Hoping this may help some of your readers,

I remain yours truly,

WILLIS KERR.

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Typewriting machine, stenographic, E. L. Craigmiles ... 496,297
Undergarment, combination, A. Frey ... 496,302
Vacuum pan, J. M. Duncan ... 496,111
Valve gates, making, F. H. Richards ... 496,136
Valve, safety, A. Lohbiller ... 496,058
Valve, self-closing, C. H. Dinsmore ... 496,045
Vehicle bolster plate, O. L. Dunfee ... 496,249
Vehicle brake, A. Talbot ... 496,071
Vehicle wheel, G. T. Johnson ... 496,226
Vehicle wrench, D. H. Faust ... 496,355
Vehicles, combined toe rail and carpet holder for, P. B. Stone ... 496,016
Velocipede wheel, E. Michelin ... 495,982
Vending machine, H. D. Pursell ... 496,281
Ventilator. See Car ventilator.
Vise, parallel, H. Port ... 496,168
Volt and ampere meter, J. O. Heinze, Jr. ... 496,309
Wagon brake, automatic, McConnell & Carlisle ... 495,993
Wagon, dumping, J. N. Ericsson ... 496,048
Wagon, dumping, S. Lebach ... 496,163
Washing machine, J. L. Davis ... 495,963
Watch cannon pinion, W. B. Learned ... 496,162
Water gate, C. H. Watson ... 496,239
Waterheater for warming buildings, J. T. Robbins ... 496,004
Water motor, J. Bolgiano ... 496,182
Weather strip, window, W. H. Woodard ... 496,333
Welding cast iron, compound for, W. L. Gale ... 496,116
Welding metal, A. J. Moxham ... 495,989
Wells, bailer for oil or artesian, W. Plotts ... 496,323
Wells, enlarging under reamer for oil or artesian, P. H. Mack ... 496,317
Wheel. See Vehicle wheel. Velocipede wheel.
Wheel for single track railways, J. J. Burt ... 496,293
Whisky, making, W. E. Bradley ... 495,956
Windmill, J. F. Reul ... 496,098
Windmill and pump regulator, P. A. Myers ... 495,992
Window screen attachment, J. Laurie ... 496,364
Wire grip, lineman's, C. A. Svensson ... 496,104
Wire, process of and apparatus for tempering or hardening steel, H. E. Procunier ... 496,208
Wood polishing machine, J. L. Perry ... 496,204
Wrench. See Velocipede wrench.
Wrench, H. Cooper ... 496,190
Wrist turning machine, J. B. Peloquin ... 496,094

TRADE MARKS.

Beer, lager, O'Donnell & Duer Bavarian Brewing Company ... 22,867
Beer, lager, Star Brewery ... 22,868
Belting, leather, J. F. & C. G. Warren ... 22,863
Bluing, A. E. Palmer ... 22,889
Boot and shoe dressing, B. F. Brown & Co. ... 22,890
Cigars, Silver State Cigar Company ... 22,364
Coffee, chiccory or a substitute for, Haesaert & Buysse & T. D. Floto ... 22,895
Confectionery, coloring matter for use in, G. Morris ... 22,888
Cotton dress goods, Smith, Hogg & Gardner ... 22,862
Fuller's earth, L. A. Salomon & Bro. ... 22,891
Ketchup, chowchow, pickles, and other preserved fruits and vegetables, sauces, and jellies, H. Wichert ... 22,887
Medicated food for domestic animals, M. E. Savage ... 22,886
Medicinal pills and tablets, Frederick Stearns & Company ... 22,884
Medicinal preparation used as an anti fat and rheumaticide, Walker Pharmacal Company ... 22,878
Medicine for asthma and like affections, R. Schiffmann ... 22,880
Medicine for internal and external use, G. Bamford ... 22,882
Medicine to prevent leanness, E. M. Beals ... 22,881
Metal, antifriction, Hyde Brothers & Co. ... 22,892
Mineral spring water, natural, Stafford Mineral Spring Company ... 22,869
Optical instruments, J. E. Blackmore ... 22,860
Railway iron, switches, frogs, and car wheels and trucks, C. W. Hunt Company ... 22,893
Remedies, blood medicine, laxative compound and plasters, catarrh, E. Steinhauser ... 22,874
Remedies, certain named, F. C. Fowler ... 22,870
Remedies, certain named, Od Chem. Company ... 22,871
Remedies for catarrhal diseases, J. F. Paine ... 22,875
Remedies for throat and lung affections, A. Woolly & Son ... 22,879
Remedies for toothache, headache, neuralgia, and rheumatism, W. A. Davis, Jr. ... 22,877
Remedies produced from the pineapple, proprietary, internal, T. E. Richards ... 22,883
Remedy for certain named diseases, J. K. Neagley ... 22,873
Remedy for internal and external use, and atomizers, McKesson & Robbins ... 22,872
Remedy for neuralgia, rheumatism, and like ailments, Friends Herbal Association ... 22,876
Shoes, ladies' fine, Sharood & Crooks ... 22,861
Sirup, alterative, J. D. Hutchinson ... 22,885
Varnish, Berry Brothers ... 22,894
Watches and parts thereof, American Waltham Watch Company ... 22,859
Whisky, A. Myers ... 22,865
Whisky, wines, champagnes, and liquors, Clover Leaf Wine Co. ... 22,866

DESIGNS.

Bottle, A. P. Moore ... 22,370
Candle cuff, H. Seber ... 22,368
Match safe, L. Berger ... 22,366
Pocketbook, case, or wallet, C. Scheuer ... 22,362
Spoon, G. W. Shiebler ... 22,363
Spoon, C. P. Truesdell ... 22,364
Stove, oil, G. W. Cope ... 22,371
Tea pot, C. Osborne ... 22,369
Vessel, A. Steffin ... 22,367
Watch bridge, G. M. Rouge ... 22,365

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