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your telephone—because the number of subscribers is increasing, and the more people you can reach by telephone, the more valuable it is to you.

Today, there are few things purchased by the family or by a business that give so much useful service at such low price as the telephone.

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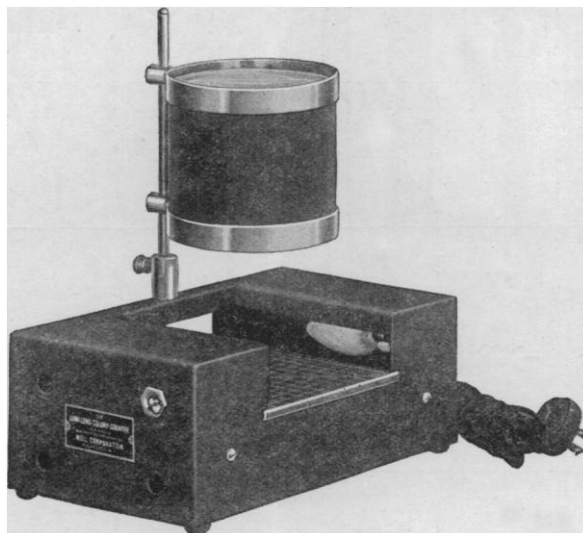
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PATENT APPLIED FOR

A NEW PLATE COLONY COUNTER



THE Lumi-Lens has been designed to meet the need for a Colony Counter that would enable the operator to obtain a correct and uniform count with greater ease, more speed, less eyestrain, and less distortion than with devices now on the market.

It consists of a substantially constructed sheet metal housing finished in black lacquer and measuring 10" in width, 4" in height, and 5½" in depth with a special type of electric lamp on either side of a central examination chamber. These lamps are adjustable and provide uniform oblique illumination without shadows or reflections or interference from outside light. The Petri culture to be counted is placed in the examination chamber on top of a Wolfhugel plate of black, dull-finish Bakelite with silver rulings. Both sides of the chamber are open to permit inserting the plate with one hand and to remove it with the other.

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The hand lens and the usual Colony Counter have been found to possess defects among which are insufficient illumination, insufficient magnification, improper position of light, inability of lens to cover entire plate, inability to count colonies quickly. Also, they are frequently a source of eyestrain.

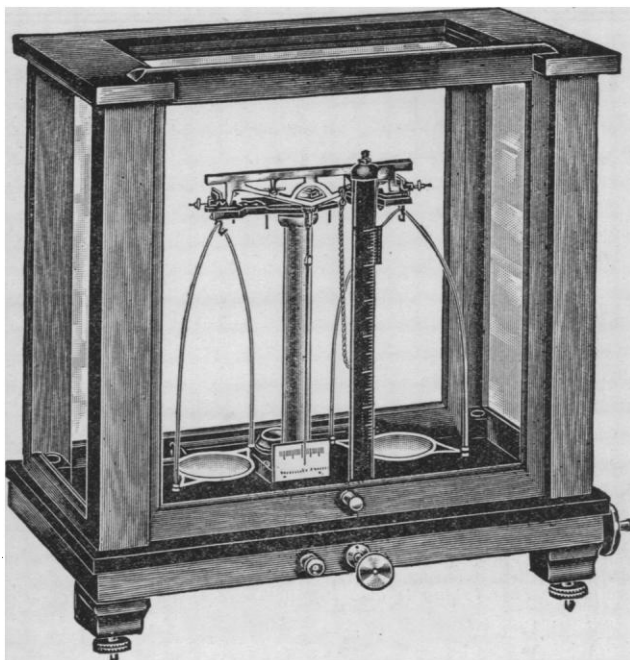
The Lumi-Lens eliminates these conditions and it incorporates the suggestions of prominent bacteriologists, experts in large milk laboratories, and public health authorities.

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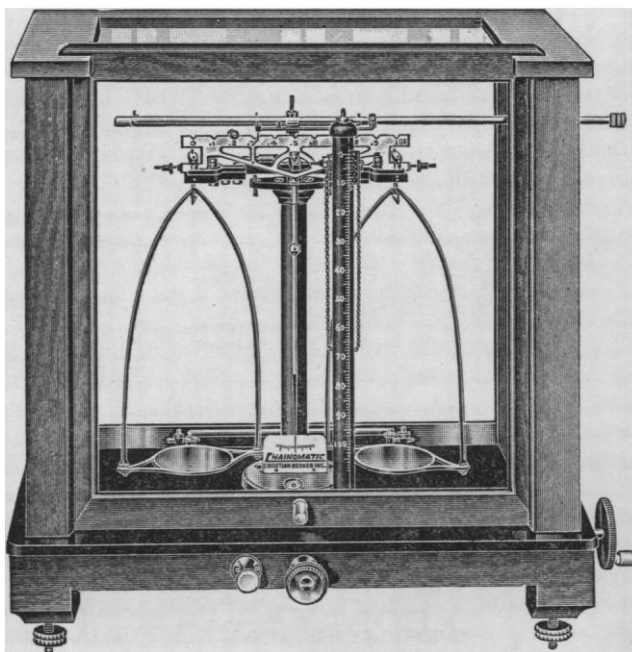
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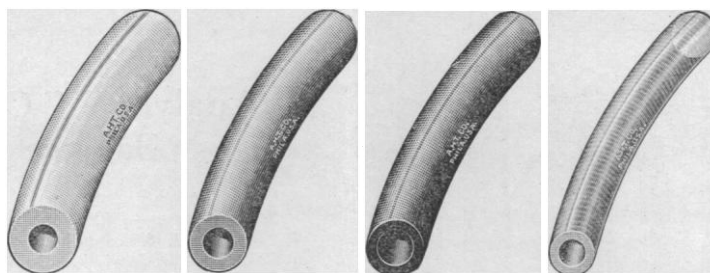
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8840

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8830. Rubber Tubing, White, Thick Wall. A hand made, cloth wrapped, flexible, compounded tubing, guaranteed not to split and of great endurance when exposed to laboratory fumes. Size $\frac{1}{4} \times \frac{1}{8}$ inch is standard for Bunsen burner connections. *This tubing is also supplied under our No. 8831 with thinner wall and at lower prices.*

Bore, inches	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Wall, inches	$\frac{3}{32}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{2}$
Approx. number of feet per pound	32	22	12	10.8	10	9	7	5.8	4.3
Per foot	.10	.11	.13	.18	.20	.25	.30	.35	.40
Code Word	Oapsl	Oaqav	Oagif	Oaqos	Oaqsk	Oaqve	Oarbs	Oarem	Oarie

20% discount in carton containing 10 ft.; 25% discount in carton containing 50 ft.

8832. Rubber Tubing, Red, Medium Wall. A hand made, cloth wrapped, very flexible, compounded tubing of great resiliency and unusual endurance; contains a higher percentage of pure rubber than No. 8830 and shows only traces of free sulphur. It is not claimed to be more durable than the white tubing under all conditions, but, because of the high percentage of pure rubber and lower sulphur content, it is more satisfactory for some purposes. Size $\frac{1}{4} \times \frac{3}{32}$ -inch is offered for Bunsen burner connections.

Bore, inches	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Wall, inches	$\frac{5}{64}$	$\frac{3}{32}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Approx. number of feet per pound	33	20	17	13	9	8	6.5
Per foot	.10	.12	.14	.20	.30	.35	.45
Code Word	Oatfi	Oatas	Oatco	Oatek	Oathe	Oatie	Oatja

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8834. Rubber Tubing, F. S. Pure Gum, Thick Wall. A seamless, black, hand-wrapped cloth impression tubing made of the finest grade of pure rubber and sulphur. Steam cured and, therefore, with a slight bloom before use. This tubing will last longer in the laboratory than acid cured tubing and is recommended for all work where the use of a pure gum tubing is indicated and where a slight sulphur content does not interfere with determinations.

Bore, inches	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Wall, inches	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{5}{64}$	$\frac{3}{64}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
Approx. number of feet per pound	54	51	35	28	18	16.5	11.5	8	7
Per foot	.10	.10	.12	.14	.18	.20	.25	.35	.40
Code Word	Oatpn	Oatpf	Oaunc	Oaufh	Oauks	Oaung	Oausg	Oauvy	Oauvo

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8840. Rubber Tubing, A. C. Pure Gum. Of absolutely pure transparent gum, without the addition of coloring material or ingredients of any kind. Vulcanized, i.e., cured with acid and, therefore, absolutely free from sulphur. Recommended as the best tubing obtainable for the many purposes for which an absolutely pure, sulphur-free gum stock is required. For some operations where observation of the column as to the presence of air bubbles is important, transparent tubing is particularly valuable. However, because of the purity of the stock, it is not as durable as the compounded tubings.

Bore, mm	3	4	5	6	8
Wall, mm	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	2
Approx. number of feet per pound	64	42	35	30	22
Per foot	.10	.13	.14	.16	.20
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By DR. HARLOW SHAPLEY

DIRECTOR OF THE HARVARD OBSERVATORY

THE work carried on at the Harvard Observatory for the past ten years has included the systematic survey of various parts of the stellar universe. Recently we have been able to inaugurate active studies in the whole range from the nearest stars to the groups of galaxies at distances of the order of a hundred million light years. For convenience of operation and discussion the program of exploration and measurement has been divided into eight major sections, each concerned with a separate territory and employing in general a special method and equipment. Ten photographic telescopes and approximately thirty observers and investigators are involved in the program. In the following paragraphs I shall outline briefly the progress in the eight territories, of which five lie within the galactic system and three in the extragalactic universe.

(1) THE SOLAR NEIGHBORHOOD

A large majority of the stars within fifty light years of the sun are of less than solar luminosity, and most of them are below naked-eye visibility. Thus a recent compilation of those stars known to be nearer than sixteen light years shows but 40 per cent. brighter than the sixth magnitude. The exploration of the solar neighborhood is therefore a search for dwarf stars among telescopic objects.

It is important to have as complete a census as possible of the solar neighborhood—the most useful sample we have of a volume of space. A thoroughly observed frequency distribution of stellar luminosities and a knowledge of the density-in-space laws for the stars within fifty light years of the sun are fundamental in the analysis of stellar development and the structure of stellar systems.

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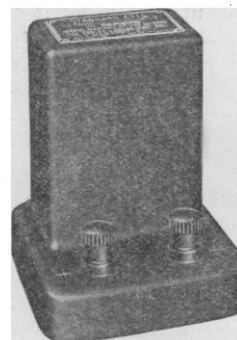
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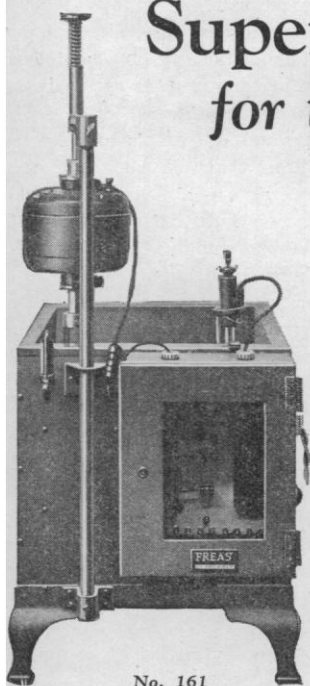
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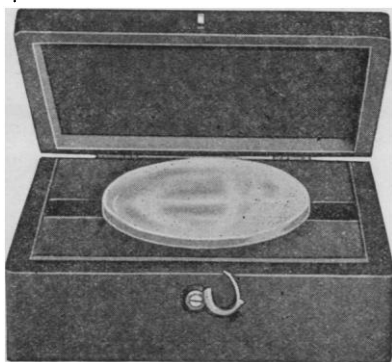
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