

are able, earnest and fair. They can compare very favorably with the best of all other countries. Their honesty of purpose and conduct has never been questioned by anybody except by people who instead of investigating the subject, merely limited themselves to sneering at them.

In late years one single case has transpired of a subordinate assistant examiner who seems to have tried to get appointed to the patent office staff with the very purpose of committing a dishonest act, hoodwinking the vigilance of the chief of his department. That such abuses have not occurred oftener is a real wonder when we take into consideration that the corps of examiners are an underpaid, ill-recognized, unrewarded set of fine men. Their devotion to their work with no hope of reward beyond a meagre salary is a fine example of good citizenship.

I know of many a time when views contrary to these were expressed by some impatient inventors who happened to believe that everybody in the world and especially patent examiners ought to be as thoroughly acquainted with their inventions as they themselves were. To such of my misguided friends, I must recall the fact that the patent examiner here in the United States or any other country is a man at whom are flung every day new ideas widely different in scope, in direction and in details. Many of these ideas are undigested or unclearly expressed. Other ones are the result of months and years of mature and deliberate specialization and it is hardly to be expected that a man, however open-minded he may be, should at the first glance be able to penetrate the subject as deeply as the intelligent, specialized inventor. The standpoint the examiner takes in a case where things are not very clear is that of a representative of the average uninitiated public whose interest he has to protect as well as that of the inventor. His attitude is best summed up in slang: "I am from Missouri," and it becomes the task of the inventor of "showing" and "showing why."

In several of my experiences with the patent examiners here and abroad, I have felt very thankful for the objections which were made to my texts and to my claims because I was shown either that I was not sufficiently explicit or concise, and by making the required amendments, I avoided much future trouble in the eventuality of an infringement. It may be a consolation to the United States patent examiners to know that their colleagues of other countries, for instance England, Germany and Austria, are criticized just as much by some dissatisfied and narrow-minded inventors, although their attitude is just as fair, unbiased and open-minded.

Summing up, I could hardly suggest an improvement in the United States Patent law without curtailing the privileges and interests of the poor inventor.

If I venture to make one suggestion, it would be to propose an act of reciprocity, which would consist in exacting compulsory working of all patents taken here by non-citizens of the United States and whose countries have patent laws with a clause for compulsory working which means great hardship for the American inventors who take out patents abroad.

On the other hand, it is very unfortunate that although the laws for filing and registering a patent in the United States are almost all that can be desired, I must lift my voice of protest when it comes to testing the rights of the in-

ventor before the courts. Here the poor inventor is entirely at the mercy of a legalized system of piracy as carried out by infringers helped by all the tricks of lawyers, and let me say to the shame of our own profession, helped very often by experts who will back the lawyer to confuse an issue before a judge who most of the time is already incompetent on account of lack of theoretical or practical knowledge in the art. This game is so successfully played, that I know of rich companies here in the United States whose main method of procedure is to frighten, bulldoze and ruin financially the unfortunate inventor who happens to have a patent which he is not willing to concede to them on their own terms; that is to say, for next to nothing.

I could cite you several examples of prosperous companies where the money paid in salaries for the technical or scientific staff and for royalties is a mere bagatelle if compared to the fortunes paid annually to their lawyers who happen to look after their patent litigations.

Thus has it come about that an otherwise liberal patent law intended for the protection of the poor inventor has become a drastic method for building up powerful privileges in the interest of big capitalistic combinations.

The sooner we have a special and adequate patent court to which all patent litigation can be referred and which can operate without the absurd delays and abominable expenses now involved in patent suits, the sooner will cease this arrogant frustration of the generous efforts of those who framed our patent laws.

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## NOTES.

### PHOSPHORUS FOR THE HEMPEL PIPETTE.

The method of preparing sticks of phosphorus for use in the Hempel pipette for the determination of oxygen, as usually described, does not take advantage of a little device which suggested itself to me some years ago and which I find exceedingly satisfactory.

I proceed as usual until the liquid phosphorus is expected to solidify in the glass tube. Phosphorus is very prone to undercooling and it often requires considerable patience to await its solidification. When, however, the liquid phase is brought into contact with the solid phase equilibrium is promptly established and the column of liquid phosphorus solidifies the very instant the temperature of the normal point of solidification is reached. Contact can readily be insured because the liquid phosphorus usually protrudes slightly from the end of the glass tube and if a piece of solid phosphorus is suspended by a wire in the cooling bath one can easily bring solid and liquid together while the latter is cooling.

It will be found that this little device not only simplifies and expedites the whole operation but insures greater uniformity and far greater yield of perfect sticks.

H. AUGUST HUNICKE.

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### MITCHELL-WALKER MOISTURE TEST.

During the past year we made investigations in rapid moisture determinations in dairy products. We personally examined a number of the tests on the market and consulted the reports of other chemists on the other tests in vogue.

The beaker test, consisting of weighing into a cup a quantity of butter, heating till foaming ceases and re-weighing, we considered a good test but open to inaccuracies when used by the ordinary creamery man. Some of its disadvantages are, the necessity of weighing very accurately, thus involving a sensitive and comparatively expensive balance; uncertainty as to the right moment to stop the heating, and to re-weigh the dehydrated butter; necessity of calculating the percentage of water from the weights.

Gray's Test involves a fragile glass contrivance and gave results from 0.5 to 1.0 per cent. too low. The test is also rather expensive to operate. The "improved" Gray's Test proved to be still more fragile and awkward to clean, but gave more accurate results due to a modification in the scale.

Other tests presented undesirable features in one form or another.

We devised a test, attempting to conform to the following requisities:

1. A rapid and reasonably accurate method.
2. An inexpensive form of apparatus both to purchase and to use.
3. A durable form of apparatus and one easy to clean.
4. A method that requires no great amount of attention or care in operating, and that can thus be used by the average factory man.
5. An apparatus that can, if damaged, be easily repaired at small cost.
6. A method equally suitable for testing butter, curd and cheese.

Our apparatus consists of a thin, copper still attached by a friction joint to an upright brass condenser fitted with a block-tin inner tube. A glass receiver reading directly in percentages and with a stop-cock near its lower end, hangs from the lower end of the condenser. This apparatus is supported on an upright brass rod to which is also attached an adjustable copper spirit lamp.

In making a moisture determination in butter, ten grams of the sample are weighed into the copper still counterpoised on a small balance. Ten cc. amyl acetate are added. The still is then connected with the condenser and heat applied by the adjustable lamp till water and amyl acetate cease to drop from the lower end of the condenser. The graduated receiver is then removed and the percentage of water read off directly at the line of demarcation between the lower layer of water and the upper layer of amyl acetate. In testing curd and cheese, five grams are used instead of ten, and the percentage read off on the scale opposite the butter scale.

For the sake of economy the amyl acetate is collected and dehydrated in the still and used over again.

The average cost per test is less than half a cent. The time required for a test, including the weighing of the sample, is about ten minutes.

The test serves also for moisture determinations in such substances as oils, fats, wood pulp, bread, flour, etc.

The results obtained by this apparatus seldom vary from the gravimetric results more than two-tenths of a per cent., and usually not more than one-tenth. The apparatus is simple in all its parts, and practically indestructible, since it is made almost entirely of metal.

Descriptive bulletins may be obtained upon application to W. O. Walker, Eastern Dairy School, Kingston, Ontario, Canada.

J. W. MITCHELL,  
W. O. WALKER.

### A CONVENIENT FUNNEL FOR INTRODUCING DRY REAGENTS OF POWDERS INTO BOTTLES AND FLASKS WITHOUT LOSS OF SUBSTANCE.

In order to avoid loss of small amounts of such finely powdered materials as flour, etc., when introducing them into bottles and flasks, after weighing on the balance, it has been found very convenient to make cones or stemless funnels from celluloid film. The celluloid film required should be transparent and about the thickness of a calling card. It can be obtained from dealers in art goods. A paper cone is first made of the proper size and then the celluloid is cut, using the paper as a pattern. The lap-joint along the side can be made perfectly tight and smooth by applying the proper amount of acetone to effect a softening or partial solution of the celluloid.

CHARLES H. BRIGGS.

THE HOWARD WHEAT & FLOUR TESTING LABORATORY,  
Minneapolis, Minn., Jan. 7, 1909.

### TILLANDSIA USNEOIDES.

*Tillandsia usneoides*, called Spanish moss, Florida moss, New Orleans moss, long moss and black moss, is very common in Louisiana. It is an epiphyte and grows on both dead and live trees. It can be found growing on trees that have been dead for years. On trees having a dense foliage it does not grow so well, as sunlight is one of its requirements for existence.

Many people claim that it kills the trees and they regard it as a parasite. Billings' says that Spanish moss does not injure the trees on which it grows and he has demonstrated that it depends wholly upon air, sunlight and rain for its life.

In the winter when the pastures are poor, farmers often chop down trees and allow the cattle to feed on the moss. In order to ascertain the feeding value and the composition of this plant the following analysis was made:

#### COMPOSITION OF TILLANDSIA USNEOIDES (SPANISH MOSS).

Complete analysis.	
Water.....	69.500
Volatile matter.....	28.905
Silicon dioxide (SiO <sub>2</sub> ).....	0.590
Iron and alumina oxides (Fe <sub>2</sub> O <sub>3</sub> and Al <sub>2</sub> O <sub>3</sub> ).....	0.286
Phosphoric acid (P <sub>2</sub> O <sub>5</sub> ).....	0.032
Calcium oxide (CaO).....	0.058
Sulphur trioxide (SO <sub>3</sub> ).....	0.184
Potassium oxide (K <sub>2</sub> O).....	0.313
Sodium oxide (Na <sub>2</sub> O).....	0.581
Total.....	100.449

Feed constituents.		Water-
Natural state.		free bases.
Protein.....	3.68	12.07
Ether extract.....	1.06	3.47
Carbohydrates.....	15.95	52.29
Fiber.....	8.24	27.02
Water.....	69.50	..
Ash.....	1.57	5.15
Total.....	100.00	100.00

<sup>1</sup> *Botanical Gazette*, 38, 99-121.