Bank Clerks.

The Boston *Commercial Bulletin* says that the bank clerks of Boston are as capable, industrious, and faithful a set of bank officers as can be found in any city in the world. But after all, it states, the place to find an extensive army of well trained bank clerks is in the Bank of England. This institution, with its capital of ninety millions of dollars and dating back to 1694, today employs 900 clerks. The building in which these clerks do their work covers five acres of ground. It has not a single window upon the street, the light of day being admitted only through open courts. It has a clock in the center of the bank with fifty dials. The Bank of England is situated in the center of London; but it has one branch at the west end of the city, and many branches in the provinces. Though the Bank of England employs a very heavy force of clerks, it would seem, from a glance at its business, that it ought to keep them well employed and fairly remunerate them. Its sole work in its issue department is to give out notes to the public. The profit the bank derives from its issue department is the interest received upon the $70,000,000 government debt and securities, which, at the rate of 3 per cent, is $2,100,000 a year. By its dealing in coin and bullion, it has the reputation of making $150,000 a year. The amount of Bank of England notes afloat generally averages about $100,000,000, and has lately reached $165,000,000. The deposits in the Bank of England, out of which it of course makes a great deal of money, range from $60,000,000 to nearly twice that sum.

The Adulteration of Oils.

We subjoin some extracts from the "Report on Adulterations and Sophistications" presented to the American Pharmaceutical Association at its meeting in Boston, last autumn. Three signatures were attached to the report, namely, Adolph W. Miller, chairman, James R. Mercein, and M. L. M. Peixotto; but Mr. Mercein stated that the whole of the work had been performed by the chairman.

Oil of almonds. We are informed on most excellent authority that the so-called French oils of almond, both fixed and essential, are obtained exclusively from peach kernels.

Oil of bergamot. We were shown a highly complex formula, said to be used by the manipulators in Germany for skillfully reducing this oil. Almost three fourths of the compound consisted of the oils of orange, copaiba, lemon, a little neroli, and several others. We were informed that large quantities of this sophisticated oil are disposed of in Europe.

Oil of Ceylon cinnamon. Albert P. Brown found this oil to be adulterated with sassafras and cloves. The oil of the leaves of the Ceylon cinnamon is also frequently sold in place of the true oil of the bark. The former is a brown, viscid, essential oil of clove-like odor; it is sometimes called heavy oil of Ceylon cinnamon.

Oil of erigeron. A specimen of this oil was sent to the writer by Mr. Joseph L. Lemberger, which was so largely adulterated that the true odor was entirely overpowered by that of turpentine.

Oil of juniper berries was offered to the writer by a highly respectable firm of wholesale liquor dealers, who, in their desire to have a really pure and superior article, had themselves imported it direct from Holland, having ordered the very best that was obtainable. As a very much greater quantity had been sent than their order called for, they were anxious to dispose of a portion of it. The gentlemen were so very sure about the absolute purity of their oil, for which they had paid a liberal price, that they were loath to believe their own eyes when, after agitation with an equal quantity of water, only 20 per cent of their so-called oil was left, the remainder being alcohol.

Oil of lemon, put up in original cans and genuine imported cases, branded "E. B. Co.," was found by the writer to contained 25 per cent alcohol. There is every probability that both seals were counterfeit, as the letters composing them were slightly different from those found on the top of genuine cans from Brehmer & Sanderson. The metal on which the seals had been impressed also presented a dull and tarnished appearance, while it is usually perfectly bright and clean.

Oil of melissa. The oil of lemon grass, obtained in the East from *andropogon citratus*, is very frequently substituted for the true oil of melissa, which is distilled in Germany from *melissa officinalis*.

Oil of origanum rarely reaches this country. A few pounds imported by the writer cost about $5 per pound. The so-called commercial oil of origanum is obtained in France from *thymus vulgaris*. The original packages are even distinctly marked *essence de thym rouge*. As has been already stated, this oil is very frequently mixed with turpentine in large proportion. Its chief consumption is among the manufacturers of patent liniments, who are totally indifferent as to quality, if they only obtain an original package.

Oil of peppermint was met with also largely with castor oil and alcohol. Twenty-six lbs. of this adulterated oil yielded, when distilled by the writer, 8½ lbs., of pure oil, about a gallon of castor oil remaining in the still. The proportion of alcohol, which had been present, is represented in the loss.

Oil of rose geranium is now so frequently substituted by the ginger grass or palma rosa oil, obtained from *andropogon schœnanthus*, that it is somewhat difficult to procure the true oil of *pelargonium odoratissimum* or *radula* in commerce.

Oil of sassafras was purchased by the writer from a party who represented that he had personally distilled it, and it was found on evaporation to leave a residue of 14 per cent of rosin.

Oil of verbena is almost out of the market, being everywhere substituted by the oil of lemon grass, *andropogon citratus*

Oil of wintergreen was offered to the writer by a tall Jersey man, who professed to have distilled every drop of it himself, and who therefore claimed to be able to guarantee its absolute purity: and it proved to contain just two thirds of its volume of alcohol. It is somewhat remarkable that even this large proportion of alcohol could scarcely be recognised by the senses, and that, as far as could be judged by the taste and smell, this was an unusually fine specimen of oil of wintergreen. Several other lots have been met with containing various proportions of oil of sassafras.

Oil of wormseed. Joseph L. Lemberger has favored us with a specimen of the oil, smelling very strongly of rancid turpentine.

Oil of wormwood has been met with, extensively mixed with turpentine

Olive oil is largely substituted by some of the cheaper fixed oils found in this market. Very little of that which is sold by grocers is even imported from Europe. A New York merchant, who is extensivelv engaged in bottling this article in imitation of the imported style, informed us that for the cheapest grade he is in the habit of putting up refined cotton seed oil, and for a somewhat better brand the oil of benne. The expressed oil of mustard, a by-product in the manufacture of table mustard, is also applied to the same purpose. Our French friend, whom we have before alluded to, also kindly informed us that in his country the ground nut oil (*arachis hypogœa*) is used to an enormous extent for admixture with olive oil, so that but very little of the latter is exported strictly pure.—*Chemist and Druggist.*

Microscopic Detection--Wool and Hair.

The *American Naturalist* furnishes some interesting facts on this subject. The United States Treasury Department has admitted calf hair goods free from the duties levied on those composed in part of wool; and evidence having been furnished that some fabrics, claimed as made of hair, contained more or less wool, a commission was appointed, in which Dr. J. G. Hunt, the well known microscopist, was associated, for the examination of these fabrics. The possibility of distinguishing in manufactured mixture the hair of the cow and calf and that of the sheep has been denied by some microscopists, especially as these fabrics vary on different parts of the same animal. The commission has, however, been able to classify and distinguish them. Wooly hairs have no pith, and no perceptible taper. Their mean diameter varies from a five-hundredth to the thousandth part of an inch. At irregular intervals they have one-sided spiral thickenings, causing the wool to curl. They occur on sheep, camels, goats, and llamas; and many other animals have a portion of these wooly hairs. On the other hand, straight hairs are shorter, thicker at base, and tapering. The pith is a large part. The scales on the outside, of which there are twenty to forty in a hundredth part of an inch, lie smoothly. In wool they project more or less, and are from fifteen to thirty to the hundredth part of an inch. With these and other distinctions before them, the commission found, by first bleaching the colored fibers in mineral acids, and then mounting them in glycerin, and by using high powers, that in a few samples there was no wool; in a larger proportion there was a small quantity; in a very large number of samples there was from five to ten per cent, as well as a much larger proportion; and in one case it was difficult to find five per cent of genuine cow hair.

A BLOCK of iron about 2½ inches long by 1½ inches square, flat at the bottom and drawn out for a handle with a wooden end, like a soldering iron, is an excellent implement for removing old and hard putty from sashes. When hot (not red hot) the iron is placed against and passed slowly over the putty, which becomes softened by the heat and is rendered easily detachable from the wood.

A VERY small quantity of oleic acid dropped upon a sample of gum copal, and but slightly warmed, will dissolve that gum completely.

Recent American and Foreign Patents.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

IMPROVED FREIGHT CAR.

Edward D. Shaffer, Moncton, New Brunswick, Canada.—This invention consists in the arrangement of a vertical partition dividing the car into two parts, also openings in the top and bottom of the car for admitting and discharging grain, and inclined partitions, forming, with said vertical partition, two hoppers for the grain to be transported.

IMPROVEMENT IN GRAIN CAR DOORS.

James M. Duncan, Covington, Ind.—The door is made in two parts, each part being pivoted at its upper and outer corner to one of the door posts, and capable of swinging in a vertical plane. The separating line of the door is an arc described from the pivot of one of the doors, making the edge of one door convex, and that of the other concave. It also consists in a hinged bar for sustaining the door when closed, which rests in recesses in the door posts, and in brackets for supporting the bar and doors when opened. The advantages claimed are that the door closes tightly, that it avoids the necessity of nailing the doors when loading, and also makes them lighter.

IMPROVED DRAIN TRAP AND VENTILATING COWL.

Edward G. Banner, London, Eng.—The first device is a balanced lever trap for preventing inflow of noxious gases from drains through the pipes leading from water closets in dwelling houses. The construction is such that the greater the pressure of the returning sewage against the trap, the more tightly is the trap closed, so that no flood water, sewage, or sewage gas can be forced past it. The same inventor has also contrived a new ventilating cowl. In order to withdraw a current of air from soil pipes etc., the shaft is carried up from the soil pipe; and upon the top of the shaft is mounted a revolving cowl, provided with a valve of peculiar construction, for preventing any down draft.

IMPROVED MACHINE FOR SAWING STAVES.

George W. Richardson, Arlington, Ky., assignor to himself and W. T. Davis, same place.—This consists of a stationary circular track, around which the saw runs. The saw is turned by a friction pulley, opposite to which is a friction roller, in a notch of the track, which presses the saw against the driving pulley. The table for the work is arranged at another notch in said track, for the passage of the staves and other objects sawn off.

IMPROVED SHINGLING BRACKET.

David M. Moore, Windsor, Vt., assignor to himself and James H. Cook, same place.—This is an adjustable bracket for staging, elevated seats, or other purposes; and consists of pivoted braces with prongs or teeth at the lower ends, and connected by pivot rods, that may be adjusted to greater or less width of the bracket by suitable bolts.

NEW AGRICULTURAL INVENTIONS.

IMPROVED CULTIVATOR.

Charles R. Hartman, Allison, Ill.—This cultivator may be used for cultivating tall plants, will not be broken by the plows striking an obstruction, and will not be turned to one or the other side by one or the other horse getting a little in advance.

IMPROVED FENCE.

William Stacy, Cottage, Iowa.—This fence is portable and yet not liable to be blown down or pushed over. Each panel is formed of two or more horizontal boards, having a cross bar attached to each end, and a cross bar attached to their middle parts. To one end of each panel is secured an arm, which projects to enter the end of the adjacent panel, where it is secured in place by a pin. The fence is held erect by a brace formed of two inclined bars, which cross each other near their upper ends, and the lower parts of which are connected by a cross bar. The lower parts of the panels are kept in place by a key.

IMPROVED COTTON SEED DRILL.

Henry Steckler, Jr., New Iberia, assignor to himself and Richard Frotscher, New Orleans, La.—This consists of a dropping wheel that is provided with a series of holes at some distance from its periphery. Through a perforated rim, V-shaped wires are passed, that serve to stir up the seed in connection with radial side stirrers, dropping the same on an oscillating fork, pivoted below the opening of the seed receptacle, to be conducted by the funnel-shaped opener or plow to the ground.

IMPROVED HARVESTER DROPPER.

William H. Akens, Pennline, Pa.—This is an improved device for delivering the cut grain from the platform of a reaper, and in neat gavels at the side of the reaper, and out of its way in making the next round.

IMPROVED PLOW.

Adam Schuetz, Carondelet, Mo.—This is an improved plow for forming ridges for planting sweet potatoes, and which may be easily adjusted to adapt it for any of the uses of an ordinary plow.

NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED COTTON PRESS.

James H. Davis and William White, Winnsborough, Tex.—This consists of a contrivance for driving the screw, which works the follower by a worm when doing the work, and a toothed wheel when returning the follower: also, of a removable case which receives the pressed bale and carries it away on a truck to be tied, while another box takes its place to receive the next bale.

IMPROVED WRENCH.

Andrew M. Mortimer, Salt Lake City, Utah Ter.—The stationary jaw is attached to a shank. A movable jaw slides upon the shank, and to it is rigidly attached a bar, in such a position as to be opposite the edge of the said shank. Upon the adjacent edges of the shank and bar are formed ratchet teeth, which engage with each other to hold the movable jaw in place while the wrench is being used. To the bar is attached a loop, through which the shank passes, and through the bend of which passes a set screw, which rests against the spring. When the wrench is being used, the strain upon the jaws holds the teeth of a bar in gear with the teeth of the shank, a spring keeping the movable jaw from getting out of place while shifting the wrench upon the work.

NEW MISCELLANEOUS INVENTIONS.

IMPROVED HOSE SPANNER.

John E. Taber, Fall River, Mass.—In this spanner, the end that embraces the hose coupling is enlarged and provided with a groove that is of sufficient width to take in a lug pin, and of sufficient length at each side of the handle to insure a good bearing on the surface of the coupling, so that the spanner draws laterally on the lug pin when applied. Apertures are cut in the sides of the groove thus formed for permitting the escape of snow or mud.

IMPROVED PAINT BRUSH BINDER.

Lewis Tanney, Beaver Falls, Pa.—This is a metallic binder for paint brushes, formed of two semi-cylindrical plates, having semicircular disks attached to their upper ends, and having eyes formed upon their side edges. The cross plate has eyes formed in its end edges, and there are suitable fastening wires.

IMPROVED ELECTRO-MAGNETIC LOCK.

Hilborne L. Roosevelt, New York city.—This relates to an improved electric lock for office doors and other purposes; and it consists in the armature of an electro-magnet that retains a swinging arm with two sliding and spring-acted bolts, of which one is withdrawn for opening the door, when the arm is released, by the attraction of the armature, and by the action of the spring of the second bolt, which is actuated and set by the closing of the door, ready for throwing open the first bolt on the action of the magnet.

NEW HOUSEHOLD INVENTIONS.

IMPROVED STOVE PIPE ATTACHMENT.

George H. Hancock, Richmond Factory, Ga.—This consists of a standard secured to the stove, with an adjustable clothes-drying fork or rack, and an adjustable lamp support. The attachment forms a convenient clothes-drying and lamp-supporting device, which may be placed on any stove and set to any position required.

IMPROVED BASIN FAUCET.

Edwin S. Rich, New York city.—The novel features in this invention consist, first, of a flange extension of the interior collar into nozzle of the faucet; and, secondly, of an additional stem valve and seat arranged above the compression valve, so as to close the water passage when the compression valve is removed.