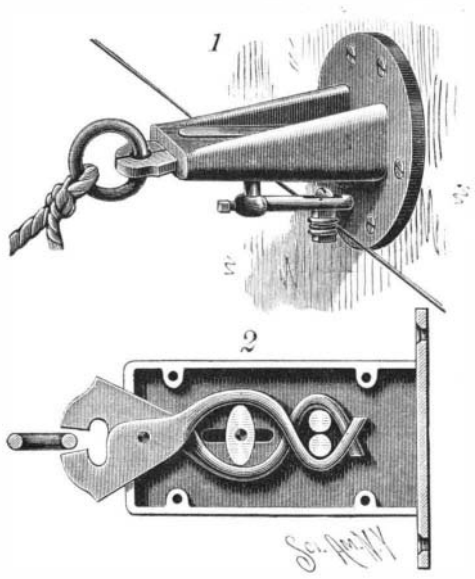
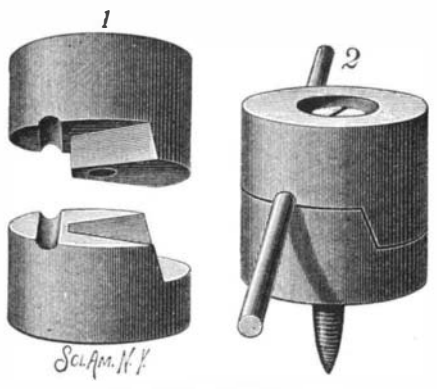
IMPROVED DEVICE FOR DETACHING ANIMALS.

A device by means of which animals may be simultaneously released from their fastenings in stalls in the event of fire, or as may be otherwise desired, without the necessity of the operator entering the several stalls,



KUBATZ'S DEVICE FOR DETACHING ANIMALS.

or even the building, is illustrated herewith, and has been patented by Mr. Ignatz J. Kubatz, of No. 164 East Ninety-seventh Street, New York City. The body of the device consists of a casing, permanently attached by means of a flange to the front of the stall or any suitable support within or adjacent thereto, as shown in Fig. 1. In the top and bottom plates of the casing are longitudinal recesses covered by a cap plate, the cap plate of the lower section sliding longitudinally. A pintle is passed up through an aperture in the sliding plate, and between the top and bottom plates an elliptical cam is rigidly fastened to the pintle, a lever being secured to the lower end of the pintle. Gripping fingers are pivoted near the outer end of the casing by a pin adapted to travel in the slots in the casing, and two stops are arranged side by side near the rear end of the casing, the gripping fingers being so bent upon



BROWN'S INSULATOR.

themselves as to form a central circular section surrounding the cam, as shown in Fig. 2, the forward ends of the fingers being hook-shaped, and the fingers being so pivoted that they are free to move one upon the other to close or open the hook section. When the device has been fixed in the several stalls, a rope, chain, or wire is attached to the several levers operating the pintles to which the elliptical cams are secured, such rope or chain leading to any desired point inside or outside of the barn. The normal position of the lever is parallel with the casing, and the cam is then in position to allow the outer ends of the fingers to be closed to retain the ring of a hitching rope. By pulling the rope, the levers are brought to a right angle to the axis of the casing, and the cam transversely thereto, which forces apart the gripping fingers, dropping the ring therefrom. To attach the animals again, the ring is inserted between the fingers and the lever swung back to its normal position, the striking of the lever upon the flange causing the cam-carrying pintle to travel forward in the casing and close the hooked ends of the gripping fingers upon the ring.

IMPROVED HOOD FOR STOVES OR RANGES.

The illustration herewith represents a device for conveying the steam, smoke, and disagreeable odors arising from a stove or range in cooking or washing to the chimney, thus preventing their spread through the house. It has been patented by Mr. Hermann Neef, of Jefferson City, Mo. A cone-shaped hood is employed large enough to cover a portion of the top plate of the stove, this hood being detachably connected with a telescopic pipe section by means of a bayonet joint. The outer lower edges of the hood have grooves, in each of which is held a removable wing, which may be turned back upon the hood when not in use, and which project downward and outward from the hood when in use, forming an enlargement of the hood, so that nearly the whole top of the stove may be covered thereby. The hood may, if desired, be furnished with wire gauze ventilators, and a damper is provided to cut off the connection between the telescopic pipe sections and the main stove pipe when the fire is being kindled. The hood is counterbalanced and held in any desired position of adjustment by a weight and a wire rope passing over pulleys and down through the pipe sections, the extremity being attached to the inner surface of the lower pipe section, while the pulleys may be attached to the ceiling of the apartment.

AN INSULATOR FOR ELECTRICAL CONDUCTORS.

An improved insulator for receiving electrical conductors and holding them firmly, without the necessity of using binding wires or of twisting them together, is illustrated herewith, and has been patented by Mr. Warren C. Brown, of Tarrytown, N. Y. The insulator consists of two halves, which together form a cylinder with a transverse aperture for receiving the wire, and an axial countersunk hole for receiving the screw supporting the insulator. The halves each have a semicircular groove, which, when the two grooves are clamped together, forms the transverse aperture for the wire.

A NOVEL NUT LOCK.

The nut lock is one of the inventions which depends for its commercial value quite as much upon the facility with which it can be manufactured as upon the simplicity of its application and its effectiveness in service. Any device costing much more than a common bolt and nut, together with an ordinary set nut, is likely to fail of general adoption.

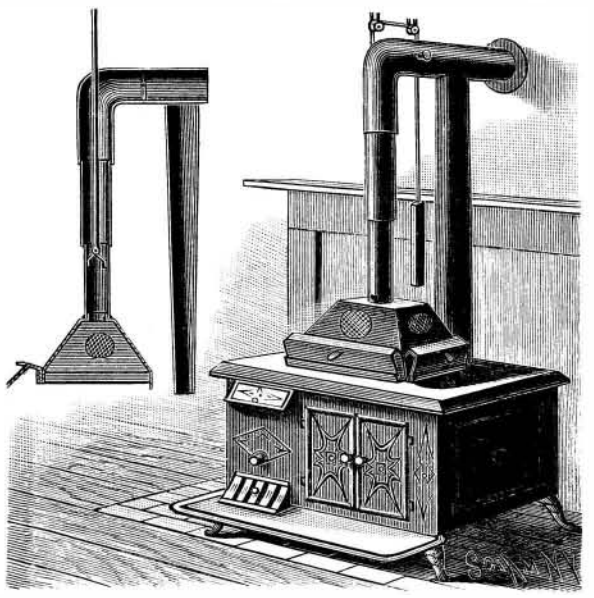
The nut lock invented by Thomas W. Patten, of 517 West Baltimore Street, Baltimore, Md., and which is shown in the annexed engraving, has the important qualification of low cost, as well as the advantage of being as readily applied as an ordinary nut and washer. It has also the further advantage of being perfectly secure, while having the same external appearance as an ordinary nut and washer.

The washer, which is placed under the nut as usual, is provided with an eccentric boss which is bored to fit the bolt loosely, and is furnished on its inner periphery with transverse teeth or notches extending from the thinnest to the thickest part of the boss. The nut is provided with an eccentric recess for receiving the eccentric boss of the washer, and the outer circumference of the recess is provided with transverse serrations for engaging the boss.

When the nut is turned upon the bolt, the friction of the washer upon its bearing causes the washer to remain stationary, while the further turning of the nut clamps the washer to its seat, and by engagement with the eccentric boss moves the washer edgewise, so as to bring its teeth into engagement with the threads of the bolt and cause them to cut into the threads transversely, thereby giving the washer a firm hold on the bolt. The teeth of the nut by engagement with the boss of the washer prevent any back motion of the nut.

AN IMPROVED ROTARY HARROW.

The accompanying illustration represents a self-cleaning harrow, each section of which revolves upon its own axis to clean itself of rubbish as it moves along, while each set of harrow teeth is free to conform to any irregularity there may be in the ground. This invention has been patented by Mr. Asa C. Brown, of Eugene City, Oregon. The harrow teeth are supported by truss wheels, bolts passing through apertures in the head of the teeth, as indicated in two of the small figures, and the construction admitting of the employment of several sets of teeth in each wheel. A central sectional view of one of these truss wheels, in connection with a portion of the harrow frame, is shown in the illustration, each wheel being mounted to turn freely on a gudgeon held within a block, and this block being mounted to tilt within a box forming part of the main frame. Just above the rear of each of the wheels there is mounted an anti-friction wheel or roll, each roll being firmly supported by the main frame, by which the gudgeons are relieved of undue

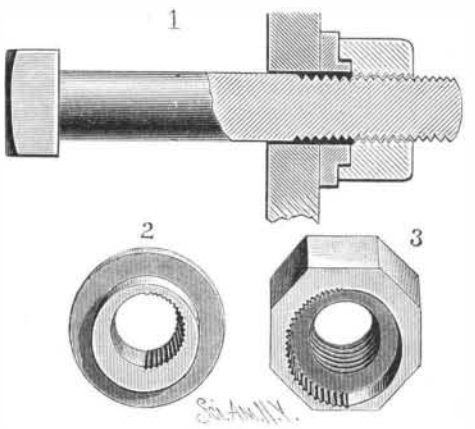


NEEF'S STOVE HOOD.

strain. With such a harrow each wheel is free to revolve independently of the other wheels, and each wheel is free to tilt so that the harrow teeth will conform to any irregularities in the ground at right angles to the line of draught. A small pair of wheels with seat for a driver may be attached if desired.

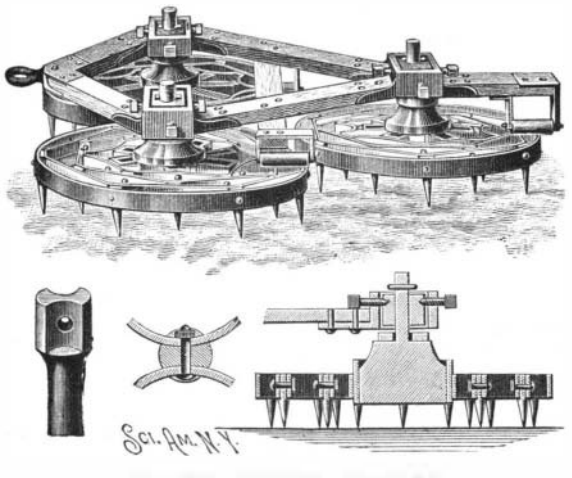
AN IMPROVED PLANT NEST.

The illustration herewith represents a simply made nest for facilitating the handling of large numbers of plants, taking the place of earthen pots, giving each one separate soil and drainage, and facilitating transplanting without disturbing the soil and roots. It has been patented by Mr. Louis Vaughan, of Blair, Neb. These nests may be made by boring nearly through a

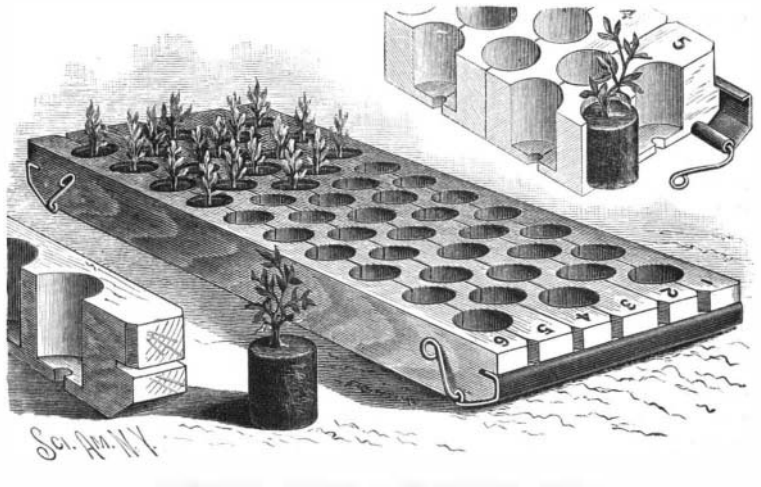


PATTEN'S NOVEL NUT LOCK.

plank to form cavities large enough for the pots or cells, leaving enough wood to form bottoms, in which small perforations are made for drainage. Sections are then made by slitting the plank perpendicularly through each row of cells, chamfers being cut from the top down, on the line of each slit, to a rectangular groove running across the ends of the nest or plank. Semicircular grooves are also made across the bottom of the plank near each end, each of these grooves, with the one running across each end, receiving a piece of sheet metal to form a guide and foot, through which a piece of spring wire is passed lengthwise, the ends thereof being curved to form clamps holding the sections together. The elasticity of these spring clamps permits the sections to swell and shrink without injury to the nests, and the bend or foot of the sheet metal piece holds up the sections from the table or shelf on which they may stand, to allow for free drainage and circulation of air.



BROWN'S ROTARY HARROW.



VAUGHAN'S PLANT PROPAGATING NEST.

Clear Off the Barnacles.

The following, from the *American Artisan*, to business men is worthy of the consideration of a good many manufacturers and merchants who are complaining of the stagnation of trade in their respective lines:

Whatever your business, whether mercantile or manufacturing, if you are not progressing, you are at a standstill or receding. This should not be in these times of competition and hustle. Either you are in the rut of old fogyism, in the wrong line or position, or you are indifferent to business success. Possibly, like an old ship, you have attracted barnacles by inactivity, or your energy has become stagnated like the inactive pool, or keener and more go-ahead rivals have depressed you, and, thus shorn of your old time powers, you have contracted the not-up-with-the-times fever and are going to the wall. Now, whatever is the matter, you should either stop business or overhaul the ship, for, as a writer aptly says, "Old ships lying at anchor may have the appearance of soundness and the outward evidence of strength, usefulness, and sea-going qualities, but when carefully examined for a sea voyage are often found to be covered with barnacles and to be affected with dry rot. When such a vessel, no matter what good it has done or what use it has been in the traffic and carrying trade, is condemned, it is at once replaced by a new or more modern one that is in perfect order and fully seaworthy. What is true of vessels is often true of men also, and especially of merchants in trade who have been anchored too long in old-time ways and methods of doing business, and, consequently, do not keep up with the progress and spirit of the age."

Progress of Electric Installations in London.

In electrical engineering, or the practical application of the science to the larger classes of work, the United States have usually been considered in advance of England. The electric light has hitherto been used here with a profusion unknown abroad, and electric railways are multiplying so rapidly that it is impossible to keep a reliable census of their number. But recently the English engineers seem to have taken a lesson from our experience, and in London some very important developments are in progress. One of these is the introduction of alternating current lighting from central stations.

The House to House Electric Supply Company have just completed a station at West Brompton, using the Lowrie-Hall system of alternating current supply. Babcock & Wilcox boilers supplied by Worthington pumps are used for generating steam for three compound engines of 250 horse power. These drive the dynamos by rope belts, seven 1½ inch endless ropes being used for each dynamo. The ropes run in as many grooves turned in the flywheel rim of the engine and face of the driving pulley of the dynamo. Each dynamo can give an output of 100,000 watts at 2,000 volts potential, with 10,000 alternations per second. The lighting circuit is carried underground. The leads are inclosed in iron pipes 3, 4, and 5 inches in diameter, and for one mile distance a loss of two per cent is expected. Transformers are used to reduce the potential, and a very ingenious meter is employed. It consists of a secondary battery in circuit with a decomposition cell and the lamps and connections of the house. The alternating current, when a lamp is lighted, passes through the two cells without any effect, but the secondary battery begins to act on its own account, and as lamp after lamp is thrown into circuit, it acts more strongly, precipitating metal in the decomposition cell. This metal is weighed from time to time as in the Edison meter, and gives the amount of energy used. The other details of the plant show much ingenuity, and indicate a probability that London may yet lead us in central station alternating current lighting. The new station partly occupies a piece of land 470 feet by 60 feet, room being left for extension.

This is not all. The metropolitan company propose, within a short time, to have a station on the Westinghouse plan, for 25,000 lights, in operation in Sargent Street. This will bring the leading American alternating current system face to face with the English one, just described as installed at West Brompton.

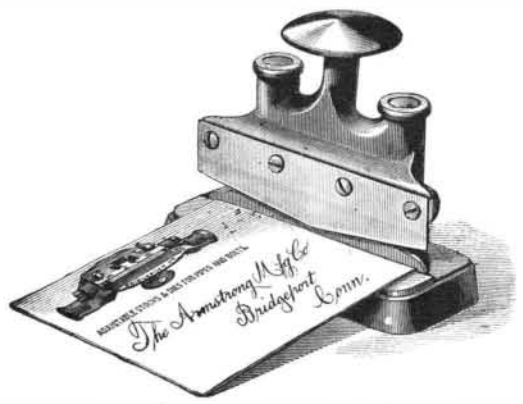
Electric traction is also advancing in London. A new underground railroad crossing under the Thames is in process of construction. It is called the Southwark subway. It consists of two tunnels, of segmental iron plates, 10 feet 6 inches in diameter and three miles long. The cars are to be driven by electricity, the current being taken from overhead conductors of Dr. John Hopkinson's system. The generating plant of over 1,000 mechanical H. P. is placed at one end of the line, and three large Edison-Hopkinson dynamos are to be used as generators. Fourteen locomotives, each of 100 H. P., are to be used, each capable of taking a train with 100 passengers at 25 miles an hour. As there are six stations, powerful engines are needed to start the trains quickly. It is proposed to give but three minutes' headway.

Finally the principal underground line, the Metropolitan Railway Company, are about to try storage battery locomotives, with a view to ultimately adopt electricity in place of steam. The use of accumulators is to be experimental only, the ultimate end being the adoption of a continuous conductor system. One trouble has been with the brake question, and the *Electrical Engineer* alludes to the Widdifield & Bowman electric brake, recently described by us, as being of interest in this connection.

For underground railroads, the conductor system of supplying current is peculiarly available, because the wire will never be coated with ice. The electric engine seems the perfect solution also of the ventilation question, that has given so much trouble in the London underground lines.

ARMSTRONG'S ENVELOPE CUTTER.

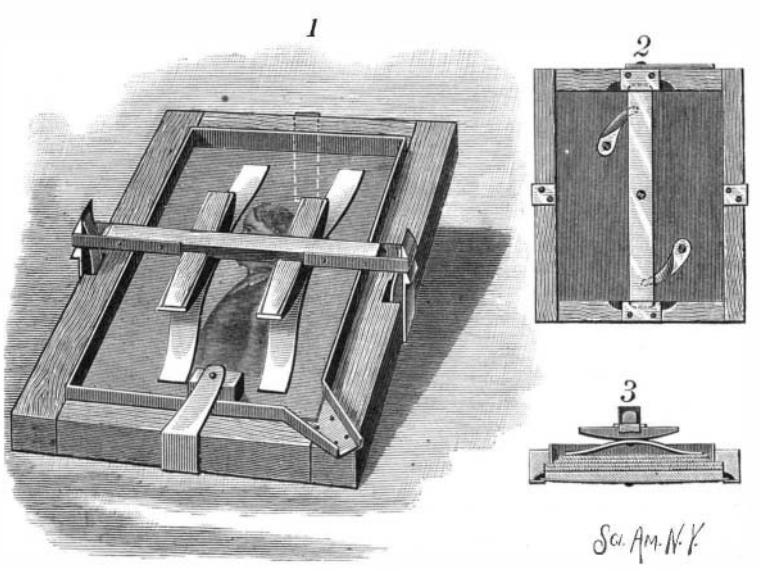
The accompanying illustration shows very clearly the operation of this ingenious envelope cutting machine. With a single stroke the movable knife cuts off the end of the envelope, without any injury to the contents of the envelope, and the springs instantly return the knife to its original position, enabling the operator to open the envelopes as fast as they can be fed to the cutter. The envelopes are opened much more rapidly and perfectly than in the old fashioned way, where mutilation of the contents is of ordinary occurrence. The cutter is handsomely finished and is placed on the market by the Armstrong Mfg. Co., the well known manufacturers of hardware specialties, of Bridgeport, Conn.



ARMSTRONG'S ENVELOPE CUTTER.

AN IMPROVED PHOTOGRAPH PRINTING FRAME.

A transferring and printing frame more particularly designed to be used in producing and transferring picture films to celluloid sheets is illustrated herewith, and has been patented by Mr. Cornelius T. Cain, of Owensboro, Ky. Fig. 1 is a face view of the frame as in use, Fig. 2 being a rear view, and Fig. 3 a vertical longitudinal section. The frame is recessed in its rear to receive the plates and clamping board, and has a ledge arranged as a lining along its inner sides projecting slightly above the front surface to form a trough, having a spout, to facilitate running off the solution used in preparing the celluloid plate or card. The rear clamping board is faced with a sheet of rubber, and has centrally pivoted to its back a turn-buckle spring bar, to hold the celluloid plate firmly in position and to make a close joint with the trough as formed by the ledge. There are also cams which give increased tension to the spring bar, and lock or hold it when engaged with the clips. A spring clamping device is also applied to the front of the frame, and is adjustable up or down to suit different thicknesses of the glass or plates. The frame has at one end a spring pressure device, with soft or rubber bearing block, to hold the transfer in position on the celluloid plate before clamping it down, and at the opposite end is a pivoted leg that may be turned down to hold the frame in an inclined position to keep the solution at the bottom preparatory to putting the glass plate down. The process for which this frame is especially adapted consists in preparing a picture film or transparency by the collodio-chloride or by the ordinary wet collodion process, toning and fixing the picture film, drying it, and applying thereto a celluloid card that has been flowed with a solution of gum camphor and alcohol, allowing the card to dry and stripping it from the glass. Pictures thus made not only present all the fine details in strong relief, but have a remarkable beauty and softness of finish.



CAIN'S PHOTOGRAPH TRANSFERRING AND PRINTING FRAME.

A Valuable Blue Rediscovered.

Prof. Fouque, of the College de France, at the last meeting of the Academy of Sciences (February 18), read an important memoir on the blue pigment used by the ancient Romans for wall decorations. It is a magnificent color, as bright to-day as when first applied, and is found in the fresco paintings of Pompeii and other monuments dating from the Roman period. Its production is one of the lost arts, as there is no record of the pigment being used after the invasion of the barbarians. Modern chemists have more than once tried to ascertain the nature of the compound, but beyond the point that it contains copper, nothing definite was discovered. M. Fouque thinks the lack of success is owing to the fact that the ancients followed no exact rules or proportions. Having secured comparatively copious specimens of the cæruleum—such is the old name of the pigment—he has succeeded not only in analyzing it, but also in finding a process for making it regularly in quantities. The compound is, according to M. Fouque, a quadruple silicate of copper and silica, which may be prepared with silica, oxide of copper, and lime, with or without any fluxes. The ancients simply made it with sand, calcined or roasted copper, and lime, but kept to no regular proportions. He worked differently and managed to obtain an exact chemical combination, which is neither a glass nor an enamel, but a crystalline substance of the composition already mentioned. The crystals are perfectly definite, and strongly dichroic, appearing deep sky-blue when viewed from the surface and pale rose edgeways. The only difficulty in the preparation is the heating. A bright red heat is necessary to effect the combination, but on heating too much the blue color is lost and an aventurine green glass is obtained—a circumstance which must have rendered the process a delicate one in old times. Nowadays, however, with the means at our disposal, the difficulty is trifling, and kilogs. of the cæruleum could easily be made in the College de France laboratory. It is a very stable pigment, so far as chemicals are concerned, as it stands, unaffected, boiling with sulphuric acid or potash lye, as well as quicklime and hydrogen sulphide. That it will be air and water proof is abundantly shown by the old fresco paintings. M. Fouque considers, therefore, it would be a great boon to the arts to produce the blue commercially, and promised his assistance to any French manufacturer who will undertake the fabrication. While examining the fine specimens of the rediscovered blue presented by M. Fouque, M. Berthelot, who is well versed in ancient chemical lore, remarked the cæruleum in question was no doubt the Alexandria blue, known in Egypt about the beginning of the Christian era, and taken to Pouzzoli, whence its use spread all through Italy. He agreed with M. Fouque that the pigment was unknown to the Assyrians and ancient Egyptians, and is no doubt a most valuable one.

Myrtol.

Myrtol is a perfectly clear fluid, and represents that constituent of oil of myrrh which boils at 160° to 170° C. Linderm is the only clinician who has instituted any detailed trials with myrtol. Eichhorst himself was first to apply it in gangrene of the lungs. The results which he obtained were so surprisingly favorable that he has used the drug in numerous cases, and is now convinced that, as a disinfectant of the air passages, myrtol has not its equal. The drug is best given in gelatine capsules (à 0·15, prepared in Paris, or by Pohl, of Schönbaum-Danzig). If a capsule is crushed, the peculiar odor clings to the room for a long time, and if a capsule is swallowed, the breath emanates the characteristic odor for many hours, and often for a couple of days. In putrid bronchitis and pneumonic gangrene two to three capsules should be taken every two hours to deodorize and disinfect the parts. The effect is rapid, and a few capsules suffice to remove the bad odor, and often to produce a permanent improvement. The drug is, however, apt to cause a temporary loss of appetite. Myrtol has also been tried against tuberculosis, but the drug has proved utterly useless against the bacillus tuberculosis.—*Therapeutic Gazette.*