

lava from the crater of Kilauea. Among these is a bird's nest, made of pelee's hair, a substance resembling our mineral wool, and formed in an analogous manner, by the wind blowing over melted lava.

Diamonds in the rough, and diamondiferous soil with a diamond in it, are shown in the pretty little exhibit of the Orange Free State.

There are a few minerals scattered about elsewhere, but none of much value

CENTENNIAL NOTES.

The Siamese exhibit, which has been six months on the way to the Exposition, has arrived, and is located in the Navy Department section of the Government Building. The collection was made under the direction of the King of Siam, and is a present to the United States. Whatever might have been its original condition, the present state of that portion of it which is visible is sad to behold. Under a covering of canvas there lie bundles of apparently broken parts of wagons, a couple of rude wheels, dried palm leaves and other vegetable products, and a countless number of *et ceteras*, massed together and seemingly defying any attempt to resolve them into order. On the tables near by are displayed several curious peaked and pointed head dresses covered with spangles and gilding, and a collection of models of the long low snake-like boats peculiar to the Malays. All are tarnished and dingy, and the marks of a severe voyage and not over gentle handling are everywhere apparent.

THE GERMAN EXHIBIT

was so mercilessly criticised in the letters sent home by Professor Reuleaux, the chief German commissioner, that it has become rather the fashion to speak slightly of the display as a whole. This is decidedly unjust, for there are very many admirable features, amply sufficient to compensate for the over-abundance of effigies of Kaiser William and Bismarck, and the exhibit of cheap jewelry and chromos. For instance, there are Count Wermgerode's reproductions, in cast iron, of many famous works of art. These consist of helmets, shields, sword hilts, pitchers, urns, and plates, covered with exquisitely molded figures in bas relief. The casting is remarkable for its perfection in details, and will be quite a revelation to most foundrymen. One plate is left just as it was taken from the mold, with much of the sand still clinging to it, and the sharpness of outline attests the excellent work of both molder and founder. The objects are finished with a coating of brown powder, so that they cannot be distinguished by the eye from real bronze, while their cost is of course much cheaper. The ivory display is also very fine. Above the tall ebony case in which the objects are placed is a large pair of elephant's tusks, surrounded by smaller tusks, graduated according to length, and terminating in the short tusks of the walrus. Within the case are pianoforte keys, billiard balls, combs, chessmen, and a handsome collection of carved articles. A curious species of ivory is also exhibited in the long straight spiral horns of the narwhal or unicorn fish of the northern seas.

Germany gives to her pottery from the Royal Porcelain Manufactory, Berlin, the post of honor in the center of the building. To describe this superb display is scarcely possible, since the exquisite delicacy and artistic coloring of the ware render each piece an object of high art. Many of the vases are of very large dimensions, indicating the great skill brought to bear in their molding. The chemical exhibit in the German Department we have already described in other articles. Perhaps the most instructive contribution in the whole large display is one of the coal tar distillates and aniline colors, so arranged as to show the progress of invention in drawing from the dull heavy coal tar its oils, and then the beautiful shades of red, violet, blue, green, and orange, and finally that great triumph of the chemist's skill, alizarine or artificial madder, which surpasses the true madder root in brightness and fastness of color. The success which so far has rewarded investigators leads to the belief that the problem of manufacturing artificial indigo will be solved. One of the latest discoveries in the field of coal tar colors is eosine, which promises to supersede the costly cochineal.

There are three exhibitors of paraffin and mineral oil manufactured from peat. This industry is, in Germany, confined to Saxony, and the total annual value of the product is about \$4,000,000. The oils are mainly used for lubricating purposes, the poorer sorts alone being employed for the manufacture of illuminating gas and stearine candles. One very large block of stearine is exhibited, which is nearly a pure white. A large display is made of the famous Johann Maria Farina cologne. The descendants of Farina claim to be the only possessors of the secret of making the perfume. We shall describe other interesting German articles in future articles.

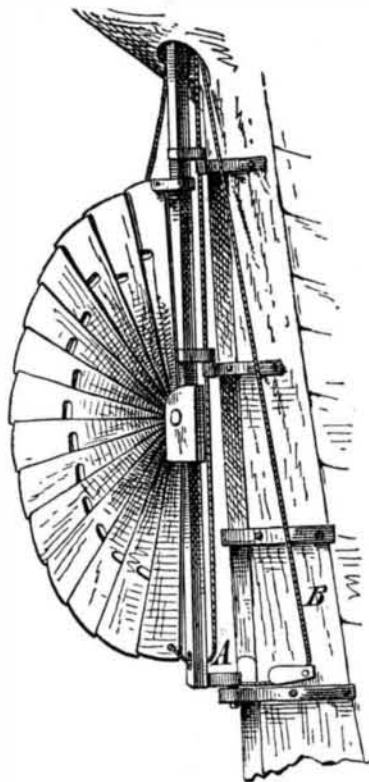
In the Italian section there is a model of

A NEW JURY RUDDER,

a sketch of which, Fig. 1, we give herewith. It is always customary for vessels to carry to sea the material for making a temporary rudder in case that very important appendage should become disabled, and there are many ingenious inventions for putting together spare spars and pieces of timber in rudder form. When the new rudder is made, however, the difficulty is by no means surmounted. The problem then is how to get it in place; and when a ship is rolling heavily in the trough of the sea, this is an exceedingly troublesome and perilous operation. The plan proposed by M. Raffaele Cagliesi, of Ancona, offers first a simple construction, which is such that the device may be folded into a very small space, and so easily stowed; and, second, an easy means of shipping the rudder. The appliance is made of

heavy iron plates pivoted, like a fan, to a recessed block of metal at the center of an iron post, A. The upper plate is fast to the post and the others may be folded up beside it, so

Fig. 1.



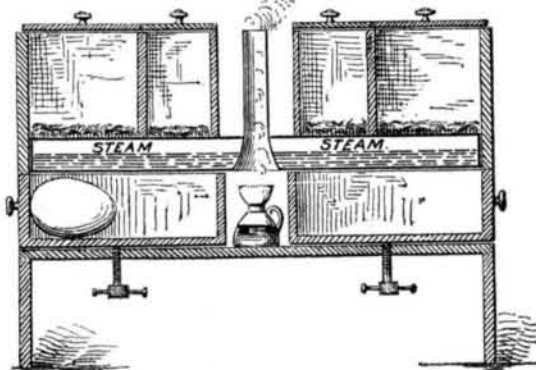
that when the device is thus placed it may be passed downward through the rudder hole. On the post are pintles which slip into gudgeons on the stern post, thus hinging the rudder in place. And also on the stern post is a sheave, B, through which a chain or rope is kept passed; so that, when it is necessary to place the rudder in position, one end of this rope is attached to the lower pintle, and by pulling on the other end the pintle is quickly drawn into the socket. In the lower part of the post, A, there is a sheave through which another rope, attached to the lower rudder plate, is rove, and which likewise leads up through the rudder hole. By pulling on this after the rudder is placed as described, the fans or plates are expanded as shown, while they may be closed to remove the apparatus by means of a rope shown on the opposite side.

In previous articles we have described the growing South African industry of ostrich raising, which, it has been suggested, might be successfully carried on in this country. In the annexed engraving is represented

THE LEVIATHAN INCUBATOR

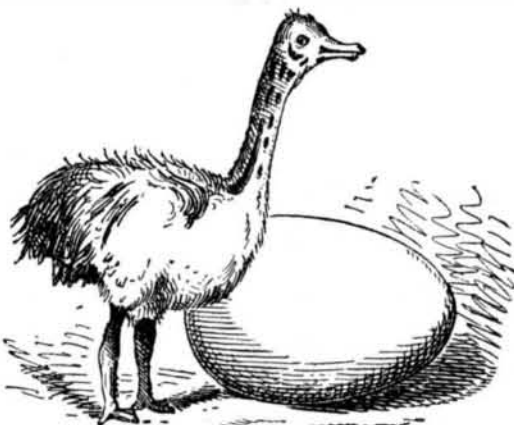
(exhibited in the Cape of Good Hope section), wherein the huge eggs are hatched. The apparatus consists of a middle steam chamber of metal (Fig. 2), which is kept constantly

Fig. 2.



hot by a lamp or furnace beneath. Below this are drawers in which the eggs are first placed, and these, by means of the screws shown below, may be raised until the eggs are brought almost in contact with the warm surface above. In these receptacles the eggs are kept for two weeks at a temperature of 102° Fah. They are then removed and placed in the inner pair of compartments, shown above, for another

Fig. 3.



fortnight, at a temperature of 100°. At the end of this period the eggs are carefully extracted, and a small hole is chipped in each shell at the point opposite the chick's head. They are next replaced and kept in the same compartments for two weeks longer at 98°, when the hatching takes place,

and the young birds are placed in the outer upper receptacles, and there remain for two days. The compartments above, it should be noted, have bottoms of lamb's wool, which come in contact with the steam chamber below.

The two days' old chick is also represented in the engraving, Fig. 3, beside an egg, so as to show the relative size. The egg is about 7 inches in length and the bird some 13 inches in height. The chick is fed on rice, and when it reaches the age of seven days is worth \$50 in gold. Nearly 20,000 birds, we are informed, have been hatched at the Cape of Good Hope by apparatus of this description. The machine is frequently made of sufficient size to hold 115 eggs at a time.

ASTRONOMICAL NOTES.

OBSERVATORY OF VASSAR COLLEGE.

The computations and some of the observations in the following notes are from students in the astronomical department. The times of risings and settings of planets are approximate, but sufficiently accurate to enable an ordinary observer to find the object mentioned. M. M.

Positions of Planets for November, 1876.

Mercury.

Mercury should be looked for before sunrise during October and the first half of November. On November 1, it rises about 5 A. M., and sets at 4h. 15m. P. M. On November 30, Mercury rises at 7h. 4m. A. M., and is too near to the sun to be seen.

Venus.

Venus is still brilliant in the morning, rising on the 1st at 2h. 58m. A. M., and setting at 3h. 15m. P. M. On the 30th, Venus rises at 3h. 58m. P. M., and sets at 2h. 45m. P. M. Although its apparent diameter is much smaller than in the summer, it is still a very beautiful object, and can be seen all through the month. On the 28th, Mars, at this time very small, can be recognized by its nearness to Venus.

Mars.

Mars is one of the planets visible to the naked eye, but it is very small in November, and can be seen only in the morning. It may be known from the circumstance of its keeping nearly the same diurnal path with Venus, at a little less altitude.

Mars rises on the 1st at 4h. 14m. A. M., and sets at 3h. 47m. P. M. On the 30th, Mars rises at 3h. 56m. A. M., and sets at 2h. 37m. P. M. On November 28 Mars and Venus will have nearly the same right ascension, and will pass the meridian with only a few minutes difference of time.

Jupiter.

Jupiter is very little seen in November. In the early part of the month it sets about 6h. 10m. P. M., and can be seen in the southwest immediately after sunset. On the 30th, it rises at 7h. 26m. A. M., and sets at 4h. 39m. P. M.

Saturn.

Although Saturn is low in altitude (in this latitude not above 26° for the whole month of November) it is much the most interesting object in the evening sky. With a telescope of low power, its wonderful ring can be seen, and at least one of its many satellites. On the 1st, Saturn rises at 2h. 16m. P. M., comes to the meridian at 7h. 30m., and sets at 43m. after midnight. On the 30th, Saturn rises at 23m. after noon, comes to the meridian at 5h. 38m., and sets at 10h. 53m. the next day. Saturn is among the stars of *Aquarius*, but so much brighter than even the brightest of the constellation as to be readily known to be a planet.

Uranus.

On November 1, Uranus rises a few minutes after midnight, but a short time before the bright star Regulus, and 14° north of it in declination. The planet can perhaps be found by its nearness to this bright star; it approaches the star until the 29th. On the 30th, Uranus rises at 10h. 15m. P. M., and sets at 11h. 58m. the next morning.

Neptune.

Neptune rises on November 1 at 4h. 41m. P. M., and sets at 6h. 1m. of the next morning. On the 30th, Neptune rises at 2h. 45m. P. M., and sets at 4h. 3m. the next morning. This planet is so far distant from the earth that it can be seen only by means of the best telescopes.

Sun Spots.

The report is from September 28 to October 17, inclusive. The photographs of September 28 and September 29 show two large groups of spots coming on. These were seen till October 3; but after that date, clouds prevented observation and photographing till October 9, when the sun's disk appeared to be free from spots. On October 13 a group of small spots was seen on the western limb. These had not been discovered before, probably on account of clouds. This group was last seen on October 17, but, contrary to the usual behavior, it had appeared to increase in size as it approached the limb. The return of this spot may be looked for after two weeks.

Small Arms for Russia.

Smith & Wesson, Springfield, Mass., have a new contract with the Russian government for 20,000 pistols, which are to be the same as those they have making, and include the automatic ejector. The firm have now manufactured some 130,000 for this government, their first contract being taken in 1871. This contract, by the way, was concluded for the government by a gentleman bearing the euphonious name of Captain N. Kouschavewitsch.

THE Australian gum tree, *eucalyptus globulus*, well known for its antiseptic qualities, has recently been found to yield a fragrant resinous oil, containing a substance homologous to camphor.

Patent Law Reform in England.

At a recent meeting of the British Association at Glasgow, a paper was read "On Recent Attempts at Patent Legislation," by Mr. St. John Vincent Day. In the discussion which followed, Mr. F. J. Bramwell spoke at some length. It seems to be thought, he said, that lawyers have a special claim to dominate in patent legislation, perhaps on account of the great gravity of the legislation which arises out of patents. This notion of excessive litigation in reference to patent matters is absolutely unfounded. An eminent barrister connected with patent litigation, when it does arise, had assured Mr. Bramwell that on an average of many years only nine patent actions or suits go to the stage of a primary decision in each year; and an examination of the files of the *Times* for the year ending November, 1874, showed the accuracy of the statement which had been made. Mr. Bramwell then proceeded to the question of the official examinations into novelty and frivolity. He had long had very great doubts whether it is desirable to make an examination even into novelty; but if such an examination be made, the very first care must be to appoint a sufficient number of men of scientific attainments or of good experience. This is a difficult task in itself; even when the greatest care has been taken, it is certain that some mistakes will be made, and some hardships will be suffered, and we have to consider whether the advantages to be attained are sufficient to justify the risk. After all, what is the benefit to be derived from an examination into the novelty of an invention? Sometimes, it is said, it is to protect the inventor. The answer to that is that, if you make the inventors into classes separate from the community at large, the inventor says: "For heaven's sake, leave us alone; we not need to be protected against ourselves." But others put the desirability of the examination into novelty on broader grounds. They say it is undesirable that a patent should be granted for a thing which is not new, because the public may thereby be prohibited from using something which the patentee claims as his invention. The answer to this is that a patent granted for a thing which is not new is, if not void, voidable, and then in truth a very small amount of harm results. Mr. Bramwell then went on to illustrate his meaning by reference to the inventions of James Watt, Dr. Potts (the inventor of the method of driving piles by the exhaustion of the air), and Dr. Siemens, all of whom he urged would, probably, have been refused a patent, by the examining body. It appeared certain that we should not have an examination as to frivolity; and if we were to have an examination as to novelty, that examination should be fenced with precautions to prevent an inventor being injured by a wrongful decision. It was recommended by the committee of the Society for the Amendment of the Law that a patentee should have, notwithstanding the adverse report of the examiner, a right to demand his patent if he still so pleased, but that the specification should have appended to it the decision of the examiner, and that any person bringing an action under such a patent should be compelled to give security for the costs; and that in the event of his failing, and failing on the grounds put forward by the report of the examiner, he should pay the whole costs of his opponent as between solicitor and client, and not the mere taxed costs. Some protection such as this against the mistake of novelty examiners was absolutely necessary.

REMARKS.—In this country we have had the system of official examination in vogue for forty years; and if it were possible for Englishmen to learn anything, they might profit from our experience. In the early days of our system, it was the common practice of the Patent Office to reject even highly meritorious inventions; just as they now do at the Prussian Patent Office. But that method gave great dissatisfaction, and was so discouraging to inventors, and so obviously contrary to the spirit of the Constitution, that it had to be abandoned. At present the examinations are substantially limited to the ascertainment of identities of inventions. If the invention for which a patent is asked is identical with one already patented, the petition is rejected. If there is an iota of difference, the new patent is allowed. This is the only safe rule to follow; it works well, and gives satisfaction; except in cases where the examiner is so stupid as to be unable to see the difference between tweedle-dum and tweedle-dee. Property in patents never commanded such high valuations here as at present, notwithstanding the fact that the number of issues, now nearly 15,000 a year, is steadily increasing. The Supreme Court of the United States taught our patent officers a good lesson concerning the necessity of liberality to inventors, when it forbade the practice of citing old rejected cases against new applicants. This decision so limits the scope of official examinations that they are of no special importance now, if indeed they ever were; and nobody would be hurt if the system were abrogated. We agree with Mr. Bramwell that a patent granted for an old invention is good for nothing, and the issue of such a patent does very little harm.

Chromic Inks.

As long ago as 1848, Professor F. Runge invented what he called a chromic ink, from its containing chromate of potash. His directions for its preparations, published at the time in *Dingler's Journal*, were as follows; A decoction of logwood is first made in the proportion of 10 to 80, that is 10 lbs. of logwood is boiled with enough water to produce 80 lbs. of the decoction. To 1,000 parts of this logwood extract, when cold, is added 1 part of yellow chromate of potash, stirring rapidly. It is ready for use at once. Gum and other additions are injurious, he says, to this ink.

The following year W. Stein proposed an improvement on Runge's ink, saying that the great fault of this ink was that it soon became thick, like sour milk. This he overcame by adding four grains of corrosive sublimate to each bottle.

This would restore thick ink to its pristine quality, and improve its color changing it from deep indigo blue to pure black.

In 1867, C. Puscher described a new ink similar to the above, made as follows: Boil 10 ozs. of logwood in 20 ozs. of water, then boil again in 20 ozs. more of water, and mix the two decoctions; add 2 ozs. of chrome alum and boil another quarter of an hour. One oz. of gum arabic is added, and we have 25 ozs. of deep black ink.

Böttger says that a simple method of preventing gelatinizing in chromic ink is to add to the water in which the extract is made some carbonate of soda. His method of operation is as follows: Dissolve 15 parts of extract of logwood in 1,000 parts of distilled water to which 4 parts of carbonate of soda has been added at boiling heat, and add 1 part of yellow chromate of potash dissolve in a little water.

Recent American and Foreign Patents.**NEW MECHANICAL AND ENGINEERING INVENTIONS.****IMPROVED SHOVEL-GRINDING MACHINE.**

William A. Meyer, North Easton, Mass.—This consists of a series of swinging shovel-blank-supporting frames, that are journaled in a shaft placed on pivoted and spring-acted standards. The blank holding frames and standards are supported on a traversing carriage that feeds the blanks successively to a rapidly revolving and adjustable grindstone, that grinds the entire surface of the blanks. There is a revolving eccentric cam, supported on a pivoted and sliding carriage, which is capable of being moved toward or from the shovel frames, as required, by the articles to be exposed to grinding.

IMPROVED BOAT-DETACHING APPARATUS.

William A. Brice, London, England.—This detaching apparatus remains intact and locked as long as there is strain on the suspended rings, but is instantly released when the strain is taken off by the raising of the boat by the wave. It was described and illustrated on page 150, volume XXXV.

IMPROVED MACHINE FOR SAWING STAVES.

Benjamin H. Catching, Forest Grove, Oregon.—A band saw, or a saw of similar form in two parts, is fitted on an oscillating circular head, on each side of which is a saw table and feed carriage. The carriages are worked by weighted cords, and the saw tables have grooves in the under side for gagging the work to the saw, the guide being shifted from groove to groove as each stave is sawn off. A special advantage is that one part of the saw cuts while the other part is on the back stroke.

IMPROVED REVOLVING EARTH SCRAPER.

Benjamin Slusser, Sydney, Ohio.—This invention relates to certain improvements in revolving earth scrapers designed for general purposes of excavating and moving dirt; and it consists in the particular construction and arrangement of the scraper proper, made of a single sheet of steel bent so as to secure the best results in lightness of draft and perfection of filling, and provided with racking runners and an end board of peculiar arrangement, intended to improve the operation and increase the durability of the device. The invention also consists in the improved arrangement of the scraper with respect to its frame, the said scraper being pivoted therein upon double pivots, which are shifted from the front to the rear of the center of gravity, according to whether the load is to be transported or the scraper dumped by revolving.

IMPROVED NAIL PLATE FEEDER.

Rollin Van Amburgh, Wetmore, Kan.—The novel points of this feeder rest in the construction and arrangement of the devices attached to the barrel for feeding the nail plate to the knife, and in the means for reversing the barrel before applying its tapered mouth to the knife, which reversing movement is effected through the instrumentality of a band, and a reciprocating block moving on a spirally flanged or auger-shaped shaft.

IMPROVED CAR COUPLING.

Samuel Hamer, Salt Lake City, Utah Ter.—This combines a buffer arrangement with the drawhead and coupling. It consists of a spring-acted drawhead, with interior separately movable drawbar, to which a coupling spring hook is pivoted. The drawhead has a top shoulder that comes in contact with an auxiliary spring bolt, and acts as a buffer head.

IMPROVED HAY ELEVATOR AND CARRIER.

Joshua Anderson, Short Creek, Ohio.—This invention consists in the construction of the carriage and its arrangement to the track or way upon which it runs, the same being so constructed and arranged that the elevation of the load of hay in the fork trips the carriage and allows it to move upon the ways, and the load is held in its position near the carriage by a retaining device independently of the draft rope, so that it cannot sway to the floor again when the carriage is set free.

IMPROVED ANVIL.

James Jenkins, Cortez, Nevada.—This inventor has devised a means of repairing old and worn-out anvils cheaply, and thereby economizing metal, now lost when the face is worn down so as to be unfit for further use. It consists of a steel face and swage block, secured on the top of the anvil by a metal strap, screwed detachably to its sides, and fitted down the sides and under the bottom of the anvil, to which it is fastened. Keys are fitted between the block and the hollow face of the anvil, to support it firmly. The connection of the attaching strap to the sides of the block is such that the block can be reversed to use one side for the anvil face, and the other side for the swage block.

IMPROVED RESAWING MACHINE.

Thompson M. Newman, Gallatin, Tenn.—In this device, a rotary saw on a vertical arbor is arranged between two tables which are supported on screws so that they can be shifted up and down to vary the thickness of the stuff. They may also be inclined to the saw for sawing bevels, and have feed rollers geared by countershafts and belts, with the main horizontal driving shaft mounted in the lower part of the frame and turning the saw arbor by bevel gears.

NEW MISCELLANEOUS INVENTIONS.**IMPROVED MACHINE FOR CURLING FEATHERS.**

Johann Hawlowetz, New York city.—This consists of a revolving curler, in connection with an apron running over a driving roller, an adjustable stretching, and a swinging and spring-acted roller.

IMPROVED HEEL EVENER FOR BOOTS AND SHOES.

Abram Dilley, Drakestown, and John L. Larrison, Schooley's Mountain, N. J., said Larrison assignor to said Dilley.—As an improved heel evener for shoes and boots, that may be readily set to keep the heel level for any tread of the foot, the inventor provides two wedge-shaped rubber plates, that are applied by a center pivot to the insole and heel, and adjusted by upward projecting side lugs at their thickest part.

IMPROVEMENT IN PURIFYING IRON AND MAKING STEEL.

John L. Randall, Albany, N. Y., assignor to himself and Stephen Munson, same place.—This consists in treating molten cast iron, while in a receiver, with pulverized titanite or equivalent iron ore, potassic ferrocyanide, and potassic nitrate. The process allows of using old as well as new material, utilizing refuse metal the vitality of which has been nearly destroyed, restoring it to a high standard of excellence. By the said combination of materials also a superior and uniform grade of metal, suitable for extra fine castings, is produced, which may serve as a substitute for steel.

IMPROVED COMPOSITION FOR ARTIFICIAL MARBLE.

Louis De Planque, New York city, assignor to himself and Francis Strom, same place.—The composition consists of plaster of Paris dissolved in whey, under admixture of starch, glue, and sulphate of zinc. The mass is cast and pressed into molds, in which it remains a few hours until completely hardened. It is taken out of the molds when hard and polished. Any imitation of marble or other stone may thus be produced.

IMPROVED SHOW CARD FOR BUTTONS AND LIKE ARTICLES.

Charles A. Righter, New York city.—The buttons are attached to small cards, each card holding one dozen buttons. The cards have pointed ends which slip into slits in the large supporting card.

NEW HOUSEHOLD INVENTIONS.**IMPROVED MOSQUITO NET FRAME.**

Edward S. Lathrop and Louis Salvaterra, Savannah, Ga.—This mosquito net frame is designed to be applied to a bed or crib, and adapted to be extended with a mosquito netting canopy, which it carries across the bed to protect the occupants. It may also be readily drawn back by the occupants while in bed. It consists mainly of a pair of lazy tongs, one on each side of the bed, and so combined with a supporting standard, attached to the bedstead and the mosquito netting, that the latter may be readily extended across and enclose the upper portion of the bed, or be drawn to one end of the bed and out of the way.

IMPROVED WINDOW MIRROR.

Carl A. Demling, New York city, assignor to Anthony Demling, same place.—This is an improved reflecting mirror for the windows of buildings, by which the street in both directions and the door of the house may be observed by a person sitting at the window without the necessity of leaning out. It consists in connecting window mirrors to a sliding sleeve by a ball and socket joint, so as to make them adjustable in any desired direction.

IMPROVED BOSOM-IRONING BOARD.

Luther A. Van Kuren, Binghamton, N. Y.—In this device, the bosom is, by means of a swinging bar, readily stretched to the required degree of tension, and tightly held for being ironed until released by the raising of the bar.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.**IMPROVED WAGON END GATE.**

Zaccheus C. Wilson, Nokomis, Ill.—The object here is to furnish end gates for wagon bodies, so constructed, for convenience in dumping grain, that they may be opened and put out of the way without being detached from the said bodies, and in such a way as to leave the open ends wholly unobstructed. When closed they are firmly held in place, so that they cannot be pressed open by the load.

NEW AGRICULTURAL INVENTIONS.**IMPROVED SEED PLANTER.**

William F. Finney, East Castle Rock, Minn.—This machine, for planting corn, beans, sorghum, broom corn, and other seeds, is so constructed that it may be readily arranged to plant the seeds at any desired depth, that the plows may be easily raised from the ground, and so that the operating mechanism may be readily thrown into and out of gear with the driving wheel.

IMPROVED COTTON AND CORN PLANTER AND FERTILIZER DISTRIBUTOR.

William Scott, Fredericksburg, Va.—The invention consists in attaching two or more adjustable hoppers to a main shaft composed of two opposite equal arms, connected and made extensible by a central sleeve provided with a slot and clamp screw. Said main shaft has its bearings in vibrating side bars, pivoting at their front ends on the inner surfaces of the side bars of the main frame of the machine, and their free rear ends controlled by limiting pins fixed to said main frame, which is extensible longitudinally, and provided with the usual shovels, coverers, handles, and marker.

IMPROVED STRAW CUTTER.

Amasa Heverly, New Albany, Pa., assignor to himself and Philo Mings, of same place.—In this cutter the knives are made with convex edges, and are attached to a bevel-toothed wheel running against the mouth of the cutter box. Springs are attached to the inside of the cutter box at a suitable distance back of the cutters, and converging toward, and terminating a little in advance of, the cutters, to open and close on the material being cut according to its volume, and to confine it mostly at the middle of the range of the cutters. Through this arrangement it is claimed that the machine works better and easier than when the box is open across the whole breadth, while the stalks are free to be urged away to the outer portion of the cutters.

IMPROVED COMBINATION AGRICULTURAL TOOL.

Maynard Reynolds, Manchester Depot, Vt.—This is an improved shank, so constructed as to receive and securely hold a hoe, a weeding hoe, a potato hook, and a rake, in such a way that the said tools may be attached and detached by simply tightening and loosening a screw. A hoe, a narrow or weeding hoe, a potato hook, and a rake are designed to be made and sold with the handle. By this construction, by simply loosening a hand screw, either of the tools can be detached, and another inserted in its place, so that the farmer or gardener need buy but one handle or shank for a set of tools.

IMPROVED DEVICE FOR PICKING COTTON.

Richard A. Culliff, Shreveport, La.—The process of picking cotton by hand is slow, tedious, and expensive, and machines for the purpose have failed to come into extensive use, first on account of their cost, and secondly their imperfect operation. The patentee has therefore devised a cheap but efficient means for facilitating hand picking, and the same consists of gloves or other hand coverings, provided with fangs, hooks, or claws, by which the cotton may be rapidly removed from the bolls. To free the cotton from the fangs or claws, a brush is provided, the same being attached to the body of the picker, in a convenient position to allow the gloved hands to be passed across and in contact with it. The cotton, thus removed from the fangs by the brush, rolls off and falls into a bag or basket, which is also strapped to the body of the picker.