RECENT INVENTIONS.

Messrs. John H. Houston and David H. Houston, of Cambria, Wis., have patented an improved hurdle for fanning mills. The object of this invention is to insure a more thorough separation of the grain and the chaff in a fanning mill Hurdles for fanning mills, as heretofore made, have been defective in the construction of the frames or slides of their sieves, which have been straight on their lower or inner edges, thereby not providing for a proper filling of the sieves at their sides and angles and permitting the light grain and chaff to drop through the hurdle among the clean grain. This is caused by the greater or more rapid movement of the grain in the middle than at the sides, whereby the grain passes down the sieve on a curved line or front. The present invention obviates this and causes the grain to pass down the sieve in a straight line, all the grain moving at the same rapidity and completely covering the sieve. This is effected by making the lower edges of the screen frames and feed slide concave. An upper sliding feed board thus constructed is arranged above the uppermost inclined sieve, also an inclined slide below the lower sieve, and whereby the grain is made to pass over the entire width of the sieve of the screenings box, thus more thoroughly cleaning the grain.

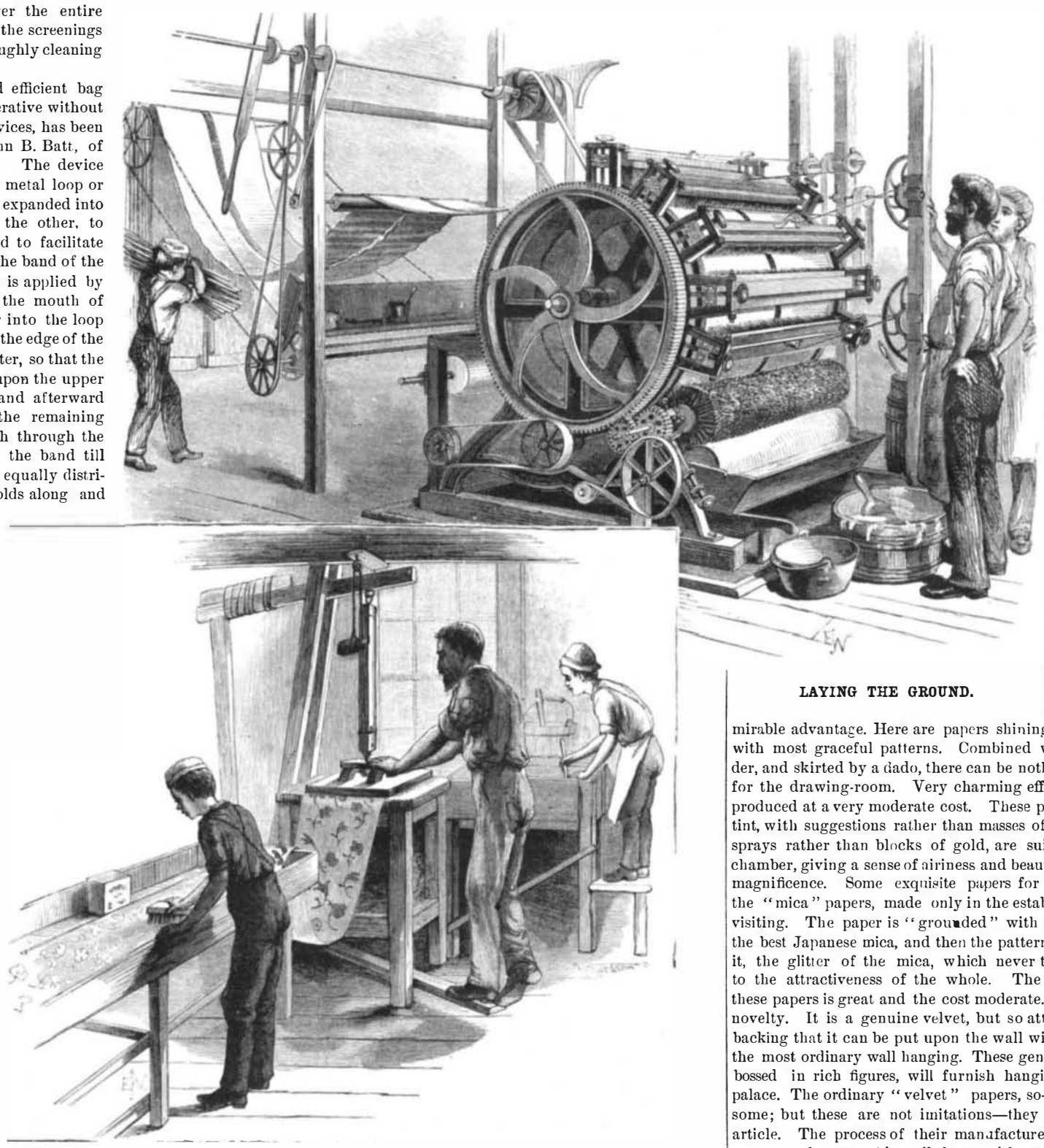
A very simple and efficient bag fastener, which is operative without the aid of locking devices, has been patented by Mr. John B. Batt, of Williamsville, N. Y. The device consists of an oblong metal loop or band, having one end expanded into a larger curve than the other, to serve as a handle and to facilitate the insertion within the band of the mouth of the bag. It is applied by drawing a portion of the mouth of the nearly filled bag into the loop and placing it against the edge of the smaller end of the latter, so that the hem of the bag rests upon the upper portion of the rim, and afterward gradually drawing the remaining portion of the mouth through the enlarged portion of the band till the entire mouth is equally distributed in gathered folds along and within the band, when the upper edge of the rim of the band will engage with the hem of the bag and prevent the mouth from slipping out. The device may be disengaged by emplying force to withdraw a small portion of the hem at the mouth end of the bag.

An improvement in cottongins, which provides for the delivery of the cotton in a clean condition and for the easy running of the gin, has been patented by Mr. Joseph Kopfler, of Amite City, La. This invention consists in a combination, with the brush cylinder, of an open concave composed of a series of curved bars arranged transversely in the frame of the gin, the planes of said bars being set at an angle and inclined rearwardly with their ends highest, to cause the cotton to drift toward the middle of the machine. The cotton is carried over the rearwardly inclined bars of the open concave, each inclined bar forming an air eddy in the blast generated by the revolution of the brush cylinder immediately behind the bar, and carrying off the dirt. The invention also comprises a combination of reversely beveled friction pulleys for imparting motion from the saw shaft to the brush shaft of the machine, the frictional contact being maintained between said pulleys by a spring arranged within a socket bearing at the end of the brush shaft and adjustable by an outside screw to vary its tension.

A simple improvement in sewing machine needles, by which the needle can be threaded very easily and quickly even by those having imperfect eyesight, has been patented by Mr. Amos F. Gerald, of Fairfield, Me. The needle is formed with a slit extending from a little below the eye, along one side of the latter, and upward to a point above the part of the needle that works through the goods, where it passes out at the side of the needle, thus forming an inclined splint, which has its upper end set outwardly. A sleeve inclined at the inside of its lower end is fitted over the needle to receive within it the upper end of the splint. This sleeve, which has its motion in direction of the length of the needle, controlled by a pin and slot, is formed with opposite notches in its lower edge, so that to thread the needle it is only necessary to draw the thread across the splint and press it upward against the lower edge of the sleeve to slightly raise the latter, and so that the thread will enter the notches and pass over the point of the splint, after which it is drawn downward through the slit until it enters the eye of the needle.

Ordinary flowerpots or crocks are open to the objection that they do not prevent the surplus of water poured into them from dripping upon the flower shelf or floor, and produce dampness by water collecting under their saucers. They also are subject to rapid destruction by rust. These objections are remedied in the flower crock recently patented by Mrs. Amelia D. Polsgrove, of Catawissa, Pa. In this improvement the flower crock or pot is provided with a drip-tube at its bottom arranged to project down within a cup which is formed with a screw-collar that fits within a correspondingly threaded collar on the tube. Said crock is also preferably made or provided with a base arranged to sit within the saucer of the crock and to inclose and conceal from view the cup and its connections. It is likewise proposed to fit within the crock a removable metal lining terminating below in a tube which enters the drip-tube of the crock. This construction not only effectually removes the objections above cited, but admits of the ready transplanting or interchanging of plants from one crock to another by removing the metal linings containing the plants.

A safety device, in the shape of an automatic brake for elevators, etc., has been patented by Mr. Joseph H. Baird, of Oakville, Conn. The invention is especially applicable to elevators and hoisting machines, and its object is to prevent the rapid descent of the elevator in the event of the slipping or breaking of the driving belt. The invention consists of two pulleys, one fixed on the driving shaft of the elevator, and the other on a parallel counter shaft or stud, and a wedge held loosely in a socket with its point inserted between the pulleys and in contact with their faces, whereby a constant friction is created between said pulleys and wedge during the descent of the elevator. On the upward movement of the car the wedge is released from the pressure of the pulleys. The device is a simple one and not liable to get out of order.



BRONZING BY HAND.

THE MANUFACTURE OF FINE WALL PAPERS.

DADO, SCREEN, AND FRIEZE.

In our issue of November 26 we gave engravings illustrating a portion of the extensive manufactory of Messrs. Frederick Beck & Co., Seventh avenue, corner of 2 th street, New York city. We now give some particulars in regard to hand-made papers.

In the extensive warerooms of the factory are found almost endless varieties of pattern and color. Here are papers almost as thick as board, imitating stamped leather. They make a very elegant finish for a dining-room or library. Some of them cost $12 a roll—eight yards to the roll. But they are very durable. Some of these papers reproduce the effects of the old Venetian or Dutch leathers. Their effect, with their quaint antique patterns, especially when used as a dado in an apartment finished with dark woods, is extremely rich. The same may be said of a similar class of papers which produce the effect of oxidized metals. They can be introduced in decorations to admirable advantage. Here are papers shining with gold, and with most graceful patterns. Combined with a rich border, and skirted by a dado, there can be nothing more fitting for the drawing-room. Very charming effects can thus be produced at a very moderate cost. These papers of delicate tint, with suggestions rather than masses of color, and with sprays rather than blocks of gold, are suited to the bedchamber, giving a sense of airiness and beauty rather than of magnificence. Some exquisite papers for this purpose are the "mica" papers, made only in the establishment we are visiting. The paper is "grounded" with a preparation of the best Japanese mica, and then the pattern is printed upon it, the glitter of the mica, which never tarnishes, adding to the attractiveness of the whole. The effectiveness of these papers is great and the cost moderate. Here is a real novelty. It is a genuine velvet, but so attached to a paper backing that it can be put upon the wall with the facility of the most ordinary wall hanging. These genuine velvets, embossed in rich figures, will furnish hanging suited for a palace. The ordinary "velvet" papers, so-called, are handsome; but these are not imitations—they are the genuine article. The process of their manufacture is a secret, but any one who wants his walls hung with real velvet can now obtain the article he needs, and the cost will not be disproportionate to the effect.

LAYING THE GROUND.

Here are found papers for the finest and most costly mansion, and papers for the little nest of a cottage; papers embossed, and stamped, and flocked, and gilded, and plain; papers with the sheen of steel, or with a surface of velvet fit for the robe of beauty; papers with French pat terns, with Japanese patterns, with American patterns, papers with flowers or birds that carefully simulate nature, and papers with conventional designs; papers suited to all the different apartments of a house; papers for ceilings, for screens; papers—beautiful ones, too—for twenty-five cents a roll, or even for less, and papers, as before mentioned, for twelve dollars.

The white paper comes into the factory from the paper mill in large rolls. It varies in weight according to the particular use to be made of it; much heavier stock is required, for example, for "leather" paper than for the ordinary wall hangings. The first step in the process of printing is what is called "grounding." This is applying a tint over the whole surface of the paper, and is done by the machine

represented in the engraving. The color is applied evenly over the surface by a series of brushes, and then the paper is caught up in loops and carried by an endless chain over steam pipes, thus becoming dry as it slowly makes its journey of about four hundred feet. It is then reeled up and is ready for the printing. These grounding machines can carry two widths of paper simultaneously, so that the process is a rapid one. The "mica papers," to which reference has been made, are grounded in the same way as those in plain colors.

The next step is the printing. Our former article described the manner in which this is done by machinery. The annexed engravings show the operation of printing by hand. This is done in working off specimens, that effects may be determined and patterns fixed upon. It is done also in the production of special patterns, made to order, or in cases where the quantity to be printed would not warrant the expense of preparing the rollers for the machine. It is done also in those cases where the pattern is, as it were, built up by layer after layer of "flock," resulting in very rich effects. The process is clearly represented in the engraving. The pattern is cut upon a block of the width of the paper. This hangs upon a sort of crane, as shown in the illustration. The block is applied to a color sheet, and then is swung over and gently pressed upon the paper, the exact position being indicated by certain marks on the margin. The paper is moved along, there is a new application of color to the block and of the block to the paper, and so the work goes on. Of course but one color is printed at an impression. The same process must be repeated for each color, and therefore the work is slow compared with the machine printing. But the results are very elegant. The finest papers, the richest borders, and the like, are hand printed.

Some of the "leather" papers which we noticed in the wareroom have raised figures upon them. These papers, which are very thick and heavy, are stamped in a machine similar to other machines for the same general purpose. Some of the most gracefully elegant papers are embossed.

After the printing and gilding they are run through a simple machine, the essential parts of which are two rollers, an upper one of steel, engraved with the pattern desired—ribs, wavy lines, or reticulations of any kind—and a lower one of hard manila paper. With many patterns this embossing adds very materially to the effect. In some of the papers the gold or bronze, or other metal, is applied by hand. The portion to be bronzed is printed in varnish, as shown in the illustration, then it is liberally dusted over with the metal powder. When the superfluous powder is brushed off, the masses of gold, or silver, or bronze shine out, with the result of enhancing the beauty and effectiveness of the whole.

HAND PRINTING.

A Phosphor-Bronze Steamer.

A private trial trip of a steam launch called the Phosphor-Bronze, the property of the Phosphor-Bronze Company, Limited, London, lately took place in the Thames, off Westminster. This small vessel is built entirely of phosphor-bronze, and her length is only 35 feet, her beam being about 6 feet, and she attained a speed of 12½ miles per hour, which, considering her size, is a remarkable performance.

The chief object of the company in having so small a craft built was to test the rigidity of the phosphor-bronze sheet and angle pieces used in her construction, prior to having boats built on a large scale. The results have been beyond the company's expectation as regards rigidity and absence of vibration. As we understand, says *Engineering*, that the cost of phosphor-bronze boats will not much exceed those made of steel, and as the metal is not subject to corrosion like iron or steel, and also retains its value, we expect to hear soon of a further use of phosphor-bronze for steam launches, torpedo boats, etc.

Water in Steam.

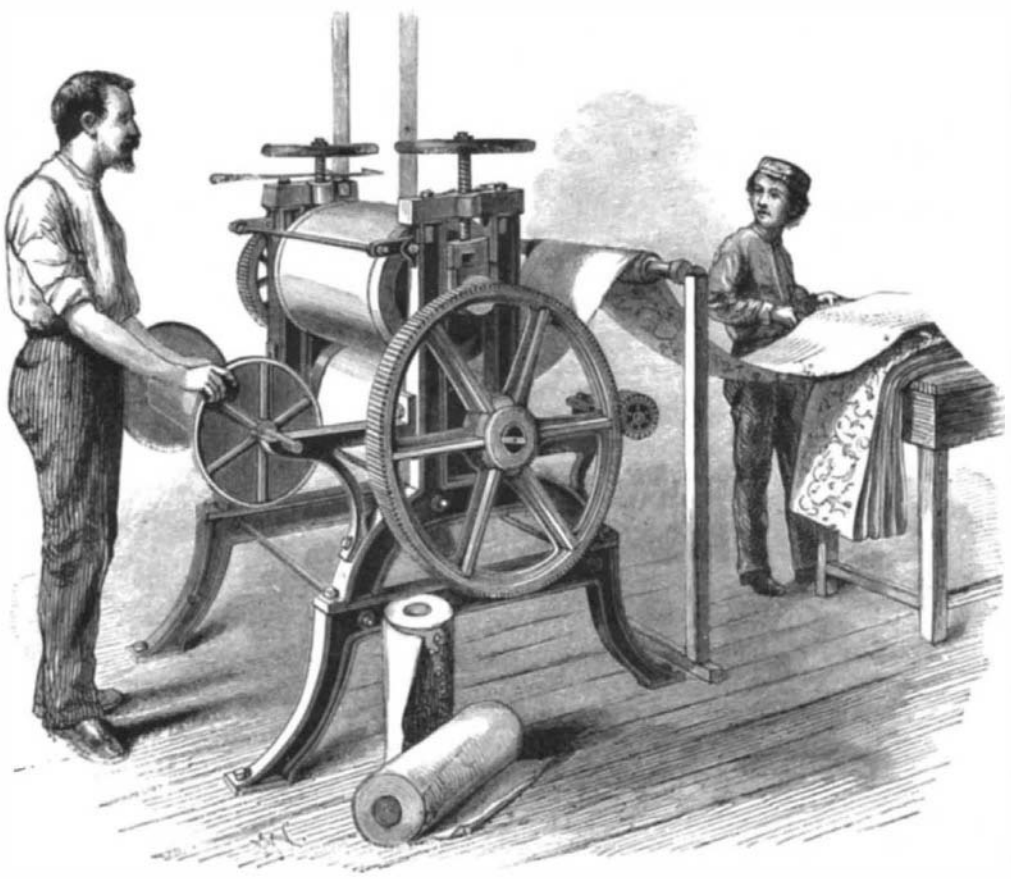
Herr Stoupler, of Lucerne, Switzerland, by adding fluorescine to the water of a boiler which by calorimetric tests enabled him to detect the presence of one half of one per cent of water carried mechanically out of the boiler by the steam, found that from 2·3 to 4 per cent was actually thus present in the steam.

The deep green color of the water in the boiler was retained in it for weeks, and yet no trace of coloring could be detected in the water condensed in the steam cylinder, a proof that the water which gathers there is entirely due to condensation caused by the expansion of steam, and that very little water is actually mechanically carried away by the steam from boilers.

Testing a New Magazine Gun.

The duplex field magazine gun was tried at Governor's Island the other day in the presence of General Hancock and a number of prominent officers and citizens.

The gun consists of two breech-loading rifle barrels, placed side by side in a brass case filled with water to keep them cool. The gun is operated by two men, one to feed and the other to discharge the cartridges, which is done by turning a crank. During the test 200 ordinary United States cartridges, 45 caliber, were first fired in 25 seconds. Then 100 were fired in 11¼ seconds, and at the third fire the barrels were emptied of 500 cartridges in 68 seconds. The gun rotates on a swivel, and can be raised or depressed at any angle.



EMBOSSING.

RECENT INVENTIONS.

Violinists will be interested in an improved chin rest for violins patented by Mr. Solomon G. Carpenter, of Chester, N. Y. This chin rest is made in the form of a cleat with a broad base and oppositely projecting horns. It is securely glued to the end of the violin just above the end block, and has a slot in it, through which the loop that is connected with the tail piece passes down to the end pin on which it is secured, and whereby the cumulative tension of all the strings serves to bind the cleat to the violin. The slot in the cleat is made deeper at its ends than it is in the middle, so that the sides of the loop are held always at their extreme limit of distance away from each other, and thereby more effectually hold the cleat against tilting strain caused by the chin of the player resting nearer one end of the cleat than the other.

An improvement in apparatus for treating minerals or chemicals with acids, and whereby large quantities of materials may be treated without repeated handling of them, has been patented by Mr. Amedee M. G. Sébillot, of Denver, Col. The invention consists in a basin for receiving the material to be treated with acid, which basin is surrounded and covered by a metal hood within a large stone or brickwork furnace having a fireplace on one side, so that the heat passes over the hood and heats the same and the materials in the basin below it. These materials are stirred during the operation by a rotating agitator, which is mounted on the lower end of a vertical shaft that can be raised or lowered at will, and is driven by suitable machinery. The materials are filled into the basin through a funnel or chute passing through the hood and the furnace, and the product of the operation is removed from the basin through a valve in the center of the same, which valve is operated from below, and permits the material to drop into a car which runs on tracks in a tunnel beneath the furnace.

An improvement in harness loop and trace carriers, by which the trace carrier is free from all projecting parts for the reins to catch upon, and whereby also it can be readily attached and detached by detaching the back strap from the loop or frame, has been patented by Mr. Robert D. Whittemore, of Chippewa Falls, Wis. The object of the invention is to facilitate and cheapen the manufacture of harness and provide a convenient means for carrying the traces. The invention consists in constructing a combined harness loop and trace carrier with a loop or frame having outer and inner bars upon the front, rear, and side parts to receive the harness straps, projecting pins upon its inner bars to hold the harness straps in place, and a rod having hooks formed upon its ends and a projection upon its middle part, whereby the cockeyes of the traces can be received and held, and are not liable to become accidentally detached, the cockeyes as they pass over the hooks causing the pressure of the back strap against the projection on the rod to force the ends of the hooks down against the loop or frame and to hold them there.

Mr. Michael Angelo McGuire, of Cincinnati, Ohio, has patented an improved trunk and valise frame. The object of this invention is to provide a frame for trunks, valises, satchels, etc., which is light and durable, and insures a good fit of the body and lid of the trunk or valise on each other. The frame of the body, and also the frame of the lid of the trunk or valise, is made of metal, shutting one down upon the other when the lid is closed, and each provided with a projecting rib on its inner surface. The leather, the edges of which rest against the ribs, is riveted to the inner sides of the frames and to inner metallic binding strips. The construction is a very serviceable one.

Mr. Benjamin O. Branch, of Friar's Point, Miss., has patented an improved broiler, which is simple, cheap, and efficient. The object of this invention is to provide an improved device for broiling meats, etc., in front of a fire, so that the articles broiled shall not be flavored by the smoke from the fire. The invention consists of a disk having straight pins projecting from its face for holding the meat to be cooked, said disk being pivoted so as to revolve vertically on an upright standard whose lower end is secured in a pan which is designed to