

can thus be very much lessened, and the profits of well owners, brokers, and all concerned, correspondingly increased. Pumps are wanted, boring tools and engines are required, besides a host of minor auxiliaries not necessary to specify. Let oil men make their wants known in this particular and they can be supplied with any machine required. Ingenious men connected with operations of the character in question should keep their eyes open. Fortunes have been pumped up out of the ground in a week, out there are a good many above ground still, and those who shall seek shall find.

#### CONCERNING VALVES.

When a feed pump becomes deranged the first thing the engineer thinks of examining is the valve seats. They are so universally a cause of trouble that the ingenuity of inventors has been exhausted to facilitate the inspection of these parts. Bolts are made ready to cast off at a moment's notice, and bonnets are so contrived that they may be quickly disengaged. The trouble with valve seats frequently arises from imperfect construction. Valves are of so many different kinds, however, that some discussion of the several varieties may not be out of place. The ordinary circular brass valve with a brass seat, sometimes called a clack valve, is one generally used in small pumps for feeding boilers, and other uses. They are sometimes made with flat seats, but are oftener conical in form, and when thus made are frequently defective from bad proportion. The taper is made too slight, so that in rising and falling the valve becomes jammed in its seat, and refuses to work. Valves with spindles often leak from the spindle being bent; a very slight bend, not visible except by putting the valve in the lathe, is enough to disable the pump. Muddy water is also a source of trouble in this respect. These valves work very well in pumps where not over four or five inches in diameter, but beyond that size a better substitute is found in a vulcanized india-rubber disk. The disk in use varies from half an inch in thickness to two and a half inches, according to the area of the passage; and the seat is simply a grating, with the sharp edges rounded so that the valve will not be cut by them. In spite of this precaution, however, the valves wear rapidly when large, by reason of the heavy pressure from above. This objection has been measurably overcome by employing a number of small valves instead of a single large one. This plan, again, has the disadvantage of necessitating small bolts and narrow openings in large pumps and heavy buckets, so that the small fixtures are often knocked off and broken by the violence of the water in meeting, or passing through them. These small valves and openings also churn the water into foam, so that the pump is much less effective than when lifting a solid column.

Of old the ponderous metallic butterfly valves were used in marine steam engines for foot valves, outboard delivery valves, and the valves at the nozzle of the air pump, where it delivers its contents to the hot well. These valves weighed upward of 200 pounds each, on heavy engines, and the thumping and pounding when they were at work may be imagined. It was a great improvement when they were deposed by rubber valves, as they now are universally. Force pumps on screw engines and locomotives have usually much larger valves and openings than common pumps, and in marine engines they are invariably of vulcanized rubber. Ball valves were formerly much used, but are not now in modern steam engines. The objection to valves of this form is that they fill the water ways above, unless a side passage be made for the water in the valve chamber. When made of rubber it answers well in small pumps. Metallic balls are used, but they are costly to make, and are not always tight; they are also heavy, and batter the seats.

Much ingenuity has been expended in making valves in complicated forms, but such methods are, in our opinion, wrong. Simplicity of construction in a steam engine is the first requisite, for from it generally arises other good qualities. The puppet valves of marine engines were first made of cast-iron, and were single disks. Intelligent engineers, however, prefer to use double beat, or balanced valves instead, not only on account of the reduced labor in handling the engine, but also from the decreased wear and tear of the parts which operate them. Mere force can as well be

applied to a single disk valve as to raise an anchor, but it requires no judgment to apply it, and is a simple question of areas. Instead of being iron they are now brass and iron, in such proportions that the greater expansion of the softer metal is compensated for by its reduced quantity. When this proportion is observed the valves are perfectly tight, and will remain so with proper care.

#### GREASE BALLS.

Mr. Gilbert Valentine, engineer at Messrs. Harper & Bros., in this city, recently called at this office with some balls of grease which had collected in the exhaust pipe of his engine to such a degree that the opening was practically closed. These balls were sixteen in number, and we are informed that there were six more. They are about an inch and three-quarters in diameter, in appearance black, and of the nature of black-lead in consistency and fracture. They cut easily and leave a shining mark under the knife. Mr. Gilbert informs us that he uses nothing but tallow in his cylinder. The formation of such balls is not unusual in steam engines, and we have seen them taken from locomotive cylinders and other engines in localities where hard water was used. They are principally composed of tallow, which combines with the impurities in the water carried over by the steam, together with such foreign matter as may accidentally be introduced to the cylinder. The wear of the surfaces in contact, such as the packing and the cylinder, is also carried off by the grease, so that a portion of iron is contained in them. These balls often accumulate in the bottom of the cylinder ports, and, where the clearance is great behind the piston, or before it, have been known to knock out the head by being blown out of the port into the cylinder. Balls formed in engines operating in limestone regions, or where the water is unusually calcareous, are frequently as hard as stone. Those which Mr. Valentine brought us are the largest we have ever seen.

Some engineers use black-lead in cylinders that have been badly scratched, and the presence of this mineral is exceedingly favorable to the formation of grease balls. The existence of them shows the necessity of frequent examination of all parts of steam engines, especially the pistons and ports, or those points where such accumulations are likely to occur. The passage of the exhaust pipe alluded to was almost stopped by the presence of eighteen solid balls nearly two inches across.

#### EXPANSION OF LIQUIDS.

In a former article we treated of the degrees of expansion of certain metals and other solids. Gases and liquids expand also, but in different ratios. The same liquid, water for instance, expands unequally at different temperatures; but the law for its changes as well as for those of other liquids cannot be laid down with certainty. As a general rule, however, the fluids which expand the most are those which boil at a low temperature, as alcohol and some of the more volatile essences. The amount of force generated in the expansion of liquids is enormous, and this is taken advantage of by practical men in testing steam boilers with little or no labor, and with great certainty and safety. The plan is to fill the boiler as full of water as it will hold, close all apertures, and load the safety valve to the greatest amount the boiler will ordinarily bear. A fire is then kindled in the furnaces, as usual, and the heat causes the liquid to expand, long before it reaches its boiling point, with great force. Water expands very irregularly, with equal increments of temperature, between the freezing and boiling points; the whole amount of its expansion between the two degrees just mentioned is comparatively small, its coefficient of expansion being less than that of any other liquid, except mercury. The most noticeable irregularities in the expansion of water occur between 32° and 40°, and, what is most singular, while all other fluids have the greatest density at their freezing points, that of water is shown at 39°.2 Fah., and either above or below this point it expands. This fact is fully proved by experiments made with apparatus devised for the purpose, and it explains why but a comparatively thin coating of ice, compared to the body of water, is formed on the surface of rivers and

lakes, even in winters of great severity; for although water freezes at 32°, before that temperature can be reached the water on the surface expands, and although colder is specifically lighter than the warmer and larger bulk below on which it floats. Ice is then formed on the surface; and, being a bad conductor, prevents the water below from freezing to a great thickness by checking radiation.

#### FINED FOR NOT WORKING.

It seems that the race of Gradgrinds, that Charles Dickens speaks of in "Hard Times," is not yet extinct in England. An apprentice to an iron-founder in England, who lately plead guilty of having absented himself for one day from his work, was sentenced to one month's imprisonment, at hard labor.

That must have been a cheerful service which the youth rendered after this punishment. Employers are often foolish. Compulsion is no part of a youth's instruction in a trade; if he do not take to it cheerfully and naturally he is useless, and might better be out of the shop than in it. Apprentices are no longer bound in this country, and this reform has instituted itself. The character of our apprentices is too high to admit of even seeming vassalage, and when master and apprentice cannot agree it is time, for the self-respect of both, that they should part.

There is something to be said for both sides. Boys will be boys, and to expect a youth to come into a shop and lay aside forever all his youthfulness and become the sober journeyman is unnatural. A boy without spirit is no boy at all, and he must have recreation at proper times and seasons.

Eye service is useless. A boy that works while his foreman is present, and goes into ground and lofty tumbling when he is absent, is better out of the shop, for he wastes his own time and sets a bad example to others. Out of the shop the employer has nothing to do with him, and his time is his own; his morality and his accountability for misdeeds are also his own; he alone must answer for them.

If a youth wishes to learn a trade he will apply himself; it is his interest to do so; and if his master is wise he will encourage, but never enforce, attention. Keep boys apart. Recruits in the army are put with veterans, and soon make good soldiers. Fun is contagious, and one joker will infect a dozen steady fellows. Boys have their places in the shop as well as in the world, and they make journeymen as well as members of society. It is no part of the law of good sense or kindness to misuse them or be hard upon them.

#### BEWARE OF RAW PORK.

A few days since we observed a butcher tasting some raw sausage meat in his shop, and the act was immediately associated in our mind with a singular-looking bottle which Dr. Hallett, of Brooklyn, has standing on the table in his office. When we first saw this bottle we supposed that it contained strips of some white bark very nicely prepared. But Dr. Hallett informed us that it was a tape worm, which he had recently taken from the bowels of a man who contracted it by eating raw pork in California.

The old readers of the SCIENTIFIC AMERICAN will remember that the origin of tape worms in raw pork was pointed out in the pamphlet of Dr. Weinland, which was noticed on page 100, Vol. V., new series. As we have several thousand new readers we repeat the caution. Fortunately the tape worm is very rare, but when it does occur it is caused by eating raw pork.

#### BLOWING UP OF THE "ALBEMARLE."

The rebel ram *Albemarle* was destroyed on the 28th ult., by a torpedo, which was placed in position by a method that has been frequently recommended in the SCIENTIFIC AMERICAN. This method is to attach the torpedo to a boom extending forward from the bow of a swift vessel. It was demonstrated by Fulton that any vessel could be destroyed by the explosion of 100 lbs. of gunpowder in contact with her bottom. The difficulty has been to get the torpedo against the vessel's bottom and explode it there. Plans for floating torpedos down by the tide very rarely if ever succeed, and even when they are placed on the bottom vessels usually pass over them with impunity. But when a brave officer has a torpedo

on a boom projecting from the bow of his own vessel he can place it under the bottom of any hostile craft, provided his own vessel is swift enough, and is not destroyed before he can get in proper position.

The apparatus for handling the torpedo by which the *Albemarle* was destroyed was designed by Chief Engineer, Wm. W. Wood, of the navy. It was rigged on the bow of a small steam launch, and seems to have been so arranged that the torpedo could be lowered into the water when the hostile craft was approached.

The *Albemarle* was an enormous iron-clad ram, said to be far more powerful than the *Merrimac* or the *Tennessee*. She was lying in the Roanoke river, at Plymouth, surrounded by a crib of logs arranged to protect her from rams and torpedos.

The desperate enterprise of attempting the destruction of this great ship of war with a launch and 13 men was undertaken by Lieut. W. B. Cushing, of the navy. Selecting a dark, stormy night he proceeded silently up the river between the enemy's pickets, and driving the bow of his vessel among the logs that surrounded the *Albemarle*, he lowered the boom and by a vigorous effort pushed the torpedo under the overhang of the ram and exploded it. At the same instant a shot from the enemy on shore crushed through his little boat and demolished her. Calling to his men to save themselves, he jumped overboard and swam ashore. After hiding in the swamp through the day, he fortunately succeeded in finding a skiff, and reached our fleet at 11 o'clock the following night.

Never before in the history of warfare has there been a naval battle at such odds as this. The *Albemarle* is the second great rebel ram that has been disabled by a single shot.



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Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

**44,924.—Gang Plow.—S. H. Adams, Coulterville, Ill.:**  
I claim, first, Pivoting the forward ends of the plow beams, E, E, to a slotted lever, D, and supporting the rear portions of said beams upon a slotted lever, D', both levers, D and D', being capable of receiving a lateral or endwise adjustment, substantially as and for the purposes described.  
Second, The combination of the intermediate beam, G, lever, D, and hinged plow beams, E, E, with the adjusting lever, J, substantially as described.  
Third, The laterally and vertically adjustable levers, D D', pivoted to the supporting frame, A, B, and adapted to form a forward pivot connection and a rear support for the plow beams, substantially as described.  
Fourth, The vertical guides, e, e, applied to the laterally adjustable lever, D', in combination with the pivoted plow beams, E, E, and lever, D, substantially as described.

**44,925.—Spring.—Henry A. Alden, Matteawan, N. Y.:**  
I claim, first, The employment of concavo-convex plates fitted in pairs upon a spindle or axle, in such manner as that the convex and concave surfaces shall be opposite, in combination with perforated vulcanized india-rubber disks mounted upon said spindle, when interposed between the said plates and enclosed within their concavities, substantially as set forth.  
Second, In combination with concavo-convex plates fitted upon a spindle, as described, I claim indenting the plates along their circumference in such manner as to increase their elasticity to compression from the center towards the circumference, substantially as set forth.  
Third, In combination with concavo-convex plates fitted upon a spindle and indented along their circumferences as described, I claim the use of vulcanized india-rubber disks interposed between said plates, in the manner and for the purpose set forth.  
Fourth, In combination with concavo-convex plates indented along their circumferences and fitted upon a central spindle, I claim the mode herein described, or its substantial equivalent, of locking the plates constituting a pair, in the manner and for the purpose set forth.

**44,926.—Instrument for making Cigarettes.—Louis L. Arnold and Francis X. Hazman, New York City:**  
We claim, first, The machine for making cigarettes substantially as herein described, the same consisting of a suitable hinged frame containing rollers, in combination with an endless band when the same is coated with vulcanized india-rubber so as to impart rolling friction with yielding pressure, substantially in the manner and for the purposes set forth.  
Second, In combination with an endless band and two rollers hung in a hinged frame, as described, we claim making the said frame of a skeleton form, substantially in the manner and for the purposes set forth.  
Third, We claim the combination of rollers, vulcanized india-rubber band, and skeleton frame, the whole being constructed and arranged for operation substantially in the manner herein set forth.  
**44,927.—Buckle.—Isaac Bannister, Newark, N. J.:**  
I claim the holding-bar, a, or its equivalent, when placed in the position, and for the purpose specified.

**44,928.—Mode of uniting Metallic Surfaces.—Wm. B. Barnard, Waterbury, Conn.:**  
When a metallic rivet, screw, or screw socket is covered or partially covered by an envelope or coating of india-rubber, paint, or other suitable insulating material, I claim combining such insulated rivet, screw, or screw socket, with a metallic plate, by inserting it in a simple cavity in said plate, and then securing it therein by means of the punch, A, formed and employed as herein set forth.

**44,929.—Machine for nailing Boxes.—C. Baur and W. C. Munder, Newark, N. J.:**  
We claim, first, The employment or use of a rotating nail-carrier in combination with a reciprocating nail-driver and suitable table supporting the boards or boxes to be nailed, substantially in the manner and for the purpose specified.  
Second, Making the nail-driver, with a shoulder, k, substantially as and for the purpose set forth.  
Third, Depressing the belt, E, by the automatic action of the machine, substantially as and for the purpose described.  
Fourth, The automatic feed mechanism in combination with the nail-carrier and nail-driver, constructed and operating in the manner and for the purpose substantially as herein specified.

**44,930.—Apparatus for compressing Air Gas, etc.—Salmon Bidwell, Philadelphia, Pa.:**  
I claim a series of barrels of different diameters provided with piston valves, and arranged to operate in unison with each other, substantially as herein described, so that the elastic fluid compressed in the larger barrels shall pass directly into the smaller barrels, to be there further compressed, as set forth for the purpose specified.

**44,931.—Hydraulic Indicator.—Robert D. Bradley, Preston, Md.:**  
I claim, first, The float, B, slide, R', arm, C, and lever, D, employed in connection with the indicator, E, substantially as and for the purpose set forth.  
Second, The employment of a spring, F', and wheel, F', operating in connection with the float, B', to turn the cam, G', and operate an alarm apparatus, in the manner explained.  
Third, The cross heads, M, and wires, I, L', employed in combination with a float and indicator, as and for the purpose set forth.  
[This invention is of great value to persons interested as to the height of water in streams, etc. It consists essentially in the employment of the alarm mechanism of a clock in connection with a float.]

**44,932.—Take-up of Circular Knitting Machines.—Henry Brockway, Cohoes, N. Y.:**  
I claim, first, The combination with the stationary cam, B, and take-up roll, D, of the levers, E and j, pawl, k, ratchet wheel, l, gears, g, f, shaft, i, endless screw, c, and worm wheel, b, the whole applied and operating, substantially as herein specified, to produce the desired result, substantially as herein specified.  
Second, The shaft, y, with its arm, y2, and crank, 5, the link, 6, or its equivalent, and the lever, x, applied in combination with each other and with the frame, H, ratchet wheel, l, pawl lever, j, and cam lever, F, substantially as and for the purpose herein set forth.

**44,933.—Faucet.—John Broughton, New York City:**  
I claim, first, The arrangement of the rotating disk valve, F, working in the interior of the supply chamber in combination with the elastic seat, n, spindle, H, and handle, substantially as described.  
Second, The employment of the spring, O, to keep the valve in contact with its elastic seat, independent of the pressure of the fluid when arranged in conjunction with the spindle, H, the discharge chamber, B, and the handle, J, substantially as described.

**44,934.—Fire Escape.—Richard Chandler, New York City:**  
I claim the arrangement and combination of the devices, A C E F and H, when arranged, combined, and operated as herein described, and for the purposes set forth.

**44,935.—Mowing Machine.—Alzirus Brown, L. G. Kniffen, and Thomas H. Dodge, Worcester, Mass.:**  
We claim in combination with the ratchet quadrant sheave, T, the self-acting pawl, h, when applied, constructed, and operated substantially as and for the purposes described.

**44,936.—Trunk.—E. S. Clapp, Montague, Mass.:**  
I claim, first, The combination of a trunk, or its equivalent, with wheels for transporting it, so arranged as to be concealed within its outside walls when at rest, substantially as described.  
Second, I also claim constructing trunks for transporting baggage and other goods, with cavities to conceal wheels and their necessary connections, which can be projected from and returned within their cavities by means of one of the handles of the trunk, substantially as above described.  
[This invention consists in so constructing an ordinary trunk as to make it capable of being transported upon self-contained wheels, which are concealed when the trunk is at rest, and projected from its sides when it is about to be moved, so that it may be wheeled after the manner of a cart to the desired point, thereby saving the labor of lifting it and the expense of portage.]

**44,937.—Unloading Grain from Cars.—Elihu M. Clark, Detroit, Mich.:**  
I claim, first, A shovel or scraper, N, attached by a cord or its equivalent to a drum, B, rotated by any suitable power and adapted to be automatically thrown out of gear as the shovel approaches the end of its stroke, substantially as herein described.  
Second, I claim the hinged or swinging frame, L, employed in combination with the shovel, N, and drum, B, substantially as and for the purposes set forth.  
Third, I claim the automatic clutch movement, C D F G H, operating in combination with the aforesaid shovel, N, drum, B, and cord, T, substantially as specified.

**44,938.—Composition for Pavements, Roofing, etc.—Joseph Clarke, Syracuse, N. Y.:**  
I claim the manner herein described of making and laying composition pavements, roofs, and floors.

**44,939.—Spring-brim Hat.—Smith Collins, New Haven, Conn.:**  
I claim a hat constructed of flexible material, its rim extended and formed retaining by means of one or more concavo-convex or corrugated steel hoops, substantially as and for the purpose herein set forth.

**44,940.—Artificial Lump Coal.—Richard Covert, Brooklyn, N. Y.:**  
I claim, as a new article of manufacture, the artificial lump coal consisting of coal, asphaltum and petroleum mined by heat and stirring and aggregated by pressure, as herein before described.

**44,941.—Cork Hat.—A. C. Crondal, New York City:**  
I claim a cork hat made of prepared cork, as herein shown and described.

**44,942.—Grinding Mill.—Henry P. Crouse, Hartland, Mich.:**  
I claim a shoe for the hoppers of mill stones, provided with a screen, B, having a partition or barrier, g, attached to it with openings or notches, h, h, in its lower edge, in connection with the opening, a, in the bottom of the shoe, and the opening, i, in the front end of the shoe, with the stone, e, with or without the oblong spout, b', substantially as described.

**44,943.—Bee-hive.—Jacob and Henry A. Earhart, Campbelltown, Pa.:**  
We claim the construction of a hive with the two doors, A, B, shelf, F, drawers, E, glass slide, K, cross pieces, G, and slats, I, 2, 3, 4, when these several parts are arranged relatively to each other, and to the hive, specifically in the manner shown and described.

**44,944.—Composition for flocking Cloth, Paper, etc.—Amelie Erhard, New York City:**  
I claim the mixing of the several powders, substantially as above described, with the rocks and the application of the same to the varnished tissue, thus producing the beautiful appearance which the cloth velvet presents, and which combination has never before been known or used.

**44,945.—Machine for raising Sheet Metal Pans.—Henry Facks, New York City:**  
I claim the tilting platform, E, applied in combination with the

dies, C, in the manner and for the purpose substantially as herein shown and described.

**44,946.—Polishing the Soles of Boots and Shoes.—Othniel Gilmore, Raynham, Mass.:**  
I claim combining with the polishing or leveling roll or tool a rocking jack for turning the shoe under the action of the roll, substantially as set forth.  
And I claim so arranging the jack carriage and the mechanism which impels the polisher, that the polisher has a reciprocating movement but partially over the surface to be polished, while the carriage is fed through this plane of movement, substantially as described, to bring the entire length of surface to the action of the polisher.

**44,947.—Pendulum Sight for Ordnance.—Wm. F. Goodwin, New York City:**  
I claim, first, A pendulum sight consisting of graduate standards, F F, supported upon a point, D, resting in a cavity, b, in a bracket, B, projecting from the rear of the gun, as herein set forth.  
Second, I claim the combination of the arms, H, H, with the standards, F F, weight, G, and bracket, B, all constructed, arranged, and operating substantially as and for the purposes specified.  
Third, In combination with the graduated standards, F F, and notched slides, S, I further claim the additional graduated extension bar, I, provided with a sighting notch or aperture, l, at its upper end, as described.  
Fourth, I claim the pressure rod, g, adapted to operate substantially as and for the purposes described.  
Fifth, In combination with a gravitating or pendulum sight and spirit level, M, I claim the tube, N, and outer casing, O, arranged and applied as described.

**44,948.—Making Paper Collars.—Allen F. Gray, Boston, Mass.:**  
I claim a paper collar in which the finished form is given by treatment of the neck band, substantially as set forth.

**44,949.—Bee-hive.—Henry A. Hannum, Cazenovia, N. Y.:**  
I claim the combination and arrangement of the removable angular side, b' b', slide, D, and rigid slide, b, of the hive, in such a manner that the interior of the bottom of the hive may be opened, and a lighting board formed for the bees, and a space formed to retain the slide by the angular position of said sides and without the danger of clogging by filth, substantially as herein set forth.

**44,950.—Grinding Mill.—C. A. Harper, Canterbury, N. H.:**  
I claim the arrangement of the bolting chest, Z, reel, X, temper screw, O, main shaft, y, and feed regulator, C, when constructed and operating substantially as described.

**44,951.—Machinery for oiling Wool.—George Shaw, Harwood, Newton, Mass.:**

I claim, first, The method herein described of oiling wool whilst being fed to a carding or other wool-preparing machinery by means of an apparatus attached to and working in unison with said machinery and operating as set forth, by showering or dripping the oil or lubricating compound upon the wool, either directly or through the intermediary of a pressure roller.  
Second, The method herein described of oiling wool whilst being fed to a carding or other wool-preparing machinery by means of an apparatus attached to and working in unison with said machinery, and operating as set forth, by first agitating and then showering or dripping the oil or lubricating compound upon the wool, either directly or through the intermediary of a pressure roller.  
Third, The method herein described of oiling wool whilst being fed to a carding or other wool-preparing machinery by means of an apparatus attached to and working in unison with said machinery, and operating by applying the oil or lubricating compound upon the wool in parallel and equidistant lines, substantially in the manner and for the purpose set forth.

Fourth, In combination with carding or other wool-preparing machinery I claim an apparatus for oiling the wool whilst being fed to said machinery, the same consisting of a revolving perforated cylinder arranged for action, substantially as set forth.  
Fifth, I claim the combination of a revolving perforated cylinder with internally projecting arms or other means for agitating the oil or lubricating matter before being dripped from the cylinder, substantially as set forth.  
Sixth, I claim the revolving oiling cylinder when provided with holes arranged in rectilinear series, in the manner and for the purposes set forth.

**44,952.—Machine for preparing Moldings.—Gustave Henze, New York City:**  
I claim, first, The box, E, provided with a jacket, F, for steam or hot water, and applied in combination with the guide ways, C, and scraper, G, in the manner and for the purpose substantially as herein shown and described.  
Second, The endless carrying belt, C', in combination with the box, E, and scraper, G, constructed and operating substantially as and for the purpose set forth.  
Third, Giving to the scraper a beveled edge with flanges projecting over the sides of the molding, substantially as and for the purpose specified.

**44,953.—Revolving Fire-arm.—Freeman W. Hood, Worcester, Mass.:**  
I claim, as my invention, the application of the waste cartridge or shell discharger, E, to the spindle, D, of the magazine, substantially in manner and so as to operate therewith as described.  
And in combination with the spindle, D, the discharger, E, and the series of detachable cartridge tubes or carriers, a a a, etc., combined together and with the barrel and the rotary magazine as set forth, I claim the latching mechanism so arranged as to serve the double purpose of retaining the cartridge cases and locking the spindle, substantially as explained and represented.

**44,954.—Machine for cutting Threads in Nuts.—Wm. W. Hubbard, Philadelphia, Pa.:**  
I claim, first, A series of taps arranged in a circle, and caused to revolve round the center of the same and round their own axis.  
Second, The plate, J, with its chucks, 7, and the dove-tailed recesses in the same, in combination with the said revolving taps.  
Third, The combination of the spindles and their taps with the adjustable reservoir, G.  
Fourth, The plate, q, arranged beneath the plate, J, substantially as and for the purpose set forth.  
Fifth, The plate, H', with its inclined teeth, tubular projections, r, and spindle, w, in combination with the worm, U.  
Sixth, The union, T, on the shaft, P, the bevel wheel, N, and cog wheel, M, and sleeves, K, with their pinions, l, the whole being arranged and operating substantially as set forth.  
Seventh, The shaft, C, with its wheels, f and h, adapted to each other, as set forth, in combination with the spring treadle, E.

**44,955.—Corn Planter.—William G. Kenedy, Greenfield, Ind.:**  
I claim a seed-dropping or seed-distributing device composed of a slide, O, elastic cut-off, Q, a valve, H, and a spring, L, all arranged and applied so as to be actuated by the driver at the rear of the machine, substantially as set forth.

I further claim the guards, G, when arranged and applied to the machine in relation with the shares, D F F', to operate as and for the purpose specified.

**44,956.—Harvester.—M. C. Kilgore, Washington, Iowa:**  
I claim, first, The box or chamber with its lever and arm and hooks or arms of the shaft, n, for receiving and dropping the grain or sheaf, arranged and operating as set forth.  
Second, The horizontal and inclined aprons in combination with the box or chamber having a movable bottom, and with the hooks or arms of the shaft, u, arranged and operated substantially as described.

**44,957.—Tool for Watch-repairers.—E. M. Kimball, Toledo, Ohio:**  
I claim, first, The screw holder consisting of a plate having a system of holes arranged substantially as herein described, for the reception of the screws of a watch, for the purpose herein set forth.  
Second, Constructing the said screw-holder with a central foot or pedestal, with a central hole or socket, l, substantially as and for the purpose specified.

**44,958.—Detachable Metal Button.—Thomas Kirk, Waterbury, Conn.:**  
I claim a button with a detachable eye, which is held to the button by pressure from within the button, substantially as above described.  
[This invention consists in constructing a button so that the eye can be detached therefrom and again applied thereto at pleasure, being held in place in the button by spring pressure.]