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Multiplied Gearing and Horse-Power.

The annexed engravings are views of a very ingenious invention for multiplying gearing, by Frank Dibben and Lewis Bollman, of this city (N. Y.) for which a patent was granted on the 9th of last month, the claim of which was published on page 390, and under which we stated that "an engraving of the invention would soon be presented."

The engravings represent three different forms of the gearing. Figure 1 is a front view of a gear for multiplying the speed of the driving shaft 100 times; figure 2 is a longitudinal section of the same; figure 3 is a longitudinal section of another form of the gearing, and figure 3 is a vertical section of a horse power to which this gearing is applied. The same letters refer to like parts.

In figures 1 and 2, A is a stationary ring having eleven teeth on its inner periphery; B is an internal wheel with 10 teeth; it is fastened on the shaft, G, which is capable of revolving in the centre, *e*; C is an external wheel with ten teeth gearing into A, and D is another wheel similar to C, but having nine teeth gearing into B. The wheels, C and D are connected together by screws, *a a a a*. E F is a crank shaft, revolving in the centre, *e*, of the rings, A B, its crank pin, F, is connected loosely to the centre *f*, of the wheels C D, so that when the crank revolves, the centre, *f*, is carried in a circle around the centre, *e*, whereby the teeth of the wheels will be constantly kept in gear with the teeth of the rings, but the actual point of contact is constantly changing.

Let us first examine the action of the pair, A C, for itself. The wheel, C, having one tooth less than A, will, after one revolution of the crank (suppose in the direction of the arrows, *l*, when the entire periphery of A, had been in contact with the periphery of C) have revolved in an opposite direction to the motion of the crank, through the angular distance of one division of its pitch, so that the position of the line, *f h*, will have changed to *f g*—the angle, *h f g*, representing the angular motion of C, after one revolution of the crank.

We will now explain the action of the second pair, B D. Suppose that the wheel, D, is incapable of revolving in space, although its centre, *f*, is revolving with the crank, so that a line, *g k*, drawn through the centre, *f*, of D, is in every position of the crank constantly vertical. The wheel, B, being capable of revolving, will now turn in the same direction as the crank, the distance being also one division of its pitch; the line, *e g*, will therefore after one revolution of the crank, be in the position, *e i*; *g e i* being the angular motion of B. But D being fastened to C, will not be in the condition we have above assumed, it will, by the action of the gear, A C, as above explained, be revolving at the same time when the angle, *h f g*, is describing in an opposite direction to the angular motion, *g e i*, of the wheel B, consequently the real motion of B will only be the difference between these two opposite motions, which is represented by the angle, *h e i*. Let *a b c d* represent the numbers of teeth or the diameters of the wheels, A B C D, then the relative speeds of the wheel, B, and the crank is represented by the following proportions:

Angular speed of B : angular speed of crank : : bc—ad : bc. Substituting the numbers of teeth in our example we obtain $10\times10-11\times9 : 10\times : : 1 : 100$. Consequently the crank, E, will revolve 100 times where B revolves once.

When the axes, *e* and *f*, are parallel as in the figures 1 and 2, the difference between the diameters of A and C must be the same as between B and D, or the wheels would not gear; the length of the crank or the distance between the axes *e* and *f*, must also be equal to one-half the said difference between each pair of wheels; but if these two axes are so arranged as to meet in one point, the relative differences between the diameters of the wheels of each pair, and the relative distances of axes, *e* and *f*, will vary according to the distance at which the wheels are placed from the point of meeting of both axis, and to the angle at which the axes are placed to each other. In figure 3 *e e* and *f f*, represent the axes of the wheels, which meet in the point, *e'*. As in every other gear the surfaces of the teeth must represent part of a cone which has its apex in the meeting point, *e'*, consequently the wheels must now be bevel wheels; A is the stationary ring; C is the wheel gearing with A, and fastened on the shaft F, which rests with its spherical end in *e'*, in a corresponding socket at the extremity of the shaft, G, the other end of F, is loosely connected with the crank, I, revolving with the shaft, E, so that, when the crank revolves, the shaft, F must also revolve around the line, *e*, giving thereby to the wheel, C, a peculiar rolling motion, by which the teeth of C, will be brought successively in gear with those of A. The action of this pair is exactly the same as that above explained for the same pair in figures 1 and 2, namely, the wheel, C, will revolve in an opposite direction to the motion of the crank. We may now place the second pair, B D, having any other difference of diameters, at such a distance from the point, *e'*, where the distance, *o p*, between the axes, *e f*, is just equal to one half the difference of the diameters, the less this difference, the nearer must they be placed to *e'*, and if this is =0, or if they are both of the same diameters, the position will be at the point, *e'*, where the axes, *e f* meet, which is the case in figure 3. The increase of speed is here due only to the pair, A C, while B D are only for the purpose of transmitting the revolving motion of F to G, allowing at the same time the other extremity of F, to make the circular motion around *e*. In this case the speed of the crank is as the difference of diameters of A and C is to the diameter of the revolving wheel, C, which is in the engraving as 1 : 5, consequently when G revolves once E revolves 5 times.

This form of gearing the patentees believe is well adapted for multiplying the speed of a propeller shaft, when the driving shaft can be put in the same line with the propeller shaft, which is mostly the case in oscillating engines. It combines great ease of motion with strength, and requires but little space on account of few teeth being required in comparison with other gears, and would occupy that position in ships which is the most advantageous.

To show how this gear can be applied for hoisting apparatus, reference is had to the dotted outside lines in figure 3. Suppose H to be the cylinder on which the rope is to be wound revolving on the supports, J L, and also the ring, A, to be cast with this cylinder in one piece. The shaft, G, is fastened to the support, J, so that the wheel, B, is now stationary, or G may also be connected with a friction wheel, by which it is kept stationary or made to slip, if the rope was to be unwound, when the crank shaft, E, which passes through the support, L, is turned, the ring, A, and with it the barrel, H, will turn in the same direction as the crank, the difference of speed being as 1 : 6, in this case, but any greater difference may be obtained by increasing the diameter of C. It will be seen by this arrangement that all the machinery is inside the barrel, H. When the wheels, B D, are of equal diameter, their action will be equal to that of a universal joint, the latter may therefore then be substituted for B D. Such an arrangement is shown in figure 4, which represents the vertical section of a Horse Power now on exhibition at the Crystal Palace.

A is a stationary bevel gear with 50 teeth, the surface being drawn in the direction of the meeting point, *e'*, of the axes *e e* and *f f*; G G is a stationary hollow shaft, being connected to the wheel, A, by six arms, *a a*, all being cast in one piece. On this shaft revolves the piece, B, to which the horses are connected by means of beams, L, fastened to it; D is a universal joint ring, which is connected to B, by means of two pins, *d d*, which rest in suitable bearings in B, so that D hangs freely on these pins; C is a toothed ring with 51 teeth gearing into A, which is connected with D also, by two pins, *d' d'* (one of which only can be seen in the section in dotted lines near, *e'*) to the ring, D, in the same manner as D is connected to B, both connections being at right angles to each other. This connection forms a universal joint, and allows the ring, C, to make that peculiar motion, as C in figure 3, keeping it at the same time in connection with B, so that B cannot revolve without C revolves with it; E is a shaft which passes through G, to which is connected the crank, I; O is a cross-piece turning freely on the crank-pin, F, which is connected by four bars, *n n n n* (three only are seen) to the ring, C, into which the bars are cast. These bars in connection with I, represent the shaft, F, in figure, 3, and are for the purpose of connecting the axes *f f* of C, with the crank. When force is newly applied to B, it is transmitted to C, which, by gearing into A, tends to draw its axis *f f*, around the axis, *e e*, of the wheel A. This action will be more clearly understood by reference to figure 3. If we suppose *e' m f e'* to be a triangle resting at *m*, while at *e'* force is applied, which tends to turn it around the line *e' f*. Now as the edge, *m*, is supported, it can only turn around the line, *e' m*, while *e f* will make a sideward motion, but as *f* is forced by the crank to move in a circle around *e e*, instead of around *e' m*, the triangle will be drawn out of connection with its rest at *m*, while another such triangle is drawn in connection with another rest. Supposing now the wheel, C, to consist of a series of such triangles arranged around the axis *f f*, and the ring, A, another series of supports, the action of this gear will be easily understood. The speed obtained by the above horse power is as 1 to 50, so that the pulley, K, which is fastened on the shaft, E, will make 50 revolutions for one of B. The inventors generally apply, in place of the pulley, K, a bevel wheel which gears into another of half the diameter, on a horizontal shaft, so that the increase of speed is as 1 to 100. The diameter of A for two horses is only 30 inches. If it is required to transmit the motion to the upper part of a building, then they dispense with

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MULTIPLYING GEARING.

Figure 1.

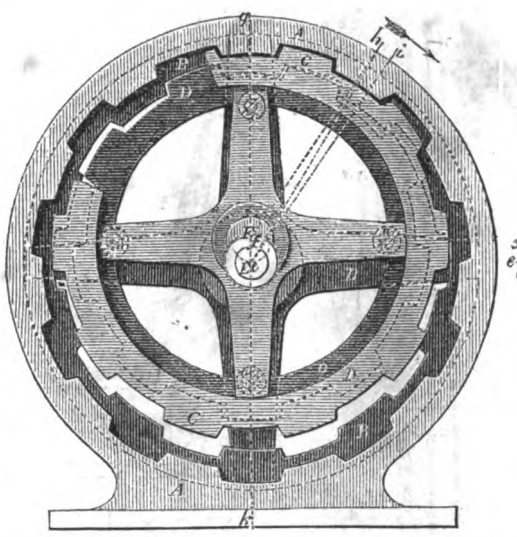


Figure 2.

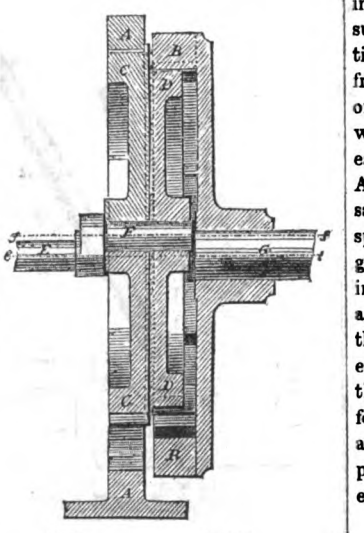
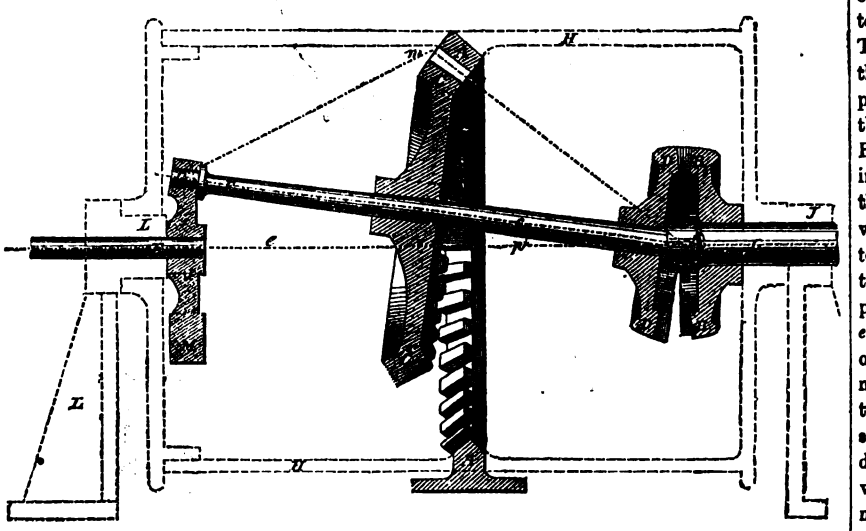


Figure 3.



Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING AUG. 30, 1853.

HOT-AIR FURNACES—By M. B. Dyott, of Philadelphia, Pa: I do not confine myself to any particular form of air-chamber or drums, I do not claim, separately, any of the devices or parts named, but I claim the combination of the internal cylinder or flue with the drums arranged in the manner described, by which combination a great amount of heating surface is exposed.

[See notice of this invention on page 188, this Volume Sci. Am.]

BENZOLE VAPOR APPARATUS—By Oliver P. Drake, of Boston Mass.: I claim the combination of the heater and gas burner with the water vessel and vaporising chamber, substantially as specified, so that by means of the said heater and gas burner, and the pipes connecting them with the water vessel, and the vaporising chamber, the whole or a part of the air and benzole vapor produced by the apparatus may not only be used in any convenient place for the purpose of illumination, but also for heating the water of the water vessel.

I am aware that for the purpose of evaporating saccharine fluids, a hollow shaft surrounded by plates and having perforations, has been made to revolve over an open cistern (containing the saccharine liquor) while air has been blown into such shaft, and made to pass against the plates partially immersed in the liquid and put in revelution. I therefore do not claim such, but what I claim for the purpose of vaporising benzole or other suitable volatile hydro-carbon, and mixing it with air, is the combination of the closed vaporising chamber, the rotary vaporizer or disseminator (placed therein) and the rotary meter wheel, and its closed case or an air forcing apparatus as made to force a stream of air into the hollow shaft of the vaporizer, and through or against saturated portions of the disseminator, and into the vaporizing chamber or regenerator so as to vaporize the benzole or hydro carbon, and mix it with air, substantially as above specified.

And in combination with the rotating meter wheel and its case, and the hot water vessel. I claim the coiled induction air pipe as made to pass through the water in the vessel, and thereby receive heat therefrom, so as to warm the air as it passes through the pipe, and to supply oxygen to the volatilized vapors, and for the purpose of facilitating the evaporation of the same.

In combination with the induction air pipe, I claim the chamber and its regulator slide and orifice applied for the purpose of supplying cold air to the warmed air or to the meter wheel, in order to diminish or regulate the temperature of the air passing into the said wheel and forced into the vaporising chamber.

I also claim the peculiar mode of making the rotary disseminator or vaporizer, viz, of two perforated heads or discs, a hollow perforated shaft, and strands of lamp wicking or other absorbent material stretched from one head to the other as specified.

And for the purpose of an air blast apparatus, I claim the application and use of the meter wheel, its closed case and liquid therein, substantially in the manner as above specified, not meaning to claim the method of using the meter for the admeasurement of gas, and wherein the wheel of the meter is turned by the gas itself, but meaning to claim it as having its wheel operated by a separate power and in conjunction with the water and closed case, and induction and eduction pipes as specified.

STOVE PIPE COLLAR—By R. R. Finch, Jr., of New York City: I claim the reversible collar constructed, arranged, and applied to a stove in the manner described.

[A notice of this useful invention is published on page 276, this Vol.]

STOVES—By Thos. S. Gore, of Jersey City, N. J.: I do not claim the spiral flues separately or irrespective of their arrangement; but I claim the spiral flues surrounding the cylinder, arranged and connected to the base, as described, for the purpose of obtaining a large extent of heating surface for the flues, and also for forming a space between them for the admission and heating of cold air, as set forth.

STEAM BOILERS.—By Benj. Irving, of Green Point, N. Y. Patented in France May 12, 1853: I claim, first, a boiler, composed of an external water-jacket of cylindrical or other form, with a steam chamber at the top, and with or without one or more inner water jackets connected with the outer water-jackets, as described, when either water-jacket contains one or more vertical coils of steam pipe, whose lower ends connect with one of the water jackets, and whose upper ends discharge into the steam chamber.

Second, drying the steam by passing it through a coil within or between the water-jacket, as set forth,

[This invention has attracted much attention in this country and in Europe, and promises to be valuable; it is worthy of attention, and we shall present an engraving of it in No. 1 of the new Volume]

CIDER MILLS—By John Krauser, of Reading, Pa.: I do not claim the employment of two or more pistons or plungers, in combination with the grinding cylinder, nor operating them by the machine itself, whether the motion derived therefrom be uniform or not

But I claim, first, so arranging the hopper with reference to the several operating parts of the machine, that the fruit or other substance contained therein shall not rest directly upon or against the roughened exterior of the grinding cylinder, but directly upon so much of the upper surface of the anterior ends of the pistons or plungers as shall be found operating or exposed within its enclosed sides, for the purpose of agitating the incumbent substance so as to insure and facilitate the filling of the cells, as the pistons recede from the cylinder.

And, in the second place, which is a consequent of the first, viz, to cause the incumbent substance to press upon the cumbent, or that contained within the cells, so as to oppose the upheaving or ejectment of the same whilst in the act of being pressed against the passing teeth of the revolving cylinder by the action of the alternating pistons or plungers, as set forth.

List of Claims.

Only about one-half of the regular weekly list of claims is published in this number.—The balance will be published along with the next weekly list in the first number of the new volume. The reasons for doing this will be obvious to our readers.

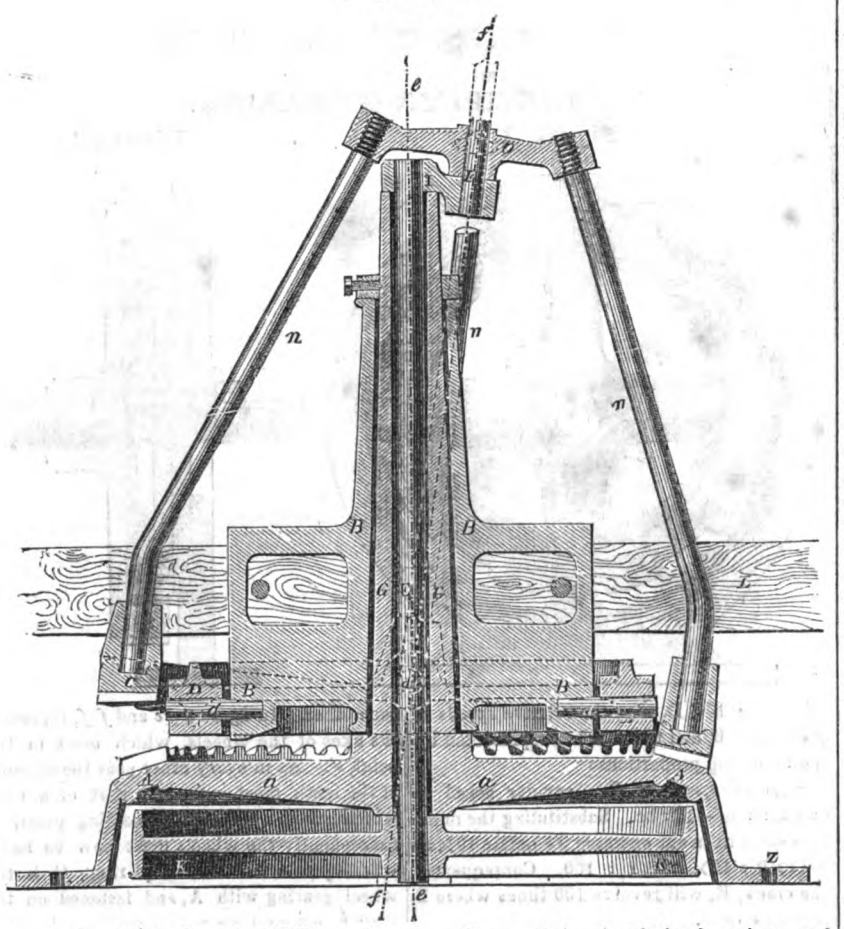
(*Continued from First Page.*)

the shaft, E, and the crank I, and fasten a long shaft into the centre of O, which is connected with a pulley, having a crank eye, and revolving in the line, *e e*, above the horse power.

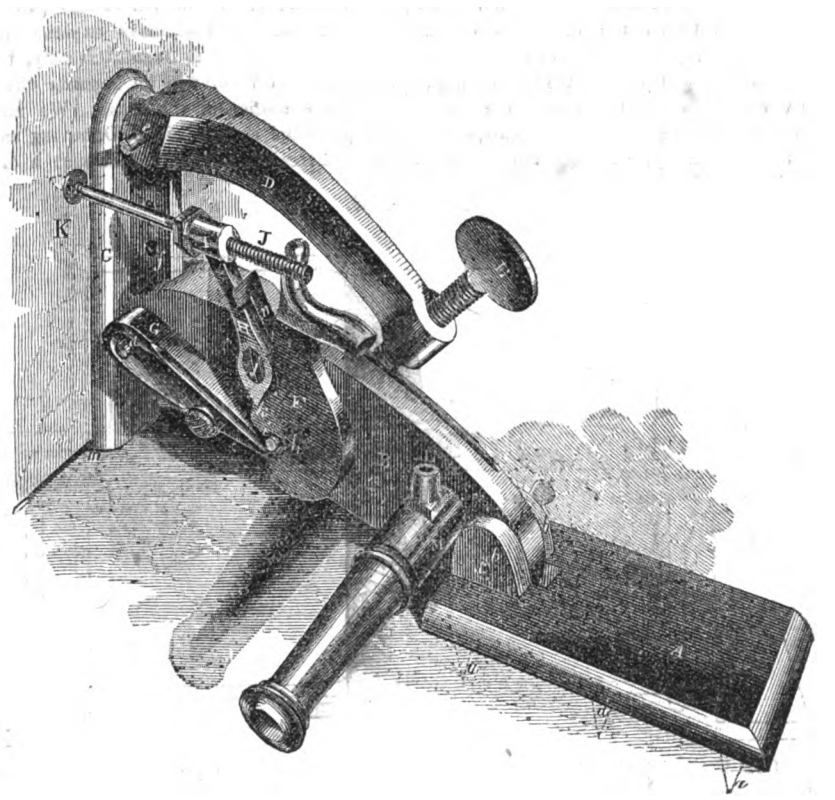
The advantages due to this gear are, firstly, it occupies a very small space, and possesses at the same time greater strength and compactness than other gear, there being only few teeth required to obtain a great difference of speed. Secondly, the gear being annular, there is but little slip between the teeth, consequently but little wear and friction. Thirdly, the motion is transmitted in the same line with the driving axis, which is in most cases convenient and often required. The patentees believe that this gear can be employed with advantage in most cases where common gear is now used, as it can be modified in many different ways. This invention requires close and careful scrutiny to understand its operations; it is singularly ingenious and worthy the attention of all mechanics, if for nothing but to study.

More information may be obtained by letter addressed to Dibben & Bollman, New York City.

Figure 4.



BURGLAR'S ALARM LOCK.



The annexed engraving is a Burglar Alarm Lock invented by D. E. McDougal, of Springfield, Mass., who has taken measures to secure a patent for the same. The nature of the invention consists in attaching to any door or window a portable clamp lock of a peculiar construction, which can also fire off a pistol if the door is forced in the act of opening. A is a small metal plate with prongs, *a a a*, on its under side, and is pressed down into the floor at night, behind the door; *b b* are two ears on the upper side of this plate, between which one end of a metal brace, B, is secured on a pivot *c*. The opposite end of this brace is secured by a pivot, *d*, to a vertical clamp, C; D is a guard secured by a pivot, *e*, to C; E is a screw in the guard; it rests upon the brace, B. The ends of the guard, D, and the brace, B, secured to the clamp, C, are slotted; *f* is a rib on the clamp fitted into these slots. The back ends of the slots are inclined, consequently the outer ends of guard and brace are prevented from rising beyond a certain height. F is a gun-lock hammer secured by a pivot, *h*, on the brace, B, and G is a gun-lock spring, which is also secured to the brace B. The largest end of G, fits into a recess, *i*, in the back of the hammer at the butt; H is a dog or spring catch attached to the brace behind the hammer. The lower end of this dog (as shown in the figure) catches by a *nib* into a small notch, K, in the shoulder of the hammer. The dog moves on a pivot joint, *j*, and *n* is a small spring to retain it in its place, and hold back the hammer, when the lock is set for operation. On the top of the dog, H, is a small eye, I. In this is inserted a small screw, pin, J, which has a nut, *r*, upon it, bearing against the eye; the outer end of this metal pin, J, bears against the door, B; M is a small pistol barrel attached to the brace, B, and L is the nipple on which the percussion cap is placed to ignite the charge.

OPERATION.—The plate, A, being pressed into the floor behind the door, the clamp, C, is placed against the door, K; it has also a small wedge, *m*, which is inserted under the door. The guard, D, is then adjusted by turning the screw, E, which presses the clamp firmly against the door. This screws the door so that it cannot be easily burst open, but for more security the pistol alarm is also attached and set as shown in the engraving. It will be observed that when the door, K, is pushed inward, the pin, J, will push forward the head of dog, H, and this will disengage it from the hammer, F, which will be forced down on the cap by the spring, G, and alarm the household, and if need be, it can be so set, as to make a burglar, forfeit his life, for his audacity. This lock is exceedingly simple and will readily be understood by any person who pays attention to the figures and description. More information may be obtained by letter addressed to the inventor. No watchdog, can bark so loud or bite so hard as McDougal's pistol lock.

Water Meters.

Improvements in apparatus for measuring the flow of water and other liquids, have been made by S. R. Wilmot, of New Haven, Conn., who has taken measures to secure a patent. The improvements relate to that description of fluid meters, consisting of a piston made to move reciprocally within a cylinder of known capacity, by the admission of the water on opposite sides alternately, and by which the flow of liquid is measured by registering the number of reciprocations of the piston. These kind of meters work with great accuracy, and the only objection to their use, is the great amount of friction—the piston, when tightly packed, requiring a considerable pressure of water to move it. The object of the new improvements is to remove the great amount of friction, and enable the piston to be moved with a low head of water. One improvement consists in forming an air seal or packing, to separate the water above from the water below the piston, by extending the piston upwards at its sides, in the form of an open topped tube or cylinder, to enter a narrow open bottomed but close topped chamber, which is formed around the upper part of the interior of the vertical working cylinder, and always contains a quantity of air, which cannot be expelled by the water. As there is no communication between the spaces above and below the piston, except this chamber, the air forms a seal or packing, and admits of the piston being made to fit so loosely to the cylinder as to produce a very small amount of friction. Another improvement is, that the piston is fitted with an air float, so proportioned to its weight, that it will preserve an equilibrium with the water, and offer no resistance to its entrance upon either side. All the mechanism through which the piston operates upon the valves is enclosed within the cylinder itself, or a water chamber above or below the cylinder, having free communication therewith, whereby the necessity for stuffing boxes and other packing, is obviated.

Improved Smut Machine.

G. B. Turner, of Cuyahoga Falls, N. Y., has taken measures to secure a patent for an improvement in smut machines, the nature of which improvement consists in a peculiar arrangement of scouring plates, screens, and a blast spout, in such a manner as to scour and cleanse grain in a more perfect manner. None of the parts, separate are new, but the arrangement of them is a superior one.

Scientific American

NEW-YORK, SEPTEMBER 10, 1853.

To Our Subscribers.

This number being the last of the present volume, our next will be the first of volume Nine, Scientific American. We return our sincere thanks to you, *our subscribers*, for your good will and energetic support of a journal devoted to the arts, sciences, and inventions of our country; "your breath has filled our sails." With no small degree of pleasure we acknowledge the addition of between three and four thousand new subscribers to volume eight, and we hope that as many more will become new subscribers to Volume Nine. It is well known to our readers that as our circulation has increased, we have added improvements to our paper; this will always be our policy, and our next volume will therefore be superior to all that have preceeded it. Our circulation (nearly twenty thousand copies) is greater than that of any paper of the kind in the world. Our long experience, and our facilities for obtaining the most important information about inventions and discoveries in all parts of the world, and the number of our practical correspondents, give us superior advantages for presenting the most reliable and earliest information upon every subject new and useful relating to inventions and discoveries. Our advertisement page is of great benefit to our readers and those who advertise, as it presents information where articles of machinery and various manufactures are made and sold. We receive from the Patent Office the official list of patents, with the claims annexed, and publish them every week. All petitions for the extension of patents, are now published by us officially, the Scientific American having been considered by Judge Mason as the most suitable paper for that purpose in the country, it having the largest circulation among inventors, and those interested in American patents.

Considering the number and excellence of our illustrations, the quality and importance of the information contained in our columns, "the Scientific American is the cheapest and best mechanical paper in the world." We hope to continue the names of all our present subscribers on our books. We have confidence in the good will and the desire of our intelligent subscribers to spread useful information, that as heretofore we anticipate a large increase of new subscribers from your influence. If every subscriber could get another one, what a splendid paper we would present the coming year; this can be done and both you and us would be the gainers; you may depend upon it, that at any rate our next volume will be the best for which you have yet subscribed.

An Independant Mechanical Paper.

There is a real solid pleasure in doing our duty. Whenever an editor is cramped up by any considerations—either those of ignorance or selfish interest—that prevent him from speaking his sentiments freely, he is certainly placed in a very uncomfortable position, for he is nothing but a prisoner in ideas, and his lucubrations become as tame, insipid, and untrustworthy as the actions and words of any man placed under authority. As no man can be a safe leader of the people unless he is guided by confidence in himself, and in the strength of his cause, so no editor can be a safe guide unless he is impressed with the same feelings, and impelled with the like motives. It has always been difficult for truth to find its way into public notice, because it is surrounded with so much that is false, that people are either too skeptical on the one hand, or too readily deceived—owing to their want of knowledge—on the other. It is vain to say, "we live in an enlightened age, and the people are too intelligent to be deceived now by plausible deceptions." There never was a time in the history of the world when there was a greater necessity for a paper devoted to the analysis of new inventions, than there is at present. We have had too many glaring instances of ignorance in science, invention, and the arts, by those who are called enlightened" within the past year, not to be a warning to all of the way whereby the public may be easily deceived by those who are ignorant of such things. It is impossible for a man to be well informed about inventions now unless he makes them the business of his life; hence the necessity of a paper devoted exclusively to science and the mechanic arts. No man can now be intelligent either, in respect to science and the arts, unless he reads and studies such a paper. No truths, except those relating to the moral well-being of the soul, are so important as those relating to science, philosophy, and the arts; he then who is ignorant of them is ignorant indeed.

We contend for the progress of discovery, and are happy to herald new and useful improvements, and rejoice in the success of their authors; at the same time we know that the greatest obstacles to the progress and introduction of useful inventions, are those plausible and deceptive schemes—of no merit in themselves—by which the public are too often deceived under the name of "new and wonderful inventions." Sensitive do we feel on this point, and sternly therefore do we battle against the wrong, however strongly it may be supported, either by Secretaries and Captains of the Navy, wealthy merchants, railroad directors, and the public press in general. As our conduct has been, so shall it be, for we have more than ever, within the past six months, felt the importance—for the benefit of our people, and the honor of our country—of a useful and independent mechanical paper, one, that has a practical acquaintance with science and mechanics.

Look Back.

It is wise to review the past, and that not unfrequently, for experience is the best of all teachers; the scholar, however, who pays no attention to her lessons cannot be expected to acquire knowledge and wisdom. During the past year many very important improvements and discoveries have been illustrated and described in our columns, and the claim of every patent issued from the United States Patent Office for the past twelve months is recorded forever within the folds of this volume. No less than 421 beautiful engravings have illustrated the pages of this volume, which is on an average, more than eight for each number. The majority of the cuts are large—none of your scraggy vague outlines—many of them being three and four columns wide, and for execution they are the finest wood engravings of machinery to be found in books or periodicals in our country. We cannot ennumerate the subjects which we have illustrated, but let our readers, as we have said before, look over their pages, and review them once more, and they will feel more than ever the force of that truth—universally acknowledged—"the Scientific American is the Repertory of American Inventions."

Diving bells, gold crushers, boring wells, atmospheric telegraphs, sewing machines, water wheels, rock drills, plows, planing and carving machines, stave cutters, chucks, mortising machines, reapers, turning, and washing machines, grain dryers, furnaces, steam gauges, stoves, locomotives, new railroad improvements, and a great many other subjects have been illustrated in this volume.

Much valuable information has been presented, and no new scientific subject of importance has escaped attention.

In this volume our readers have our essays and illustrations of that stupendous *ignis fatuus* in engineering, the caloric ship. In the month of last February, our whole country, excepting sensible readers, was caloric mad, the past in this respect is food for wisdom in the future. We venture to assert, without any fears of contradiction, that every one of our readers has in volume eight, received some information, of more value to him than the price of his subscription, and which he could obtain no where else, and as truth is immutable, such information is invaluable for all time. The Scientific American is not like a mere newspaper, every volume is useful for reference, and will be more useful twenty years hence than now; it is an encyclopædia of useful information.

The Crystal Palace.

The Crystal Palace for the first time was kept open for evening exhibitions on Friday the 2nd inst. The machinery is now running, though this department is not yet filled up, but soon will be. There is much that is interesting, new, and useful, and much good judgment has been displayed by the Superintendent, Mr. Holmes. We can say but little on the subject this week, but we will illustrate many of the machines by-and-by, and will let no machine worthy of attention escape our notice.

The Picture Gallery is now open and contains some good pictures and some wretchedly poor ones.

The American department presents a great deal of which we have just reason to feel gratified.

There has been much talk among our citizens of reducing the price of admission to 25 cents. We think the Association would make more money if such a reduction was made, but the present price is not high for what is to be seen and learned; nay, it is low indeed, every visitor will get the full value of his money. Those of our friends and readers who live at a distance, and who have delayed coming to the exhibition till things were in better order, will not be disappointed now, come when they will.

We have not room to make any farther remarks this week, but our future numbers will contain descriptions and just criticisms of everything worthy of notice in the Palace.—Our comments will be useful for reference and guidance to all our readers.

Patent Office Instructions.

[CIRCULAR]

{ UNITED STATES PATENT OFFICE,
{ Sept. 1st, 1853.

The practice which has heretofore prevailed to some extent, of having the affidavit of the applicant for a patent on one piece of paper and the signature to the specification on another, so that both may be detached and applied to other papers, is deemed highly improper, and will not hereafter be tolerated. In such cases specifications will not from this time forth be received unless attached together by a tape, both the ends of which are secured by the seal of the officer who administers the oath, or something equivalent thereto, so as to prevent the possibility of removal and substitution. This rule will not, however, be insisted on in cases where the oath and specification are written on the same paper continuously, even although they occupy more than one sheet, but in that case the officer administering the oath must subscribe his name on every separate piece of paper on which the oath and specification are written.

Yours respectfully, CHAS. MASON,
Commissioner.

Important Suggestions.

Correspondents should give us their names and residences in full, then there will be no mistake in sending the paper. Letters not signed can receive no attention. Receipts cannot be sent by mail, if the paper is received it is sufficient evidence that the money has reached us. Volumes are substantially and carefully bound at this office for 75 cts. each. Missing numbers ordered are always sent when they can be supplied. The paper is always stopped when the time of pre-payment expires, we show no partiality in this respect, the rule is infallible, and the only one by which mutual satisfaction is secured. One dollar is charged for a copy of any claim granted within the past sixteen years. Engravings of new inventions are prepared and published in this paper at the bare cost of preparation, they belong to the inventor after publication. Volumes 6, 7 and 8 can be had bound $2,75, in sheets $2. Contributions of a practical character are solicited for publication, they should be as brief as possible, and pertinent to the point under consideration and accompanied by the real name of the author.

Notice—To Clubs.

We have had a number of letters asking "if a club could be made up and the papers sent to different post offices." We answer, yes. All the subscribers sent in a club are entitled to the reduction, although their papers may be sent to different post offices.—Let the name and residence of each be made out plain and full.

Lead Pipes and New York Water.

Dr. Wm. H. Ellet, of this city, has published a number of communications in the New York Tribune and the Times, on the evils of lead pipe, and the remedy for the same. As these communications have been published as advertisements, there must be a great amount of benevolence in the man who paid for them, and who has been at the expense of gathering so much information on the subject, if he has done so for the simple purpose of benefitting our citizens. He has published letters from Drs. Mott, Parker, Davis, Clark, and Gilman, wherein they state that neuralgic affections have greatly increased in this city, and this is attributed to the use of lead pipe in conducting the water which is generally used in this city, for domestic purposes.

The testimony which Dr. Ellett produces to show the injurious effects of lead pipe for conducting water is very strong, and this, together with his own experiments and analyses, in detecting the lead in the water, is something for the serious consideration of our people. The remedy which he proposes is the substitution of block tin pipes, for those of lead. It is not the first time that this same subject has engaged the attention of our people, and like every other one, different doctors have had different opinions about it. To avoid the evils of lead corosion, Mr. Ewbank (Ex-Commissioner of Patents) took out a patent a number of years ago, for coating the interior of lead pipes with tin. If this invention will answer every purpose, we do not see any use in making the whole pipe of block tin, which is so much more expensive than lead. Indeed, we do not see what is to prevent the use of small cast-iron pipes for conducting our water. They can be coated inside with glass enamel, and should answer as good a purpose as pipes made entirely of block tin. Perhaps Dr. Ellet has an interest in some tin pipe manufactory.

American Association for the Advancement of Science.

It is not in our power to give an abstract in this number of any of the papers read; the last number therefore contained all that we intend to publish at present. The proceedings, as has been customary heretofore, will be published by the city in which the Association met, and those of our readers who desire to obtain them must consult the authorities of Cleveland. We must say that we have a mighty small opinion of the liberality of the authorities of those cities in which the association has formerly met in respect to the printed proceedings, Albany for instance.

A great many of the papers read at Cleveland contained no practical information whatever, indeed, we must say that the discussion of *suppositions* formed the principal part of the proceedings. It is to be regretted that so much chaff is mixed up with the wheat.

To Our Correspondents.

Owing to the length of our excellent index, we are not able to devote our column of answers to you. In our next number you will receive proper attention.

Colt's Pistol.

Judge Mason, the Commissioner of Patents has refused to grant an extension of Colt's patent, for his repeating fire-arms. Reason, "the inventor has been sufficiently remunerated."

A New Patent Office Appointment.

Edward Shaw, of Connecticut, has been appointed to a $1,200 clerkship in the Patent Office, made vacant by the promotion of Dr. Forman to be an Assistant Examiner.

Putnam's Monthly.

We believe this magazine to be the best and cheapest monthly published in this country. The September number is issued, and to say it is only equal to its predecessors is a sufficient recommendation for it. G. P. Putnam & Co., publishers, 10 Park Place.

Improvement in Velocipedes.

Jesse Crandall, of New York City, has invented an improved velocipede, or vehicle to be moved by the rider. This velocipede is operated by the feet placed in stirrups, and moving alternately as in walking. Measures have been taken to secure a patent.

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Patent Claims.

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