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Contents:

(Illustrated articles are marked with an asterisk.)

FACTS ABOUT THE CROTON WATER SUPPLY.

One of our cotemporaries says, very irreverently, of the Croton, that it is "played out," and recommends resort to Artesian wells.

The aqueduct which conveys the Croton to the city is constructed to bring down 60,000,000 gallons per diem, but when the pressure is ample at the dam, which it is for ten months in the year, it delivers as much as nine or ten millions of gallons in excess of that quantity, and at the same time a vast amount of water runs over the lip of the dam.

Mr. Jarvis, some years ago, gaged the river at its supposed lowest point, and estimated the minimum supply at about 32,000,000 gallons, or about one half of the quantity required, and he recommended storage reservoirs to satisfy the wants of a future large population.

It will be recollected that in providing for its transmission over the High Bridge, the Commissioners then in charge laid but two iron pipes capable of carrying only a part of what the aqueduct brought, it being then supposed that the city would not require a larger quantity; but during Mr. Craven's administration of the Department additional pipes were laid equal to the whole power of the aqueduct. The growth of population and the use of the water for manufacturing purposes made this additional provision necessary.

Under the auspices of Mr. Craven, the Croton valley, which consists of 328·82 square miles, was carefully examined to ascertain its capacity to accommodate a still larger population, with its additional manufacturing wants, and it was found that in Putnam and Westchester counties there were fifteen places at which storage reservoirs might be conveniently constructed.

On the Muscoot, which receives the outlet from Lake Mohopac and falls into the Croton near Katonah; there were four of such sites. A, containing 485 acres, capable of storing 5,211,015,625 gallons. B, of 192 acres, capable of storing 1,701,835,207 gallons. C, 730 acres, capable of storing 6,589,101,562 gallons; and F, 600·75 acres, capable of storing 6,120,335,937 gallons. On the west branch of the Croton, which, after receiving the middle branch, unites with the east below Croton Falls village, there are three: D, covering 1,008 acres, and capable of storing 9,033,632,812 gallons; E, of 303 acres, to hold 3,369,206,857; and K, immediately above Croton Falls village, consisting of 512·74 acres, to contain 5,671,449,219 gallons. On the middle branch, two: L, 262·75 acres, to hold 2,328,218,733 gallons, and G, 452·19 acres, to contain 4,861,035,156 gallons. On the east branch three: H, containing 384·67 acres, to contain 2,490,062,500 gallons; I, 449 acres, to contain 4,205,820,651 gallons; and J, 191·38 acres, to contain 2,314,074,703 gallons. On the Titicus, which unites with the Croton at Purdy's Station on the Harlem Railroad, one, M, which floods 492·75 acres, to store 4,392,131,445 gallons. On Cross river, an affluent of the Croton, at Katonah, N, covering 197 acres, for storing 1,676,049,171 gallons; and O, on Beaver's Dam Brook, which crosses the Harlem below Mount Kisco, consisting of 239·47 acres, and to store 2,182,337,109 gallons. Their joint capacity exceeds sixty-one billions of gallons, and they cover over six thousand five hundred acres of land.

In 1867, Mr. Craven, finding that it had become necessary to guard against the want of water in a season of drought, procured authority to construct one of the fifteen reservoirs, which he had located; and after commencing the one marked G, and abandoning it, because of the danger of flooding the celebrated Tilley Foster iron mine, finally decided on building the one at Boyd's corners designated as E.

By reason of the failure of the original contractors, the dam at E, now raised (except at the north end) over 40 feet of the 64 which is required, is being worked by their securities under such disadvantages that it will not be finished much before 1871, but it is possible to use it in the summer of 1870 for storage up to the hight which may then be reached. It will be seen, however, as this reservoir is capable of holding 3,369,206,857 gallons, it will, when finished, supply 60,000,000 gallons per day for about fifty-five days, supposing that the evaporation and loss on its way to the main dam shall be equaled by the ordinary flow of the stream.

Inasmuch, however, as the Croton is supposed to furnish more than half that quantity in the season of the greatest drought, it is clear that the city will, even during dry seasons, be supplied with as much water as the aqueduct is competent to deliver.

The great drought which has prevailed for most of the summer, along nearly the whole Atlantic coast, was broken so far as this region is concerned, by the rain which fell on the last Saturday and Sunday of September; but as the ground was dry beyond any recent experience, the dam at Croton was raised only a few feet. The rain of Saturday evening and Sunday and Monday, the 2d, 3d, and 4th of October, had, however, a visible effect in swelling the Croton to the proportions of a freshet, yet although more rain is wanted, all fears of a scarcity of water may now be dismissed. Under any circumstances the minimum flow will furnish thirty gallons per day to each inhabitant, which is more than will be required for household purposes.

On Monday, the 4th inst., the water in the main dam had risen by 10 o'clock, A. M., so that it commenced to run over, and at 2 P. M. the volume pouring over was a foot in depth. Inasmuch, however, as the city is now using nearly the whole supply, the reservoir in the city will scarcely be filled before some time in November.

Nothing has contributed more to the convenience of the city than its supply of water at an elevation which, among other benefits, makes it the power or carrier for removing the refuse from houses. The growth of New York in manufacturing industry, has been so much promoted by using the surplus, that the time is not distant when other storage reservoirs and a larger or additional aqueduct will be required. From the particulars we have given, it will be seen that whenever the city chooses to avail itself of this bounteous provision, not only our increased domestic wants, whatever their extent, will be easily satisfied, but there will be a surplus to be devoted to manufacturing purposes.

The lowest elevation of any of these reservoirs is the one laid out on the Beaver Dam brook, which is 250 feet above tide water. The others vary between this and 600 feet. The formation of the valleys of Putnam and Westchester is highly favorable to these structures, and it is probable that no city of great extent is more liberally provided. Each location is inclosed with high hills, which, after allowing a sufficiently wide expanse, suddenly contract so that a short dam will complete the reservoir. The Croton was wisely chosen for this purpose, and so far from being "played out," it will eventually supply the largest population known to modern times.

The Commissioners who manage the Croton are not armed with any other authority over the contract now being executed except to declare it void, and then to relet the work. If proper vigor were used by those who act for the contractors, the work could be finished by next summer, but it would be a losing job. The contract called for its completion before this, and it is probable that sympathy for the securities, and the want of agreement which is shown between the city government and Board—which latter has the confidence of the community—prevent effective steps to secure the prompt completion of the work. The expenditure originally authorized is limited to a sum which does not permit the additional expense which haste would require. It is scarcely probable that a drought next summer will follow the one of this year, but if it occur the loss to the city will be visited upon those who are responsible for the delay.

CIRCULAR MOTION AND RECTILINEAR MOTION.

We find in an exchange an article endeavoring to draw amusement from the writings of Vitruvius, upon the principles of mechanics. One of the extracts made from this ancient author, who lived a short time previous to the birth of Christ, is the following: "I have briefly explained," he says, "the principles of machines of draft, in which, as the powers and nature of the motion are different, so they generate two effects, one direct, the other circular, but it must be confessed that neither rectilinear nor circular motion can without the other be of much assistance in raising weights."

Now, so far from seeing anything very amusing in this statement, the more we consider it the more we feel surprise at the comprehensiveness of the proposition. We see in it a generalization, the truth of which is exemplified in every machine. So large a proportion of the motions of the parts of machinery may be included in the classes rectilinear and circular, that the very few exceptions wherein the curvilinear motions are other than these, are scarcely worth consideration; and wherever they are employed it is always at a sacrifice of economy in power, the former motions being the least expensive of movements. Where, as in the case of the crank and pitman, a rectilinear motion and circular motion are coupled, there may be a loss in the application of the power to useful work, always consequent upon the increase of the number of moving parts in a machine; but when a crank drives a pitman, or winds up a rope on an axle, the losses suffered in these arrangements of working parts, are consequent upon practical difficulties. In theory there should be no loss. We know that these losses are referable to friction, inertia of parts, rigidity, etc., and therefore in theoretical formula for computing the powers of such arrangements, we do not take into account these losses. In the practical application of theory, allowances are made for such losses, but fewer such allowances are requisite when circular motion is employed than when any other is used to perform work. Motions in right lines, in circles, or arcs of circles, have proved in an experience of twenty centuries, to be, as Vitruvius said they were, the motions to be principally relied upon in mechanics.

Of these, circular motion is by far the most extensive in its application, and it is often an element where it is scarcely suspected.

The power of the inclined plane is generally referred to the plane itself, and mathematical demonstrations are based upon its proportions and inclination, but in the case of a round body rolled up the surface of an incline, the power may be calculated directly from the dimensions of the circle and the angle of ascent. In this case the element of rotary motion is generally overlooked, although it most certainly is an important element in lessening friction, which, when bodies are simply slid up an incline is an enormous source of waste; and, as we have said, it may be made the basis of computation for mechanical power.

It also is an element in the use of all hand percussive tools, as the hammer, ax, etc. The lever, too, also involves circular motion. It is evident that Vitruvius saw the full importance of these motions when he penned the paragraph alluded to; and as to confining the proposition to the raising of weights, it is not improbable that he comprehended the fact that a constant force is required to raise a given weight to a given hight in a given time, and appreciated the utility of making the force required to thus raise a given weight the standard for the measurement of power applied to any kind of work.

In modern times we use the foot-pound as a unit of work and thus have applied a hint which might easily have been drawn by a reflective mind from the passage quoted.

We may justly pride ourselves on modern progress in science; but the old philosophers undoubtedly saw and comprehended more than is sometimes credited to them.

THE EXHIBITION OF THE AMERICAN INSTITUTE.

An interesting branch of American manufacture, is that of SPOOL COTTON THREAD. This is exhibited in all the processes of the manufacture from the raw cotton to the finished thread by Greene & Daniels, of Providence, R. I. The first process is the carding, which is done in the ordinary way of carding cotton. It is then drawn in the usual manner, and then taken to a lap machine, consisting, essentially, of the old-time railway head, with drawing rolls attached. This machine is very compact, and, we are told, is the best machine for the purpose now in use. It is strictly an American machine. The cotton next goes through a process called combing, on a machine called a combing machine, the only machine of foreign construction employed in the work. This contains eight thousand needles, the action of which upon the cotton gives it a peculiar silky, light, and gauzy appearance, and the operation of combing may be considered as the finishing operation in preparing the cotton for thread; all the subsequent operations tending directly to the formation of the thread itself. The cotton, after combing, is drawn three times, and then spun into roving not larger than wrapping twine. It is now spun into yarn of wonderful fineness and uniform thickness, on a ring spinning frame. It next passes to a doubler, and is laid up in two or three-ply, as desired. From this machine it passes to a twister, which speedily reduces it to a fine and beautiful cord. These cords are then twisted on another frame to make a three or six-cord thread, as required. It is next reeled into skeins, then bleached, when it is ready for spooling. The spooling machine is a small but pretty machine, on which the winding is done with great celerity. The thread is now ready for market, except packing, etc. The finished thread shown is of excellent quality, and its applicability to sewing-machine work is demonstrated by its use on a sewing machine in the same inclosure with the machinery for manufacturing the thread. This display excites much interest in the visitors to the fair, and is a fine feature of the exhibition.

Adjacent to this inclosure stands a

CIRCULAR LOOM

for weaving twilled shade line, used for hanging pictures, window shades, etc. This loom weaves a texture which covers a strong central linen cord. The outer texture is of wool, silk, or cotton, or mixtures of these materials. The peculiarity of this loom is, that the shuttle stands still and the warp travels. It cannot be well described without diagrams, but it is a very ingenious, compact, and beautiful machine. It is exhibited by Palmer & Kendall, of New York.

S. R. Parkhurst, of Newark, N. J., exhibits a

BURRING MACHINE,

with patent steel ring feed rollers adapted to clear all grades and qualities of wool, even the most difficult Mestizo. He also exhibits a newly constructed double-cylinder

WOOL AND COTTON PICKER,

which, it is claimed, will pick, dust, bur, oil, and mix the wool ready for the cards at a single operation. He also exhibits a Double-cylinder Cotton Gin, improved by the addition of double cylinders and connected with a steel brush, and an endless slotted apron to convey the cotton in the seed to the ginning cylinders, thereupon securing the seeds and conveying them away from the ginning parts of the machine. It is claimed that this gin will separate the seed from 700 lbs. of cotton per hour, without injury to the staple. A

METALLIC WASTE CARD,

for working or reducing yarn, thread waste, and soft flannels to wool is shown by Chas. G. Sargent, of Graniteville, Mass.

These machines are, in principle, carding machines, clothe

with strong, sharp-pointed steel teeth, so adjusted as to work on the twist of yarn or thread waste—combing or teazeling out gradually, the twist holding the fiber of wool together, and forming it into a thread. This gradual removing of the twist by the combing or carding process, leaves the fibers of wood composing the thread waste long and strong, with nearly the original length of staple. This gentleman also exhibits an improved machine for cleaning fibrous materials, essentially the same patented by him in 1861.

Chapin & Downes, of Providence, R. I., exhibit a

DOUBLE-CYLINDER LONGITUDINAL GIG,

which, among other advantages that have caused its extensive adoption, is arranged to work on broad or narrow goods, gigging two narrow pieces in the same time, and with as much facility as one broad piece.

C. L. Goddard, of New York, exhibits a patent Steel Ring Burring Machine, attached to a wool-carding machine. A peculiar feature of this machine is the solid packing rings, which are whole, like the steel rings, and make the cylinder permanent and solid until worn out. The same gentleman exhibits a

MESTIZO WOOL-BURRING MACHINE,

which combs open the wool by a comparatively slow and harmless process, and removes the dust, Mestizo,and all other burs,or other extraneous matters,at the same time, oiling the wool.

H. W. Butterworth, of Philadelphia, Pa., exhibits a warp dryer,which, however, has not operated at any time we have been at the Fair as yet. It looks, however, like a good machine.

The Empire Heddle Works, of Stockport, N. Y., exhibit one of their patent heddle frames, which might, from the adroitness of its movements, be almost fancied to be alive. It forms the eye in a new manner, making the twist next the eye so tight that the finest warp of woolen, cotton, or silk can not enter. It gives any requisite shape or size to the eye,and sharp angles, at the ends, are avoided. Both the machine and the heddles it makes, elicit much favorable comment.

These are, we believe, all the machines on exhibition connected with textile manufacture, and our readers will doubtless agree with us, that the display is very meager. It certainly does not properly exhibit the progress made in the manufacture of such machinery in the United States.

There is a fine display of

MACHINISTS' TOOLS

in the machinery department, though it cannot be called a very extensive one. It, however, pretty fairly represents the present status of the manufacture in the country.

The machinery of this kind is placed in inclosures allotted to the various manufactures. Three prominent manufacturers are represented, and we will notice the displays of each separately.

Hewes & Phillips, of Newark, N. J., exhibit a Planer which will do work 2½ feet in width or hight, having nothing novel except the belt-shipping lever, by which lead is given to either one or the other of the belts at will. A saving in wear of belts is claimed for this arrangement,and ease in taking apart and putting together. The belt shippers are supplied with gibs which can be replaced when worn. This firm also exhibit a 12-inch upright boring press, evidently a good tool. The pattern is new. The head can be raised and lowered independently of the feed, which is utomatic. It has a peculiar arrangement of back gear, the head is balanced,and there are other good features. They have, also, on exhibition, a 6-inch slotter, a very compact and powerful machine, and a 20-inch lathe, 12 feet long. All these machines are handsomely finished and their designs are good. A peculiarity of the machines made by this firm,is eccentric gearing on all the tools where a quick return is desired, by which they secure a quicker return than any other similar machines exhibited. They have, also, in their inclosure, an 84-inch gear cutter, which, though presenting, perhaps, no novel features, is worthy of remark for its general excellence.

Wm. Sellers & Co., of Philadelphia, Pa., exhibit a 16-inch lathe, 13 feet in length, with a very novel and interesting feature. The feed gear for ordinary turning is composed of friction wheels, so arranged that, by a lever, which the workman operates with the left hand (the right hand remaining free to operate the other parts of the lathe), the feed may be slackened or accelerated at will, without any alteration in the speed of the lathe. This feature will give increased facilities in certain kinds of work, and the device is generally admired by the many experienced mechanics who witness its operation. This lathe has also a system of back gear by which a perfectly positive motion is attainable when desired. Sellers & Co., also show a powerful 48-inch slotter, with compound table, a shaping machine, for small work, and a bolt cutter, all of which are well known to the mechanical world, and need no special comment from us, except that they fully sustain the enviable reputation of this firm. They also exhibit several sizes of the celebrated Giffard injector, with a model showing the internal construction of this paradoxical instrument. Also, a 25-inch planer, of a very simple construction, and, in every respect, praiseworthy.

The shafting which drives these machines is supplied with oil from Wickersham's American Oil Feeders, manufactured and exhibited by J. B. Wickersham, 143 Front st., Philadelphia, Pa., which have not only received the indorsement of Sellers & Co., but many other prominent mechanical engineers throughout the country.

Wood, Light & Co., of New York, exhibit a bolt cutter which has some novel and valuable features. This machine is so constructed that the dies close accurately to a certain point, so as to form, in effect, a single solid die. When the cutting is done, these dies open automatically, and the bolt is shot out. It cuts threads of any length, always true to the body of the bolt,and all the bolts made by the same dies will be exactly alike. All the movements of the machine are automatic, the attendant's duty being merely to keep the machine in order and supply the blanks as wanted. The same firm exhibit a shafting lathe which attracts much attention and elicits much favorable comment. This lathe employs three cutting tools, and finishes a shaft at a single operation. A longitudinal trough is made in the bed of the lathe, and in which a solution of soda is placed, this fluid being pumped up and poured constantly upon the shaft at the point of cutting. This lathe, and the bolt cutting machine exhibited by this firm, and the lathe exhibited by Wm. Sellers & Co., combine more novel features than anything else among the machinists' tools displayed.

Outside of these inclosures are scattered about a variety of machines and implements, some of which we shall notice in the present article. There are on exhibition a considerable variety of

DROP PRESSES, BLANKING PRESSES, PUNCHES, DROP HAMMERS, ETC.

Charles Merrill & Sons, of New York, exhibit an Air-spring Forge Hammer, and a Drop Hammer. The air-spring hammer runs with little noise, and, by a peculiar arrangement of the cylinder and piston, the hammer is driven by air springs, which saves the machine from jar,other than the blow on the anvil or work.

The cylinder and hammer moving in vertical slides, each blow is square, exactly in the same place, and some kinds of die work can be forged as exact as under a drop, with greater rapidity. It is under the perfect control of the operator, and can strike light or heavy, slow or fast, as desired.

The drop hammer is so constructed that the operator can raise and drop the weight from any hight in the slides, can stop the weight after it begins to fall,or can let it settle down slowly.

Parker Brothers, of West Meriden, Conn., exhibit one of their highly finished and excellent power presses, which are favorably known to the manufacturing public as the Fowler Presses—an excellent tool, as we know from experience.

Mays & Bliss, of Brooklyn, N.Y.,exhibit a beautiful Double-action Power Press, very strong and compact, of easy adjustment, with the feed rollers so constructed as to carry off all scrap metal. It is claimed that this machine will cut and bur 60,000 blanks in ten hours.

The Farrell Foundery and Machine Co., of Waterbury and Ansonia, Conn., also exhibit a Double-acting Press, of very compact form, which cuts and draws sheet metals into cup-shape at one operation. This is an excellent machine and deserves special notice.

Post and Goddard, of New York, exhibit an improved Emery Grinder. This machine was described and illustrated on page 324, last volume, of the Scientific American, to which the reader is referred. It may be bolted to a bench, the frame stand consisting of a single casting, containing bronze boxes for the spindle. It has rests, which can be readily set on the side or face of the wheels, and removed when not wanted, the whole forming a neat and convenient arrangement. This firm also exhibit various sizes of their Tanite Emery Wheels in connection with the above machine.

The New York Tap and Die Co. exhibit a fine collection of taps and dies,and the American Standard Tool Co. show a case of beautiful Twist Drills, arranged on a revolving platform. These drills are so well and favorably known that they need no praise from us. Any mechanic, who examines them, will pronounce them excellent.

Nathan & Dreyfus, of New York, exhibit their patent Self-Oilers and Engine Cups, composed of a transparent glass cup, mounted in Britannia and brass, provided with a hollow tube, inside of which is placed a loose-acting solid wire, which acts as a feeder and regulator. The wire rests constantly upon the journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

Charles Parker, of New York, exhibits an extensive line of his patent Parallel Vises with recent improvements, among which we notice an adjustable collar, which causes the jaws to open or shut, upon the slightest movement of the handle. There is thus no lost motion; and again, if the shoulder on the screw should wear, the collar can be so adjusted in a few moments that it will operate as readily as when new. Another improvement, is an adjustable spring so arranged as to hold the handle of the vise in any position or angle at which the hand leaves it,thus avoiding the pinching of fingers,which is of frequent occurrence,when the ordinary handle is in use; and, again, if the workman wishes to hold any article, however slightly, he can do so, when, with the ordinary vise, the weight of the handle would either grasp the article too hard or release it entirely.

There is, perhaps, no finer display in this department than the exhibition of

SAWS,

by R. Hoe & Co., of New York, and the American Saw Co., also of New York. It would be impossible for us to enumerate here all the varieties of saws displayed. They are of all sizes, and of all shapes known to the saw trade,finished and mounted in superb style. Our readers are already aware of the distinguishing features of the saws made in each of these establishments as they have long been extensive advertisers in these columns. Their wares have earned a very high reputation. These firms, undoubtedly, lead the saw trade in this country. Fine taste has been shown in the arrangement of their collections at the Exhibition, and they are greatly admired by all visiters to the department. The punching of the saw plates shown by the American Saw Co., is performed, we are told, by Ivens & Brooks' combined punch and shears, a model of which was shown us. It is to be regretted, that this fine tool was not shown in operation at the Fair, as it is certain that it would have made a most favorable impression.

We take this occasion to say a word upon the

ELECTRIC ORGAN

exhibited by Hall, Labagh & Co., of New York. The strains of this instrument attracted our attention as we were about to leave the building after taking the notes we have condensed into the present article. This organ was described on page 347, last volume of the Scientific American. It is the invention of H. L. Roosevelt, of this city. The inventor has furnished us with the following particulars in regard to it: "The keyboard is detached from the organ at a distance of about twenty-five feet, though it might as well be removed to the distance of twenty-five miles, excepting for the necessity of the organist hearing his own performance, since we know from from recent scientific investigations that the electric current will travel a mile almost instantaneously. The only connection between the key-board and the body of the organ is a bundle or rope of flexible, insulated copper wires, which may be carried in any direction without injury, and there is no pull or strain on these wires, as they are merely the passive means of conducting the electric current.

"The source of the electric current is an ordinary 'single fluid' battery, placed in any convenient position, composed of a series of jars containing a mixture of sulphuric acid and water, and in each jar is suspended a plate of carbon, in company with two plates of zinc, connected in the usual way by copper wires. From one end of this series of jars, a copper wire proceeds to the keyboard; and, if we take the case of a single key, for example,when it is pressed down by the finger of the player,we shall find this wire so connected that it forms an unbroken circuit and proceeds from the keyboard onward to the body of the organ, where it is coiled around a soft piece of iron shaped like a horseshoe,and thence returns from the organ to the other end of the battery. When a wire is connected with both poles or ends of a battery the current passes and the piece of soft iron becomes a powerful magnet; but the moment the current is broken, by disconnecting the copper wire, there is an instant loss of power. When the key of the organ is not touched the wire is not connected and the current passes; but on pressing down the key a metallic contact is formed, the electricity darts along the circuit and the electro-magnet, becoming at once excited, pulls down the pallet or opens the valve in the wind chest, admitting air to the organ pipes, and, with lightning speed causes them to speak. The couplers are applied and the stops drawn upon the same principle."

We also noticed, in passing, some specimens of artificial stone, manufactured and exhibited by the New York Stone Works, Bandman & Hollman, 75 William st., New York. This stone is a conglomerate sandstone, artificially produced, and is molded into large blocks for hydraulic structures, and also into floor tiles and ornamental architectural work of all kinds. The exhibitors claim, that this stone is superior in strength to any natural sandstone found in the United States, and that it will not scale like the brown sandstone now largely in use for ornamental building. It can be given any color or shape desired, and is twenty five to seventy-five per cent cheaper than natural stone, cut into the requisite form. It can also be molded into statuesque forms.

American Manufacture of Machine Twist.—An error crept into our report on the Silk Department in our issue of October 9. It was there stated that the machine twist made annually in the United States amounted to a quarter of a million dollars. It should have been a quarter of a million *pounds*, the value of which would be fully three millions of dollars.

INTERESTING PATENT DECISION---WHEN DOES AN ENGLISH PATENT TAKE DATE?

The Commissioner of Patents has just given a decision in a case involving the question as to the date to be borne by patents which have been patented in foreign countries. The case on which the decision is given is the application of James Cochrane for the correction of the date of letters patent granted to him March 31, 1857, for an improved fluid meter. Cochrane obtained letters patent in England and also in the United States. The English letters patent were dated November 19, 1855, when the provisional specification was filed. They were sealed May 19, 1856. A caveat was filed in the U. S. Patent Office November 7, 1855, but application for the letters patent was not made until Nov. 5, 1856. The patent was granted March 31, 1857, but was limited to "fourteen years from the 19th day of November, 1855." The applicant now claims that the American patent should bear date from the day it was issued, and asks the correction of an assumed clerical error. The Commissioner says:

The motion presents several interesting questions.

1st. Can the mistake if it exists be corrected as a clerical error?

2d. Was there an error in limiting the American patent to fourteen years from November 19, 1855?

3d. If there was an error what is the proper limitation of the term of the letters patent?

After examining the first question and quoting quite a number of authorities, he arrives at the conclusion that it could never have been the intention of the Legislature to restrict the correction of errors to those enumerated. Accordingly it has been the practice of the office to correct all errors in parties' names titles, dates, and all omissions or insertions of words made by the fault of the office upon a surrender of the patent without fee, but to require the patentee when seeking the correction of his own mistakes to pay the fee and conform to the provisions made for cases of reissue.