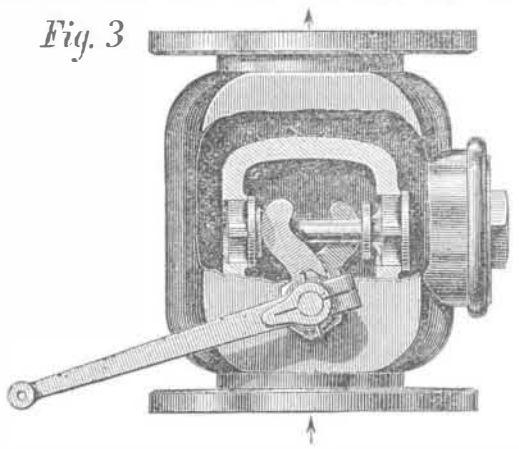
munication with the discharge pipe of the pump, through a connecting pipe, in which is placed a check valve, I, opening in towards the disk. In the spindle of this check valve, a small hole is drilled for the purpose of getting a gradual motion when opening the valve in the steam pipe of a pump, to which it is attached as shown, and is used in feeding a number of boilers regulated by either of the patent regulators. The top side of the disk is connected by a pipe, in which is formed a siphon, leading either from the steam or water space of any one of the boilers, to obtain the same pressure on both sides of the disk. The pressure in the discharge pipe of the pump against the under side of the diaphragm being greater than that in the boilers, the weight and lever are raised.

The operation is as follows: Should all the regulator or feed valves and the feed pipes of the boilers become closed, an increased pressure will at once be thrown on the under side of the flexible disk, and the valve J, in the steam pipe of the pump will be closed, and will remain so as long as the valve remains closed in the feed pipe of the boiler, or as long as the pressure is maintained in the discharge pipe of the pump.

Fig. 3



But as soon as a feed valve is opened, the pressure being reduced, the weighted lever drops to its position again as fast as the water can pass out through the spindle of the check valve, thereby causing a steady movement of the machine. The valves on the feed pipes can all have a slight lead or opening, and thus allow the pump to move constantly at a slow speed. When a plunger pump is used, as in Fig. 1, the valve is placed in the supply pipe, and the pump is allowed to run constantly.

Fig. 3 represents Berryman's balanced valve, patented April 9, 1872. In working his regulator, the inventor found much difficulty in getting a proper valve. In the one now shown in Fig. 3, is found what is essential for his purpose.

The balanced poppet valve in this device has added to it a simple improvement by which the valve is made to rotate on its seat at each time of its opening, causing a constant and equal wear on all parts of the valve and seat. The fork inside has one prong slightly longer than the other, so that at opening, the bearing is on one side of the valve, which tends to rotate it each time it opens. The fork works between two collars or shoulders which allow the valve to move freely; and the inventor states that its construction is such that, having one hundred pounds pressure on the face of one and back of the other valve, it can be opened or closed with a power of less than five pounds on a three inch valve.

For further information concerning all these improvements, address J. B. Davis & Co., sole agents for the Berryman Manufacturing Company, Hartford, Conn.

"GREENBACKS" AND POSTAGE STAMPS.

NUMBER I.

The visitor to Peter Cooper's noble charity, the Cooper Union, in this city, will find that while he is permitted to ramble, unobstructed, around the greater part of the immense building, his entrance to the fourth and to portions of the third stories will be barred by heavy iron gates backed by massive doors, and that his requests for admission to this mysterious quarter will be refused unless he be armed with certain necessary passports. His curiosity, doubtless thus aroused, will be augmented by learning that within those walls, thus secluded from the outer world, comparatively valueless sheets of white paper are changed into millions of dollars, as well as into the stamps which carry his written thoughts throughout the world. In short, the rooms are the workshops of the National Bank Note Company, the corporation that supplies the majority of the money and the postage stamps used, not only in the United States, but in many of the States of Europe, in all of the South American countries, and even in China and Japan.

If the reader will follow us through the processes below described, we will endeavor now to explain how this modern alchemy, which transmutes not baser metals but paper into the equivalent of gold, is carried on. We shall trace the manufacture of postage stamps and greenbacks, in the beginning together, as the various steps are essentially the same, noting, however, afterwards the special points of difference.

The general portion of the work, that is, all the decoration not directly bearing upon the special use for which the note, stamp, bond, bill, warrant, or whatever it may be, is intended, such as border, corner ornamentation, etc., is ready at hand. It has already been drawn and engraved in a manner which will be described further on, and impressions have been taken on paper, so that it is only necessary to cut the latter neatly out and paste them upon a sheet of the required form in their proper places. Then the lettering, vignettes, etc., are carefully drawn, and finally the entire design, which is really nothing more than a patchwork, is finished and submitted. If approved by the Government or party ordering, it is returned with special written instructions as to the details of manufacture. It is then placed in the hands of the workmen, and at this stage we begin our tracing of the process through which it passes to completion.

The first proceeding is making the die. A plate of soft, highly polished steel is selected, and upon it is sketched the design, or, perhaps, such portions of the latter as are of the same color, if more than one tint is to be used in printing. Of course a separate die is needed for every shade used. This is then carefully engraved; the labor is most elaborate and the skill of the operatives wonderful. Steel plate engraving is so generally understood that we need enter into no special description of how it is done; but we simply note the fact that it is the reverse of wood engraving, that is to say, the lines which take the ink are cut into the plate instead of being raised above its surface. The engraver is limited to such parts of the work as can be done by hand; other portions, such as the scrolls and elaborate tracery, are necessarily done entirely by machinery. The principal apparatus used is a complicated piece of mechanism, which we have not space to describe in detail, but which, in brief, actuates a plate to which the steel for the die is attached and caused to press against a diamond point. Perfectly true and delicate lines are thus cut into the metal, making figures technically termed "cycloid rosettes." The machine, in theory, somewhat resembles a kaleidoscope, as it requires to be set by accurate pointers and dials to some special figure, which, when the combination is changed, can never be reproduced. One of these instruments is in use, and its work, together with that of the geometrical lathes, can be readily recognized on the national currency.

The die being now complete, it is ready for the transfer process. Postage stamps, for instance, are made in sheets of two hundred, so that the die must be transferred that number of times on a single plate. It is first case hardened and then put, face up, in a press which is made with a combination of levers actuated by the foot, so as to give the tremendous pressure of twenty-one tuns on a single line. A cylinder or "roll" of soft steel is, by careful gaging, placed so as to rest directly over the face of the die, and, at the same time, is so arranged as to revolve easily along its surface even when under the full weight. The pressure is then applied, with the result of forcing the soft steel of the roll into the lines of the engraving, so that when complete, the periphery of the cylinder shows an exact reproduction of the face of the die, only the lines sunk on the latter are now raised on the former. Next, this cylinder is case hardened. Then the plate —soft steel again—to be used for the final printing is placed in the above mentioned press and the roll arranged above it. Now, the cylinder leaves its impression on the plate, the hard steel of the raised lines cutting deep into the surface, so that a precise duplicate of the original die is obtained. This is repeated for as many times as there are to be repetitions of the stamp or note on the single plate, which is then ready for use. Here we leave it and turn our attention to another part of the manufacture.

The ink for printing is also made on the spot. In a large room are ten or a dozen paint mills, which are busily grinding the colors and oil together. Two large ones are filled with green ink, suggestive of liquid greenbacks, another, with vermilion, while others are making blue, red, and other tinted inks. Nothing but the finest color and the best boiled linseed oil is here used. We now pass to the paper room, where the paper is received directly from the Government, cut in sheets of the required form. The fractional currency and larger notes are made of a peculiar material containing colored fibers, manufactured at Glen Mills, near Philadelphia. The paper for postage stamps is made by the Bank Note Company, of the best linen. It is of short fiber, very fine, and extremely strong. The sheets on which currency is to be printed are counted as soon as received, and the result telegraphed to Washington for verification. Some idea of the accuracy required may be gathered from the fact that, for every sheet unaccounted for, the company has to pay in cash the full value of what *might* have been printed on it; that is to say, if a sheet intended for four $1,000 notes is missing, $4,000 must be returned. The paper varies in size according to the purpose for which it is designed. Thus the sheet for 10 cent fractional currency is 7½ by 16¾ inches, and so on up for the larger denominations. All the paper is not received perfectly blank, for the reason that the National Company prints but one side of each bill. The material for the 15 cent and 25 cent notes is supplied with the backs already finished—the work being done by the American Bank Note Company; while, *vice versâ*, the 10 cent bills are sent to the last mentioned corporation from the National Company in a similar condition. The sheets being counted are placed in heaps, marked off in sets of 100 and 1,000. When issued for printing, the workman receiving them has to present an order signed by the superintendent. They are then charged against him in his pass book, when he carries them away to be damped, this being done by simply wrapping them in wet cloths.

Leaving the paper room, we enter a large apartment, in the center of which are 116 presses arranged closely together. These are simply cylinders moved by long handled levers, and are each attended by three men and a girl. Here we find our plate again, now resting upon a small iron box warmed underneath by gas flames. A workman rapidly covers it with ink with a plate printer's roller and passes it to another operative at his side, who wipes the plate over with a soft cotton cloth, and then polishes with the palm of his hand covered with whiting, thus removing the ink from its surface but not from the engraved lines, which remain filled. This done, the plate is placed, face up, in the press. The girl stands ready with a sheet of damped paper which she carefully lays upon the plate. The pressman turns the levers, the cylinder revolves, the plate passes under it, and the paper is removed bearing a perfect impression. It might be naturally imagined that the workmen engaged in this portion of the manufacture would often succumb to the temptation of furtively running a sheet of ordinary paper through the press, and thus possessing themselves of, say, 200 ninety cent stamps in a moment's time. But such a proceeding is practically impossible. Apart from the constant vigilance of the superintendents, the presses are placed so close together that the men can overlook each other's every action. One of the strongest safeguards is the *esprit de corps* among the workmen themselves. So sensitive are they that they recently insisted upon the discharge of one of their number who, merely to try his press, ran a sheet of common brown paper through it.

As soon as a printer has completed the work assigned to him, he hands it, made up in "books" of 100 impressions, each sheet inclosed between two others of brown paper, to a clerk. He is then credited with his delivery, spoiled sheets being counted the same as perfect ones, so that if his return is correct his debit account on his passbook, which is kept in a totally different apartment and by other employees, is thus balanced. The finished impressions are now carefully counted and inspected. The spoiled ones are removed and sent to Government agents to be burnt, while the others are hung in the drying room. This apartment is heated by steam pipes, and the paper is suspended by wires, for a day or two, until perfectly dry. Then the brown paper is removed and the sheets, packed between leaves of press board, are subjected to the action of a powerful hydraulic press. They are then once more inspected and counted.

SCIENTIFIC AND PRACTICAL INFORMATION.

An esteemed correspondent, Mr. R. B. Forbes, of Boston, Mass., informs us that Mr. Herman Hirsch, whose screw propeller is used on the vessels of the Transatlantic Steamship Company, plying between New York and Havre (France), and has also been adopted by the British Admiralty, has recently discovered the form of least resistance in vessels. Almost every ship that has been built hitherto has been an attempt to solve the problem, and it has seemed that only by trying every possible form could it be ascertained which is the best. Mr. Hirsch is confident that he has succeeded by a scientific process in determining the theoretically perfect lines for a ship, and he will soon lay his plans before shipbuilders and owners. The scientific world will look with interest for the development of the system, especially as it comes from an inventor already successful and renowned.

HOW TO PRESERVE VINEGAR.

Our correspondent "Expert" writes as follows: "This article being the product of three well known chemical fermentative processes, known as the vinous or spirituous, acetous, and putrefactive: into each of which dilute saccharine or starchy solutions pass with great rapidity, under favorable circumstances, it is not exactly correct to attribute the latter process to the "mother" which is formed on good vinegar exposed to the air.

Vinegar makers should never keep their product in open vats or tanks. It ought to be passed from one generator to another till it is strong enough for a fluid ounce to saturate from 33 to 35 grains of crystalized bicarbonate of potassa, when it ought immediately to be run into casks or barrels, in the warm vinegar house kept at a temperature of 85° to 90°; and after filling the casks up to the bung, it should be sealed up tight and covered with a tin cap.

To prevent vinegar from running into the putrefactive fermentation, it is commercial usage to add one ounce of sulphuric acid to 100 gallons. This should not be added until the article possesses the required acetous strength, and is intended to destroy any putrefactive spores which may be present. British standard vinegar is said to have one part of dilute sulphuric acid in every 1,000 parts of vinegar, and this proportion is not regarded as an adulteration or injury in any way.

In general, the presence of mother in the vinegar is not considered objectionable. On the contrary, in domestic use its formation is promoted by using sheets of brown paper, etc. It is the "vinegar plant," about which so much was said, a few years ago, in the papers. Depending, for its existence, on the presence of oxygen, nothing is easier than to prevent its formation by carefully excluding the air.

The presence of mucilaginous matter so affects the specific gravity of the article that no test, by any scale, will prove or show its strength. The only proper method is occasionally to saturate a portion with potassa, using litmus paper to ascertain the degree of saturation."

A FISH SAVINGS' BANK.

There is, in Siberia, a district where the chief wealth and means of subsistence of the people consist of dried salmon; and to obviate the evils arising from an occasional dearth of food, the Russian government has established a savings' bank, with a capital of 300,000 fish. In this institution, every male inhabitant is compelled to deposit one tenth of all the fish he catches so long as the takes are up to the average; but if the yield fails, the contributors are entitled to withdraw their deposits.

ALL three of the Atlantic telegraph cables are now in perfect working order. We hope that the icebergs will not trouble them this winter.

Explosions in Flour Mills.

Most of our readers, no doubt, will remember the destruction by fire of a large flour mill near Glasgow on the 9th of July last. The fire was caused by an explosion which originated in the exhaust and, traveling through the various conduits of the mill like fire damp in a mine, set fire to the woodwork. The occurrence caused some sensation at the time, not because explosions of the kind were previously unknown—for the high rates of insurance help to show that this was not the case—but because in this instance the attention of the comparatively uninformed public was attracted by the unusual gravity of the accident. A searching investigation into the circumstances which probably led to the explosion at the Tradeston Flour Mills has been made on behalf of the fire insurance offices by Professor Macquorn Rankine and Dr. Stevenson Macadam. We understand that, after having examined witnesses and documents relating to the history of fires and explosions of a like nature, they have reported that the primary cause of the explosion was the accidental stoppage of the feed of one of the pair of stones, which led to their becoming heated and striking fire. The fire thus generated inflamed the finely divided dust which was diffused through the air in the exhaust conduits and then passed on to the exhaust box. This sudden ignition or flashing of the extremely inflammable dust diffused through the air would produce a very high temperature in the gaseous products of the combustion, and this would necessarily be accompanied by a great and sudden increase in pressure and bulk, constituting in fact an explosion. The first effect of this explosion would be to burst the exhaust box and allow the diffusion of dust and flame throughout the mill. A second explosion was the consequence, and the mill was reduced to ruins and the woodwork fired. They further believe that the stores or granaries were set on fire partly by the flame and fire from the mill traveling along the gangways, and partly from the fall of burning materials through the skylights. No explosive or other foreign material was used in the manufacture of the flour, and the steam boilers were found uninjured. No blame has been traced to the proprietors of the mill, or to anyone in their employment.

Direct experiments were instituted by Professor Rankine and Dr. Macadam with the view to ascertaining the inflammability and explosiveness of this mixture of air and dust. They have also calculated that, when the theoretical proportions best suited to produce an explosion are exactly realized, the pressure of the resulting gaseous products, if confined in a limited space, suddenly becomes equal to about eight times that of the atmosphere. It is probable that, in this instance, these theoretical conditions may not have been exactly reached, but still it is certain that a very great destructive pressure was produced. Now the question naturally arises, what precautions should be taken to guard against such accidents in future, or at all events to mitigate their destructive effects. The problem does not seem a very difficult one. The danger does not lie in the grinding process proper, but in the plans for storing up the dangerous flour dust. So long as the grinding operations are carried on in the simple manner pursued in small mills, where the stones are merely boarded in and where there is no exhaust, there can only be a limited amount of dust to inflame. But it is otherwise when the exhaust is employed and the fine dust is drawn up into an exhaust box. There the flame drawn up from the stones must inevitably lead to a more serious explosion, and where many pairs of stones are connected with the same exhaust the danger is enormously increased. It is accordingly recommended that all receptacles in which the dust is collected shall be lightly constructed and placed outside the buildings, in order that any explosion which might occur in them should free itself at once and not be induced to travel back into the mill. The word "receptacle" is understood to include exhaust boxes, stive rooms, smut rooms, and exhaust fans. The report also contains a suggestion that the well known principle of extinguishing a flame by causing it to pass a large cooling surface might be adopted, that in fact the dust should be made to pass through a number of metal tubes instead of through the exhaust trunk. It is, however, pointed out that cold surfaces are also apt to cause a condensation upon them of moisture in the air, and consequently the tube system would perhaps be open to the disadvantage of being liable to become clogged by pasty depositions. Naked lights should not be used in a dusty atmosphere, and all gas jets should be protected with gauze. Finally, as the emission of highly heated particles from the stones is rendered more probable by the entry of nails and pieces of iron with the grain, it is strongly advised that the use of magnets to collect these metallic intruders should be made universal.

It appears that these accidents are of very frequent occurrence, and their number has increased since the introduction of the exhaust. The fact, however, appears to be little known to the general public, and though mentioned in French and German treatises on flour mills, does not, as far as we can ascertain, appear in the standard English works on the subject.—*Engineer.*

Work on the New York City Docks.

We recently gave a full page illustration of the proposed new piers and bulkheads in the city of New York. The present state of the work is that the preparation of the foundations for the new stone piers along the North and East Rivers is being rapidly pushed forward, and at Pier No. 1, on the North River, the stone is already being laid. When it was first determined to replace the old wooden piles with pillars of "enduring granite," it was also deemed advisable to ascertain the depth at which a permanent rock foundation existed, and, under the supervision of General McClellan, a drilling machine, similar to that used in oil boring, was set to work among the upper piers of the North River, the mode of operation being the driving of a six inch iron tube through the strata at the river bottom until a permanent foundation was reached. The boring was begun at the foot of Fifty-seventh street, and continued along the bulkhead line about every 300 yards to Whitehall and along the East River, the distance between the borings being here decreased to 200 yards. The progress of the work has developed many interesting facts concerning the strata of the river bed, which, in most cases, has been found to consist of gravel and petrified wood nearest the surface, then gray sand, coarse gravel, bright red clay, and great quantities of minute sea shells, boulders of two feet in thickness being often met with above the desired mica slate rock, which is found at depths varying from 60 to 200 feet below high water. At the foot of Thirteenth street, the mica was not reached until the tube had sunk 206 feet. In many instances, quicksands have been reached beneath what had been originally supposed to be safe foundation. While penetrating the strata at the foot of Canal street, the old beach level was struck at a depth of 56 feet, and the tube passed through the trunk of a tree which, from the specimen obtained, seemed to be in a good state of preservation, the bark being yet perfect. At Third street, a stream of clear, fresh water was struck, the fluid bubbling up through the tube at the rate of 50 gallons per minute; and another boring in the vicinity revealed another spring, equally fresh and sending out 30 gallons to the minute. The depth of the foundations of mica rock being determined, iron shod piles are driven down and their tops sawn off near the surface, so as to form a resting place for the granite blocks. The pillars—three to each pier—will be unusually massive in construction and lozenge-shaped so as to offer no resistance to the tide. A frame work of iron will be rested on these supports, the whole being covered with a flooring of wood, similar to that in use on the old piers.

Decisions by the Commissioner of Patents.

APPEAL FROM THE BOARD OF EXAMINERS IN CHIEF—DIES FOR FORMING WRENCH HEADS.

L. Chapman vs. Candee and Taylor. Interference.

LEGGETT, *Commissioner:*

Priority of invention may be established by showing either that an applicant was the first to conceive the idea of an invention and the mode of putting it into practice, and used reasonable diligence in adapting and perfecting it, or that he was the first to actually perfect and reduce the invention to practice.

Where an applicant has actually completed an invention, but has not tested its utility for want of machinery to operate it, while procuring such machinery he is to be considered as exercising due diligence in adapting and perfecting his invention.

If the date of filing an application be relied upon as proof of date of invention, it must also be relied upon as proving the invention belonging to the applicant, and this may be disproved by testimony introduced in rebuttal.

Application of Geo. H. Sellers for Patent for Rolled Hollow Hexagonal Column.

In determining the patentability of an article the process by which it is made is immaterial; the article is to be considered independently of the process and upon its own merits as to novelty.

An "article of manufacture" is a device complete in itself for some special use, and not to be applied to general purposes, like pipes or tubes.

LEGGETT, *Commissioner:*

This appeal is upon the application as rejected by the Board.

The claim is as follows:

As a new article of manufacture, a hollow column of uniform thickness, hexagonal on both its interior and exterior, and rolled out from a solid or welded pile or billet of iron or steel with a hexagonal opening through it, substantially as described and represented.

It appears, from the wording of this claim and from applicant's argument, that he understands that the fact that his tube is rolled out materially aids to confer upon it patentable novelty. In this he is entirely in error. The process by which an article is constructed is a matter altogether distinct from the article itself, so far as the question of the patentability of the article is concerned. The process may be patentable and the article not, and *vice versâ*, or both may be patentable. But each must be regarded independent of the other, and upon its own merits as to its novelty. The fact that applicant's "column" is produced by rolling may then be left out of consideration altogether. The question is: Is applicant's hexagonal "column," or tube, new, without regard to his process of making it? I regard it as fairly anticipated by the English patents cited, Nos. 9 of 1854, and 102 of 1862. The former is circular within, but that is an immaterial matter. The form of the space within the interior of a hollow tube can be and is commonly made in all machine shops where such articles are produced, of any shape desired, whether circular, triangular, octagonal, hexagonal, or square, and a pipe of one form of interior might as well be claimed as another because made by a particular process. Besides, a pipe, tube, or "column," of whatever form or by whatever process constructed, is not an article of manufacture in contemplation of the patent law. An article of manufacture is a device complete in itself, for some special use, and not to be applied to general purposes like pipes or tubes. This point has been heretofore fully discussed. (See Commissioner's Decisions, 1869, p. 74, C. H. Ackerson; and 1870, p. 59, W. R. Blanchard; and p. 123, L. E. Truesdell.) Nor does the fact that applicant employs the word "column" in his claim aid him at all. He does not produce and has not shown a column in any other sense than that a tube or pipe may be regarded as a column. The Examiner's strictures upon the application of this term to this mere hexagonal tube were entirely proper. A column, in a technical sense as known to mechanics, is a very different thing, and he was quite right in refusing to be blinded to the nature of the device before him because it was—whether for the purpose of misleading him, or not—called by a wrong name.

Again—granting that the exact form of applicant's tube is not shown by the references—the mere change of form of a tube, or the mere production of a tube of a particular shape externally and internally, does not constitute invention. In a broad sense, such as is contemplated by the legal requisites of novelty to distinguish a patentable device, there is no advantage in this particular form of tube to give it the importance of invention. It is not stronger, or better, or cheaper of production than a round tube except merely in form; and in whatever particular situations tubes hexagonal in form may be desired, mechanics readily make them. Applicant's invention is not in his "column," but, if anywhere, in his process, or machine, or perhaps in both. To grant him a patent covering hexagonal tubes would be a violation of the letter and spirit of the law.

The decision of the Board of Examiners-in-Chief is affirmed.

Application of Henry Waterman for extension of Patent No. 21,286, and reissued No. 1,874, for Tempering Wire.

LEGGETT, *Commissioner:*

The claim is as follows:

The process, substantially, such as herein described, of hardening steel wire, or other thin steel, of any desired length, which process consists in drawing the wire continually, while under tension, through the heating medium, and thence through the hardening liquid.

The process previously employed was to wind the wire in a flat coil, in the form of a volute, tie it with small wire, and, after heating to the proper degree, to plunge it into the hardening liquid. This process limited the length of the wire to be hardened, did not always harden it equally, and sometimes caused it to "crinkle." Applicant's process cured all these defects, and at the same time greatly reduced the expense of hardening, according to the evidence, to at least one fourth the former cost. Besides, it produced a wire capable of many uses to which wire, as before prepared, was not adapted, thus presenting every element of a meritorious invention. Through applicant's efforts, which are shown to have been reasonably diligent, it soon went into extensive if not exclusive use, and has earned him, at a moderate charge for royalty, the net sum of $65,916.76. The Examiner reports the invention to have been novel when patented, and the testimony, of witnesses familiar with it and the business connected with it, with regard to its value and importance to the public amply shows, by estimates from reasonable data, that probably not less than a million dollars have actually been saved and gained for the public by it. Although no testimony has been filed in opposition to the grant of the extension, counsel appeared at the hearing and cited the English patent of Wm. Smith, No. 1,614 of 1855, in bar. I do not regard this patent as in any measure covering applicant's invention. It is for a materially different process of treating wire, for an altogether different purpose, namely, to soften and not to harden it, so that it may be afterward drawn. But whether it covers the invention under consideration or not is immaterial, because applicant establishes his date of invention as prior to the date of the English patent. This patent was sealed January 15, 1856, and it is proved that applicant completed his invention in 1855.

The only question as to the propriety of granting this extension is as to whether the applicant has not already been adequately remunerated. $65,000 is a large reward, but there is no definite standard of adequacy. Considering the important character of the invention, the advance it made in the art to which it appertains, the diligence of the inventor in introducing it, and its great saving to the public, I am constrained to grant the extension.

Decisions of the Courts.—United States Circuit Court, District of Massachusetts.

BROWN *vs.* WHITTEMORE *et al.*

This was a suit in equity, brought by Alzirus Brown, a territorial assignee, against Jonathan R. Whittemore, John R. Whittemore, Benjamin Belcher, and John W. Belcher, in the district of Massachusetts, for an alleged infringement of letters patent for an improvement in hay rakes, granted to George Whitcomb October 5, 1858, and reissued in two divisions June 16, 1868.

The case came on for final hearing before Justices Clifford and Lowell.

Verdict for complainant.

What is a Bustle?

"The bustle referred to is substantially a hoop-skirt of a diminished size." This is the definition of Judge Blatchford, as given in the recent trial, Young *vs.* Lippman, United States Circuit Court, Southern District of New York.

This was a suit in equity, brought by Alexander R. Young against Philip Lippman and Clara Seligman for the alleged infringement of letters patent for an improvement in springs for hoop-skirts, granted to Thomas B. De Forest and Thomas S. Gilbert, February 18, 1868, the infringement complained of consisting in the manufacture and sale of the article of wearing apparel known as a bustle.

The case came up before Judge Blatchford on a motion for a provisional injunction.

The claim is in these words: A skirt-hoop, formed by inclosing one or more wires within a covering, which not only envelopes and protects the wire, but forms an edge, A, or connection, B, substantially as and for the purposes specified.

The allegation of infringement in the bill is that the defendants are making and selling springs for hoop-skirts precisely the same as those described in the plaintiff's patent. The evidence of infringement is that the defendants have sold an article of dress called a bustle, containing hoop-skirt wire made substantially in the manner described in the patent, and that the defendant Lippman has been vending such hoop-skirt wire.

The making and selling of the bustle are not denied, and a specimen is produced which contains wire hoops made in the manner described in the patent. Each hoop in it is a skirt-hoop formed by inclosing two wires within a covering which not only envelopes and protects the wires but forms a connection between them, substantially as and for the purposes set forth in the specification of the plaintiff's patent.

There can be no doubt that the claim of the patent is for such a skirt-hoop as is described, as an article of manufacture, a skirt-hoop capable of use in making what is known as a hoop skirt. The bustle referred to is substantially a hoop-skirt of a diminished size.

Injunction granted.

E. N. Dickerson, for complainant. J. B. Staples, for defendant.

COAL is now being imported into England from Belgium. It can be shipped from Ghent and delivered at Grimsby for nearly one dollar a tun less than the current prices in England. This is due to the recent advance in the price of English coals, which, it is believed, cannot be much longer maintained.