

**The Kallistochrome.**

This is a new and ingenious form of chromatic top, to which the above name has been given, and is the invention of Mr. J. Beverley Fenby, of Birmingham, England, and although nominally a toy, it is worthy of notice on account of the brilliant chromatic effects it produces. The instrument consists of a well balanced top, which, when spun in the glass cup provided for the purpose, will run from six to eight minutes. On the top of this top can be dropped paper disks variously colored, these disks resembling those used with an ordinary chromatic top. Above the colored disk is placed what is termed a mask, this being a black disk having two triangular openings cut in it. The mask has an india rubber ring on its under side, which rests upon a collar on the spindle of the top while the mask itself is slightly "buckled," so that its surface is not fiat. When the top revolves, the mask is carried round also, but the resistance of the air causes the mask to slip slightly on the collar, it thus revolving at a less speed than the top. The effect of this is to produce automatic changes in color of the top as seen through the openings in the rapidly revolving mask. These changes of color are very beautiful, the appearance of the top with some of the disks resembling a mass of brilliantly tinted vapor, which wells up at the center, and gradually changes color as it passes outwards towards the edge of the disk. Other disks produce brilliant rings, ever changing in their tints, and altogether the instrument is one which serves to illustrate some exceedingly interesting optical effects.

**Butter Making.**

It requires both attention and experience to produce butter in the shortest time. If the cream be too warm, it froths a great deal and a thin liquid appears in the vessel, especially at high temperatures; when the cream is too cold, it froths too, but appears thick, like freshly fallen snow. In the latter case, the cream ought to be warmed, and in the former, cooled. The appearance of the butter globules also serves to indicate whether the cream is too warm or too cool. In the former case, the globules are soft and melting, in the latter, hard; in both cases a slower churning is advisable. Old cream produces butter sooner than fresh. A temperature between 70° and 80° is best in churning, and the cream should be skimmed off. Fresh air and strict cleanliness of the vessels are indispensable.

**Telegraphy in the United States.**

An interesting report on the subject of telegraphing in the United States, and with special reference to the proposed Government telegraph system, has been lately made by the Hon. David A. Wells. According to the statistics given by him, there are at present \$60,000,000 invested in the business, 80,000 miles of line, and 180,000 miles of wire. This valuable and increasing property it is now proposed to transfer to the National Government.

The cost of the British lines was \$40,000,000, and to buy the lines in the United States, not less than \$75,000,000 would be needed. To meet this expense a new national loan would have to be issued. The charge for transmission of messages, which is fixed at twenty-five cents for twenty words in the Washburn bill, and at one cent a word in the Hubbard proposition, would be entirely insufficient to meet expenses. Moreover, as the cheap telegraphing must be counterbalanced by an additional tax upon the people, it is difficult to see where the advantage lies.

In Europe, the government system has been unsuccessful. In 1870, North Germany, Bavaria, Denmark, Spain, and Austria, all had deficits, while the expenses in Great Britain were about \$3,000,000 in excess of the receipts.

With regard to government efficiency, Mr. Wells calls attention to the fact that the post office of the United States is very much inferior to those of foreign nations. We have neither cheap postage nor a strictly honest service, and it is not supposable that any change would be made in these respects when the postal department was charged with the care of the telegraph. In addition, he repeats the arguments which have been so often advanced to show that all steps of this kind are inconsistent with the theory of republican institutions, because they tend toward imperialism.

**Statistics of Joint Stock Companies in England.**

The "Joint Stock Companies Directory" for the year 1872 has just appeared, containing 1,500 pages, embracing the names of all the joint stock companies in England. From this we get some idea of the immense number of stock companies in that one kingdom. First, we find the different railroad companies, such as the Midland Railway Company, which has 15,000 stockholders. The same company has at least as many more employees, making 30,000 persons to whom the welfare of a single company is a vital question.

**PNEUMATIC GUN CARRIAGE AND ELEVATOR.**

Captain James B. Eads, whose name is best known in connection with the great engineering work he is now successfully bringing to a conclusion—the railway and road bridge over the Mississippi at St. Louis—has recently designed a gun carriage for working guns *en barbette*, in which the force of recoil and the weight of the gun are employed to compress air in a suitably designed receiver, where it is stored up and used when the gun is to be elevated. Working models of this carriage have been tested at Washington with success,

both as to their efficiency in rising and falling, and also as to their capacity for remaining depressed for prolonged periods without losing the power necessary again to raise the gun. The engravings, for which we are indebted to *Engineering*, are taken from a working model for a 15 inch United States army gun, and made one twelfth of the full size; the total fall of the gun in the model is 10 inches, representing a depression of 10 feet in the actual piece.

The action of the carriage is dependent simply upon the compression of air in a receiver, effected by the downward motion of the gun, transferred to a piston rod and leather-packed piston, which works to and fro in a cylinder open at one end. Water or glycerin is admitted behind the piston in order to maintain a tight joint, and in sufficient quantity to fill the space between the end of the cylinder and the piston when the gun is in its lowest position. The quantity of water would be varied with the powder charges employed; with heavy charges the quantity of

water is increased, in order to produce a greater degree of compression in the air.

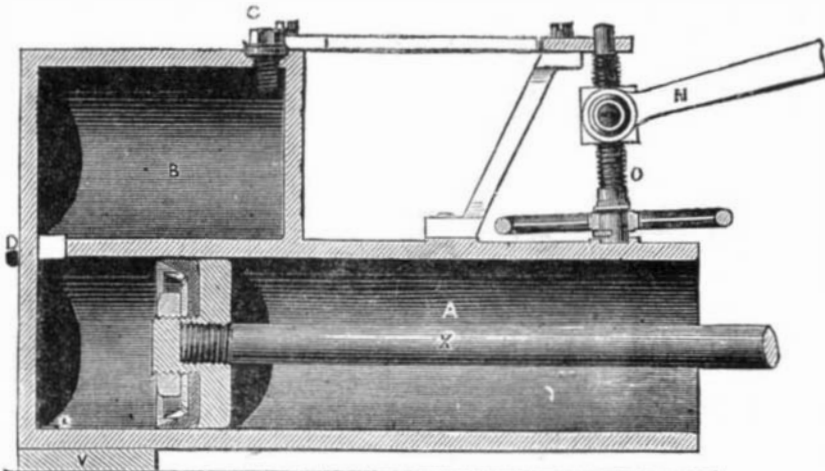
The chief features in the details of the carriage are the elevating and depressing gear for training the gun, the arrangement for locking and retaining the gun, when down, against the force of the air compressed in the reservoir, and the friction gear.

The engravings annexed will fully explain the construction of the carriage. Fig. 1 shows the gun above the parapet ready for discharging. Fig. 2 shows the air pump and cylinder for elevating the gun; and Fig. 3 shows the gun after recoil, in loading position beneath the parapet. A is the cylinder to receive water to assist in increasing the air pressure when necessary; B is the air chamber; C is an inlet closed with a screw plug for introducing water; K is a lever for working a ratchet arrangement or lock, by which the gun is locked in loading position when thrown down by the recoil; N N are connecting rods for elevating and depressing the gun before firing, and also for preserving its horizontal position when in the act of descent; O is a nut on the elevating screw, jointed to the rods, N N; P is a friction plug fitting into a wood-lined socket in the crosshead, which is attached to the piston rod and connecting straps, U; these straps are jointed

to the lower ends of the levers which sustain the gun; V is the gun carriage frame.

It will be seen that, by the peculiar action of the elevating levers, N N, and the nut, O the plane of the gun varies but little when the gun is in its lowest position. The piece when down has, however, always a slight elevation, which facilitates the rolling in of the shot, and this elevation is maintained, no matter what elevation or depression it may have given to it by the screw when trained for firing. This will be apparent from Fig. 1, where it will be seen that raising or lowering the nut, O, on the screw will not sensibly alter the horizontal position of the piece; but when the gun is up, as in the perspective view, the case is quite different. By the arrangement adopted, the piece is always thus brought to rest in the same position, no matter how many degrees of elevation or depression be given it for firing.

The force developed by the recoil and fall of the gun is much great

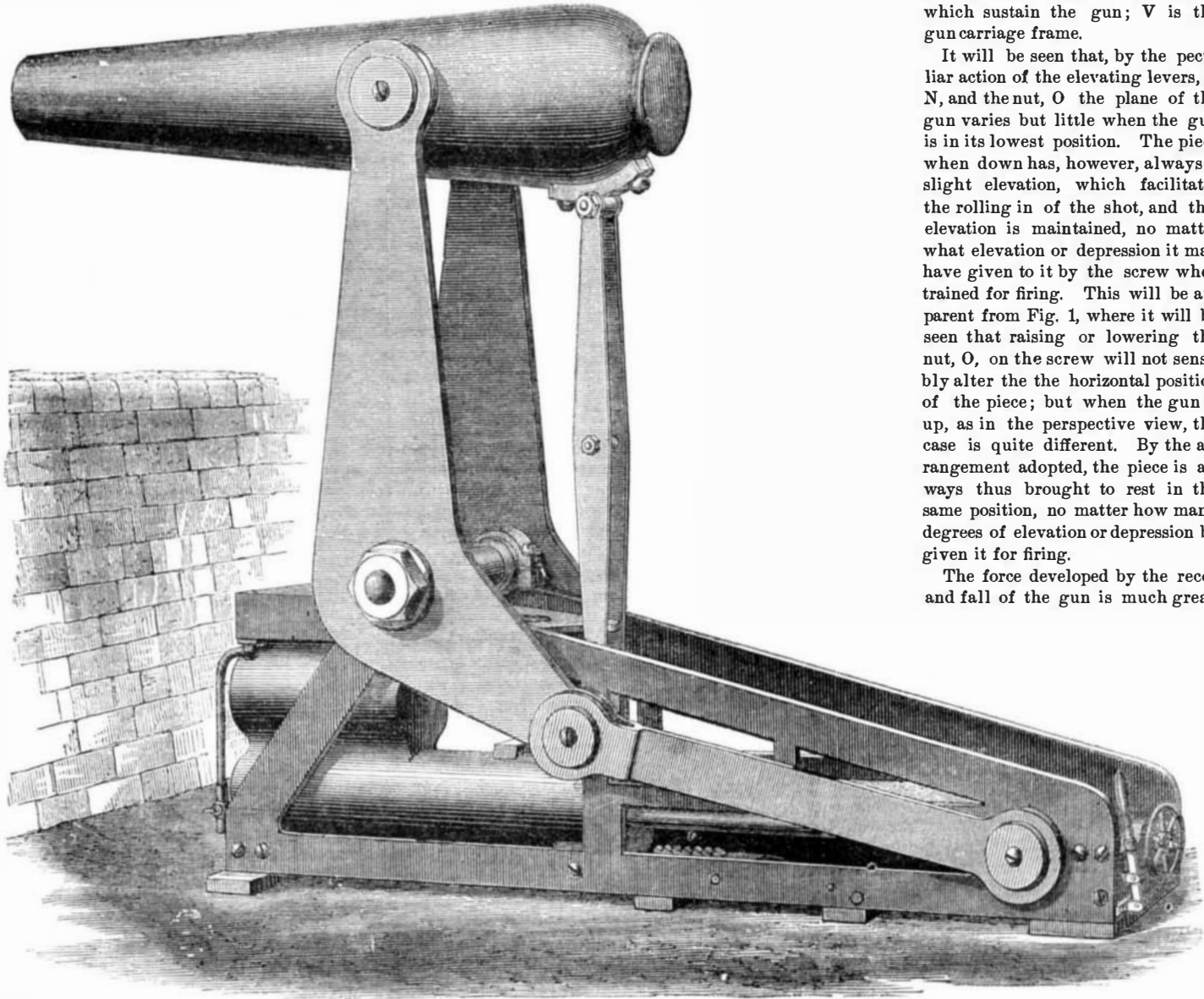


PNEUMATIC GUN CARRIAGE AND ELEVATOR.—Fig. 2.

After the railroads, follow long lists of insurance, banking, contracting, navigation, dock, hotel, mining, water, gas, and general companies. The *Echo* has counted the names of all the directors and finds them to number 10,500! If we suppose that each of these directors draws but \$750, then the total sum paid them equals \$7,500,000, which represents a capital of \$150,000,000 at 5 per cent. Besides, as a rule, the directors draw \$1,000 to \$1,500, and railroad directors draw a salary of \$2,500. In this way an idea may be formed of the immense extent of stock enterprises in England.

**A Gigantic Barometer.**

A huge barometer, the face of which is four feet in diameter, is now being erected on the facade of the Paris Bourse. The instrument proper is an ordinary sized aneroid, the movements of which are transmitted, by ingenious mechanism, to a train of clockwork which is wound up monthly. The clockwork actuates the great needle on the exposed face. *Les Mondes* suggests that it would be an excellent idea to place such barometers at the entrances of harbors, so that masters of vessels leaving the port might be able to determine, with reasonable probability, the coming weather.



PNEUMATIC GUN CARRIAGE AND ELEVATOR.—Fig. 1.—[Designed by Captain James B. Eads, St. Louis, Mo.]

er than is required to bring it back to the elevation from which it falls. A part of this force is, however, given off by the cylinder and piston in the form of heat, otherwise the gun would be thrown up with great force; part of the force is also converted into heat in compressing the air in the cylinder, and as this heat is quickly absorbed, the latter is incapable of expanding to its original volume when the gun is thrown up. Hence the latter part of the stroke of the piston is made against an external atmospheric pressure, and tends to bring the gun gradually to rest as it rises above the parapet. If the gun is not down long enough for this heat to be lost, it comes up with greater energy. To equalize any differences of air pressure and also to prevent counter recoil, which would ensue if elastic buffers were used, and thus probably cause the gun to fall after it came up and before firing, the friction plug, P, is secured to the rear of the carriage, and enters a corresponding socket in the crosshead. This socket is lined with wood, and the plug can be advanced or withdrawn by the screw and wheel, Q, according to the amount of resistance found desirable to check the gun. When the plug enters the socket, the gun is securely retained until it is loaded and ready to be raised. This insures the cylinder being filled with air, and prevents the possibility of a vacuum after the gun is up.

The gun, when thrown down, is held against the reactive force of the air by a peculiarly arranged pawl and ratchet gear. The ratchet is fastened to the underside of the crosshead, with teeth inverted, and the pawl is retained in its upward position by a spring.

#### The Money Value of Intelligence.

Every thoughtful man recognizes the money value of intelligence in a community. It is for this, in part, says the *Country Gentleman*, that the State builds school houses and furnishes free education to the masses. "Knowledge is power;" even the ignorant respect it, and pay it many an involuntary compliment. The power consists in the ability to better one's condition more rapidly; and in doing that—such are the relations of men to each other—they usually benefit all around them. The improvements on a piece of real estate do not affect the owner alone, but indirectly extend to the neighborhood, and next find their way to the assessor's books and thus benefit the nation. It is like the ripple which a pebble starts when thrown into the water—it spreads wider and wider, and though after awhile the visible effect disappears, we know that it does affect the whole body, no matter how large. So when something is added to the world's wealth, it benefits the whole world, although we may not be able to trace its full effects.

When an enterprising man buys a run down, neglected farm, with rickety and dilapidated buildings, and at once proceeds to improve it, clears up the unsightly fence corners, drains the wet land, pulls out stumps or rocks, moves the barn to the back of the house, and sets the new house a little distance back of the highway, lays out a lawn with pleasant walks and shade trees and hedges; brings blooded stock with him, and causes his acres to produce three fold more than ever before, what man so stupid as not to recognize that that is a pecuniary gain to the neighborhood? No matter how selfish the owner may be at heart, if he makes his farm more valuable, he does the same, to some extent, to all around him. The neighbors like to see a handsome farm near them even if they never think of selling, and when they do try to sell, the prospective buyer will invariably have his attention called to the handsome property over the way, or which adjoins, or at least is not far off. Speculators holding unimproved land like nothing so well as to be able to say (because nothing is more potent) that it lies in the very best of neighborhoods, is surrounded by rich farms in the highest state of culture, in a delightful region of walks and drives; that the people are all intelligent, and their tastes refined; that schools and churches abound; and that the value of the land has been proved by the extraordinary yield of crops on the adjacent farms. When these things can be said truthfully, sales are comparatively easy, and that at the highest prices.

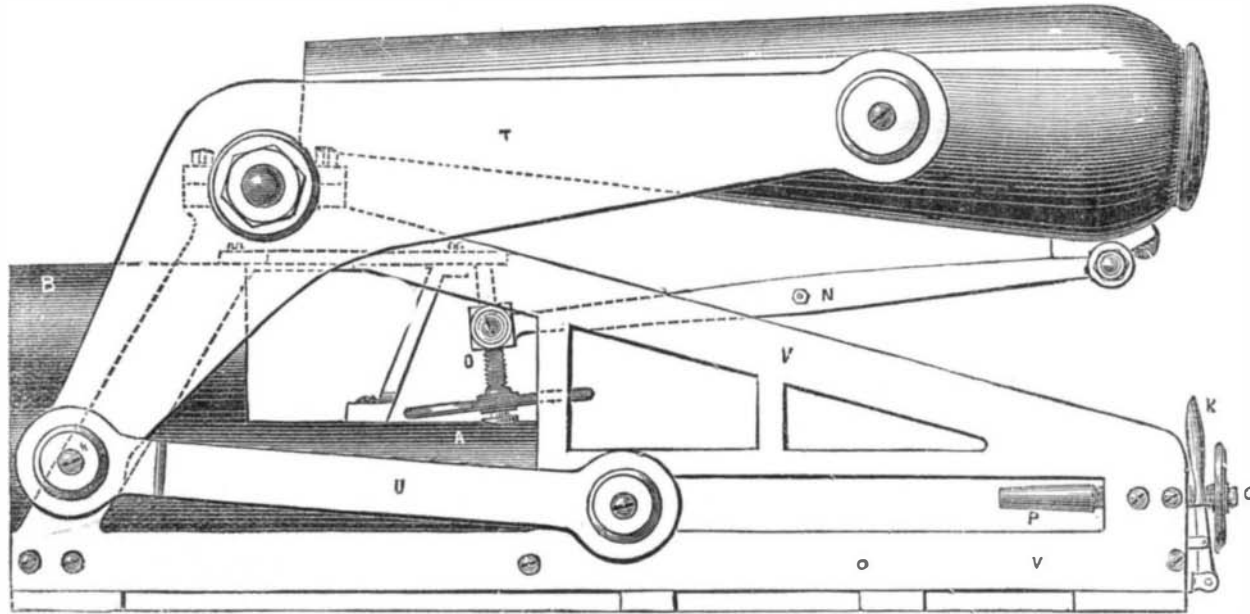
Does not every enterprising farmer see then—as well as those who are not farmers—that there is a money value in intelligence, and that the rapidity of its spread concerns them very closely? Improvements on one's own place are well, wise and admirable; but so are improvements around you. There should be, then, no neglect of the means. Every agency which will promote farm intelligence should be employed and kept up.

#### Submarine Water Supplies.

Yonkers is an enterprising city just north of New York, on the Hudson river, and the municipal authorities have lately been exercised upon the question of a water supply. Through Yonkers runs a small river called the Nepperhan,

which empties into the Hudson. Professor Newberry, of Columbia College, has been consulted in the matter, and in his report he gives the following interesting information:

Before any plan is adopted for supplying the city of Yonkers with water, I would strongly recommend that a thorough exploration be made of the materials which occupy the bottom of the rocky valley of the Nepperhan, and underlie, perhaps very deeply, the present stream. It is probably known to you that most of the draining streams of all the region between the Mississippi and the Atlantic are now running far above their ancient beds. This fact was first revealed to me by the borings made for oil in the valleys of the tributaries of the Ohio. All these streams were found to be flowing in valleys, once deeply excavated, but now partially filled, and in some instances, almost obliterated. Further investigation showed that the same was true of the



PNEUMATIC GUN CARRIAGE AND ELEVATOR.—Fig. 3.

draining streams of New York and the Atlantic slope. For example, the valley of the Mohawk, for a large part of its course, is filled with sand and gravel to the depth of over two hundred feet. In the Hudson the water surface stands now probably five hundred feet above its ancient level—the old mouth of the Hudson and the channel which leads to it being distinctly traceable on the bottom nearly eighty miles south and east of New York. The excavation of these deep channels could only have been effected when the continent was much higher than now. Subsequently it was depressed so far that the ocean waters stood on the Atlantic coast from one hundred to five hundred feet higher than they now do. During this period of submergence the blue clays in the valley of the Hudson—the Champlain clays—were deposited, and the valleys of all the streams were more or less filled.

Following the general rule, the Nepperhan probably once discharged itself into the Hudson at least one hundred feet below its present level, and the old valley in which it flowed is perhaps filled to this depth for some distance above its mouth. It is also probable that a portion of the material occupying the bottom of the old valley will be found to consist of sand and gravel, saturated with water and traversed by drainage currents which are quite independent of the surface stream. In the boring made near the head of Nepperhan avenue, a thick bed of clay was found underlying the surface gravel. It is almost certain that beneath this clay are sand, gravel, or boulders, through which a flow of water passes on the bed rock toward the Hudson. Should this be found to be the case, it would be an easy matter to construct a subterranean dam between the rocky walls of the valley—which here approach very near to each other—stop this underground flow and pump it out for city use, either directly by the Holly process, or throw it into reservoirs to be distributed by gravity.

**COLOR BLINDNESS.**—An instrument has been invented in Germany for testing color blindness. It consists of a rotating apparatus, which moves a disk whose center is a circle, one half black and the other white; outside of this is a ring half red and half green, then another ring of violet and red, then the outside ring of violet and green. When rapidly rotated, the center appears to be colored gray, then is black and white mixed. To a green blind person the middle line will appear gray, that being the result to him of a mixture of violet and red. The outer ring will appear gray to the red blind patient, and the inner, gray to the violet blind. By the use of this instrument, a large number of patients may be simultaneously examined for one or more kinds of color blindness.

A BILL is before Congress to permit scientific institutions to import alcohol, free of duty, for use in preserving specimens. Professor Agassiz appeared before the Congressional Committee to advocate the measure, and stated that, last year, the institution with which he is connected, Harvard University, Cambridge, Mass., used five thousand dollars' worth of alcohol, and he thought that about as much more was annually used by other institutions.

SIR G. C. COWELL states that he witnessed the explosion of a fire ball, which seemed to be about twelve feet in diameter, near the Great Western railway at Slough, England, on November 30, 1872, at 2:30 P. M. The report made was similar to that of a heavy gun, and the ball burst, on reaching the ground, like a well timed shell.

#### Meteorological Phenomena.

Father Sanna Solaro, in a communication to the French Academy of Sciences, takes an interesting and comprehensive view of meteorological phenomena. He says that if we consider the sun as the principal source of terrestrial and atmospheric electricity, we can consistently explain the most difficult phenomena of meteorology. The sun being the cause, we can account for the extreme violence of electrical phenomena in the tropics and especially at the time of the equinoxes. Hence the terrible cyclones, which mere differences of temperature cannot explain. The excess of electricity of those regions, striving to re-establish its equilibrium, causes the air to flow towards the temperate zones. The whole column of air over the tropical zone being more powerfully electric than the balance of our atmosphere, it is but natural that the electricity in the higher and more rare-

fied regions should flow off towards the poles and manifest itself under a luminous form. Hence auroras are most frequent too at the time of the equinoxes.

When electricity is developed in an electrical machine, it accumulates in the prime conductors and pushes away the air from them in order to escape. What then must be the effect of the immense oceans of electricity accumulated above our heads? It is here that we must look for the cause of barometric variations, and we will then understand why the barometer falls rapidly at the approach of the center of a cyclone, and why it sometimes rises suddenly after

a clap of thunder. The daily and the yearly variations of the barometer, like those of the compass, are small at the equator, much more sensible at mean latitudes and almost zero in winter at high latitudes.

It has been known for some time that when the barometer rises considerably, the thermometer falls a few days after. On the supposition that the depression of the barometer is due to an accumulation of electricity, it will be easily understood that the electricity, escaping by puffs, cools the air in proportion to its own tension; the barometer will rise at once, while several days will be necessary to transmit the lower temperature to the thermometer.

Earthquakes are of two kinds; one of them originates in the interior of the earth, while the other, and by no means the less violent, is produced upon the surface. The latter are the more numerous. They are frequently preceded by noises in the air resembling rumblings of thunder or the unloading of pebbles on a stony road; they are often accompanied by luminous phenomena, and, for the most part, nothing can be heard below the surface of the earth. On one occasion, the shocks were not perceptible in the cellars and caves. Father Solaro states that frequent personal observations of these phenomena have forced upon him the conclusion that they are often due to atmospheric waves caused by sudden disturbance of the electrical equilibrium between the earth and the atmosphere.

#### Fires and their Causes.

In a recent report of the Boston Manufacturers' Mutual Insurance Company, a list of the fires by which that corporation suffered in 1872 is given, from which we take the following. It will be found interesting as showing the many causes which may produce fires, and shows the great care necessary in all manufacturing establishments to prevent combustion.

- 1872.
- January 1.—Lyman Mills, Holyoke, Mass. Fire in a pocket or bin in cotton from a Kitson mill at about 9 o'clock A. M., attributed to foreign matter in the cotton. Loss \$450.
- January 8.—Glasgow Co., So. Hadley Falls, Mass. Fire in the gas house, from an escape of gas. It was caused by one of the workmen entering the gas house with a lighted lamp, there being no ventilator. Loss about \$3,300.
- January 9.—Woonsocket Co., Woonsocket, R. I. Fire in the office and store building, supposed to have been the result of thieving in the store, the thieves firing the store, accidentally or otherwise. Loss total.
- January 9.—Utica Steam Cotton Company, Utica, N. Y. Fire in No. 2 picker room. On opening the room in the morning, fire was discovered running over two laps which were in contact with a steam pipe. There seems to be no doubt that we have here a clear case of ignition of what is usually clean cotton by the heat of ordinary steam pipes.
- January 17.—Methuen Company, Methuen, Mass. Fire in jute cardroom, discovered on the apron of a picker, and as the stock had not entered the machine, it was attributed to matches. Extinguished by sprinklers. Loss moderate.
- January 19.—Stevens Linen Works, Dudley, Mass. Fire in a jute card room, caused by a boy bringing some stock into a gas flame. Extinguished by steam. Loss \$258.
- January 31.—Salisbury Mills, Salisbury, Mass. Fire in a wool dry room, at about 7:40 P. M., attributed to spontaneous combustion. Loss about \$21,000.
- February 27.—Harmony Mills, Cohoes, N. Y. Fire in a store house, discovered by the watchman at 1:30 A. M., in the center of a pile of 2,000 rolls of jute cotton bagging. Caused by spontaneous combustion, probably from oil used in working the jute. Loss to the office, \$1,900.
- March 11.—Kearsarge Mills, Portsmouth, N. H. Fire in the picker room from foreign matter in cotton. No claim made.
- March 18.—Whittenton Mills, Taunton, Mass. Fire in a Kitson compound opener in picker No. 2, at the 3d beater, and supposed to be caused by winding of cotton around feed rolls, the same being ignited by the beater. Sprinklers, steam, and extinguishers used in putting out the fire. Loss \$328.
- March 18.—Newton Mills, Newton U. Falls, Mass. Fire in a section of cards not at work, attributed to friction of loose pulleys. Extinguished by buckets and hose. Loss, chiefly on card clothing, \$820.
- March 22.—N. Andover Mills, N. Andover, Mass. Fire was discovered by the watchman, at about 4:30 A. M., in the attic, and about half an hour after he had been there and found all safe. After the fire was discovered, much delay in giving an alarm was caused by the burning off of the bell rope, and the alarm when given was mistaken for the first bell, and help was slow in coming. Result, the burning out of the three upper floors of the mill and much damage to the rest. Cause not known. It might have been from spontaneous combustion in wool, or the carelessness of the watchman. Loss about \$100,000.

March 29.—Steam Woolen Mill, Catskill, N. Y. Fire in picker room, originating in a wool picker, probably from foreign matter in the wool. Loss about \$1,500.

April 22.—Amoskeag Mills, Manchester, N. H. Fire in No. 5 picker, discovered issuing from a Creighton opener, probably from foreign matter in the cotton. Extinguished by the sprinklers. In pulling over the cotton the fire broke out anew, and the sprinklers were applied again. There were 24 bales of cotton in the room. Loss only \$465.

April 23.—Souhegan Mill, Milford, N. H. Fire was discovered by the watchman in the basement, at about 1:30 A. M. The watchmen changed at 12:30 and the fresh man says he passed through the basement about 1 o'clock when all was right; about 20 minutes later he saw the fire from the boiler house, and went for the agent. When the latter reached the mill, he found so much smoke in the next room above the basement that he could not get at the pump fixtures, and the fire was so located in the basement as to prevent reaching the pump in that room, and it was not started at all. At this time the force of the fire was among about one hundred sets of nearly new harnesses hanging in the usual manner overhead in the basement. Whether the fire originated in these harnesses, or was kindled accidentally by the watchman, or was the work of incendiaries, may never be determined. Loss total, or \$100,000.

May 2.—Fall River Print Works Mills, Fall River, Mass. Fire broke out in the center of a Sharp & Roberts mule carriage, about one hour after starting work in the morning, probably from a dry step on an upright shaft, and run both ways, the efforts with the pumps were unavailing. The carriage was started and the mill pretty thoroughly drenched. The damage was considerable, both from fire and water, the latter chiefly on cards, etc., in the lower room; one pair of mules destroyed, all rollers uncovered, etc., besides the loss of most of the window glass and sash, and the whole amounted to \$5,643.95.

May 6.—Chas. Wilds, Valatie, N. Y. Fire in an English opener at 6:15 A. M., supposed to have been from foreign matter in cotton. Loss small.

May 17.—Cocheco Mills, Dover, N. H. Fire in a mule carriage from friction. Put out by buckets of water. No claim.

May 18.—Greenwoods Company, New Hartford, Conn. Fire in a first picker at second beater, from foreign matter in cotton. Beater blade ruptured, but nothing found. Put out by pails of water. No claim.

June 23.—Stillwater Woolen Mill, Smithfield, R. I.—Fire was discovered at about 10:30 A. M. of Sunday. The mill was nominally watched on Sunday, but on that day the watchman was permitted to leave his charge to attend church, and the fire was seen from a dwelling (about half an hour after the man had reported all safe), and in the second story of the wing, and as the day was warm, the doors of the mill above the first story were all open, and the doors to the elevator open also, and the fire after getting headway rushed up and through the mill without hindrance. There was a good organization connected with the force pumps, and the fire fixtures were esteemed better than an average, but all the men who belonged to this organization were out of the village at the time of the discovery of the fire, as was the agent also. The efforts of the men not used to the pumps resulted in breaking the main gear of the wheel, and the mill was totally destroyed in about 45 minutes. Cause, spontaneous combustion in bags of shoddy stored in lower story of wing. Loss to Mutual Companies, \$160,000.

June 23.—Slate's Mills, Jewett City, Conn. The superintendent reports two fires in the picker room on a Saturday in June, within an hour of each other. An examination of the cotton delivered from the opener resulted in finding matches, which they thought had passed through without ignition. Put out by "extinguishers" without loss.

July 30.—Stark Mills, Manchester, N. H. Fire in picker of No. 2 mill, in a bin which received the cotton from a willow, and attributed to foreign matter in the cotton. The alarm being given, an effort was made to let water into the sprinklers by turning the valve wheel the wrong way, and persisted in until the valve stem twisted off. The fire was subdued by streams from the hose after getting well advanced. Loss made up at \$1,940.

August 21.—Dodgeville Mill, Attleborough, Mass. Fire was discovered about 5:30 A. M., in the gauze room of the picker house, supposed to have been caused by a spark from the chimney lighting on the ventilator of gauze room, which it was way downwards into the cotton. Extinguished by steam. Loss moderate.

August 21.—Cocheco Print Works, Dover, N. H. Fire in house of singeing department, caused by a spark from the singeing machine. No claim made.

August 29.—Wamsutta Mills, New Bedford, Mass. Fire in the picker room of No. 2 mill, first seen on the floor under an opener apron, and was soon all over the room. Extinguished by steam, sprinklers, and hose. Cause not ascertained. Damage, \$1,000 to \$1,200.

September 11.—Stevens Linen Works, Dudley, Mass. Fire in jute card room, supposed to have been caused by matches. Extinguished by sprinklers and hose. Loss about \$711.

September 11.—Lonsdale Mills, Lonsdale, R. I. Fire in No. 3 picker house, cause not known. Loss about \$1,000.

October 17.—John S. Brown, Fisherville, N. H. Fire found in the gauze room of east picker, attributed to foreign matter in cotton. Extinguished chiefly by "chemical fire engine," sprinklers and hose were also used, but probably unnecessarily. Loss \$485.

October 18.—Lancaster Mills, Clinton, Mass. Fire in opening machine, caused by matches. Extinguished in season to prevent loss.

October 24.—Washington Mills, Lawrence, Mass. Fire in cotton picker, caused by a piece of flintstone passing through the opener. Extinguished by sprinklers and hose. Loss \$445.

October 24.—Bates Mills, Lewiston, Me. Fire in No. 2 picker in a Creighton opener, caused by winding up of roving waste which fired by friction. Extinguished by sprinklers. Loss \$735.

November 4.—U. S. Flax Company, Lincoln, R. I. Fire in cotton picker room in stock passing through a Wilson whinner, and caused by matches. Extinguished by steam and sprinklers. Loss about \$1,000.

November 4.—Cocheco Print Works, Dover, N. H. Fire in engraving shop by spontaneous combustion in a heap of dirty neglected rags. Put out by watchman with a pail of water. No claim made.

December 7.—Greenwoods Company, New Hartford, Conn. Fire in picker room of warp mill, caused by the friction of belt on its enclosure box. The fire being out of sight, much water was thrown in and the stock damaged thereby. Loss not large.

It will be observed that the pickers still keep up their reputation as the most frequent originators of fires, 18 out of 35 having been in that department. There are also several cases of spontaneous combustion, and woolen manufacturers should be warned by the case at Stillwater. The attention of all is directed to the case of firing of cotton laps by steam pipes in the Utica mills, as one to which very many concerns are liable, from the practice of allowing combustible matters to remain in contact with steam pipes. The sprinklers alluded to consist of perforated pipes placed on the ceilings, through which water is sent in case of fire.

Facts for the Ladies.—Mrs. Rev. W. V. Milligan, Cambridge, Ohio, has saved with her Wheeler & Wilson Lock-Stitch Machine hundreds of dollars in the last ten years without a cent for repairs. See the new Improvements and Woods' Lock-Stitch Ripper.

PATENT OFFICE DECISIONS.

IMPROVEMENT IN INDEX LAMPS.—HENRY H. BLAKE.—FORFEITED APPLICATION.

TEACHER, Acting Commissioner: The only date that can be regarded by the Office as entirely reliable is that of filing, as indicated by the official stamp upon the paper. As this was more than two years subsequent to the last official action on the application, and no explanation of the delay is offered, the Commissioner is left by the law without discretion in the matter. The application must be treated as abandoned under the provisions of section 32, act of 1870.

IMPROVEMENT IN HORSE RAKES, GRANTED TO HARVEY W. SABIN, DECEMBER 3, 1870.—CALISTA E. COX, EXECUTRIX.—PRACTICE UNDER RULE 44.—REISSUES.

TEACHER, Acting Commissioner: It has been urged that the practice should be relaxed in this instance, as the claims, or at least some of them, have been sustained by United States Courts. I do not think this position is tenable. The law makes no exception whatever in reissue applications. Section 54 of 1870, relating to reissues, provides that "the specification and claim in every such case shall be subject to revision and restriction in the same manner as original applications are." Now the claims have been sustained by construing them as claims for devices, and although under a former more lax practice they were granted without objection now that they are before the Office again, in an application for reissue, they are undoubtedly subject to revision, and should be amended to conform to the decisions of the courts and the present practice of the Office. This objection of the Examiner is therefore sustained.

TOOL HANDLE OR HOLDER.—WM. W. DRAPER.—EXTENSION.

TEACHER, Acting Commissioner: This case, although very well presented before the Office, does not appear to be a strong one in the essential facts requisite to warrant the grant of an extension. The invention consists of a tool holder intended to center, clamp, and secure the tang of a file or other tool, and is adapted to apply to tools of varying sizes. I am not favorably impressed with the contract by which it is proposed that the inventor is to obtain the adequate remuneration which is alleged he has thus far failed to receive. The assignees or licensees engage to supply the market, but there is no evidence that there is any demand in the market for this particular tool holder. On the other hand, there is evidence that the main reliance for profit is upon suits for infringement of the "principle" of construction embraced in the first claim, which would avail the inventor nothing. Twenty-five per cent of the net profits of manufacture, after deducting the expenses of extension, do not, under the circumstances of this case, promise the inventor adequate compensation. Altogether the case does not commend itself to my mind, upon the evidence adduced, as a proper one, having due regard to the intent of the law and the interest of the public, to warrant the grant of the extension sought and it is therefore refused.

DECISIONS OF THE COURTS.

United States Circuit Court—Southern District of New York.

METHOD OF PRESERVING FISH.—ENOCH PIPER vs. GEORGE T. MOON et al. BLATFORD, Judge:

The patent to the plaintiff, granted March 19, 1861, is for an "Improvement in Method of Preserving Fish." The claim is for "preserving" fish or other articles in a close chamber by means of a freezing mixture, having no contact with the atmosphere of the "preserving" chamber, substantially as set forth.

The specification of the patent, in describing the process claimed, describes the process previously used for preserving frozen ice cream. All that the patentee has done, according to his claim, is to take the frozen ice cream out of the vessel and put into it a fish or other article, frozen or unfrozen. That is no patentable invention. If the process of preserving the frozen ice cream had not existed previously, the use of such process, in the manner stated, would be within the claim of the patent, and would be an infringement of it. The prior use of such process must, therefore, be an anticipation of the claim of the patent at least in a case like this.

The patentee may be the first person who has practically succeeded in introducing into the market, at all seasons, salmon as fresh as when first caught, and may thus have supplied a great desideratum and have established a business that is commercially profitable. He may have invented something, in that connection, which is capable of being protected by a patent, and he may have described in this specification, or shown in the model or drawings accompanying it, something which may be claimed, and well claimed as an invention, and which may be secured to him by a reissue. But the difficulty with the present claim is that it is too broad, and that it covers nothing but a process, and that a process practiced before, substantially in the same manner set forth in the specification.

For these reasons the bill must be dismissed with costs. M. B. Andrus and Broome & Holmes, for complainant. W. C. Witter and George Gifford, for defendants.

Recent American and Foreign Patents.

Improved Vapor Stove for Heating Soldering Irons.

David Berkey, Huntington, Ind.—This invention has for its object to furnish an improved vapor stove or fire pot for tinner's use for heating their soldering irons. The body of the stove is made of any sheet metal in the form of an inverted frustrum of a cone. The body is provided with a conical cover, terminating in a neck to receive the smoke pipe. The reservoir to contain the kerosene or other light hydrocarbon is supported by rods. From the reservoir a pipe leads downward, and is then curved to enter the lower part of the stove. To the end of the pipe is attached a semicircular piece of pipe. To the other end of the semicircular pipe is attached a short piece of pipe, which is bent into such a shape that its other end, to which the burner is attached, may be directly beneath the center of the curved pipe so that the flame from the said burner may strike the said pipe and vaporize the liquid before it passes to the burner. The burner is made in the form of a short tube, and with a number of small holes in its closed upper end. A disk fits into the stove and has a slot with flanged side edges formed in it. It is so adjusted that the slot may be longitudinal with the semicircular pipe, the flanges of said disk overlapping the sides of the said pipe so as to collect the heat from the burner and guide it through the slot in the said disk so that it may come into direct contact with the copper tubes placed above and upon the disk; and its open ends communicate with holes in the side of the stove through which the irons are inserted to be heated.

Improved Corn Husker.

John M. Carlisle, Sumter, S. C.—This invention has for its object to furnish an improved machine for separating ears of corn from their husks, enabling the work to be done faster than it can be by hand, saving the hands of the operator from injury, and leaving the husks in fine condition for being fed to stock. In using the machine the ear to be husked is laid upon the rest with its stem forward, and is pushed forward till stopped by the stop claw. The spring lever holder is then lowered to hold the ear, and the sash is forced downward. By the downward movement of the sash the stop claw is withdrawn, the knife cuts the ear from its stem, and the husks are slit longitudinally, by the points as they are drawn back along the ear by the rearward movement of the head block, and drop from the ear, which is then removed from the rest and placed in a basket or other receptacle. The sash is then raised and the machine is ready for another ear.

Improved Spectacle Frame.

Julius King, Warren, O.—A difficulty has heretofore been experienced in joining the bow to the bridge, or nose piece, in manufacturing steel frame spectacles. By making the bridge of silver, gold or other non-oxidizing metal, the soldering of such metal to the steel is done at much lower temperature, and prevents burning, which renders ordinary steel frames very brittle. By the use of a combination of metals, greater strength is obtained, and the liability of the bridge to oxidation is prevented. Mr. King is a practical optician, and author of a chart by the use of which persons are enabled to determine the focus of their sight, and thus be readily fitted with glasses of the number they require.

Improved Cartridge Loader.

Joel S. Warner, Ogdensburg, N. Y.—The object of this invention is to produce a portable device but little larger than the cartridge shell for placing the wads therein, and the invention consists in a tube counterbored to fit over cartridge shell and provided with a spring plunger very effectively applied.

Improved Glove.

James F. Mason, Johnston, N. Y.—This invention relates to that class of gloves which are made partly of leather and partly of cloth, and known as "combination gloves," and consists in the patterns and in the glove made therefrom.

Improved Steam Boiler.

Atwood Wigzell, Halifax, England.—This invention relates to the construction and general arrangement of steam boilers, having particular reference to the class known as "sectional steam boilers," and consists in a series of conical tubes attached to or forming a part of horizontal parallel tubes upon the sides of the boiler, the said conical tubes being so arranged that the tubes of one part fit between the tubes of the other part, thus forming one or more horizontal tiers of these conical tubes, two or more such tiers being contained and operating in combination with a steam chamber.

Improved Adjustable Pipe Tongs.

William Kearney, Belleville, N. J.—This invention relates to improvement in pipe tongs, of the class in which one jaw is made adjustable by means of a screw, but is more particularly a modification of a device described in the patent of H. N. Smade, dated August 29, 1871. The object of this invention is to provide an adjustable jaw which shall be capable of adapting itself, within moderate limits, to the object to be seized or held, and of being readily adjusted to various positions.

Improved Awl.

Godfrey K. Mellor, Woonsocket, R. I.—The lower part of the awl is made with two or more sides, each side being grooved. The grooves extend to the pointed end. By being thus grooved, the awl forms several sharp edges at its sides which cut easily through the leather, and which, therefore, make it easier to use the improved awl than the awls in common use.

Improved Slide Valve.

Peter Peartree, Lansingburg, N. Y.—This invention has for its object to furnish an improved device for operating the valve of a steam engine, which shall be so constructed as to enable the steam to be cut off at any desired part of the stroke, and which will operate the valve so as to give a lead, which may also be regulated at will.

Improved Pruning Shears.

Oscar Chase, Rutland, Ohio.—This invention has for its object to furnish an improved pruning shears, so constructed as to cut the bows with a circular or drawing cut, so as to do its work easier than when the cut is made in the ordinary manner, and which may also be used with equal advantage for cutting bolts and other articles of iron or other metal; and it consists in the continuation of the handles, one of which is provided with a hook, guide arm, and stop, and the cutter and the link slotted in its inner end and provided with a finger or cam.

Improved Boots and Shoes.

Robert Sommerville, Sandusky, O.—This invention consists in the use of wire gauze cloth for the uppers of boots and shoes. The principal advantage of this shoe is that it gives the foot free ventilation, and it is sufficiently pliable to allow free action to the foot.

Improved Picket Fence.

Joseph Willhite, Pilot Point, Texas.—This invention has for its object to furnish an improved picket fence, which shall require a comparatively small amount of timber, can be easily repaired, and cannot be rubbed down by the stock, and it consists in the construction and combination of the various parts of the fence, so that all may incline laterally, and the timber may be made light, and at the same time the fence will be strong and substantial. With this construction, also, when any of the pickets rot off they may be driven down into the ground or replaced with new pickets, without disturbing the wire, rails, or posts, which cannot be done when the wire passes through the pickets.

Improved Ore Crusher.

William P. Hammond, Napa city, Cal., assignor to himself and Henry Mygatt, same place.—This invention has for its object to furnish an improved device for operating the stamp of a stamp mill or ore crusher, enabling the stamp to be raised with a less expenditure of power than when the stamp is operated in the ordinary manner, and it consists in the tappet, in combination with the stamp shaft, cam, and driving shaft. By suitable construction and arrangement of the tappet the friction will be lessened, the cam will rotate the stamp more surely, and the power required to raise the stamp will be diminished, the point of contact being directly above the driving shaft.

Apparatus for Filling, Polishing, and Varnishing Moldings.

Max Hamburger, Isaac J. Siskind, and Achille Klein, New York city.—This invention has for its object to furnish an improved machine for filling, French polishing, finishing, varnishing, and sand papering wood moldings, etc. In using the machine, the molding or other work to be operated upon is secured to the table, which table is then raised to bring the work against the brushes or rubbers with the necessary pressure. A lever is then operated to bring a clutch in contact with a wheel that will carry the brushes or rubbers in the proper direction. The motion of the brushes or rubbers may be reversed at any time, and as often as desired, so that a short strip of molding or a part of a long strip may be operated upon, as required.

Improved Balanced Slide Valve.

Hubbard Hendrickson, Red Bank, N. J.—This invention relates to a new means of balancing the slide valves of steam engines with such exactness and regularity that the motion of the valve will be made easy, its wear prevented, and friction avoided. The invention consists, first, in connecting a pivoted yoke with the slide valve, said yoke having a vertical stem that swings at its upper end on a horizontal pivot. This pivot is supported in a tube or cylinder, which is held balanced by the steam, so that the actual support is supplied to the valve by the steam, but indirectly under said cylinder, and thence to the pivot at the upper end of the rod.

Improved Pole Clamp.

Henry Haering, New York city, assignor to himself and Hermann Allis, of same place.—This invention consists of a U-shaped yoke with bearings in the bars near the open ends, an eccentric clamp with a hand lever, and journals for working in the aforesaid bearings, and a fastening chain or rope, all combined or arranged so that a couple of scaffold or other poles lapping each other may be embraced between the bottom of the yoke and the eccentric clamp by placing the yoke around them and then putting the clamp in its bearings, and thus be bound together very firmly and in a simple manner. The clamp is designed for splicing scaffold, tent, and other poles.

Improved Plow.

Edwin Reese, Eutaw, Ala.—The invention consists in a self sharpening plow having the landside of such peculiar construction that the point and edge of share are allowed in a uniform and certain manner to wear upon both upper and lower side so as to retain the same edge until completely worn out.

Improved Butt Hinge.

Isaac L. Thompson, Sardis, Ohio.—This invention relates to an improvement in the class of butt hinges provided with supporting arms or straps, and consists in constructing such arms or straps with lugs for taking into the wood and relieving the screws from strain.

Improved Chair Seat and Back.

William T. Doremus, New York city.—This invention has for its object to furnish chairs, provided with elastic seats and backs, which shall be simple in construction, strong and durable, and at the same time convenient in application and comfortable in use; and it consists in the arrangement of alternating rigid and elastic blocks, having flexible connections.

Improved Lubricator.

John McLure Power, Port Discovery, Washington Territory.—The neck of the lubricator is screwed into the cylinder head. A pipe is connected with the branch from the neck of the lubricator and with the condenser, through which steam is admitted from the cylinder. This pipe enters the condenser and is closed at its end. It has a short vertical branch pipe screwed into it. A valve spindle is attached near the bottom of the reservoir, for drawing off the surplus water of condensation. A spindle valve is located in the cup or receiver, by which the flow of oil is controlled, and the condensing surface increased or diminished. A solid plug, made of any non-conducting material, closes the top of the neck tube. Steam will pass up through the branch and pipe from the cylinder into the condenser, which steam will be condensed in whole or in part, and the water of condensation will fall by its own gravity into the reservoir. The water, being of greater specific gravity than the oil, will settle at the bottom of the reservoir, and when it accumulates in too great quantity, it is drawn off through the valve. The lubricating oil flows over into the pipe, and reaches the cylinder by virtue of its own gravity. The flow of steam upward, as well as of oil, may be shut off by means of the valve spindle.

Improved Tool Holder.

James S. Ettenborough, Easton, Pa.—This invention consists of a relief bar or plate pivoted to the end of the shank by which the tool is attached to the reciprocating bar of the machine at right angles to the line of motion, with a tool post similar to the tool post of a turning lathe, for holding the tool, the relief bar being arranged to swing and free the point of the tool from the work when it moves back, to prevent it from rubbing on the work and being worn thereby or broken when escaping from the end of the work, the said bar being provided with a spring to throw it back into the working position before beginning to cut, and the tool post being arranged to shift the tool sidewise for under cutting, slotting, and other purposes.

Improved Door Check.

George Rohrbaker, Penn Station, Pa.—The object of this invention is to provide means for holding swinging doors in any desired position; and it consists in one or more circular plates forming part of a frame attached to the casing and arranged concentric with the door hinges, and in an elastic friction block connected with the door and working in contact with said circular plates, thereby causing friction, by means of which the door is held.

Improved Farm Gate.

Cyrus E. Gillespie, Edwardville, Ill.—This invention relates to an improved mechanism for operating gates on roadways at a distance therefrom so as to make it convenient for persons on horseback or in carriages to open such gates before reaching them, and to reclose them after they are passed, all without dismounting. The invention consists mainly in connecting the latch of the gate with a crank on a pinion that hangs on its lower pivot, so that as said pivot is moved to one side or the other, the pinion will be turned and the latch opened to permit the opening of the gate.

Inventions Patented in England by Americans.

- (Compiled from the Commissioners of Patents' Journal.) From January 3 to January 9, 1872, inclusive. CAR SPRING.—P. G. Gardner, New York city. DRYING FEAT, ETC.—L. W. Boynton, N. Y. city, J. E. Holmes, London, Eng. ELECTRIC SIGNAL.—W. Robinson, Brooklyn, N. Y. EXTRACTING NAILS.—G. J. Capewell, Cheetham, Conn. HAT.—R. Eickemeyer, Yonkers, N. Y. HOSPITAL BED.—I. Waller, Cleveland, O., H. Fowler, Detroit, Mich. PRINTING TELEGRAPH.—G. L. Anders, E. B. Welch, Cambridge, Mass. PUDDLING FURNACE.—L. S. Goodrich, Waverly, Tenn., I. H. Hillman, G. W. Goodrich, Trigg Furnace, Ky. TOY.—W. W. Rose, New York city.