abandon his attempt to reach the Pole in that direction. When De Haven went in command of the American expedition in search of Sir John Franklin, he was told in his letter of instructions that when he had gone far up into Wellington Channel he was to look for an open sea to the northward and westward. He did so, and saw in that direction a "water sky." A few years later Captain Penny found open water there, and sailed upon it. We have seen that Dr. Kane, in 1855, saw open water from the northern extremity of Kennedy Channel, and our readers will scarcely need to be reminded of the evidence which Dr. Hayes' recent voyage affords of an Arctic Ocean extending far to the north of Greenland. In the year 1818, again, Barrington and Beaufoy called the attention of scientific men to the evidence of Dutch captains, who asserted that they had approached within two or three degrees of the Pole, that they had there found an open sea, which was heaved by a swell that showed it to be of wide extent."

Dr. Kane, also, infers the former existence of open water further south than its has been discovered, from the traditions of the Esquimaux. Such traditions rarely are found to be without good foundation.

Admitting the existence of a permanent, open sea around the pole, the question, "can it be reached by vessels?" is natural in view of the efforts now being made to accomplish that object. So far, every attempt to penetrate to it has been prevented (unless it were actually reached by Penny) by an impenetrable wall of ice. Navigators have sought in vain for leads through which their vessels might be forced, and many have been forced to abondon them in the ice-locked channels which have closed only too surely behind them. Is there a permanent and fixed break somewhere in this ice-wall, a gate ever so narrow, ever so perilous by which access can be obtained to the mysterious Polar Sea? As yet practically undecided the question finds some who believe yes, and others who believe no. Both parties find arguments to sustain their position. It is argued that the tides which rise and fall in the open Polar Sea, could not occur unless there were some large inlet communicating with the main ocean. To this it is answered that the sea is sufficiently large to admit of an independent tidal wave. Maury, while admitting that the ice wall would be a complete obstacle to the tidal wave in the Atlantic, takes this ground. He says: "I apprehend that the tidal wave from the Atlantic could no more pass under the icy barrier to be propagated in the seas beyond than the vibrations of a musical string can pass a fret on which the muscian has placed his finger. These tides must have been born in that cold sea, having their cradle about the North Pole."

Others hold that the tidal wave of the Atlantic finds its way into the Arctic Ocean round the northeastern shores of Greenland, although barred off on the side of Kennedy Channel. An adverse opinion is based upon the appearance presented by the planet Mars, whose atmosphere resembles greatly that of the earth. The white spots at the poles of Mars never entirely vanish, although, in the summer, which that planet has, as well as the earth, they become less conspicuous It is argued from this that the open sea at the North Pole is not permanent in form or position. It is also argued with much force that the statements of different navigators confirm this view; as where one has found open water others have failed to find it at the same season, and *vice versa*. The question must yet remain open, as there are approaches to the pole which have never yet been thoroughly explored. A definite answer will, no doubt, be given by the combined observations and discoveries of the different expeditions already far on their way to the north.

The German expedition, when last spoken, was in 80½° north latitude, having failed to reach the eastern shores of Greenland in latitude 75°. At that time it was still sailing northward. The Swedish expedition, when last heard from, was in latitude 80°. The route which these expeditions have taken, although on many accounts very promising, has nevertheless been fruitful of failure to other navigators. In 1607 Hudson reached 81½°. Cabot had previously reached a high latitude in the same waters. In 1827 Parry made the attempt to reach the North Pole by sailing as far north from Spitzbergen as possible, and then resorting to boats and sledges. A reward had been offered the party, if they should succeed in reaching eigbty-five degrees, but they only reached a point 120 miles distant from that latitude. Here they were carried back by the ice as fast as they could advance upon its surface, the entire ice field being found to be floating steadily toward the south.

Whether the present expeditions are to be more successful remains to be shown. Meanwhile we shall be obliged to remain in suspense, as probably the last news of them has reached us until their return, if that event ever takes place.

AMERICAN SILK MANUFACTURE.

The entire value of raw silk produced in the world amounts annually, in round numbers, to two hundred and fifteen millions of dollars. The value of silk goods manufactured in France, amounts annually to nearly one hundred and fifty millions dollars. The United States have been and are still the best customer for French silk goods. Possessing mechanical skill equal to any nation on earth, and unequaled manufacturing facilities, we have yet allowed our gold to flow out in a constant current, to purchase French goods. For this there have been two reasons. First, the difference in the current rates of labor existing in Europe and America; and second, the hitherto inferior quality of goods produced in this country. The first of these reasons might have been remedied by a proper tariff upon imported silks; but so long as the second remained, there would have been nearly the same demand for manufactured silks from abroad, as the inferior article produced in this country would not have found favor with consumers of such goods. A good article of silk goods will always be preferred, without regard to its price.

Both these obstacles to the progress of silk manufacture in America are now removed. The present tariff on foreign silks enables our manufacturers to compete with European labor, while the quality of goods now produced here is in many instances equal if not superior to the imported. In order to bring the manufacture of silk to its present state of perfection in the United States many difficulties had to be surmounted, some of which we shall notice at length.

The peculiarities attending the manufacture of textures from any particular fiber, depend upon the nature of the fiber itself. The machinery used must be adapted to these peculiarities. Cotton is worked dry, the fibers admitting of being drawn in any direction; that is, two fibers of cotton laid side by side will slide one upon another either way. Two fibers of wool laid thus would be found to slide only in one direction, the wool fiber being barbed or serrated. Wool, therefore, can not be drawn out like cotton, and it requires to be oiled in order to reduce the tendency of the fibers to cling to each other in the process of carding. Flax needs to be wetted before it can be spun, in order that the fibers may be evenly drawn out, and distributed so as to make a uniform thread Silk fiber differs very materially from any other used in textile fabrics.

Silk is a hardened thread of gum, secreted by larvae of different species of the Phalaena genus of insects. The thread is composed of two filaments, which are spun simultaneously and cemented together. When wound into the cocoon, the coils mutually cohere to each other, but readily separate upon being immersed in warm water, so that the entire thread can be reeled off. As many of these filaments as may be desired to give a thread of any required size are reeled off together, and become cemented so as to form one thread. In this state it is the "*raw silk*" of commerce. When this thread is twisted, to add to its strength and firmness it is technically called "*singles*." Two or more *singles* twisted together form *tram* silk, which is generally used for the *shoot* or weft in weaving. When two singles are twisted together in an opposite direction to that in which the singles are twisted, *thrown silk* or *organzine* is the name given to it, and the process is called throwing. The lengths of filaments vary from 300 to 600 yards in a single cocoon. When the filaments are to be joined no knot is necessary, the natural gum on the silk being sufficient to effect the junction. The raw silk used in America is chiefly imported. It comes in the form of packages, each containing more or less silk as well as different qualities according to the quarter from which it is obtained. The several operations through which this silk passes in forming the different textures, are winding, cleaning, spinning, doubling, throwing reeling, dyeing, and weaving or braiding. In each of these operations, special regard is necessary to the peculiar nature of the material, its elasticity being a prominent feature.

On a recent visit to the establishment of the Dale Manufacturing Company, in Patterson, N. J., we witnessed the entire process of silk manufacture, and as the success realized by these and other works settles all doubts as to the entire practicability of the silk manufacture in this country, we believe that we can not furnish more valuable matter of information to our readers than a description of them

The ground plan of the mill is in the form of a T, the main portion having an extension from its center 50 feet in width, running 100 feet back from the rear. The main part of the building is 275 feet in length, 50 feet in width, and four stories high The building was designed by and built under the supervision of Thos N. Dale, Esq., President of the company, the entire labor being performed by day's work. The walls are twenty inches in thickness, and the building is as substantial a specimen of architecture as any structure we have seen designed for manufacturing purposes.

A portion of the lower floor is occupied by a spacious office, which opens into a large storeroom. In this storeroom is an enormous fire-proof safe for storing the raw material, etc., capable of containing millions of dollars worth of goods. From the lower floor of the extension above referred to, project two minor extensions, one each side. The first of these contains the dye works of the establishment, and the second the engine and boiler. These are so situated that in case any explosion should ever take place, the main building would not be jeopardized. The engine is of the well known Corliss make, and is of eighty horse-power. The entire building is heated by steam, and ample provision is made for the extinction of fire which, however, is less likely to occur than in cotton manufactories. The portion of the first floor not occupied by the office and storeroom is devoted to winding and cleaning. The raw silk is here placed upon reels, and from thence wound on to spools. The reels are six sided, and are technically called swifts. They are adjustable to suit the sizes of the hanks, and balanced so that they will not break the threads by irregular motion. By means of weights enough friction is produced upon their axes to keep the threads stretched. The bobbins have each an independent motion, and any one can be taken off and replaced without interfering with the others. An eye through which the thread passes to the bobbin has a traverse motion, by which the thread is wound obliquely, and lateral adhesion is prevented. Constant care, watchfulness, and intelligence are necessary in this as well as in all the subsequent operations.

Cleaning is performed by fixing the bobbins horizontally on plain spindles, and passing the thread between two adjustable pieces of metal. Should a knot or other unevenness chance to be on the thread, these pieces of metal prevent it from passing through, the plate of metal is depressed and the bobbin is lifted off the friction roller which gives it motion, The stoppage being perceived by the attendant, the defect is removed and the work proceeds. The silk being cleaned, it is next spun. The second floor is devoted to this operation. The spinning is, however, only the twisting of the threads, the real spinning having been done in the outset by the silk-worm. The twisting is effected by passing the threads required from the bobbins upon which they are wound, to other bobbins placed on spindles provided with fiyers, through the eyes of which the threads pass. The amount of twist is regulated by the velocity of the second series of bobbins, which have the usual traverse motion.

When the threads are twisted they are next doubled, that is, several of them are wound together upon the same bobbin. They are next twisted together upon frames precisely like those used for spinning. This process is called throwing or spinning, and the silk after it is thus twisted is called *thrown silk*. The doubling frame is provided with independent stop motions, one for each thread, so that when any one breaks the bobbin upon which it is being wound stops, until the thread is mended by the attendant and set in motion again.

The silk is now ready for the dyer. It may be dyed in a *hard* or *soft* state, that is, with the gum on, or removed by long boiling with soap and water. The proper estimation of the amount of gum removed is most important, as throughout the whole process of manufacture weight is the basis of value, and the check upon employés. The amount of loss in cleaning is usually 25 per cent. The most admirable system prevails in the works of this company, involving the most strict methods of book-keeping in every department. Each room, when it receives stock in any stage of advancement, credits the department from which it is received, and has the same charged to its account. The goods, when delivered into other hands, must with the waste correspond in weight to what was originally received, minus a small percentage which, adhering to the floors and walls of the room, can not be recovered. The result of all this is two-fold. First, it enables the company to transact its business intelligently, thus avoiding the too common fault of manufacturers—namely, ignorance of important defects until too late to remedy them. Second, the system of tests and checks running through the entire routine of this establishment is such that any fault can be at once detected and traced to its proper source, and the blame thrown upon the person who has committed it. Orders are transmitted in writing to and filed as vouchers by the foreman of each department. An incident illustrative of the benefits of such systemization recently occurred. Some goods were found to be deficient in weight when single pieces were tested, although the aggregate weight was correct. An examination immediately took place, but the cause for a considerable time eluded pursuit. Experiments were instituted, and the error was found to have arisen in the following manner. Some reels having been constructed of the proper size, the edges of the bars had been left somewhat rough. The operative in charge, wishing to correct the fault, sandpapered them, thus slightly reducing the size. This was the sole cause of all the mischief. The reels were afterward protected by plates of polished brass, and the operative cautioned against taking any such liberties in the future. The importance of such a system in the manufacture of a substance so valuable as silk, is obvious.

Dyeing is the next step. Our space will not admit of a full description of this process It is the most critical of all, and although the Americans have been for some time able to compete with the French in all colors save black, the difficulties attending the production of the latter have been only overcome within the last two years. Now, as fine blacks are made here as can be found in any market. A piece of American black dress silk was shown to an expert in our presence, who avowed that it was fully equal in all respects to the French silk, and could be sold as such in France. An error generally prevails among buyers in regard to sewing silk. The basis of price in this as well as all other silk goods is weight. Silk loses a certain amount in cleansing, as we have shown, but in dyeing it may be increased in weight so as to more than cover the loss. Heavy silks can thus be sold cheaper than light ones, but the gain in weight is at the expense of length of the thread, while the added weight in dyeing does not increase its strength. The high priced sewing silks are, therefore, the cheapest, as greater length of thread of a given strength is obtained for the money than in the cheap silks.

The third floor of this mill is still vacant. It has been reserved as a weaving room for dress-goods; and it is hoped that a company may soon be organized to occupy this room in the manufacture of such fabrics, now that the interests of importers and manufacturers are rendered mutual by the increased cost of imported goods. Formerly, these interests were antagonistic. The result was an effort on the part of home manufacturers to make an article which could compete in price. The effort now is to compete in quality. A comparison of goods shows that the latter attempt has been successful; and domestic silks are now afforded at a less price than the French of equal grade.

The Dale Manufacturing Company confine themselves, as yet, to the production of cords, braids, bindings, sewing silks, etc.; but there are large inducements to commence upon broad goods, which they have already successfully produced in small quantities.

The fourth floor is occupied by looms and braiding machines The looms are of quite a primitive construction some having the Jaquard attachment, but all appearing large and cumbersome for the light and delicate textures formed upon them. We greatly mistake if Yankee ingenuity does not ere long replace these machines with lighter and more effective devices We learn that two important improvements are

already in progress. The braiding machines are peculiar in appearance and operation. The principle upon which they operate may be illustrated by the "*ladies' chain*" in a quadrille. A number of bobbins are fixed upon a horizontal circular platform. They are placed upon spindles, and by an ingenious mechanism are made to dance around each other and around the platform, at the same time whirling on their axes like nothing that we can conceive of but the figure in the quadrille alluded to. The threads are thus interwoven into beautiful and intricate textures.

In closing this article we wish to make some remarks upon what seem to us causes of failure in some attempts to manufacture silk in this country. We have already mentioned the difference in price of labor in Europe and America, and it will be seen that when labor is worth in France only one fifth as much as in the United States, and in England only one fourth as much, that without protection the Americans could not compete with them. The present tariff on pure manufactured silks is sixty per cent *ad valorem*; on mixed silks fifty per cent; on organzine thirty-five per cent, and on raw silk nothing. The conclusions from these facts are obvious; but there is another effect of protection that will not be so generally perceived. France and England manufacture for a foreign market; the United States manufacture for themselves. The French workman is forced to be content with his blouse and wooden *sabots*, the Englishman with his corduroys. This state of things is necessary that labor may be cheap. The system abroad depresses labor, our system elevates it. Here the producers are consumers also, and enjoy in large measure the comforts of the more affluent, including educational facilities which render them able to prepare their children for higher stations in life as such open to them. This is proved by the fact that in the city of New York at this time large numbers of wealthy and prominent men are the sons of hard-working and industrious mechanics, who have, by virtue of their talents and business energy, risen from the ranks, to honor and preferment.

A fruitful cause of failure has been in injudicious location. No one who has examined the subject can have failed to perceive that peculiar manufactures tend to centralization, and in all industries requiring such intelligence as is necessary to conduct the manufacture of silk, this is the natural law. Those who ignore it must eventually suffer from its violation. We might adduce instance upon instance to illustrate this point but it will not be necessary. The names of Lyons in France, Birmingham and Sheffield in England, will suggest many others to the minds of our readers. The attempt to distribute this growing branch of industry rather than to concentrate it around the nuclei already established, must in our opinion prove disastrous. Add to the protection offered by the Government, the mechanical genius of the American mind, and a recognition of the laws of industry, and the permanent establishment of the silk manufacture in this country will be placed beyond question.

LITERATURE FOR WORKINGMEN.

A Baltimore journal, devoted largely to a very light species of literature, puts forth a plea for the more extensive circulation of that class of reading among the working classes This is quite natural. Interest is too often an obstacle to correct opinion. We were not, however, prepared to see such literature put at the head of all others, as being the precise thing that the masses need to supply their mental and moral necessities, as is done in the following quotation:

"The putting into the hands of the workingman imaginative literature is even a more important advantage than the cheapening of scientific books. The tendency of mechanical employments is to exercise the understanding alone; they afford no diet for the fancy or the feelings. They leave unfed no small portion of the intellect. They do not enlarge the world of observation or experience. They do not open any of the doors of history or biography. The artisan, like the student, requires the hours of leisure to stand in contrast with his daily employment. A few will find recreation even in severer studies, and will resort to it by a natural instinct; but we speak of the many who are used to be led rather than the few who can guide themselves. And, for the many, narrative, sometimes historical, but more frequently imaginative, holds out greater attractions than all the publications of the Useful Knowledge Society, or than all the excellent manuals of more recent date of mathematics, chemistry, or natural history."

The paper from which this is taken is a large and popular journal, and it is doing a great injury to the public by such false instruction.

It is a tissue of unfounded, and as such, uncalled for assertion from beginning to end. The tendency of mechanical employments is not alone to the exercise of the understanding. Granted that there are many occupations that require little of understanding or fancy, or anything else but elbow-grease (sawing wood for instance, which is a mechanical employment), we assert that there are no employments except the fine arts and authorship in which fancy has greater scope, and none whatever that call into more active play all the mental faculties than mechanical occupations. They do not leave the intellect unfed any more than other work, and if they did, we fail to see why imaginative literature is the proper food for famished minds.

Let us go down to the very root of this matter. All the useful arts are devoted to the supply of the wants of man The first of these is air; that nature supplies. The second is food. Agriculture is then the first and most essential of all occupations, and as such it employs the largest number of individuals. Is there no scope for fancy and feeling here? Is all appreciation of the beauty of fruits and flowers, and billowy meadows, and ripening grain, confined to poets, painters, and novelists? What say you, country lads and lasses?

After food, clothing. Is there no room for play of fancy here? From whence have originated the beautiful textures, the designs for jewelry, the general taste which pervades the civilized world for refinements of dress?

But perhaps we shall find the field narrowed when we come to dwellings? No. Architecture attained, long ago, the dignity of a fine art.

How is it about those who make the machines, the implements by the use of which mankind are fed, and clothed, and housed? Here we are on our own ground, and we know of what we speak. First, the motors. A steam engine, or a turbine wheel. Did ever Raphael paint, or Grecian sculptor carve a form of greater beauty than a first class steam engine? Talk of the poetry of motion. The motion of the steam engine, and its influence upon the progress of civilization, is a grander epic than ever yet was written. We grant you that a turbine wheel has more mathematics in its compact framework than artistic taste, yet even in this triumph of hydraulic science, we may find curves upon which the eye can pleasurably linger. Pass from the motors to the lathes, the planes, the spinning jennies, the looms, the steam fire-engines; the carriages, railway cars, steamboats, and all the other paraphernalia of civilized life, and then say if you will that fancy is excluded from the mechanic arts. Every artizan is insulted by such a statement, and still further insulted by the statement that his mind can digest only the light and trashy imaginative literature which forms the staple of the paper that thus puffs its wares.

We do not believe in the entire exclusion of all the lighter kinds of literature; but we denounce such willingness to pander to a depraved taste as is manifested in the quotation we have cited. The silly love stories or the wonder-exciting tales of bloodshed, and crime, and narrow escape, with a spice of ghost stories thrown in for a relish, which abounds in many publications,—the most vapid, most diluted broth of literature is something we protest against as mental pabulum for any class of people whatever, especially for those young and intelligent mechanics and apprentices who weekly read the SCIENTIFIC AMERICAN.

WEATHER PROPHESYING.

That science will yet ascertain a way of foretelling storms, we firmly believe. Indeed, the telegraph is even now usefully employed for this purpose, and its agency, we hope, will at some not distant date serve to warn our coast dwellers and coastwise crafts of an approaching storm in time to enable the one to prepare to assist the other. Since the publication of Prof. Espy's Theory of Storms, much attention has been devoted to this subject, and although a system which is entirely reliable and generally applicable, has not yet been perfected, it is to be hoped that the progress of scientific investigation will yet evolve such a system.

The weather prophesying, however, of experts, who calculate by the phases of the moon, by the comparison of one season with another, by cycles of storms, by the variations of the barometer, and the fluctuations of the thermometer, we deem of no value whatever Nothing has ever yet been adduced to prove that the moon has any appreciable influence over the climate of this planet, or the temporary changes in the climate of localities The comparison of former years with the present afford no criterion. The changes on the surface of the inhabited earth, by the destruction of forests and the multiplication of civilized habitations have much to do with alterations of climate. The theories of storm cycles are yet in embryo. Sudden fluctuations from causes beyond our knowledge are not taken into account by storm theorists; or if so, these fluctuations upset all their calculations, and they are left in the dark. The variations, neither of the barometer or the thermometer, are to be confided in. They are unreliable.

The astronomer, who from the top of his tower, or from a mountain summit; or the sailor, who has a more extended field of vision, may, from the appearance of the clouds and the condition of the atmosphere, prognosticate the advent of a storm and its direction. So, also, the farmer and the hunter, by long experience, necessitated by their pursuits, learn to read the heavens, or, rather, the atmosphere, to some benefit; but when our weather prophets presume to foretell a dry summer, a lean harvest, a cold winter, from their yearly observations, based only on observation, and not on a thorough knowledge of natural laws, we choose to place but little reliance on their prognostications.

Hardening the Moldboard of Plows.

A new method has been discovered for the manufacture of the moldboard of plows, which gives them all the hardness and temper of steel, in combination with the toughness of iron. The moldboard (good iron) is heated and dipped into molten iron. It remains there ten seconds, when the two surfaces become heated to a white heat, while the center is not heated through. It is then immediately dipped into water; the surfaces come out harder than the highest tempered steel, while the interior is still iron and retains all the toughness and strength of the iron. The advantages claimed for this invention is that the plows made by this process will take the finest and hardest polish, while they will be tough enough to endure any reasonable knocking about in stony soils.

We find the above in one of our exchanges. What is the new method? and where are such plows manufactured? We have had several inquiries about this matter.

A MAN in England recently made fifteen miles in one hour on a velocipede.

OFFICIAL REPORT OF PATENTS AND CLAIMS

Issued by the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 13, 1868.

Reported Officially for the Scientific American.

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fees:—

On filing each Caveat	$10
On filing each application for a Patent, except for a design	$15
On issuing each original Patent	$20
On appeal to Commissioner of Patents	$20
On application for Reissue	$30
On application for Extension of Patent	$50
On granting the Extension	$50
On filing a Disclaimer	$10
On filing application for Design (three and a half years)	$10
On filing application for Design (seven years)	$15
On filing application for Design (fourteen years)	$30

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay $500 on application.

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

82,913.—EEL POT.—George D. Allen, New York city.

I claim the eel pot funnel, of india rubber, and perforated substantially as above set forth.

Also, the eel pot funnel, formed of india rubber, with a contracted mouth, substantially as before set forth.

Also, the combination of the eel pot funnel, with needles pointing toward its neck, substantially as before set forth.

Also, the eel pot funnel, having the two characteristics of perforation and a contracted mouth substantially as before set forth.

Also, the combination of the body of the trap with a funnel of india rubber, substantially as before set forth.

8,914.—ALKALI CAN.—Christian Barry, Philadelphia, Pa.

I claim an alkali can, in which clay is used for producing a tight joint, substantially in the manner described.

82,915.—CORN HUSKING PIN.—Elias Blair, Bucyrus, Ohio.

I claim an instrument for husking corn, constructed substantially in the manner shown and described.

82,916.—PEN RACK.—Charles J. Bouche, Louisville, Ky.

I claim a pen rack, composed of the sides, A B C O, connected by hinge joints, as shown, the hinged roof, H I, brace, F, and racks, M, all constructed and arranged substantially as described, and provided with calendars, O P Q, and lips, S, for the reception of cards, substantially as set forth.

82,917.—CENTERING SQUARE.—George W. Brooks, Clinton, Mass.

I claim, in combination with the square, the adjustable slotted bar, b, when constructed as and for the purpose substantially as described.

82,918.—CORN PLANTER.—John A. Burchard, Beloit, Wis.

I claim, 1st, Broadly, the employment of the dropping device, D, when constructed and arranged substantially as herein described and set forth, and used for the purpose of enabling the operator to know by ocular demonstration whether the machine is dropping the seed with certainty and accuracy.

2d, In combination with the device, D, the pawl, K, and stop latches, g and l, when used for the purpose herein set forth.

3d, The combination and arrangement of the several parts of the planter herein described, when used for the purpose set forth.

82,919.—HOLLOW WINDOW CROSS BAR OF SHEET IRON.—T. A. Cambensy, Chicago, Ill.

I claim, as a new article of manufacture, the hollow sheet metal window bars, constructed substantially as shown and described.

82,920.—BLIND HINGE.—Charles B. Clark, Buffalo, N. Y.

I claim forming the cylindrical pintle, a, with the depressed slot, b, and the circular eye, c, with outside catch, d, the whole combined and arranged as described, and operating in the manner and for the purpose specified.

82,921.—METALLIC COUNTER BRACE.—John L. Cooper, Preston, Conn., assignor to himself and Joshua E. Fellows.

I claim the new article of manufacture of a spur socker, in combination with a counter brace, when made and applied substantially as herein described.

82,922.—OX YOKE.—William Cooper, Paris, Me.

I claim the sliding slotted plate, a, held by staples, b b', and adjusting nuts, c c', and carrying the shaft ring, f, as and for the purpose set forth.

82,923.—HARROW.—Andrew J. Craig, Ashmore Station, Ill.

I claim the bent teeth, A A, pivoted together as described, so as to form a harrow with flexible sides, substantially as and for the purposes herein set forth.

82,924.—WASHING MACHINE.—C. H. Cramer, Rutland, N. Y.

I claim the combination of the adjustable frame, B, and the treadle, I, for raising the same and the screws, H, for regulating its pressure, substantially in the manner and for the purpose described.

82,925.—HYDROCARBON BURNER.—Sutton Edward Crow, Stratford, England. Patented in England, June 14, 1867.

I claim the arranging the apparatus in such manner that a jet or jets of steam, under pressure, or, it may be of air, issues into the furnace in a direction parallel, or nearly parallel, to a pipe or passage by which combustible liquid is led into the furnace, such jet being immediately in rear and below the mouth of such pipe or passage, substantially as described.

82,926.—MORTISING MACHINE.—Franklin A. Deland, and Luke Phillips, Memphis, Mich.

We claim, 1st, The combination of the vertical guide, C', bed, C, slotted lever, D', and pin, E', substantially as and for the purposes herein set forth.

2d, The independent perforated guide plate, C, in combination with the jaw guide, N, and vertical bar, E, when constructed, arranged, and operating, substantially as and for the purpose herein set forth.

82,927.—ATTACHING ROSETTES TO HARNESS.—William L. Denio (assignor to himself and Irwin Davis), Rochester, N. Y.

I claim the rosette, A, provided with the screw socket or nut, b, in combination with the screw loop, B, and attaching straps, g h, the whole arranged as described, and operating in the manner and for the purpose specified.

82,928.—PIANOFORTE BRIDGE.—Charles H. De Vine, Buffalo, N. Y., assignor to De Vine Brothers.

I claim the curved bridge, A, composed of veneers, a a a, and b, having the ivory or equivalent top plate, F, attached, as herein described.

82,929. APPARATUS FOR SETTING AXLES TO WAGONS.—David Ducharne, Mechanicsville, N. Y.

I claim 1st, The hook or jack, B C, and the upright fulcra or studs, E and E', in combination with the horizontal cross bar, F, each being constructed and operated substantially in the manner and for the purposes herein described and set forth.

2d, The triangular shaped guide, H, in combination with the jack, B, studs, E and E', and cross bar, F, substantially in the manner and for the purposes herein described and set forth.

82,930. MOUNTING SPECTACLE AND EYE-GLASSES.—Charles N. Dunham, Philadelphia, Pa

I claim the glasses, A A, having the pieces, B B, D D, cemented to them, as a new article of manufacture.

82,931.—CORE BAR FOR CASTING PIPES.—John Enright (assignor to himself, William Wall, and Thomas Enright), Louisville Ky.

I claim the collapsable metallic core rod or cylinder, having four longitudinal segments, A, so constructed and arranged as to be operated independently of each other, as herein shown and described.

82,932.—STUMP EXTRACTOR.—R. B. Ferris, Holland, Mich.

We claim the combination of the lever, H, sheave, F, chain, I, rope, J, sheave blocks, 3 and 4, sills, A, posts, B, tie beams, C, standards, O, pulley, E, and halyard, K, when constructed, arranged, and operating substantially as described and for the purposes set forth.

82,933.—ADJUSTABLE SQUARE AND BEVEL.—E. B. Foster and John G. Witt, Elmira, N. Y.

I claim the combination with a try or T-square, of the wings, D D, and the screw, F, for adjusting the angle of the same, substantially as described.

82,934.—PLOW.—Andrew Friberg, Moline, Ill.

I claim the plate, C, constructed and applied between the landside, A, and the handle, B, of a plow, substantially as described.

82,935.—RATCHET-AND-PAWL MECHANISM.—Joel Garfield, Groton, Mass.

I claim in combination with a ratchet wheel and pawl arranged substantially as shown and described, the loose collar or disk, h, having an inclined slot, into which the pawl pin projects, rotation of the pawl plate in one direction forcing the pawl up into engagement with the ratchet teeth, and its rotation in the opposite direction carrying it out of engagement therewith, substantially as set forth

Also, in combination with the ratchet wheel and pawl and the loose collar, the stud, h, and adjustable screw or pin, n, operating substantially as shown and described.

82,936.—STEAM ENGINE PISTON VALVE.—Richard Gornall, Baltimore, Md.

I claim, 1st, The combination of the main valve, C, with the interior sliding valve, D, having the flanges, e e, substantially as and for the purposes specified.

2d, In combination with the valve, C, and the interior sliding valve, D, the auxiliary steam ports, n n', substantially as and for the purpose specified.

82,937.—RAILWAY FROG.—Josiah Gray, Chicago, Ill.

I claim, 1st, The shield, H, constructed substantially as described, in combination with the point, C, and guard bars, B, as and for the purposes set forth.

2d, The combination of the chairs, E, bars, F, guard bars, B, shield, H, and point, C, all operating substantially as set forth and shown.

82,938.—CULTIVATOR PLOW.—B. F. Guy and J. V. Guy, Macomb, Mich.

We claim, 1st, In combination with plows thus hung in a frame, the spring bars and connecting chains or cords, as and for the purpose set forth.

2d, In combination with the plows, their bifurcated rods, and spring bars, the shoes, e e, substantially as and for the purpose set forth.