nitric acid, then we dry it. The yellow, bitter matter crowning glory of all. The lecture was well received and at- the straw. For 25 hats, take: Alum, 4 lbs. 6 ozs.; tartario thus obtained is entirely soluble in water, alcohol, and ether; tentively listened to throughout. its yield is from 66 per cent of the aloes employed. Aloes dye wool without a mordant, in shades which go up to a deep brown. We obtain mode shades very varied with mixtures of orchil and aloes; we grind up, for example, 20 parts of is killing trade, and, after mentioning the amounts spent anto the beck, to neutralize the alkalinity of the ammoniacal orchil with 1 of aloes, and we dissolve them in soda. We nually, he remarks: "Now I say to manufacturers that it is obtain the same varied shades by the employment of aniline all very well to reduce wages, and to economize their procolors. A mixture of aloes and soda ash dissolves in water cesses of manufacture, but unless they unite manfully, and bluish grays, analogous to those which are obtained with the nine hundred and forty millions actually paid in the past fustic on an indigo blue ground. We dissolve 11 parts of seven years, the effect of swallowing the Satanic solution bruised. Rinse. Steep over night in black liquor at 3 B., aloes in water, and we add 2 parts of soda ash; after 12 or itself has lost and cost the nation at least an equal sum. If and rinse in several waters. To produce a deeper black, re-24 hours we dye. If before dyeing we neutralize the bath, the days' works lost through drink in the last seven years turn to the first beck, which is strengthened by an addition and add to it afterwards chalk, we obtain green olive shades. were reckoned up, the amount of wages thus sacrificed of sanders and logwood. Polish as for black. -M. Victor Preston, in Muster Zeitung.

### NEW YORK ACADEMY OF SCIENCES.

A regular monthly meeting of the section on "Geology day evening, May 21, 1877, Dr. J. S. Newberry, President, tions. in the chair. Dr. Martin offered a series of resolutions in

The president also showed a new fossil from the Catskills, which seems to connect our red sandstones with the old red Coal Trade Journal. sandstone made famous by Hugh Miller; also a plaster cast of the new crustacean found in the upper silurian and named cosarcus.

The first paper of the evening, by Mr. B. B. Chamberlin,

#### SOME CHOICE MINERALS AT THE CENTENNIAL,

and was illustrated by a large number of beautifully executed water-color drawings. Among the minerals referred to were the native copper and silver of Lake Superior. Drawings were shown of calcite crystals of a delicate wine color, also of stalactites and stalagmites from the lead mines of Iowa. Arizona sent a meteor weighing 1,400 lbs., and Mexico another. Among the beautiful things there were emeralds, rubies, and crystals of corundum from North Carolina. Mr. Chamberlin also spoke of the amazon stone from Pike's Peak, Cal., and exhibited beautiful drawings of this green mineral, some specimens of which have sold for \$150. He described the diamond exhibit from South Africa as exceedingly interesting, embracing both white and colored stones. In the collection sent by the School of Mines, St. Petersburgh, was a topaz 5 inches in diameter, also emerald in rock, crocoite, and other beautiful and rare minerals. In other portions of the Russian exhibit, the magnificent display of polished stones and gems, lapis lazuli, malachite, labradorite, rhodonite, etc., made a splendid display.

THE EVOLUTION OF THE NORTH AMERICAN CONTINENT was the subject of a paper by Dr. J. S. Newberry. The speaker said that the oldest rocks we know are themselves formed from sediment deposited by the disintegration of still older rocks of which we have no trace, and which may have likewise been the sediment from a still earlier continent. Of this older continent, we know not where it was or what it was; we only know that it was large enough to form a continent from its own ruins. Its history has been obliterated. Beginning with the old metamorphic rocks, known as the Laurentian and Huronian, which extend from Labrauntil the rocks are undermined and fall. Finally the rocks the same as for an iron roll, are pulverized and carried off to be deposited in the far distant sea. This sea has taken possession at different times of different parts of the continent. Wherever there was a depression, there has been a deposit of the remains of sea fish, articles of straw, and especially hats. As a rule, straw goods spines, teeth, etc., on the bed of the sea. When the sea be-should be well steeped, and then treated with alum, orchil,

### What Liquor is Doing.

R. F. Mushet writes to the English press that Liquordom with a beautiful purple color, which gives in dyeing fast put down the liquor fiend, he will crush them all. Besides would appear incredible. If manufacturers were to unite, as one body, and refuse to employ any man or woman who frequented drink shops, and would set the example by themselves abstaining, prosperity would soon return; for a sober and Mineralogy" was held at the School of Mines, on Mon- | England could compete successfully against all other na- in 4 lbs. 6 ozs. or 6 lbs. 9 ozs. of alum. - Moniteur de Teinture.

We are most forcibly reminded of the truth of all this by regard to the scientific use of the public parks, praying that an item in the Labor Tribune of Pittsburgh, which gives an they may be guarded from encroachment and misuse, that account of the number of drinking shops in Allegheny City; also a guide to Insurance Agents. By F. C. Moore. Published for the Continental Insurance Company of that they be stocked with plants and animals of scientific and men rise above this serfdom to a soul-enslaving appetite? Reform is impossible while saloons abound. Good wages Dr. Newberry exhibited a photograph of the restoration of cannot be long preserved where men encourage such vices. a mammoth from Siberia. It is 26 feet long, 16 feet high, and The working classes will be compelled sooner or later to represents an animal eight times as large as an elephant, acknowledge that abstinence must be practised before there can be any permanent amelioration in their condition."-

### Paper Calender Rolls.

Paper calender rolls are almost as hard as iton, but are used in preference to iron because, while they will preserve their roundness, truth, and smoothness, they possess a certain amount of elasticity, and are therefore less liable to damage from the strain due to any foreign substance passing through them. The method of fixing the paper to the rolls is as follows: Disks of thin common brown paper, of a diameter large enough to turn up to the required diameter of roll and with a hole in the center of each large enough for them to pass freely over the roller shaft, are first cut out; then a number of similar disks, with the central hole made about four or six inches larger, are made. In putting these disks upon roll shaft, four having the smaller holes are put on, and then one with the large hole, the object being to insure that the paper shall press together at and towards the outer diameter and the language employed in the discourses; and we are giad to find that the language employed in them is singularly clear and precise, and of the roll, and not bind so tightly towards the center; thus in every way adapted to the purposes of popular instruction. the outer part of the roll is sure to be the most compact, and therefore the most durable.

To avoid bending the roll shaft by reason of any unevenness in the thickness of one side of the sheet of paper from which the disks are cut, every other disk is turned halfway around when placed upon the shaft. When the shaft is filled with tthese disks, it is placed under a very powerful hydraulic press, giving a pressure of about 200 tons, which compresses the disks solid together without the aid of glue or other adhesive substance. The disks are allowed to stand until they are compressed sufficiently to give room for additional disks, which are added in the same manner as before, the whole being again compressed. This process is continued until the intended length of the roller is filled with compound paper, when the latter is fastened as follows: Upon each end of the roll shaft a recess is turned, and a fiange, made in two halves, is bored, smaller than the recess referred to by the amount allowed for shrinkage. The outer diameter of the flange is then turned, larger than the recess cut in the iron disks or dor to the Lakes of the Woods and as far north as the Arctic flanges forming the end of the roll by the amount allowed for Ocean, we have the oldest known form of the American con- shrinkage; which flange is made slightly smaller in diameter tinent. Since that time it has been changing form by the than the intended size of the paper roll. The two half flanges formation of newer rocks. Owing to the cooling and con- are put in place upon the recess in the shaft, and the end tracting of the earth, there is a continual tendency to raise flange or disk is shrunk on over the diameter of the two half the high lands higher and depress the valleys lower; while flanges, thus firmly locking the whole to the shaft through at the same time other influences are at work, grinding off the medium of the recesses on the shaft. This locking dethe elevations and filling up the depressions. In many vice is placed on one end of the roll before the paper disks places we dig or bore down to the old metamorphic shales are placed in position; then, after the disks are compressed and slates, surrounded by newer rocks. There are islands and while the roll is in the hydraulic press, the flanges or of these old slates in Texas, and the Black Hills were found, disks at the other end are shrunk on. This plan is the one by Messrs. Jenney and Newton to be an island of these old generally adopted in this country, that employed in England rocks very much disturbed, with the slates turned up on being considered deficient in that it gives the paper opporedge. They contain characteristic shells which connect tunity to expand \( \frac{1}{2} \) inch in the locking process. The rolls them with the Potsdam of New York. The Pacific coast is are then turned up in the lathe with a front tool for iron, the a rock-bound shore that seems totally invulnerable; but the speed being but little greater than that employed to turn iron big rollers come in and pound away at the rocks perpetually, of equal diameter. The finishing is doneby an emery wheel,

# Dyeing Straw.

The season approaches when dyers have to take in hand spines, teeth, etc., on the bed of the sea. When the sea became shallow, another series of deposits, shells, etc., was made. Thus each period left a record of the physical conditions and the kind of life that existed in the sea at that time.

By the aid of the magic lantern, Mr. Russell threw upon the screen a series of pictures showing the shape of the continent in the Silurian, Devonian, carboniferous, tertiary, and and other ages; also pictures of the crustaceans, fish, reptiles, birds, and mammals that existed at each of these periods, together with ingeniously restored imaginary land-

major part of the matter; we wash it to carry off all the scapes. This series ended with the introduction of man, the pose of this washing is to remove all traces of sulphur from acid,  $3\frac{1}{2}$  ozs. Add ammoniacal cochineal and extract of indigo, according to the shade desired. By making the one or the other of these wares predominate, we obtain a reflection more bluish or reddish. A little sulphuric acid is added cochineal. The hats are boiled in the dye for about an hour, and rinsed in water slightly acidified.

> Maroon (25 hats): Ground sanders, 1 lb: 10 ozs.; turmeric, ground, 2 lbs. 3 ozs.; bruised galls, 7 ozs.; rasped logwood, 24½ ozs. Boil in a kettle so roomy that the hats may not be

> Havana.—This shade, being a degradation of maroon, may be obtained by the same process, reducing the proportions by one half or one third, and omitting steeping in black liquor. The hats may be soaked for a night before dyeing

#### NEW BOOKS AND PUBLICATIONS.

New York city.

Although this work is primarily a manual of instruction for insurance agents, and is especially intended for the employees of the above-named corporation, it embodies much that is new and valuable on the subject of fire prevention. There is of course no one class in the community who have a more direct interest in lessening the number of fires than the fire underwriters, and consequently it is to them we may look for thoroughly practical suggestions, based on the best experience and not combined with doubtful speculations. As a means of information of what is dangerous, as likely to cause tires in workshops, factories, and buildings of all kinds. how much the rate of insurance risks are enhanced by the such perilous material, how to prevent fires, how to deal with them, and lastly, as a full exponent of the rights and duties of both insurer and insured, we can cordially commend this book. It contains much that we do not think has ever been published elsewhere, and it is written clearly and

STEAM INJECTORS: their Theory and Use. From the French of M. Leon Pochet. Price 50 cents. New York of D. Van Nostrand, 23 Murray and 27 Warren streets.

As the injector is now coming into use for other purposes than the feeding of boilers, there is a large demand for literature concerning its theory and action; and this M Pochet has done much to supply. The mathematics of the subject are exhausted in his little treatise.

ENGLISH SCIENCE LECTURES.—Messrs. Macmillan &  $C_{0.}$ , of Astor Place, New York city, are now issuing series of the lectures addressed to popular audiences which are delivered in London, Manchester, and other cities in England. We have now before us one on "the Earth's Chemistry," by J. Norman Lockyer, one on "Technical Chemistry," by Professor Roscoe, and one on "the Succession of Life on the Earth." by Professor W. C. Williamson. The names of the lecturers guarantee the accuracy and value of the information contained in the discourses; and we are glad to

## Inventions Patented in England by Americans.

From May 2 to May 7, 1877, inclusive. CARRIAGE LIGHT .- A. H. Phillippi, Reading, Pa. FRINGING MACHINE.-J. B. Lincoln, Providence, R. I. LIQUORING SUGAR.—O. H. Krause, Jersey City, N. J. PEN, ERASER, ETC.—S. C. Thompson. New York city. PHOTO-RELIEF PLATE.—W. H. Mumler, Boston, Mass PLATE PRINTING PRESS.—R. Neale, Brooklyn, N. Y. REED ORGAN.-L. K. Fuller, Brattleboro', Vt. VARNISH, ETC.—G. Wolff, Philadelphia, Pa.
VENTILATOR.—T. W. Bracher, New York city.

## DECISIONS OF THE COURTS.

# United States Circuit Court-District of Minnesota.

PATENT SEAT.—DAVID C. PRICE VS. JAMES E, KELLEY. [In equity. -Before Nelson, J.-Decided February, 1877.]

The patents granted to David C. Price for improvements in portable show and circus seats are not infringed by the use of chair seats placed upon every alternate board of the ordinary circus seats.

upon every alternate board of the ordinary circus scats.

Nelson, J.:

The complainant obtained two patents, Nos. 125,329 and 134,486, dated respectively April 2 and December 31, 1822, as the original inventor of an "improvement in show and portable show scats." He also secured patent No. 163,537, to be issued to himself as the assignee of the original inventor, Wm. H. Shuey, and dated May 18, 1875, "for an improvement in circus sents." He brings suit against James E. Kelley, because of an infringement of his patents.

The complainant declares his invention, No. 125,329, has for its object "to provide an improved arrangement of seats for use in circus and other shows, the same being constructed with a view to the comfort of the spectator, while possessing the necessary qualities of security when erected, and compactness when packed for transportation." He claims as new an "improvement consisting of notched support, straps or bars, and boards and chairs, constructed and arranged as shown in a diagram." also chairs provided with slots or recesses through which boards an pass, and "the seats be shoved along to the required position;" also "the combination, with the supports and boards, of the binding bars or straps and stakes to secure the supports."

The diagram of this invention shows the ordinary stringers used in circus and outdoor portable seats, elevated and adjusted on an inclined plane, the stringers being notched for the support of boards and elevated at the back by means of treatles. Every alternate board has a chair seat upon it, and the board immediately in front is used as a foot rest. The boards upon which are the chairs or scats, as well as the foot rests, are secured in place at each end by a zigzag-shaped strap passing from the top of each stringer over the boards to the bottom and terminating in an eye, through which a stake is driven into the graind.

In No. 134,386, every alternate board is suspended at each end from the under side of the stringer by a band of metal running the length, or nearl

the side of the seat, and with braces attached and jointed to permit its being folded about the seat. The Kelley seat is composed of two leaves upholstered and connected at one edge by a hinge joint, so as to hold the back when open and allow it to be folded upon the top of the seat. The hinged edges are rabbeted so that the back when open lears against the seat proper, and prevents the seat board from splitting. Price suspends every alternate board in the ordinary circus seat by a stirrup of metal fixed below the stringers for a foot rest. He is thus enabled to bring his seat boards nearer together, and accommodate more spectators with no inconvenience. The knees and feet of the person when seated, being below the seat boards, do not interfere with those seated in front.

Kelley uses notched stringers and raises his seat boards so that they have the appearance of a high bench, upon which he puts his chair seats, and then uses for a foot rest every alternate board on the top of the stringers, as in the old and ordinary circus seats. When the seat board is raised, the board in front used as a foot rest falls below the back of the seat immediately in front of it, and the persons seated do not interfere with those in front. The security and comfort of the spectators are attained by each, and the mechanism permits the seats to be packed in a small compass for transportation, and rapidly and easily adjusted, but the attangement in each is different. The only device used by Kelley not found in the old and ordinary circus seat is the upholstered chair seat and back, and the metal strap or clamp fastened to the stringers which holds the seat board in position. Price describes this strap in his patents and claims it as new. The testimony of the mechanics and architects is, however, that this mode of securing boards or underlying axles by a clamp or clevie in a firm and fixed position is a common and ordinary device, and "is on general principle of holding stairs or steps in their place and securing windlasses." etc.

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Davis O'Brien Wilson, for complainant Palmer & Bell, for defendant.

#### United States Circuit Court-Eastern District of Pennsylvania.

PATENT TOBACCO STAMP .- LORILLARD & CO. VS, MCDOWELL & CO. [In equity.—Before McKennan, C. J.—Decided February 24, 1877.]

In equity.—Before McKennan, C. J.—Decided February 24, 1877.]

Charles Seidler's reissued patent of October 24, 1876, construed to embrace the impressment of a hard or metallic label upon either the inner or outer face of a plug of tobacco.

An inventor is supposed to describe in his patent the best mode of practising his invention, but is not necessarily limited to the precise construction shown, so as to exclude a method differing from it only in a single detail, but producing the same result.

A reissued patent is not void simply because it contains an expanded claim. The inadvertence on the part of the inventor in not making such claim in his original patent is conclusively determined by the Commissioner of Patents in granting the reissue.

McKennan, Cir. J.:

This is a motion for an interlocutory injunction, to restrain infringement

of Patents in granting the reissue.

McKennan, Cir. J.:

This is a motion for an interlocutory injunction, to restrain infringement of the patent set up in the complainant's bill. An original patent was granted to Charles Seidler on the 12th of January, 1875, which was surrendered and reissued to him October 24, 1876. The invention is thus described:

I have discovered and successfully developed in practice a means of marking and distinguishing tobacco in plugs. I prepare labels, or distinguishing pieces of separate material, and impress them into the body of the plugs, one label into each plug, preferably putting the label under the outside wrapper, and giving it a character by raised letters or analogous devices, which is recognizable through the flexible covering. The material of which these labels are composed is preferably sheet iron tinned, cut into a circular form, and having points or prongs bent backward from their edges, and with raised or sunken letters or marks upon their upper face, is undestrained to the flexible covering the proper position, and, by powerful pressure, the prongs of the label are sunkinto the tobacco, so that its face is about flush with the outer surface of the plug, and adheres firmly to it. An outer leaf of properly dampened tobacco is then wrapped around the plug, which is subjected to a powerful pressure, and the label is seen beneath this wrapper, and is rendered thereby difficult of removal.

The invention is therefore claimed under five heads, the first and third of which are:

The invention is therefore claimed under five heads, the first and third of which are:

1. A plug of tobacco having a hard label pressed into one of its faces, as

1. A plug of tobacco having a hard label pressed into one of its faces, as specified.

3. A plug of tobacco having letters or other decorative and distinguishing marks produced on a hard metallic surface, and pressed as specified.

These claims the respondents are alleged to have infringed, and construing them, as I think they must be construed, to indicate the impressment of a hard or metallic label upon either the inner or outer face of a plug of tobacco, the fact of infringement is clearly made out, both by the affidavits read in support of the motion, and by an inspection of the tobacco manufactured and sold by the respondents.

This construction of the patent has been very earnestly contested, upon the ground that the specification describes only the mode of applying the label to the plug underneath the outer covering, and that the words "as specified," limit the scope of the claims to that particular mode, but the patentee must be understood as merely describing what he regards as the best mode of practising his invention, as the law requires him to do, and not as excluding a method different from it only in a single detail, which produces the same result, and is distinctly within its object. He claims to have discovered a new method of identifying tobacco, which consists in the attachment of a hard label to each plug by pressing it into the points or prongs which project from the under surface of the label, and thus the fundamental object of his invention is fully effectuated. When this is done the outside wrapper is applied; but the label is thus placed underneath the wrapper, not as auxiliary in any way to the specific office of the label, but avowedly only to render it more difficult of removal.

It is obvious then that to dispense with this additional safeguard, and to apply the label outside of the wrapper, does not differentiate the devices, nor does it vary the method of attaching them to the plug in any essential degree.

Of the objections to the validity of the patent but little need be said at

apply the label outside of the wrapper, does not uncerement and or nor does it vary the method of attaching them to the plug in any essential degree.

Of the objections to the validity of the patent but little need be said at this stage of the care.

The first of these is to the novelty of the invention, or rather that it is a double use of an old device. But it is not shown to have been used for any purposeanalogous to that contemplated by the patentee, or even remotely suggestive of such use.

It was the result of considerable thought, and of careful and repeated experiments, and supplied a perfect means of distinguishing the quality and origin of plug tobacco, which had not before been furnished to either the manufacturer or consumer. Nor does the denial of its patentability seem to me to have any firmer footbold.

Simple as it is, it nevertheless involved reflection and experiment to bring it to practical maturity, and its evident utility, indicated by its prompt displacement of other identifying devices, and its very extensive use, even by the respondents, strongly attests its patentable merit.

The remaining objection, that the reissue is void, as not being for the same invention described in the original patent, is clearly untenable. The drawings in both are the same, and the specifications of both are substantially the same. They both describe, as the invention, a hard or metallic label applied to a plug of tobacco before it is subjected to its final pressure, with characters impressed upon it indicating its quality, origin, or trademark; while in the original patent the claim is limited to tobacco, to which the label is applied underneath the wrapper. To remedy this restriction, inadvertently imposed, as the Commissioner of Patents has conclusively found, the reissue was properly granted with an expanded claim, to secure to the patentee the full benefit of the invention described, but not claimed in the original. to the patentee the full benefit of the invention described, but not claimed in the original.

The original.

The motion for a preliminary injunction must, therefore, be allowed.

George Harding, for plaintiff, Leonard Meyers, for defendant,

## Supreme Court of the United States.

CLOTH MARKER FOR SEWING MACHINE.—HENRY W. FULLER AND ISAAC W. BARNUM APPELLANTS, VS. ENOCH S. YENTZER AND WALTER SCATES.

[Appeal from the Circuit Court of the United States for the Northern District of Illinois.]

District of Illinois.]

A patent will not be sustained if the claim is for a result, a principle, an idea, or any other mere abstraction.

Where a new combination of old elements, producing new and useful results, is patented, it is the established rule that the invention, if any, within the meaning of the patent act, consists in the means or apparatus by which the result is obtained, and not merely in the mode of operation independent of the mechanical devices employed.

Where the claim immediately follows the description of the invention, it may be construed in connection with the explanations given in the description, and if the claim contains words referring back to the specification it cannot properly be construed in any other way.

It being understood that a result is not putentable, claims which read "forming one, two, or more creases in cloth, by means of, etc.," and "marking a line on the surface of cloth or other material sewed in a sewing machine, by means of, etc.," construed to be for the described apparatus for producing the results named.

Where the invention is embodied in a machine, the question of infringement is best determined by a comparison of the machine or apparatus constructed or used by the respondent with the mechanism described in the specification of complainants' patent.

Combinations consisting of old elements are not the same when none of the devices employed in one can be substituted for those in the other, so

as to render the apparatus operative to effect the described result without reconstruction and invention.

A patent may be granted for a new combination of old elements or ingredients if it produces a new and useful result; but in such case the invention consists merely in the new combination, and the patent to the intervention consists merely in the new combination, and the patent to the intervention to finged by a substantially different combination, even thou, the cludes the exact same elements or in redients.

The rights of a patentee for a mere combination of old ingredients are not infringed unless it appears that the alleged infringer made, used, or sold the entire combination.

The substitution of a known equivalent for one of the ingredients of a patented invention is not a good defence for an infringer; but if the ingredient was a new one, or performed a substantially different function, or was not known at the date of the patent as a proper substitute for the one omitted, there is no infringement.

Decree confirmed, dismissing the complaint.

## Recent American and Foreign Latents.

### Notice to Patentees.

Inventors who are desirous of disposing of their patents would find it greatly to their advantage to have them illustrated in the Scientific Amer-ICAN. We are prepared to get up first-class wood ENGRAVINGS of inventions of merit, and publish them in the Scientific American on very reasonable terms

We shall be pleased to make estimates as to cost of engravings on receipt of photographs, sketches, or copies of patents. After publication, the cuts become the property of the person ordering them, and will be found of value for circulars and for publication in other papers.

#### NEW MECHANICAL AND ENGINEERING INVENTIONS.

#### IMPROVED DRAFT REGULATOR.

Thomas Baker, Albany, N. Y.—The object of this invention is to enable the fireman to control his fire, so that the heat, after the fire is fully burning, may be prevented from passing off with the products of combustion to so great an extent as it otherwise would. The invention consists in the combination of the open-bottomed case, the damper, bar, and chain, the weight and chain, the pulleys and shaft, and the chain, guard, and point with each other and with the flue of a furnace. By pulling upon the chain the damper can be raised to any desired extent, and can be secured in place, when adjusted, by passing a link of the said chain over a pin attached to the forward end of the guard. By counting the links of the chain drawn from the forward end of the guard, the fireman can adjust the damper in any desired position without leaving the front of the furnace. A steam gage is attached to the front of the boiler, so that the fireman can always scc what the steam pressure is, and can regulate the damper as requircd.

#### IMPROVED DEVICE FOR CONVERTING MOTION.

Edwin Long and Louis E. Lyon, Iowa City, Iowa.—This invention relates to an improved device for converting a reciprocating into a rotary motion, and is more particularly applicable to treadles for driving light running machinery in which a number of revolutions for the flywheel arc desired for each movement of the treadle. The improvement consists in a snatch block loosely connected with a reciprocating lever or bar, and having a hole or throat through the same through which one side of a band pas which band is stretched about a driving and a tension pulley, and which snatch block has such shape of opening on throat as to seize the band when moved in one direction and to release the band, when moved in the other, back to its former position preparatory to taking a new hold.

### IMPROVED ANCHOR.

Fisher A. Buck, Eastport, Me.—This inventionis a novel modification of the mushroom anchor, in which the arms that branch out radially therefrom are curved upward at the ends, and provided with an inclined and tapering fluke, of circular shape, that is riveted or otherwise securely fastened to the ends of the arms. The circular fluke may be made of suit able width, so as to impart to the anchor a greater holding surface and power of resistance. The main advantage of the circular fluke consists in the fact that it will prevent the fouling of the anchor.

# NEW MISCELLANEOUS INVENTIONS.

## IMPROVED AEROSTAT.

William S. Hull, Jackson, Miss.--This aerostat is designed to be used either in miniature form as a toy (being driven by a torsional rubber spring in this case) or upon a larger scale with steam, or other suitable motive power, as a flying machine. The improvement consists in the construction and arrangement of two propellers at opposite ends of a tubular frame containing the driving mechanism, the said propellers being arranged to rotate in opposite directions, and constructed each of a series of right-angled triangular blades or fans, having one side at right angles to the rotating shaft and their larger acute angles deflected away from the shaft and supported upon independent projecting arms or bars

## IMPROVED ORE WASHER.

Dexter A. Hendrick, Calumet, Mich.-This invention relates to an improved "vanning" process mineral dresser, which process proceeds upon the principle of separating the rich ore from the lighter earthy matter by reason of their different specific gravities when the pulverized material is agitated with water: the rich or egravitating to the bottom, while the lighter earthy matter is thrown off at the top. The machine consists in a receiving pan which by a tilting motion imparts to its contents a rotary motion without revolving upon its own axis, which pan is provided with means for regulating its degree of inclination or tilt, and is supported upon or stepped in a jigger lever which is alternately lifted and allowed to drop by means of a cam or wiper wheel, so as to further agitate the contents of the pan: a revolving rake being employed in connection with the pan, which rake is always upon the high side of said pan,

## IMPROVED TEETHING NIPPLE,

Charles E. Rogers, La Crosse, Wis.—This invention relates to means by which the teething of children may be facilitated, and consists in an instrumentality of peculiar form, the same being provided with a handle to length that the gums may be brought to bear upon it, while it cannot be forced too far into the mouth or throat so as to do harm.

### NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

IMPROVED DEVICE FOR SETTING, JOINTING, AND GAGING SAW TEETH.

Levi H. Bigelow, Fremont Centre, Mich.-In order that saws may form their function properly their teeth occasionally require to be set, to give them a uniform inclination or angle, also to be jointed, to make them uniform in length; and when clearers are used, they require to be cut down or made shorter than the fleam or cutting teeth, between which they arc located. The object of this invention is to provide a cheap, simply constructed, but efficient device, for use in performing these operations,

## IMPROVED BOX SCRAPER.

John P. Tierncy, Sacramento, Cal.—The knife box is made hoppershaped. The knife or cutter fits against the inner surface of the box, so easily adjustable. A roller is added which prevents the instrument from being clogged with shavings.

#### IMPROVED WHEEL TIRE.

Isaac N. Pylc, Decatur, Ind.—This construction is such that the outer tire may hug the inner tire snugly when shrunk upon it, and may draw said inner tire more firmly down upon the fellies, making the entire wheel firm

#### IMPROVED SASH HOLDER.

Luther Jones and James Stroud, New York city.—This consists in the arrangement of two rollers at right angles to each other, in a suitable frame for attachment to the upper corners of the window sashes of cars to relieve them of friction caused by the swelling of the sash or casings when damp, or by the warping of the sash or window frame.

#### IMPROVED METHOD OF ATTACHING HANDLES TO CROSSCUT SAWS.

Charles A. Sands. Burlington. Kan.-This invention consists of a saw with a detachable springguard, that serves to stiffen the back of the same, and also to cover the teeth of the same after use. It consists, further, of adjustable handles applied to face plates clamped to the saw ends.

#### IMPROVED METAL WAGON BODY.

Simon Pcter Graham, London, Ontario, Canada.—The body of the carriage is made of sheet metal, and constructed with a flange around the bottom, which rests upon the wooden sill, and is secured to it by screw bolts. The top of the body is also flanged and attached to a wooden piece which forms the support for the seat proper. The sides and back of the body are united by a lap scam or joint which performs the function of a The body is cheaper and stronger than those heretoforc con-

#### IMPROVED WAGON END GATE,

Stephen D. Davis, Malvern, Iowa.—This end gate forms a box-like extension of the wagon body, and is so attached to it that it may be adjusted vertically as well as horizontally. It may be readily detached from the wagon body, and is so constructed as to support the ends of the sides of

#### IMPROVED LATCH FOR DOORS, ETC.

Augustus C. Woolman, Bellefontaine, O.-This latch has the form of a quarter section of a sphere, and is pivoted in a socket attached to the gate. It also has a handle which hangs vertical, so that the latch maintains a horizontal position, except when the gate is being opened or closed. A beveled catch plate is attached to the post, so that when the gate is closed the catch will strike the same and be turned on its pivot till it passes the catch, when it at once resumes the horizontal position and engages with

#### IMPROVED SKYLIGHT.

Joseph Henry, Chicago, Ill.—This invention is an improvement upon that for which the same party received letters patent dated March 27, 1877. It relates to constructing in one piece the head of the bar or rafter, upon which the glass rests, and in supporting the head by means of flat bolts provided with shoulders for that purpose. The invention also relates to a double gutter joint for use between the rafters, the same being constructed with a bent flange that is inserted between the panes or plates of glass.

### IMPROVED MACHINE FOR GRINDING SHAVINGS.

Isaac Tompkins and Abram G. Tompkins, Brooklyn, N. Y.—This invention consists of an interior grinding cylinder that revolves within an inclosing cylinder, having a cutting surface and exit perforations, the inclosing cylinder forming a space around the inner cylinder that diminishes gradually in width. The small pieces into which the shavings are cut pass through the perforations of the outer cutting cylinder to an exterior casing, from which they are conducted to a suitable receptacle.

#### IMPROVED OSCILLATING CUTTER HEAD FOR FINISHING SPOKES.

Joseph R. Locke, Amesbury, Mass.—This machine is so constructed that the cutter heads may be oscillated to bring their cutters into proper position for finishing spokes.

## IMPROVED BOARD LATH.

Andrew A. Smith, Boulder, Col. - The object is to furnish a lath so constructed that it will not be necessary to break joints in putting it on, which will strengthen the building, and will require less studding and less labor to put it on than ordinary laths. The invention consists in a board lath formed by slotting boards of the proper thickness with sets of slots, alternating or breaking joints with each other.

## IMPROVED PLATFORM WAGON.

Ebenezer H. Booth, West Colesville, N. Y .- This improvement in the construction of platform wagons enables the draft to be applied directly to the axle, so that the wagon box can be set level. Its holds the body or box against swaying, and may be used either with or without a reach.

# IMPROVED SAWING MACHINE.

George J. Kautz, Emporium, Pa.—This is an improved sawing machine, designed for use in a sawmill for cutting off slabs, edgings, and other lumber into lengths for wood, laths, pickets, etc. It is so constructed as to feed the lumber forward to the saw, and feed the saw forward to the lumber automatically. It may be adjusted to cut off the lumber in longer or shorter lengths, as required.

### IMPROVED SETTING, JOINTING, AND GAUGING THE TEETH OF SAWS.

Levi H. Bigclow, Fremont Center, Mich.—By this device the cutting or flew teeth of a saw can be set at a uniform angle and jointed to make them of uniform length, and the clearers or clearer teeth can be gauged to a uniform length (but less than that of the cutting teeth, between which they are located). The device is extremely cheap, simple in construction, compact in form, and apparently adapted tooperate efficiently.

## IMPROVED METHOD OF MAKING WOODEN BOXES,

William Huey. Cambridge. Md.—This invention relates to certain improvements in the construction of wooden boxes, which improvements are adapt it to be manipulated by the child, and a nipple of such sbape and designed more particularly for that class of wooden boxes which are stiff and rigid in shape, such as are employed for holding hats, caps, boots. shoes, thread, cotton, cigars, and all fancy articles, but which improvements are applicable to and designed to be also used in the construction of fruit baskets, crates, etc. The improvement consists in the manner of forming the bend or joint at the corners, whereby a single piece of board is made to form the several sides of the box without the trouble of measuring and fitting, and without the use of nails, screws, or dovetails for this purpose. The manner of forming the joint is to cut, by means of revolving cutterheads, preferably transverse channels across the board, and then after steaming the board to bend the same around. Apeculiar form of channel which permits the successful bending of the board without breaking constitutes the main feature of novelty, which channel has straight angular sides that form a miter when the board is bent, with a curved groove at the bottom of the angular groove which affords bending room to prevent cracking.

## IMPROVED STOP HINGE FOR CARRIAGE DOORS.

Charles W. Butler. New York city.-This is an improved hinge for carriage doors, trunks, etc., which stops the doors, covers, and other objects when the latter have been opened to about right angles. The invention that its edge may project through the slot in the bottom; said knife is consists in two bars hinged to each other at their inner ends, and at their outer ends hinged to the outer edges of the slotted plates or wings of a hinge.