He has only examined more and more minutely a particular corner of the star system. We find a group of suns of which our sun is a single member. Then again we pass to systems brought into view by the telescope, and find that the star system to which our sun belongs is only a part of Dr. Crookes, of London. that one—an atom in space.

The concluding lecture of the course was entitled the BIRTH AND GROWTH OF THE SOLAR SYSTEM.

If we look around at the condition of the planetary system, we find much to lead us to the belief that it grew to its present state, that there was a process of its development. There are 8 primary planets and 134 asteroids, and all these bodies travel in the same direction around the sun. Then every one of the bodies, whose motion has been determined, turns in the same direction. There are in fact so many similarities that we are bound by the laws of probability to believe in the evolution process, for the chance of 142 planets going round in the same direction is 1 in 2,774.800,000.000. planation of this motion, had the idea that there was a great nebulous mass having the sun in the certer, extending on either side far beyond the present extension of the path of the untermost planet, that is, a path of 5,000,000,000 miles diameter. That mass was intensely hot and vaporous, and it was rotating; and as the rotating mass contracted and it began to rotate more rapidly, a ring was thrown off, which would gradually break up, its parts would gradually amalgamate; many parts would have different rates of motion, and different parts would encounter each other, and in the coarse of millions of ages there would be an amalgamation into one mass, having the same direction of motion that the nebulous mass had, and traveling around a center which was the sun. That process would go on until one planet after another was formed. There was no light given by the La Place theory in reference to the questions connected with the asteroids; he simply stated the general facts and left them there. It seemed to the speaker that they were led to another theory, and he would adopt a method of illustrating it which he deemed suitable. If an insect of a few hours' existence endeavored to trace the history of the growth of a tree in which it lived, it could not during its own life arrive at the truth; but by transmissions of slight knowledge, the result of study for ages, the species would eventually arrive at the truth. We know that as one nebulous mass passes into another, by chemical means, light is produced. There is evidence that these nebulæ are gaseous. There would be one center of aggregation which would grow continually in size and power, gradually drawing more and more matter to it; and the more it drew in of these nebulous masses, the greater its power would become. Professor Daniel Kirkwood took the paths of the asteroids, and arranged them in their order of distance, and he found certain places where, for some distances, there were no asteroids. He noted where the gaps occurred, and he found them corresponding to the paths of asteroids having periods commensurate with the period of Jupiter. Jupiter would disturb the motion of the asteroids, if they had a period like his own, and would prevent them from travelling, his mass being so much greater. This supports the theory that the solar system arose from motion and aggregations, not from the contraction of a great nebulous mass. The rings of Saturn give further evidence of the same. In the star clouds we find a multitude of stars discernible with the telescope, and so closely clustered as to be irresolvable; and in these masses or cloudlets we see proof that the sidereal system is not a mere aggregation of stars, but contains all varieties, nebulæ, star cloudlets, and stars of all varieties; and that it resembles the solar system, not in uniformity, but in variety of structure. In studying its laws we have a problem of enormous difficulty, but one which must one day be solved. The lecturer then exhibited numerous beautiful diagrams, illustrating the existence and appearance of nebulous masses and stars under various circumstances around the great luminous bodies, and the immense variety of these nebulous masses. He concluded by portraying the glory of scientific study, which brought man into a nearer and closer knowledge of his Maker. After the conclusion of the lecture, complimentary resolutions were passed, to which Professor Proctor appropriately responded.

# A Mexican Motor.

We are indebted to the Hon. Martin F. Hatch, U. S. Consul at Merida, Yucatan, for a copy of a local newspaper-La Razon del Pueblo-containing an account of "An Astonishing Motor," the invention of a young Mexican named Gonzalez. The Mexican editor is of opinion that the invention is of such extraordinary value that its mere fame will make Mexico great among the nations. The new motor, he says, enables mankind to navigate the air in the teeth of hurricanes blowing at the rate of three hundred miles an hour. It permits of locomotion over the earth or under the urface of the sea, in all directions, with inconceivable velocity. We regret to say, however, that, after giving us a  ${\bf c}$  olumn and a half upon the various wonderful capabilities of the new invention, the editor fails to present any clue to the principles or construction of the device. The only light given upon this point is that the use of the invention involves no expense, not even the employment of hand power, nor steam, nor air power, nor electricity. The inventor has put into operation an example of the device in the form of a small boat, hermetically sealed, which dives and moves in any desired direction under water, at any desired speed, as if guided by an invisible hand. The editor does not hesitate to say that it is the most astonishing work that, up to the present day, has ever been produced in the world. The many Henry Baidwin Jr., and Benjamin F. Thurston, for defendants.

mechanics who have seen it declare themselves utterly unable to explain the phenomena.

Evidently, here is another example of "psychic force. which we hope will be included in the new investigations of

By the soundings of John McKinney, an experienced navigator and old resident in the vicinity of Lake Tahoe, Cal., the greatest depth of that remarkable body of water is found to be 1,645 feet.

### ----PATENT OFFICE DECISIONS.

patent office decided by the service of the applications.

In the matter of the application of Benjam ps. Sturtevant, for the extended of the application of Benjam ps. Sturtevant, for the extended of the application of Benjam ps. Sturtevant, for the extended of the application of Benjam ps. Sturtevant, for the extended of the application of the sturted of the sturted of the application of the sturted of the sturted of the application of the sturted of the sturted of the application of the sturted of the sturted of the sturted of the application of the sturted of the sturted of the sturted of the application of the sturted of the sturted of the sturted of the application of the sturted of

claim of his patent. I must hold them as covered by the second claim, without discussing the testimony relating to them, to be substantially anticipated.

The question of adequacy of remuneration is the only remaining one. The diligence of the applicant has been exemplary, and his success remarkable. The profit he has derived from this invention is large, even taking it at his own estimate. But nearly doubling it, as the remonstrants do in their estimate, which is not without some reasonable basis, it is unusually large, reaching nearly \$150,000. The amount of money, however, which an inventor has received for his invention, has no relation to the question of granting an extension, except as to its correspondence with the labor and expense incurred by kim and the ascertained value of the invention to the public. The mere ract that a great profit has been realized is not a sufficient reason for refusing an extension, if the sum is disproportionate to the public benefits derived from the invention through the labors of the invention. Although the remuneration of this applicant is admitted by him to have been over \$50,000, the advantage of his device to the public has been so many times this amount that I should not be warranted in holding himadequately remunerated.

The extension will be granted upon a disclaimer of the second claim and payment of the required fee in accordance with official rules.

# DECISIONS OF THE COURTS.

### United States Circuit Court --- Southern District of New York.

HARVESTER PATENT.-C. AULTMAN vs. H. C. HOLLEY AND E. H. FITTZ. (In Equity-Before Woodruff, Judge.)

WOODRUFF, J.;

On the 20th of September, 1853, Philo Sylla and Augustus Adams received Letters Patent from the United States for an inprovement in harvesters. On or about the 17th of May, 1859, on a surrender of the said patent, new letters were issued to C. Aultman & Co., assignces, intended severally to cover different parts of the same invention, or different devices included in the original machine. These reissues were numbered, respectively, 721, 723, 721, 725, and 726. Thereafter reissue numbered 722 was assigned to the original alleged loventors, was by them surrendered, and onthe 13th of May, 1867, new Letter Patent were issued to them, professedly for the same invention, which last named reissue is numbered 2,508. The several reissue date of the manner of the same patents numbered 2608, 724, 721, and 726, were, on the 19th of Se tember, 1867, extended for seven years from the expiration of the original terms—namely, to the 20th of September, 1874, and by assignment from the original patentees the title thereto is vested in the complainant in this suit, who charges the defendants with an infringement of these extended reissued patents. The defendants have raised the preliminary objection that the suit is defective for want of necessary parties; and on the merits they insist upon various objections to the relief sought, the chief of which are that the reissued patents are void, because they "are not for the same invention as the original patent from which they have spring, but claim substantial and material matters not indicated, suggested, or described in that or ginal patent;" that if the relssued patents embrace no devices but such as are shown or suggested in the record of the original, or if they can be sustained so far as to embrace what is shown in such original and nothing more, then the defendants machine is no infringement; and, finally, that the inventions hown or indicated by the original patent, its specification and model, in any particular in which the defendances can be deemed to use any

and model, in any particular in which the defendants can be deemed to use any device or devices shown therein, was not new when such original patent was granted.

The court heid substantially as follows:
Under an agreement between the owners of conflicting patents, which defined their respective rights and provided a fund for maintsining them and for purchasing as Joint property patents deemed necessary for their mutual protection, a patent does not pass which had been previously purchased by one of the parties and was subsequently assigned to the original inventors, and, after having been extended, was reassigned to the same party.

Such an agreement would operate at most as a license to all the parties to use a patent downed by one of the individuals composing one of them; and he alone could make take a suit at law moon it, and the others need not Join. It is no objection to a suit brought upon an extended patent that the exclusive right under the original term for the territory where the infringements were perpetrated had been assigned to third parties, unless it appears that the extended term was embraced in the assignment.

A claim for "the combination of the finger beam" in a harvester "withen hinges by which it is drawnarranged above the plane of the cutter" is not enlarged because a description of a machine in which that combination is shown to be practicable is interpolated in the specification upor, a relision, neither is the patent invalidated.

A relas used patent is valid sithough the description of a machine to which the fuvention may be applied is substituted in the specification for the purpose of illustration instead of the description of another contained in the original specification nor clearly shown in the drawings, and the shodel was so injected as to furnish no evidence respectingle, it was held on other product that the model original specification nor clearly shown in the drawings, and the patent was held valid.

The devices employed in abortice and abandoned experiments do not be-

that the model originally contained the disputed feature, and the patient was held valid.

The devices employed in abortive and abandoned experiments do not become public property, and are no bar to a patent embracing them obtained by an independent and successful inventor after ward.

A claim for the combination of a stop to prevent the finger beam of a harvester from tailing too low with the mechanism for connecting it with the main frame, and allowing it to rise and fall, is not invinged by a machine so constituted as to require no such stop, and having none.

The vist of Sylla and Adams' invention, patented September 20,1853, consisted in attaching the finger bar to the traine of a mower and reaper by a coupling bar hinged at one end to the frame at or near the crank shaft by which he sickle bar is operated, so that the end of the pirman statched to the sickle bar oscillates in nearly the same are of a circle as the inner end of the finger bar; and their reissued patents of May 14, 1867, are infringed by any machine using that construction, however differently formed in other respects.

George Harding, for complainants.

## NEW BOOKS AND PUBLICATIONS.

THE PREPARATION AND MOUNTING OF MICROSCOPIC OB-JECTS. By Thomas Davies. Enlarged second edited by Professor John Mathews. New York: 6 Putnam's Sons, 23d street, corner of Fourth avenue. Enlarged second edition, New York: G. P.

Any one who desires to become skillful in this most delicate species of handicraft, will find instructions here that are of undoubted value. The work was originally written for the help of students in microscopy. It contains the concise directions pertaining to every branch of the subject, derived from the experiences of the most eminent practitioners of the art. It shows what substances are to be employed to give transparency to this or that tissue, what coloring material will render desired parts more conspicuous, what will harden the soft membrane, or soften the hard. It describes the various solvents of various objects, shows how to clean them, how to cut, treat, place, and secure. Shows the uses of polarized light, and the changes which the same object, prepared by different methods, exhibits. In short, there is hardly a point in the whole range of the art of

## Improved Artificial Stone.

Ernest L. Ransome, 10 Bush street, San Francisco. Cal.-By means of the process described in this patent, it is claimed that much of the chloride of calcium litherto wasted is collected and saved, and the stone is washed in as many minutes as formerly days. The invention consists in the rapid removal of the calcium chloride from the pores of the stone, by a strong blast of air, followed by a blast of air containing water in a state of fine division. The inventor states that the operation is completed in a few minutes, and that the cost of the apparatus required is but small.

Improved Grain Car Unloader.

Mason W. Bosworth, Binghamton, N. Y .- This invention relates to an apparatus for unloading grain in bulk from railroad cars; and it consists in the employment of a movable endless chain or alron, passing overguide drums, and carrying a projecting gudgeon or arm, which operates in connection with a slotted sliding plate connected indirectly with the scrapers or scoops, arranged within the car. The invention further consists in attaching to the slotted sliding plate a reciprocating rod, traveling between guide pulleys, and connected with the movable unloading scoops or scrapers so as to draw the same to the door of the car for discharging the grain. The invention also consists in connecting the unloading scrapers, by ropes, to the reciprocating rod, said ropes passing over guide rollers, and so arranged that when one of a pair of scrapers is drawn to the door of the car for discharging its load, the draw rope of the other will be slack ened for permitting it to be retracted for the purpose of filling it.

# Improved Locomotive Furnace.

Andrew J. Stevens, Sacramento, Cal.—This invention is a boiler door provided with a damper on the outside, and an air deflector on the inside. The lining of the fire box door is angular in form, and projects from the inside of the door, the lower portion of the lining being cut away so that an opening is formed. The upper portion of the lining acts as a reflector to throw the air downward to the surface of the fuel, so that it can readily mingle with the gases inclosed, and thereby produce a more perfect com bustion of the fuel.

# Improved Till Alarm.

Egbert O. Wood, Nashua, N. H.-By suitable construction, when a numberof tumblers are all turned forward so that their short arms project upward, the drawer may be moved out and in freely. Should one or more of the tumblers be turned back so that their long arms project upward, the drawer cannot be drawn out without first forcing the said long arm of the tnmbler or tumblers downward by operating the keys of the tumbler or tumblers that were turned back. When the key of a tumbler that has been turned forward is operated, the short arm of said tumbler is raised, so as to prevent a lock plate from dropping down and passing out beneath lugs. When an attempt is made to open the drawer with one or more of the tumblers raised, a lug of the lock plate will strike against the lug of a ratchet, and, releasing the lever, will sound the alarm. As the till or drawer is closed, the lugs of the lock plate slide up the inclined rear sides of other lugs, and drop down in front of said lugs, the rear part of the saidplate resting upon the upwardly projecting arms of the tumblers. The alarm is set by turning one or more of the tumblers to the rearward; and the combination is chang d by turning one or more of the tumblers forward or back, us may

# Improved Weather Strip.

Oliver A. Vorce, Kentland, Ind.-This invention consists of a weather strip, which is raised or lowered in a groove at the bottom of the door, by being connected to the spindle of the lock by a suitable lever, so that on opening the door the strip is reised and retained in position by a band spring at the top part, which lowers the strip on the closing of the door by being depressed.

# Improved Draft Equalizer.

Elias H. Blake, Coatsburg, Ill.-This invention is an improved equalizer which is readily attached to a tongue or plow beam, so adjusted as to allow the horse to walk upon either side of the tongue, and to give an advantage to the single horse or to the rair, as may be desired. The invention consists in a triangular equalizer provided with claups for securing it to the tongue or beam, and having its forward arm slotted and provided with adjustable perforated plates to receive the hammer or pin by which the tripletree is connected with it.