

In an improved motor, patented by Mr. Joseph Plattenburg, of Allegheny, Pa., an elastic rubber belt is wound by hand power in a stretched condition upon a drum. The power of the belt is utilized by ingenious mechanism for driving light machinery, pumping, etc.

An improved sash fastener, patented by Levi P. Treadwell, of Danbury, Conn., consists of a slotted curved bolt which slides on a screw in the meeting rail of the lower sash, and is capable of entering notches in the stops and in the upper sash.

A sewing machine invention—which improves the feed and enables the operator to simultaneously slacken the thread and raise the presser foot—has been patented by Mr. Thomas Shanks, of Baltimore, Md.

THE BOBAC.

The bobac, or Poland marmot, is one of the true marmots, and is a native of parts of Northern Europe and Asia. It measures twenty inches from the nose to the end of the tail, and is covered by a thick reddish-brown fur, somewhat darker on the back. The throat and a part of the belly are grayish white, and the tip of the tail is nearly black.

The bobac is a gregarious animal, living in small bands of thirty or forty. It inhabits the plains and stony undulating sections, avoiding forests and sandy soil. Like the prairie dog, it is a very social animal; grassy, moist sections of land are frequently found covered with numerous hillocks, formed of earth thrown out in excavating their spacious subterranean dwellings.

In the bobac settlement a very industrious and restless life prevails through the summer. The young, which are born in April or May, are then nearly grown up and have acquired a fondness for play. At sunrise they leave the burrow and quench their thirst by licking the dew from the leaves of the surrounding plants. The forenoon is spent playing and grazing; the afternoon in sleeping in their burrows. Toward evening they appear again and graze previous to retiring for the night.

They seldom deprive the immediate surroundings of their homes of vegetation; welltrodden paths lead to a feeding ground situated generally at a distance of several hundred feet; further than this they dare not go.

In June they commence to gather their winter provisions, consisting of hay, roots, etc. As soon as the weather becomes cool in the fall they become sleepy and very slow in their motions. During the latter part of August they may be seen after a cool night coming out of their burrows, falling on one side and then on the other as if intoxicated, and they lose their playfulness.

During the month of September they retire for hibernation, and close the entrances to their burrows with stones, sand, grass, and their own excrements. From this time until winter sets in they lead a sort of automaton life.

The burrows are very extensive, and are generally most spacious where the ground is quite hard. According to Radde the distance between the mouth of the burrow and the nest is from fifteen to twenty feet, rarely more than forty-two feet. The principal passages branch off about six feet below the surface, in several directions; some of the branches are blinds, all of the others lead to the nest.

The nest is especially prepared for hibernation, being made larger and softer. During winter the temperature in the burrow never falls below the freezing point. In December the bobacs fall into a death-like sleep, in which condition they remain until March, when they awake. During the first week or so after awakening they are very logy, and suffer for want of food, there being no grass; nettle and rhubarb stalks are their only nourishment. As soon as the first grass appears it is eagerly devoured, but it acts as a strong cathartic and frequently destroys large numbers of the animals.

At the general meeting of the British Royal Astronomical Society, February 14, the gold medal of the Society was presented to Prof. Asaph Hall, of the Naval Observatory, Washington, "for his discovery and observations of the satellites of Mars."

The Shell Heaps of the Aleutian Islands.

In a volume of ethnological papers—recently issued by the government as part of the series recording the progress and researches of the Geological and Geographical Survey—is recorded, among other matters of interest, Mr. Dall's examination of the shell heaps of the Aleutian Islands. These shell heaps, extending over tracts of many acres in extent, exhibit three layers. The lowermost consists principally of shell and spines of an *Echinus*, such as is still eaten raw by the natives. Considering that there is but little to eat of these animals, it can be easily imagined how great a number it takes to feed even a single family; yet so vast is the accumulation of their remains that Mr. Dall reckons 2,000 years for the duration of the earliest period of inhabitation of the islands by wandering coast-folk of very low culture; this he calls the "littoral period." Immediately over this deposit lies a layer in which fish bones predominate, showing a change of life, or the arrival of new tribes subsisting on fishing, but probably eating their fish raw, a habit indeed which largely prevailed till lately, for the old men ascribe the diseases which have afflicted modern generations to the pernicious practice of cooking food. It is remarkable, however, that Mr. Dall finds no trace what-

Working Monkeys.

It is one of the curious things in nature that the animals nearest to man in the order of development are of little or no use to him industrially. There has never been a time when strong races of men have not compelled their weaker brothers to work for them. But, barring the showman and the organ grinder, the meanest of men have not been able to subjugate or enslave their simian relatives. An ancient Arabic proverb accounts for the freedom of apes by the fact that they shrewdly refuse to talk: "well they know that were they to speak they would be made to work; so they wisely hold their tongues."

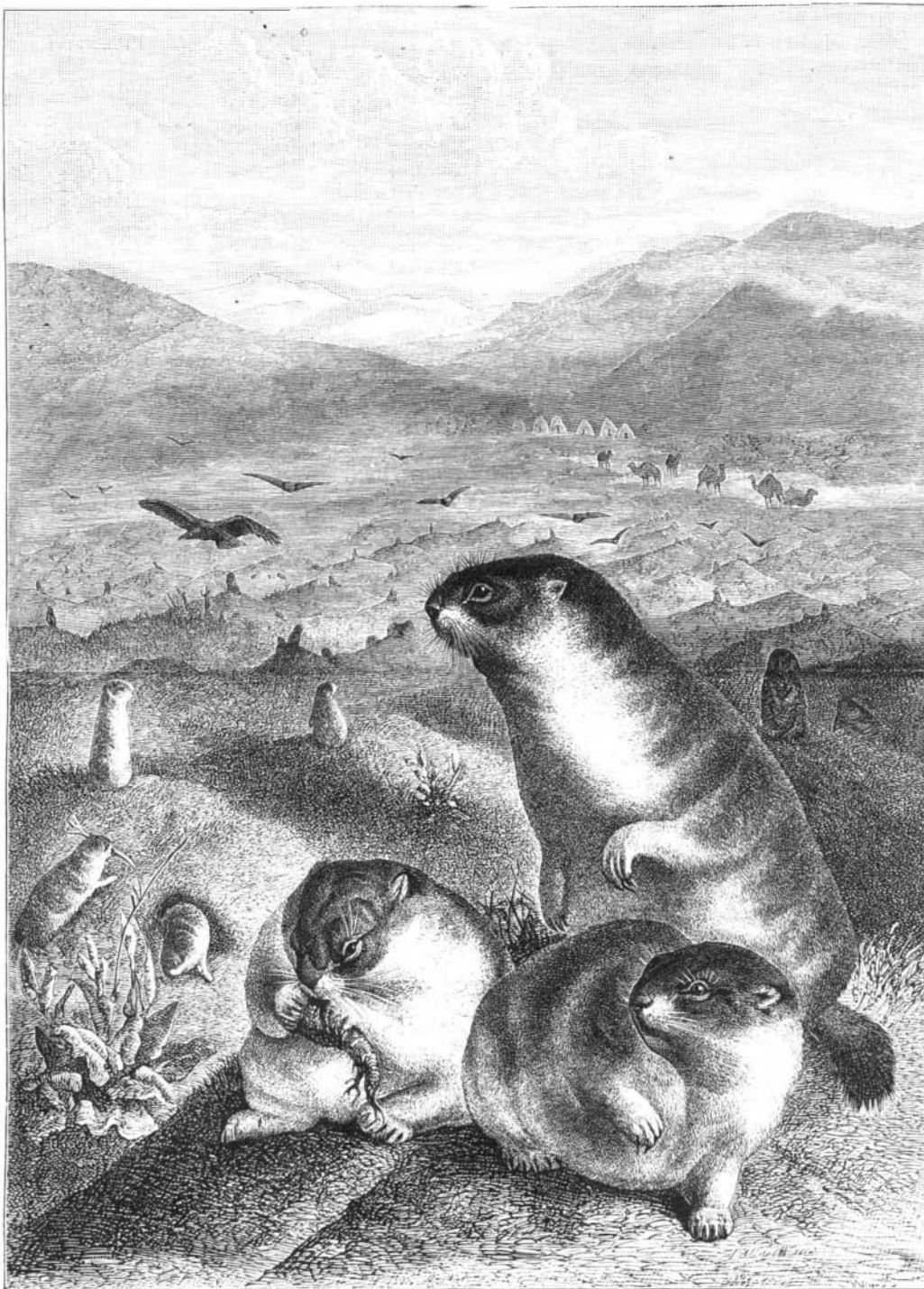
The proverbial prudence of the monkey appears to fail in a measure, however, in the land of the white elephant. An Austrian resident at the Court of Siam reports that in that country the monkey is trained to fish for crabs with his tail, as comical a pursuit as can well be imagined, except, perhaps, for the worthy and intelligent ape engaged in it, who sometimes gets a "bite" from a monster crab that he is totally unable to land, and falls a victim to the superior weight of his Cancer Ferox, who drags him into the water, drowns, and finally devours him. The Siamese ape is also stated to be in great request among native merchants as a

cashier in their counting houses. Vast quantities of base coin obtain circulation in Siam, and the faculty of discrimination between good money and bad would appear to be possessed by these gifted monkeys in such an extraordinary degree of development that no mere human being, however carefully trained, can compete with them. The cashier ape meditatively puts into his mouth each coin presented to him in business payments, and tests it with grave deliberation. If it be genuine he hands it over to his master. If it be counterfeit, he sets it down on the counter before him with a solemn grimace of displeasure. His method of testing is regarded in commercial circles as infallible; and, as a matter of fact, his decision is uniformly accepted by all parties interested in the transaction. But, though a true and invaluable servant to his own particular master, it seems that his moral character is not altogether irreproachable. His deplorable passion for fruit renders him the terror of Siamese market gardeners, who find brute force inadequate to restrain him from visiting their orchards, and therefore have recourse to divers and sundry stratagems, one of which is reported to be as successful as it is certainly ingenious. A specially active and enterprising ape is captured and carefully sewed up in the skin of a tiger cat. He is then turned loose in the orchard of his predilection, and straightway clammers, as well as he may, incumbered by an unfamiliar garment, into the branches of a fruit tree among his unclothed fellows. Scarcely do these latter set eyes upon him with all his feline terrors thick upon him, when a dreadful panic strikes them, and they scramble away with piercing screeches and agonized chatterings. Never more do they return to an orchard which they believe to be infested by the deadliest enemy of their race. The startling intelligence is rapidly disseminated

throughout the monkey society of the neighborhood, and the wily gardener enjoys an absolute immunity from depredation forever afterward, for the very thought of a tiger cat appeals the simian soul, and doubtless the tale of "the awful apparition in Ting-tse's orchard" is handed down in quadrumanous families from generation to generation.

A TABLE of wages and the cost of living, with the price of staple articles of commerce, going back as far as the year 1200, has been published lately. It shows that wages during the thirteenth century were about 50 cents a week. In the next century they advanced some 15 cents, and continued to advance slowly until, in the last century, they had reached \$1.87. The average for farm labor in the same countries at present is \$3.80 per week.

Wheat in the thirteenth century averaged 71 cents, or eight and a half days' labor, a bushel. Now wheat is worth, wholesale, in Europe, about \$1.46 a bushel, or two and a half days' labor. In six centuries meat has nearly trebled in price; but wages have increased more than sevenfold.



THE BOBAC.—(*Arctomys Bobac*.)

ever of the use of fire till the close of this second, or "fishing period," as he names it. Improvements in weapons, etc., took place, as the specimens show, and in the uppermost or mammalian layer the remains found, with their harpoon heads, skin dressers, ivory tags for skin boats, lip ornaments, etc., indicate the condition of a population of hunters and fishers up to the highest level of the Esquimaux or Inuit race, to which the Aleuts are supposed to belong. Mr. Dall's conclusions, if sound, have an important bearing on the development of civilization, so that his evidence from the Aleutian shell heaps deserves careful sifting. In another paper he discusses the origin of this Esquimaux or Inuit race, which he agrees with Dr. Rink in considering as the outermost wave of population driven up to the northern coasts from the more hospitable central regions of North America. Here he joins issue with Mr. Markham's theory of their migration from Asia, at the same time pointing out that his question is that of whence the Inuit last came, not the remote problem of the absolute origin of the American races, probably from the Old World.

Astronomical Notes.

OBSERVATORY OF VASSAR COLLEGE.

The computations in the following notes are by students of Vassar College. Although only approximate, they will enable the ordinary observer to find the planets.

M. M.

POSITIONS OF THE PLANETS FOR APRIL, 1879.

Mercury.

Mercury can be found in the first week of April by its nearness to Venus. It sets at 8 P.M. on the 1st, a little south of the point at which Venus sets. Mercury is stationary, referred to the stars, on April 6; it then has a retrograde motion until the 29th. As the motion of Venus is direct, the two planets separate rapidly, and on the 30th Mercury sets at 5h. 10m. P. M.

Venus.

Venus is coming nearer to us, and setting later. On April 1 Venus rises at 6h. 55m. A.M., and sets at 8h. 43m. P.M., more than two hours after the sun. On April 30 Venus rises at 6h. 44m. A.M., and sets at 9h. 52m. P.M. An ordinary glass will show that the disk of Venus is not wholly illuminated, and the change of phase can be watched from night to night. The bright star some degrees south of Venus on April 25, is Aldebaran.

Mars.

Mars is not likely to be seen by the ordinary observer. It rises on April 1 at 3h. 24m. A.M., about two hours before the sun, and sets at 1h. 3m. P.M., on the 30th. Mars rises after the sun and sets at noon; it is not possibly seen.

Jupiter.

Jupiter, the largest, and perhaps the most interesting, of the planets, is now coming into view in the morning. On April 1 Jupiter rises at 4h. 19m. A.M., and sets at 2h. 54m. P.M. On April 30 Jupiter rises at 2h. 39m. A.M., and sets at 1h. 28m. P.M. Although Jupiter is nearly 10° south of the celestial equator, on April 30 it rises more than two hours before the sun, and can be easily recognized.

Saturn.

On April 1 Saturn rises nearly with the sun, and sets before the sun at 5h. 49m. P.M. On the 30th Saturn rises at 4h. A.M., nearly 2° north of the celestial equator, and can perhaps be seen before the sun rises.

Uranus.

Uranus is the only planet, more distant from the sun than the earth is, which can be found in the evening.

On April 1 Uranus rises at 2h. 48m. P.M., comes to the meridian at 9h. 32m. P.M., and sets at 4h. 15m. A.M. of the next day. On April 30 Uranus rises at 0h. 51m. P.M., comes to the meridian at 7h. 32m. P.M., and sets at 2h. 20m. the next morning.

Uranus is south of the bright star Regulus on April 30, 23°, and 2° east of the star.

It may be found, when on the meridian, by looking east of Regulus, and as far from the star as four diameters of the moon.

Brorsen's Comet.

Brorsen's comet, which was first seen in 1846, and was perceived to have a period of five and a half years, has returned this year, having been seen by the director of the observatory at Arcetri, Florence.

An ephemeris of the comet, published in the *Astronomische Nachrichten*, gives its place on March 21, as nearly that of the star *Xi Ceti*. The comet should be looked for in March among the stars of *Aries*, but its apparent motion northward is very rapid, and in April it should be looked for among the stars of *Perseus*.

Brorsen's comet is not yet visible to the eye, but can be readily found with an ordinary telescope.

It appears as a hazy star of the seventh magnitude, throwing off a short train. It is increasing in brightness and coming into better position, as it sets later in the evening.

Although at this time near Venus, its motion among the stars is so much more rapid than that of the planet that it will soon be much further north. Following the ephemeris of Schulze, the comet will be more than 7° north of Venus April 1st, and on April 15th about 20° north of the planet and among the stars of *Perseus*.

MISCELLANEOUS INVENTIONS.

Mr. Jotham W. Wakeman, of Jersey City, N. J., has devised a school writing book, with sliding or adjustable copy slips, which may be moved downward as the writing progresses, the copy thereby being kept before the scholar's eye.

An improved tablet for blank paper, letter heads, bill heads, sheet music, letters, etc., has been patented by Mr. Bredell C. Murray, of Denison, Texas. Tubes are arranged across the covers where they join the back, and are provided with springs connected by cords, which draw the tubes together so as to clasp the edges of the papers.

A band bracelet, made of a single thickness of metal, having at its edges raised ornamental work and projecting flanges, which are made higher than the ornamental work to protect it, has been patented by Mr. Charles Hein, of Corona, N. Y.

Mr. John G. Klett, of Brooklyn, N. Y., has invented an improved pocketbook, the back of which consists of a channeled flange or rim, whose ends are pivoted to the sides of the frame thus dispensing with hinges at the back and giving great strength and durability to the book.

Mr. Aaron C. Vaughan, of Shane's Crossing, O., has patented a nut lock, consisting of a longitudinally grooved bolt and a nut having one or more radial grooves in its face, and

a groove or locking seat about its edge, and a wire key arranged in the longitudinal groove of the bolt and bent twice at right angles.

An improved machine for cutting off the projecting ends of the pegs of boots has been patented by Mr. R. T. Ellifrit, of Platte City, Mo. The inventor employs a revolving circular saw, whose mandrel turns in bearings in a guard casing that is pivoted to the upper end of an upright hollow standard or stock.

An improved trap for preventing the escape of sewer gas into houses, has been patented by Mr. J. T. Bladen, of Brooklyn, N. Y. It consists of a cover of novel construction, which may be closed so as to thoroughly seal the drain pipe, or it may be opened to permit of the escape of water from the sink. It may be easily applied to any sink, basin, or bath tub.

Mr. Hermann H. Heiser, of Denver, Col., has patented an improved girth iron for ladders, in which the metal loop is provided with strengthening bars, which are arranged with reference to the lacing bar so as to prevent the lacing strap from getting out of position.

An improved lath-sawing machine, patented by Mr. James Little, of Evansville, Ind., is designed to cut, at one operation, a bolt from a slab or plank and saw the bolt into lath of a uniform size. The machine has a series of saws on a vertical mandrel and a corresponding series of spreaders and gauges, and it has a horizontal mandrel carrying a saw which separates the lath from the edge of the bolt.

Messrs. J. J. Christie and J. Overton, of Henderson, Tenn., have patented an improved wrench and crimper for nut washers, which consists of a hooked arm which is pivoted to a wrench. The hook is placed under the edge of a washer, and the wrench being placed on an adjacent nut and turned, binds the washer.

An improved type-writing machine, patented by Antonio Michela, of Turin, Italy, may be used to print stenographic or phonetic signs. It is also capable of recording syllables. The machine cannot well be described without engravings.

Mr. Pedro F. Fernandez, of San Juan, Porto Rico, has invented an attachment for sewing machines for soaping or waxing the thread as it passes to the needle. The invention consists in a clamp for holding a small cylinder of wax or soap, and having a binding screw for securing it to the needle arm or bar.

NEW AUTOMATIC SIPHON.

In a communication to the Edinburgh Photographic Society Dr. William Taylor gives the following description of an apparatus designed to serve as an overflow pipe to tanks or other vessels not already fitted with means to that end, and without in any way altering such vessels. It is specially applicable to tanks with a fluctuating supply of water, in which it is necessary to maintain a constant level.

As its name implies, it is self-acting, and while at once carrying off any sudden influx of water, it will not bring the level below a certain fixed line. The excess of water is carried from the bottom of the tank.

Into the tank, T, is passed the waste pipe, A B, of a diameter greater than the feed to tank. This waste pipe is bent into the form shown, with the shoulder, S, about half an inch lower than the level of water required in the tank. On the upper surface of this shoulder, at S, a small hole is made, over which a small tube is fixed. This small tube, S L, is then led over the side of the tank to the constant level required.

Now, when the waste pipe is put into action as a siphon it rapidly carries off the water to the level, L. When it reaches this air is admitted by the small pipe through the orifice at L, and the waste pipe ceases to be a perfect siphon. If, now, a small stream of water flow into the tank the same quantity passes through the partial siphon, A B; but should a rush of water into the tank take place, bringing the water above the level, L, the waste pipe is at once converted into a true siphon, and rapidly brings the level back again.

In the sketch the pipes have been drawn projecting from the tank. This has been done for simplicity; but, of course, in practice these pipes are laid close to the side of the tank.

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The Lawn.

The man who puts on a frequent little sprinkling of salt or bone dust or superphosphate, or any fertilizer that will add an additional rich green tint to the turf, is always recompensed by securing the most conspicuous grass plat in the neighborhood. The best lawn we ever saw, says an agricultural writer, was occasionally treated to a sprinkling of diluted blood from a slaughter house, just previous to a shower. When the soil is soft, run the roller over; it helps the appearance greatly. The application of a little ground gypsum will also freshen up the grass. But above all, never neglect to run the mowing machine over frequently. Once a week is none too often during a wet season.

Another writer on the treatment of lawns suggests the use of oil of vitriol touched to the heart of the plantain. He says it will kill more surely than digging it out. And if it will exterminate the weed to an inconsiderable extent, it is certainly better than digging it out, which we have tried with discouraging success. We have dug over a lawn till nearly every vestige of green was gone, determined to get rid of the plantain at all hazards, but it invariably got the best of the grass in returning, and it seemed rather to thrive the better for the cultivation it had received by our exterminating process.

Colored Pencils for Glass.

The following formulas for the composition of pencils for sketching on glass, porcelain, etc., are those used at the factory of A. W. Faber, of Stein, near Nürnberg, Germany:

1.—BLACK.

Lampblack.....	10 parts.
White wax.....	40 "
Tallow.....	10 "

2.—WHITE.

Zinc white.....	40 parts.
White wax.....	20 "
Tallow.....	10 "

3.—LIGHT BLUE.

Prussian blue.....	10 parts.
White wax.....	20 "
Tallow.....	10 "

4.—DARK BLUE.

Prussian blue.....	15 parts.
Gum arabic.....	5 "
Tallow.....	10 "

5.—YELLOW.

Chrome yellow.....	10 parts.
Wax.....	20 "
Tallow.....	10 "

The colors are mixed with the fats in warmed vessels, levigated with the same, and are then allowed to cool until they have acquired the proper consistency for being transferred to the presses. In these the mass is treated and shaped similarly as the graphite in the presses for ordinary pencils.—*Deutsche Gerber Zeitung*.

SUPREME COURT DECISION.

OWNERSHIP OF THE SECOND TERM OF AN EXTENDED PATENT.

In the appeal of George Hendrie vs. Thomas Sayles the decree of the court below was confirmed for the following reasons: From the papers in this case it appears that prior to the granting of the patent the inventors conveyed and set over all the right, title, and interest whatever which they had, or by letters patent would be entitled to have and possess, in the described invention, to an assignee, who subsequently, after the patent was granted, assigned to the complainant "all his right, title, interest, and claim whatsoever which he then had or may have in and to said invention and patent, and any extension thereof that may hereafter be granted," with certain specific exceptions not material to this investigation. Before the term of the original patent expired application was made for an extension, which was granted in due form for seven years.

Controversy having arisen between these parties, the complainant instituted the present suit against the respondent for infringing his right under the extended term. Service having been made, respondent demurred that the complainant had not in and by his bill of complaint made any such title in himself to the extended term of the patent as would entitle him to relief. Hearing was had, and the court overruled the demurrer and entered a decree in favor of the complainant, the respondent electing to stand upon his demurrer. Prompt appeal was taken to the Supreme Court by the respondent, who maintains, as in the court below, that the bill of complaint showed no legal title to the extended term in the complainant.

The Supreme Court holds that, "when the patentee assigns the patent to a purchaser, the assignee acquires only the exclusive right during the term for which the patent was granted, unless the assignment contains words showing that the parties intended that the instrument should be more comprehensive, and include the extended term in case an extension should be granted. During the term for which the patent is granted the assignee of all the right of the patentee in the same may assign and convey the patent for the residue of the term granted, or he may continue to make, use, and vend the patented improvement, but his title to the invention terminates when the term of the patent expires."

"Apt words are, therefore, required where the conveyance is of an existing patent to show that the conveyance includes more than the term specified in the patent; but where the conveyance is of the invention, whether before or after the patent is obtained, the rule is otherwise, unless there is something in the invention to indicate a different intention, the rule being that a conveyance of a described invention carries with it all the incidents, and all the authorities concur in the inchoate right to obtain a renewal or extension of the patent is as much an incident of the invention as the inchoate right to obtain the original patent; and if so, it follows that both are included in the instrument which conveys the described invention, without limitation or qualification. *Emmons vs. Sladden*, 9 Off. Gaz., 354; *Gayler vs. Wilder*, 10 How., 493; *Clum vs. Brewer*, 2 Cart. C. C., 520; *Carnan vs. Bowles*, 2 Brown Ch., 84.

"Viewed in the light of these suggestions, the court is of