

and the young lions were offered to her tender care. The gentle mastiff immediately fondled them and assumed the charge, and has since, for a number of weeks, nursed them with affectionate attention. The kittens are getting large and clumsy, and, in a playful mood, sometimes caress their stepmother with unheated claws.

There are frequently unpleasant deformities in the lions born and bred here. Their legs are too short and are sometimes bowed very noticeably. There are a number of hyenas now in the Park collection, which were reared there. They are nearly black in color when they are born.

Beside the common spotted hyena there is a striped species in the collection, which is regarded as new to Science. This creature has a stiff mane, which is erected at every movement.

THE "HAY CRITTERS."

The young camel was one of the most interesting of the creatures born in the Park. Then there are Cape buffalo calves, and the beautiful Zebu calf, and the bison calf, and several others.

Since the completion of the large new house for ruminants, or "hay critters," as they are familiarly called, the exhibition has been very fine. The equine antelope is exceedingly curious, and is rarely seen alive. Some fine elands and two antelopes, called blessbocks, are also here. Another Indian antelope, with twisted, lyre-shaped horns, has just been obtained. There is the gnu, or horned horse, also, who belongs to the antelope family.

THE SEA LIONS.

A recent improvement in the treatment of the sea lions is worthy of notice. The pond in the rear of the carnivorium, which has heretofore been used for the great wading birds, has been surrendered to the seals and such creatures. This exhibition is now one of the most entertaining. There are often six or seven large sea lions here, and they fully enjoy the ample space. They play briskly with their fellows, dive and leap, plunge in at one side of the pond and shoot out at the other. They hobble about on land, chasing each other, presenting a most grotesque appearance. One seizes a piece of ice in his mouth and tosses it in the air, catching it adroitly as it falls; another vaults upon the bottom, beneath the water, and pulls under his fellow who is quietly sleeping on the surface. It is surprising to witness the agility of these creatures on land. They chase each other very briskly around the yard, leaping much as a puppy does in his attempts to caper.

Poetical Soap.

Messrs. Water and Oil
One day had a broil,
As down in the glass they were dropping,
And would not unite,
But continued to fight,
Without any prospect of stopping.

Mr. Pearlsh o'erheard,
And, quick as a word,
He jumped in the midst of the clashing;
When all three agreed,
And united with speed,
And Soap came out ready for washing.

DECISIONS OF THE COURTS.

United States Circuit Court—Fifth District of Louisiana.

PATENT STEAMBOAT STAGING AND DERRICK.—C. K. CONVERSE AND OTHERS vs. JOHN W. CANNON AND OTHERS.

WOODS, Cir. J.:

The complainants allege that they are the assignees of a patent issued to one A. John Bell, dated January 22, 1861, for an "improvement in steamboat staging," that they are also the assignees of two patents issued to one Hannibal S. Blood, the first dated June 7, 1876, being "a new and useful improvement in derrick or hoisting crane, and relating particularly to a means for avoiding the labor and delay incident to handling and manipulating heavy landing stages used on steamboats and water craft by manual labor, and the second being a patent dated March 26, 1872, for an "improvement in derricks." That all of the inventions named in said three letters patent relate to the manner and mode of manipulating and handling stages used on steamboats and water craft for landing freight and passengers, whereby manual labor is, in a great measure, dispensed with, and great economy in the navigation of such vessels effected, as well as a large decrease of expense in the navigation and use of such vessels and water craft.

That the defendants, John W. Cannon and William Campbell, the first largely interested in the steamer the Robert E. Lee as owner, and the latter being her master, are using upon said boat two several machines, which are substantially in their mode of construction the same as the machine described in said three letters patent.

The bill prays for a perpetual injunction against the defendants to restrain them from infringing upon the patents owned by the complainants by the use of said machines now employed by them upon the steamer Robert E. Lee.

The answer of defendants denies any infringement of the patents held by complainants, and claims that they use an apparatus invented by one John Perkins, and patented to him by letters patent dated May 7, 1872, which differs substantially and materially from the apparatus covered by the patents owned by complainants, and is not an infringement thereon.

In passing upon the issue of infringement, the question to be determined is whether, under a variation of form or by the use of a thing which bears a different name, the defendant accomplishes, by his machine, the same purpose or effect as that accomplished by the patentee, or whether there is a real change of structure or purpose.

If the drawing introduced by the defendant constitutes a mechanical equivalent, in reference to the means used by the patentee, and if, besides being an equivalent, it accomplishes something useful beyond the effect or purpose accomplished by the patentee, it will still be an infringement as respects what is covered by the patent, although the further advantage may be a patentable subject as an improvement on the former invention. (Crummond, 10 Foss vs. Hubert, 2 Fisher 31.)

The material question is not whether the same elements of motion or the same component parts are used, but whether the given effect is produced substantially by the same mode of operation and the same combination of powers in both machines. (Story, J., in Odiorne vs. Winkley, 2 Gall. 54.)

In determining the question of infringement, we are not to determine about similarities or differences merely by the name of things, but are to look to the machines or the several devices or elements in the light of what they do, or what office or function they perform, or how they perform it, and to find that a thing is substantially the same as another if it performs substantially the same function in substantially the same way to obtain the same result. (Clifford, J., in Vincent Refinery vs. Mathiason, 2 Fisher, 602.)

The rule is, and so it has been settled, that if two machines be substantially the same and operate in the same manner, and if they may differ in form, proportions, and utility, they are the same in principle. (Washington, J., in Evans vs. Eaton, 3 Wash. 449.)

As between a device conceded to be new and a device claimed to infringe, because an equivalent, the alleged infringer could not protect himself by showing that, although his device was the equivalent of the patentee's device in all its functions and in its construction and mode of operation, yet by other additional features it possessed other and further useful functions. Such a device, though an improvement upon the patented one, would be an appropriation of it. (Woodruff, J., in Surren vs. Hall, Official Patent Reports, Vol. 1, 437.)

To constitute an infringement, the contrivances for the purposes in view must be substantially identical, and that is substantial identity which comprehends the application of the principle of the invention. (Page vs. Ferry, 1 Fisher, 323.)

It makes no matter what additions to or modifications of a patentee's invention a defendant may have made: if he has taken what belonged to the patentee he has infringed, although with his improvement the original machine or device may be much more useful. (Sprague, J., Howe vs. Morton 1 Fisher, 587.)

Applying these principles to this case in hand, there can be no doubt that the defendants have appropriated the invention covered by the patent of A. John Bell. That the mode of operation of the defendant's machine may be true, but they are using the idea first suggested by Bell and covered by his patent, namely, the handling of a steamboat stage by means of a rope attached to a derrick, through force applied by a power winch.

The variations which have been made in the method of attaching the rope in the form of the derrick in the position in which the stage is placed on the deck are immaterial variations, which do not affect the question of infringement.

As the patent to Bell bears date prior to the use of stages by the Marine Brigade, or to the publication in Appleton's "Dictionary of Mechanics," the defense of want of novelty cannot be maintained. The averment that the device of Bell is not useful cannot be sustained.

All the law requires as to utility is that the invention should not be frivolous or dangerous. It does not require any given degree of utility. If the invention is useful at all, that suffices. (Cox vs. Gregg, 2 Fisher, 174; Hoffhelm vs. Brant, 3 Fisher, 218.)

The result of this view is that there must be a decree for complainants directing a perpetual injunction to go against defendants as prayed in the bill, and a reference to a master for an account of profits.

Supreme Court of the United States.

OCTOBER TERM, 1875.—PATENT SAWMILL.—CALEB IVES AND GEORGE B. CROCKER, PLAINTIFFS, vs. PALMER HAMILTON, DECEASED.—IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF MICHIGAN.

Mr. Justice BRADLEY delivered the opinion of the Court.

This was an action brought to recover damages for the infringement of certain letters patent granted to Hamilton, the plaintiff below, for an improvement in sawmills. The defendants pleaded the general issue, with notice of special matter, setting up several prior inventions, amongst others that of one Isaac Straub. The plaintiff's patent was dated the 5th day of December, 1855.

The defendants insist that Hamilton's patent is defective for not clearly describing the position, perpendicular or otherwise, in which the curved guides should be placed; and that if any required position can be inferred from the patent it is a peculiar one, whilst the guides of the defendants' saw are inclined at a slight angle to the perpendicular. As to the alleged defect of the patent, there is nothing in the objection. The invention claimed is an improvement on an old machine; and it is properly taken for granted that the practical mechanic is acquainted with the construction of the machine in which the improvement is made; and nothing appears in the case to show that any peculiar position, different from that of sawmills constructed in the ordinary way, is necessary to render it effective and useful. The essence of the improvement has nothing to do with the precise position of the guides. It is a combination of mechanical means to produce a rocking motion of the saw. And this combination is just as applicable to guides that have a slight inclination as to guides that are perpendicular. We think that there is no ground for either branch of the objection. The description in the patent is sufficiently specific; and the inclination of the defendants' guides cannot exempt them from the charge of infringement.

The complaint made by the defendants, that the patent is defective in not stating the nature of the curve for the guides, whether that of a circle or of some other figure, in view of the subject matter of the improvement and of the diagrams annexed to the patent, are not sufficient to affect its validity. Any good mechanic acquainted with the construction of sawmills, and having the patent and diagram before him, would have no difficulty in adopting the improvement, and in making suitable curves.

The conclusion, therefore, which we deem to be decisive of the case, is that the defendants have infringed the patent of Hamilton, and that the plaintiff is entitled to a decree for damages, and for a perpetual injunction to go against the defendants as prayed in the bill, and a reference to a master for an account of profits.

The judgment is affirmed.

Recent American and Foreign Patents.

NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED ISTLE MACHINE.

Guillermo Roberto Welke, Parras de la Fuente, Mexico.—The object of this invention is to produce an improved machine for making istle, or the fiber of the lechugilla, which is applied in Mexico to the manufacture of a large number of articles, as hammocks, sacks, ropes, nets, cotton bagging, wagon sheets, carpets, and similar objects. The invention consists mainly of devices for scraping the leaves, while being drawn by rollers through the scraping knives, which are made to yield to the thickness of the leaves. The leaves are placed between the scrapers up to a gage piece, and then carried with the scrapers toward the feeding rollers. Sliding and reciprocating scraping jaws are operated by suitable transmitting mechanism, by the forward motion of the scraper frame, for scraping off the ends of the leaves which are conveyed to a receiving platform, and dropped by the same to a receptacle below.

IMPROVED WIRE STRETCHER.

Seman Taber, Russel Taber, and Charles M. Morgan, Hesper, Iowa, assignors to Seman Taber, Darius F. Morgan, and Charles M. Morgan, same place.—This device is for tightening wires that have been strung up, and especially fence wires. A bent bar is held transversely with the wire to be tightened. The wire is passed between pins on said bar, and the latter is turned longitudinally with the wire. The wire is then passed into the slot of a drum secured to the bar. The drum is turned by means of a wrench, to give the desired tension to the wire, a pawl holding the drum securely in any position into which it may be turned.

IMPROVED ROTARY PUMP.

William O. Crocker, Turner's Falls, Mass.—There are two toothed pistons engaging the one with the other. The peculiar construction of the teeth of the pistons enables the said teeth to be made so small that at least one tooth may always be in contact with each abutment, while at the same time having sufficient water space. To each of the abutments are swiveled set screws, so that they may be adjusted at any desired closeness to the pistons. A vent chamber and a suction chamber are formed in each head upon the opposite sides of a line joining the shafts.

IMPROVED TACK MACHINE.

Charles P. Weaver, Norristown, Pa.—This invention relates to machines with two cutting jaws for making tacks or small nails, and consists in so combining the header lever with the crank pitman by a lever, pin, and link, that the power can be applied directly in the line of the work, thereby avoiding all lateral strain and dispensing with the usual long arms and crooked ends of the heading lever, and allowing the size and weight of tack machines to be reduced fifty per cent.

IMPROVED CAR COUPLING.

Peter C. Murray, Sloatsburg, N. Y.—This invention consists of a centrally recessed drawhead, with a stationary link attached thereto, that is coupled by the laterally sliding cross pin of the connecting drawhead, the pin being guided and locked in open or closed position by a side standard and pin rod.

IMPROVED GAS GOVERNOR.

David B. Peebles, Edinburgh, Scotland.—Between two half cases, made of cast iron, a flexible diaphragm is fixed, and a passage for the gas is made between the upper and lower chamber through the projecting part of the case. In the lower half a recess is made to receive a disk of metal not acted on by gas. In the center of this disk a hole is made, into which the conical point of a regulating screw is placed, so that, by moving it, the hole can be opened or closed. The top of the screw is surrounded by a bead forming a recess, into which wax can be run to receive a stamp for a seal. The valve, made of fusible alloy, is of a double conical shape, with a stem at one end. The other end rests in a step made in the head of the center screw, which keeps the metal disks to the diaphragm. The bottom of the burner tube acts as a valve seat, and by this arrangement the valve can be taken out for cleaning by unscrewing the burner tube, without taking the governor to pieces.

IMPROVED AUTOMATIC TELEGRAPH KEY AND REGISTER.

Lucien S. Crandall, New York city.—This is an improved automatic telegraph key and register, by which, it is claimed, the manual and mental labor in transmitting telegraphic signals are facilitated and simplified to a considerable degree, the working capacity of telegraph lines increased, and the accurate manipulation of the instrument acquired by the operator with little practice. The invention consists of a letter ring, which is divided along its circum-

ference by insulated and non-insulated portions and separating recesses, to correspond to the characters of the Morse alphabet. A number of spring keys are arranged around the letter ring, and lettered alphabetically, to correspond with the Morse letters of the ring. A bridge at the end of each key forms, when the key is depressed, the contact of the letter ring with one of a series of needles radiating from a vertical shaft that is intermittently actuated by the magnets by a local battery. The letter ring and spring needles form the poles of the main line battery, and record the depressions of the keys by a relay magnet with an armature, having lever with recording stylus at one end, and stop pawl at the other end. The stop pawl releases a spring-acted slip wheel that throws a local actuating battery in circuit, which imparts, by two magnets with armature pawls, switch, and governor, intermittent motion to a motor wheel, connected by a partially insulated and non-insulated step with a recess and spring rider, by which the motion of the motor wheel and needle arms may be kept up after the mainline circuit is interrupted, to register spaces in and between letters. The number of needle arms corresponds with the subdivisions on the lettering and the number of teeth on the motor and slip wheels, to expose at any moment one of the needles to the action of a key. This correspondence between divisions of letter ring and number of needle arms, and of teeth on motor wheel, in connection with the intermittent motion of motor, gives a dwell at the points of magnetization and demagnetization of main line circuit. The closing of the main circuit by the key throws the local circuit into operation, which revolves the needle wheel until the local circuit is interrupted by the action of the hook pawl on the slip wheel, and the return of the needle through the recess of the letter ring.

IMPROVED MILLSTONE DRESSING MACHINE.

William B. Chase, Faribault, Minn.—This is an improvement in the class of millstone-dressing machines in which a pick or cutting tool is operated by a vibrating lever, and caused to travel over the face of the stone by means of pawl and ratchet mechanism. The construction is such that a greater or less degree of forward motion of the pick may be produced, and the operation of the same on the stone accurately adjusted and interrupted by the handle of the lever, the forward feeding of the pick being obtained by a screw-turning lever pawl and ratchet mechanism.

IMPROVED LEVELING AND TRAMMING APPARATUS FOR MILLSTONES.

James T. Beckwith, Cameron Mills, N. Y.—This consists of a frame suspended from another frame, on which the stone rests, and is leveled by screws from below. On the suspended frame are screws, which, being adjusted in the frame when the stone is first leveled by its face, serve afterward to level the stone at any time without removing the runner. This lower frame serves for tramming the spindle. In addition thereto, a couple of plumb lines are suspended from an upper frame on the spindle through a lower one, by which the spindle may be trammed.

IMPROVED MACHINE FOR BORING AND WALLING WELLS.

Charles B. Stough, Monticello, Ill.—A wheeled frame supports a circular way, beside which is a toothed rim, which gives rotary motion to a horizontal shaft, which is mounted in a frame, the said frame being rotated by suitable power. An arrangement of rollers in the frame holds the auger shaft, which is rotated with said frame, and said rollers also allow the shaft to settle as the auger penetrates. As the auger enters, the soil passes upward to a case from which it is removed and raised to the surface by an endless bucket chain working on the auger shaft.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

IMPROVED SLED PROPELLER.

William H. Shelton, Jr., New York city.—The sleigh is provided at both sides with slotted guides, and fulcrumed lever handles slide loosely therein. Said handles have end claws that take hold of the ice or ground, and produce, by the weight of the body, the forward motion of the sleigh or carriage on the fixed lever fulcra.

NEW CHEMICAL AND MISCELLANEOUS INVENTIONS.

IMPROVED OILER.

George W. Parsons, Salisbury, Md.—The construction of this oiler is such that it may be overturned without spilling any of the oil, and the amount of oil discharged can be readily controlled. There is an ingenious arrangement of rack and pinion mechanism inside, which ordinarily keeps the nozzle shut, but which opens the same to a degree corresponding to the distance in which the bottom of the can is pressed inward.

IMPROVED STEAM RADIATOR.

George P. Jacobs, Brooklyn, N. Y.—This is a one-piece radiator tube, having four steam ducts surrounding the central air tube, said ducts being in pairs, the two of a pair being connected, but each pair being independent of the other. By this arrangement, in addition to the increased outer radiating surface, there is a large inner radiating surface, along which an active current of air is induced.

IMPROVED LEACH.

Marion P. Wolfe and Edwin M. Henke, Crawfordsville, Ind.—This consists essentially of an ash receptacle and leach having an inclined and channeled bottom, and a top reservoir with perforated bottom to distribute the water and draw off the lye.

IMPROVED STREET SPRINKLER.

William Westerfield, New York city.—This is a piston shaped valve located in the main pipe connected with the sprinkling tube. The pipe which leads water from the tank enters the main pipe, and as the valve is adjusted, one or the other side of the aperture of the former water is shut off or admitted to the sprinkler. This enables the flow to be governed more conveniently.

NEW AGRICULTURAL INVENTIONS.

IMPROVED CHURN.

James L. Sprague, Hermon, N. Y.—This invention includes propeller shaped paddles which draw the cream to the center of the churn, and through suitable apertures in which air is forced through the cream. Devices are added to prevent clogging of the cream at the corners of the churn.

IMPROVED GRAIN HEADER.

Charles K. Myers and John W. Irwin, Pekin, Ill., assignors to Peter Weyrich and C. K. Myers, of same place.—In this apparatus the cutter bar can be adjusted for cutting the grain higher or lower, and can be regulated to suit varying heights of grain. There are novel devices for moving the sickle bar, and various useful improvements in construction, tending to add to the general efficiency of the machine.

COMBINED SCRAPER, CHOPPER, AND DIRTER.

Arthur L. Spence, Alma, Ark.—This machine scrapes the cotton plants, chops them, and then, by means of plows, dirt them as it advances. The new feature introduced is a device in connection with the choppers which, should they strike an obstruction, allows them to stop their motion, while that of other parts of the apparatus continues.