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Trouble about Patent Laws and Patents.

Ever since the present Congress assembled, our country has been agitated from one end to the other, because of the heavings and throes of the political heart of the nation at Washington. In the strongest sense of the word, America is a political nation. Every thing done in Washington is of interest to the highest and lowest of our citizens. Why? Because every man has an interest in the government. The millionaire may have his carriage and liveried servants and walk in social relationship far out of the reach of the humble mechanic, but at the Polls there is no Saul towering from the shoulders up above the people. With the struggles of political parties we do not interfere as journalists, although as citizens we feel a deep interest in every political movement.

Having said this much, we will now present some information about Patents—information of interest to our readers, but which appears to excite but little attention in the midst of those great questions, which are now agitating our whole country.

Within a few years a number of Americans have gone over to Canada, and are now manufacturing shoe lasts with Blanchard's machine, and send them into the States, competing with those who use Mr. Blanchard's machine on this side, and pay him his just patent fee. Mr. Blanchard and his friends have called the attention of Congress to the injustice of this system, whereby the residents of Canada enjoy a privilege denied to our citizens. A Bill has been reported to Congress to prevent this wrong, by taxing all lasts coming from Canada. This is the only way to remedy the evil. Whether the Bill will pass or not, we are not able to tell, but before the whole Bill becomes a law it should be submitted to the scrutiny of our merchants. We shall review this point next week.

Respecting those who manufacture these lasts in Canada, we have been informed that they are men who owned Mr. Blanchard's machines, and paid patent taxes before the last renewal of his patent. When his patent was renewed they were prevented from using their machinery, and felt deeply grieved at this, considering it an act of injustice. Whether this is positively correct or not, we cannot tell, but we have been assured, positively, that it is. Mr. Blanchard's patent has caused great litigation. We don't like law suits, and we have often thought that it would have been the best plan to have recompensed Mr. Blanchard by paying him, in some way, a large amount for his ingenious invention, and throw it open to the public, as they sometimes do with inventions in France. His invention is a meritorious one, and has saved millions to our country.

By our Washington correspondence, our readers will see what Congress is doing about the Woodworth Patent. Our views upon certain subjects, are now appreciated by our Senators and Members of Congress. This puts us in mind of what Judge Kane, of Philadelphia, said in his address on the Patent Law before the Franklin Institute, last October. He hinted strongly at "an occasional newspaper to lead the jury astray by some distorted view of the evidence, or some ignorant commentary upon it," finishing up with a fling at the institution of the Jury itself. We believe that it is possible for a paper to be more impartial in giving an opinion in many cases, than a Judge. We at least take care to have no entangling alliances, and whatever our views may be, they are not the expressions of a heart controlled by the pressure of *ex parte* feelings, which warp the soundest of judgments.

The Committee appointed by the Baltimore Convention of Inventors have been urging upon Congress the necessity of Reforming our Patent Laws, as passed by resolutions at the Convention. We hope that some of the Reforms suggested, will be carried out, and we hope that others, passed by resolution, will not be presented to Congress. We know many of

the members of that Convention—they are men of true worth—some others were there, no doubt from selfish motives—

"Down in this earthly house below,  
The wheat and tares together grow."

The only thing to be watched, in such Conventions, is the making of them into political party engines.

THE PATENT BATTLE GROUND.

Philadelphia is the Patent Battle Ground of the United States. Before Judge Grier and Kane: Parker vs. Brant and others, application has been made for a writ of injunction against twenty-one different persons, to restrain them from infringing upon the principle of a re-actionary water-wheel, patented by complainant, which is propelled by the centrifugal force of the water. On the 8th inst., before the same judges, Knight vs. Rockafellow.—Motion for injunction to prevent infringement of patent for feeding axle-trees with oil, &c. Argued by W. B. Reed, for plaintiff, and Mallery for defendant. Ordered by the Court that special injunction issue unless the defendant alter his machine before rising of the Court, so as not to interfere with complainant's patent, unless it is shown that the time is insufficient.

Our Half Volume.

We hope that our half yearly subscribers, will not forget to send in their subscriptions early, as this number completes the first half of Volume 5. The Scientific American is allowed upon all hands, to be the best Mechanical Paper in the world. It is the Repository of American Inventions, the Repository of Science and Art, and the Advocate of Industry. The articles which appear in our columns are written in a plain practical manner, divested of all tinsel and ambiguous learning, and made clear to the most common capacity. No inventor, mechanic, manufacturer, artisan or man of business, who has the least interest in the progress of Science and Art, can do without our paper. We publish, at great expense, all the claims, weekly, of the Patents issued from the Patent Office. Every number contains from five to seven beautiful wood engravings, illustrating new inventions, and explaining some of the useful arts. Our circulation is now 14,000, and has become the best medium of presenting a knowledge of American inventions to our great country and the world. Although our circulation is so large, yet it should be larger, when we take into consideration the extent of our country, and the now large population of the United States.

Through the kindness and interest of our present subscribers, we look forward to a continued increase,—promising to increase, (as we have done) the usefulness of the Scientific American.

Messrs. Editors—I was much surprised to find a notice in your last number, stating that there was an error in the article on "Air Guns," in the New Dictionary of Mechanics, &c., now being published by Messrs. Appleton. Every thing stated as fact has been tested by numerous experiments. I have no time, at present, to write an article on the comparative effects of the elastic force of fired gunpowder, compressed air, and expanded steam, (three heterogeneous elements,) but in subsequent articles on Pendulum, ballistic, Gun Powder, Gun Cotton, &c., I will show that I have not come to a hurried or undigested conclusion, and that I do not take the mere word of the highest authority on mathematical or philosophical subjects. I need scarcely add, that if your remarks had been confined to a *critique* on the arrangement, style or general execution of the work that I am editing, I should not request you to publish this communication, or interfere in the slightest degree with your high privileges as reviewers. I am yours, obediently,

OLIVER BYRNE,

80 Nassau st., N. Y., 6th March, 1850.

[We are obliged to Mr. Byrne for his concluding hint, but we are the best judges of our own province in *critique*. Criticism, for the mere sake of criticising is a mean business. We do not claim any immunity from criticism—we dread it not from others, and fear not to

engage in it ourselves, when we have a good object in view. The very article to which Mr. B. refers, which was published in the Sci. Am., page 188, will explain our motives; we therefore re-insert it:—

"We notice an error in the article on 'Air Guns,' in the excellent new Dictionary of Mechanics, published by the Messrs. Appleton. It is stated that 10 atmospheres, or 150 lbs. pressure, will produce an effect nearly equal to gunpowder. . . . A friend of ours once spent several thousands in getting up a steam gun, taking it for a positive fact (because stated by Mr. Perkins) that steam, at 600 lbs. pressure, would project a ball with a force equal to gunpowder. He found to his surprise and loss that 1000 lbs. pressure could not produce an effect equal to gunpowder. We make these remarks to prevent any person from spending money on vain projects."

Now we will quote from Mr. Byrne's work to show whether he has "come to a hurried or undigested conclusion:—"

"The Air-Gun is a machine in which highly-compressed air is substituted for gunpowder to expel the ball, which will be projected forward with greater or less velocity, according to the state of condensation, and the weight of the body projected. The effect will, therefore, be similar to that of a gun charged with gunpowder, for inflamed gunpowder is nothing more than air very greatly condensed, so that the two forces are exactly similar. There is this important consideration to be attended to, namely, that the velocities with which balls are impelled are directly proportional to the square root of the forces; so that if the air in an air-gun be condensed only ten times, the velocity will be equal to one-tenth of that arising from gunpowder; if condensed twenty times, the velocity would be one-seventh that of gunpowder, and so on. Air-guns, however, project their balls with a much greater velocity than that assigned above, and for this reason, as the reservoir or magazine of condensed air is commonly very large in proportion to the tube which contains the ball, its density is very little altered by passing through that narrow tube, and consequently the ball is urged all the way by nearly the same force as at the first instant; whereas the elastic fluid arising from inflamed gunpowder is but very small indeed in proportion to the tube or barrel of the gun, and therefore, by dilating into a comparatively large space, as it urges the ball along the barrel, its force is proportionally weakened, and it always acts less and less on the ball in the tube. Hence it happens, that air condensed only ten times into a pretty large receiver, will project its ball with a velocity little inferior to that of gunpowder."

Having fairly presented both sides of the question, we would candidly ask, were we not correct in our statement. Mr. B. does not need to write a new *article* on the comparative effects of the elastic force of fired gunpowder, and compressed air, he has done so already. The article copied above is taken from his work, pages 11 and 12, and he tells us that "inflamed gunpowder is nothing more than air very greatly condensed, so that the two forces are exactly similar." Now, there is no mention of heterogeneous elements here—but we have two singularly contradictory statements: first, that air condensed ten times has a velocity equal to one-tenth of gunpowder. Second, that air condensed ten times, (into a pretty large receiver) "will project a ball with a velocity little inferior to that of gunpowder,"—a wide difference, truly.

We stand ready to back up all that we have said, with positive proofs, from living practical experimenters. With a rifle or musket, we will undertake to beat any air-gun of equal size and bore, and allow the owner to carry a magazine of condensed air, as large as Trinity Church, if he chooses. We hope that Mr. Byrne in his article on *Gunpowder*, will give a more scientific description of its action on the ball in the barrel, than in the above, which we can assure him is very defective in that respect. If our article surprised Mr. B., his letter has surprised us more. The concluding part of it, is either a fling at us, or Messrs. Appleton, we cannot tell which, for both it and the article quoted, contain *bulls*.

Reform of the Patent Laws.

In the months of August last, a Convention assembled at Baltimore, for the ostensible purpose of Reforming the Patent Laws, and judging from the correspondence of the Sci. Am. of last week, the committee appointed by that Convention are now in Washington, for the purpose of urging upon Congress, the making Law of the Resolutions adopted by the said Convention. The Convention was termed a "National Convention of Inventors." It was composed of some inventors, patent lawyers, patent agents and patent speculators. Many of its members are known to be men of sterling worth,—they acted from the best of motives, and a number of excellent measures were adopted. On the other hand, some resolutions that were adopted, show that there were some who had an eye to number one. We have been blamed, as a nation, for being greedy of gain, and to have few conscientious scruples in making the almighty dollar. The Girard and Smithson bequests were regarded by many as fine objects (were it possible,) of personal plunder, and there is a great want of patriotism in not looking upon public funds as a sacred deposit. There are too many who look upon Uncle Samuel as a *fine old* American gentleman, into whose pockets they have a perfect right to put their hands when convenient. The Patent Office has a surplus fund of \$170,000—quite a respectable amount of genuine mint drops, and being spare change, why might it not rather be jingling, some way or other, in the pockets of *disinterested* men, whose sympathies are all *with* inventors, than be kept locked up in the great iron chest of the Sub Treasury. The Convention passed the following resolution:—

"Resolved, That Judges Phillips and Rand, and Geo. Gifford, Esq., be requested to prepare a section, making provision for publishing, in three or more weekly or monthly publications, all patents hereafter issued, with drawings, when such are requisite to explain the specification, and that such publication will be made within three months from the issue of the patent, and the expense be paid out of the Patent Fund."

Offered by Mr. Englebrecht of New York. As the whole fund paid into the Patent Office, in one year, would not be sufficient to carry out the above resolution, the surplus fund of the Patent Office was no doubt looked upon as a *reserve guard* against contingencies. Whether any of the members intended to go into the printing business or not, they know best themselves. Another Resolution was passed, to create a printing office and lithographic office, in connection with the Patent Office. It was offered by Prof. Renwick, of New York. It was to the effect, that the Patent Office, instead of writing out the patents, should set up the specification in type, with the drawings in lithograph, and print fifty copies—two for the Patent Office, and the rest to the inventors and the U. S. District Courts.

It is very surprising that a body of men, some of them so learned and intelligent, should have passed such resolutions. The whole income of the Patent Office would not suffice to carry out any of them. The one offered by Prof. Renwick, however, is essentially a good one, and would be of great benefit could it be carried out by the present revenue of the Patent Office. If the Committee appointed by the Convention urges upon Congress the making of these resolutions into *Laws*, such laws would be the extremity of impracticable legislation. The passage of such resolutions shows that hasty and inconsiderate action formed a part of the proceedings of the Baltimore Convention of inventors.

The Committee on the reform of the Patent Laws, was composed of Judges Phillips and Rand, and Geo. Gifford, Esq., of New York. Their report embraces many good and necessary reforms as amendments to the present Patent Code—amendments which should become law. As it will be some time before Congress can *Act* upon them, if at all during this Session, the discussion of them will be continued in one or more future articles.

JUNIUS REDIVIVUS.

New York.



## LIST OF PATENTS CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending March 9, 1850.

To A. W. Barker, of Suffolk Co., Mass., for improvement in Invalid Bedsteads.

I claim the combination of the inclining frame B, with the back, seat, foot frames, and main bedstead, substantially, in manner as herein before specified.

To Wm. B. Barnard, of Conn., for adjustable cord-hook for door-springs.

I claim the use of the adjustable cord-hook or attachment for the cord, whereby the tendency of the spring to close the door is made to vary at pleasure, as herein set forth.

I also claim in combination with a spring and fuse, having the diminution of the diameter of the coils on the fuse more rapid than the decrease of elasticity in the spring, by uncoiling the movable cord attachment, whereby the tendency of the spring to close the door is varied more rapidly than would be due to the simple change of position of the hook alone, in the manner and for the purpose herein set forth.

To A. Clark, of Southfield, N. Y., for fastening for hay and manure forks.

I claim forming the tines or prongs of the hay fork, and additional tines or prongs, which convert the same into a manure fork, out of simple bars of steel, bent to the desired form, and securing the same to the handle by inserting them through the slot or mortise in the same, and driving keys or pins behind the same, substantially as herein set forth.

To T. G. Clinton, G. H. Knight, & E. H. Knight, of Cincinnati, Ohio, for improvement in carriage-jacks.

We claim constructing the lever or its equivalent, with teeth prongs and canes or the equivalents, in such juxtaposition, the one with regard to the other, that when it is necessary to release the rack from its load, these parts of the lever appropriately unite in action with the teeth, and the ways of the rack or their equivalents, and with the pendants and the tooth of the catch or their equivalents, to take the load off and release the catch, retract, and make the frame of the catch a fixed point of resistance for the prong of the lever, force out the lever tooth from the rack tooth (the cam the while putting pressure upon the ways of the rack) and oppose by the cams, the requisite friction and consequently resistance to the descent of the rack, the whole being arranged substantially in the manner and for the purpose set forth.

To Joseph Dixon, of Jersey City, N. J., for improvement in firing kilns for pottery ware, black-lead crucibles, &c.

I claim the use of rosin or the distillation thereof, as a combustible for baking pottery and all other kinds of earthen ware substantially as described, as a means of preventing such articles from being overfired or slackburned and whereby also the injurious action of atmospheric air on the surface of blacklead crucibles, pottery ware, bricks, &c., is avoided as described.

To S. Eccles, of Kensington, Pa., for improvement in looms for figured fabrics.

I claim, firstly, obtaining the picking motion, or (otherwise expressed) giving to the picking shaft, by means of the shaft D, carrying the picking fingers oscillating with the lay in combination with the mode of raising and depressing the fingers by the combination of the cam and lever, the said cam being detached from the other parts of the loom, thereby enabling it to be easily changed, in the manner and for the purpose above specified.

Secondly, I claim the pattern plates, made and worked in the manner and for the purpose herein fully made known, in combination with the pattern levers, with the pins fixed in them the lever and cam, for the purpose of lifting said pattern levers, the star-driver, star plate, mitre wheel, shaft and bevel wheel and in connection with a cylinder. The respective motions

herein referred to, being carried on, or effected substantially in the manner and for the purpose herein fully made known.

Thirdly, I claim the combination formed by the mechanism, for moving the shuttle boxes, that is to say, the cam lever and pulling catches together with the lever wheels, (four); and intermediate bevels (two), together with the star-divers and star plate and pinion and the shaft bevels (two), and shaft together with the star-diver and star-plate; said bevels, shaft, star divers and stars, oscillating with the lay, and acting from the same centre, so that the connection between the shuttle-boxes and bevels is near broken or detached. The whole being constructed and arranged, in the manner and for the purpose herein fully described.

I do not limit my claim to the precise arrangement herein set forth, nor to the moving of any particular description of shuttle boxes, but I do claim my combination of motions used for the purpose of moving shuttle boxes of any description, when such arrangements and combinations are substantially the same with that herein described.

Fourthly I claim the apparatus for holding the pins in the bevels (four), and consequently the shuttle boxes connected therewith, in a proper position; or more particularly the lever and rod connected to the bracket, or carrier and the action to said lever being given by the oscillation of the lay, in the manner and for the purpose herein specified.

To N. Edwards, of Chittenden Co., Vt., for improved apparatus for regulating the depth of water in vessels' holds.

I claim the combination of of the secondary index hand apparatus, with the primary index hand apparatus or that which denotes the depth or rise of water, the secondary index hand apparatus being for the purpose of registering the extreme depth, as above stated.

To W. W. Grant, of Providence, R. I., or improvement in machinery for dressing hemp and flax.

I claim, the combination of the toothed cylinder the wind passage, the trunk, the endless apron, the set of feed rollers, the concave and this waste apron the whole arranged and made to operate together substantially in manner and for the purpose as above set forth.

And in combination with the feed apron its roller and toothed cylinder, I claim the protecting shield, the same being for the purpose of protecting the apron from injury and wear as specified, also to protect the journals of the rollers from winding up with waste or lint.

To G. S. Hacker, of Charleston, S. C., for improvement in Railroad Cars.

I claim the supporting and connecting both ends of the main platform of a railroad car, each with the centres of secondary platforms, which secondary platforms are connected at each end with and supported each on four wheeled trucks, all substantially in the manner and for the purpose specified.

To R. J. King, of Lancaster, Pa., for improvement in Corn Ploughs.

I claim the movable expanding wings, combined and moved substantially in the manner and for the purpose herein described, by means of right and left screws on a cranked shaft, that can be turned while the plough is in motion.

To James McGregor, Jr., of New York, N. Y., for improvement in Cooking Ranges and Air-heating Furnaces connected therewith.

I claim, First equalizing the heat in the oven by allowing the air to circulate and ascend through the chamber between the fire-box and front oven plate, for the purpose substantially as set forth.

Secondly, I also claim so constructing the contractors as that two of the boiler holes may be changed into one, of the same size as either of the other two, by which means, a boiler hole may be had directly over the centre of the fire, or four boiler holes reduced to two, all being of the same size, as described.

Thirdly, I claim in combination with the air heating apparatus the disposition or arrangement of the valves (three), with either of the valves (two) on the door, for the purpose of ventilation as described. The position of the valves are not material, so that their combined operation shall be as set forth.

To James MacGregor, Jr., of Wilton, N. Y., for improvement in Air-heating Furnaces.

I claim first, making the heating cylinder in

sections, in combination with the segments of tubes or verticle cavities, cast on the plates at the laps, containing sand substantially as described, whereby they are rendered air tight as described.

2nd, I claim the mode of fastening the handle to the grate and keeping the grate true with the handle by means of the bolt, by which they are connected with the two studs, as substantially set forth.

3rd, I claim the separate chamber for the fire pot which is suspended below the chamber of combustion to prevent the air heated by the fire pot from entering in to the air chamber, surrounding the heating cylinder for the purpose and in the manner as substantially set forth.

4th, I claim admitting air and flame through the pipe, and its aperture or apertures, into the chamber of combustion and radiation, in the manner and for the purpose substantially as set forth.

5th, I also claim this mode of introducing the heated air and flame in combination with the descending draught as described.

To C. M. Nelson, of Cincinnati, Ohio, for improvement in Cooking Stoves.

I claim the arrangement of the valve or damper above the back plate of the fire chamber, in combination with the register for regulating the draft, as herein fully set forth.

To C. E. & C. H. Paris, of Paris, France, for improvement in the composition of enameling hollow-ware.

Having thus described the nature of our said invention and the manner of performing the same, we would have it understood that we do not confine ourselves to details herein given, but what we claim is the new and useful glazing composition for coating articles of iron to prevent oxidation substantially as specified.

To Wm. Payne, of New York, N. Y., for improvement in apparatus for retaining cars on the rails.

I claim combining the trucks or other suitable parts of locomotives, freight and passenger cars with the rails by means of two bars, one vertical and one horizontal, connected in such way that oscillation and other vibratory movements of said cars will be permitted without disengaging the hooks or rollers attached to the lower ends of the vertical bars, from the flange of the rails, the whole being arranged substantially in the manner described herein.

To A. D. Perry, New York, N. Y., for improved winged metallic cartridges.

I claim the method of enclosing the charge of powder in the hollow part of the ball by slitting its rear end and bending on the parts so slitted, substantially as herein described, that when the ball is discharged the parts so slitted may be forced out to become feathers or wings to guide the ball substantially as described.

To Geo. Riley, of New York, N. Y., for improved process in the manufacture of glucose.

I claim the conversion of corn meal into a solution of grape sugar or glucose by boiling the same under a pressure greater than that of the atmosphere in water, acidulated with sulphuric acid, substantially in the manner described.

To C. W. Russell, of Washington, D. C., for improvement in the construction of fire-places and throats of chimneys.

I claim constructing chimneys with an additional flue in the back of the fire place, made in the manner and for the purpose herein fully set forth, in combination with the bringing down of the main flue of the chimney stack, as above described—with the horizontal offset at the top of the back of the fire-place and the spaces at the sides all as herein fully set forth.

To Wm. H. Saunders, of Hastings, N. Y., for improvement in Mail Axles.

I claim the making open grooves of what ever form, cast or cut, in or upon the large end of axle boxes upon carriage axles, technically known as mail axles and upon axles for cars with short bolts, with whatever form of head fitted into the grooves, for securing the wheels and boxes upon such carriage axles, and upon cars in the place of and to supercede long bolts which are now in use for securing such wheels and boxes.

To F. H. Simpson, of Boston, Mass., for improvement in Cooking Ranges.

I claim extending back the front boiler cham-

ber or chambers, to or from the back boiler chambers, at the sides of the elevated oven, substantially as described, in combination with the partition or partitions, at the side of the front boiler chamber or chambers, when the said partition (or partitions) is provided with flue holes at the side of the side boiler or boilers and back of the back boiler or boilers, and leading to the flue around the elevated oven

To E. Whitely, of Boston, Mass., for improvement in Chimney Caps.

I claim the improved ventilator constructed of a series of external plates, a series of internal plates and openings or smoke passages, arranged, covered, and applied to a flue and made to operate together, substantially in the manner as above specified.

To N. J. Wyeth, of Cambridge, Mass., for improved Scraper, for removing snow from ice.

I claim an ice scraper, constructed substantially as described, that is, in the form of a triangle, (so that in moving in either direction, the snow will be thrown by the diagonal sides at right angles to the course of the scraper) and the base having guides which move in grooves formed in the ice and control the motions of the implement, as herein set forth.

To James Long, of Chicago, Ill., for improvement in Gasometers.

I claim the use of the four mercurial valve cups, as described, for filling and discharging alternately the two measuring gasometers as set forth.

I also claim the shaft in combination with the levers and pawl, for giving simultaneous movement to the hands of the dials, the valves, and the gasometers as set forth.

## RE-ISSUES.

To C. Whipple, of Providence, R. I., (Assignor to New England Screw Co.) for machine for cutting the threads of Wood Screws. Patented Aug. 18, 1842.

What I claim is, first, in combination with the shaft or mandrel which gives the rotary motion to the screw blank, the employment of the rotating wedge formed cam or the equivalent thereof for determining the pitch of the thread and for permitting the return motion to repeat the operation substantially as described.

Second, causing the chaser or cutter at each successive cut to approach nearer to the axis of the screw blank by means of a revolving conical cam, which at each successive operation acts by a greater radius, substantially as described.

Third, governing the motions of the chaser or cutter to make the core or body of the screw of a conical or tapered form along the whole or any part of its length, by combining therewith a cam of gradually enlarged diameter, substantially as described, the form of such cam depending on the form intended to be given to the core or body of the screw.

Fourth, combining the cam which determines the form of the core or body of the screw, to make it tapering or conical in whole or in part with the chaser or cutter by means of a rock shaft and adjusting lever substantially as herein described, the said adjusting lever being interposed between one of the arms of the rock shaft and the face of the cam, so that by the use of a set screw or other analogous device the cutter or chaser may be readily set, as described.

Fifth, shifting the cam which determines each successive cut of the chaser or cutter by combining therewith a ratchet movement operated by an eccentric or cam, the wheel of the ratchet being provided with pins which operate a lever connected with the cam shaft.

Sixth, disconnecting the shaft or mandrel from the driving power at the end of each complete operation of the machine, by combining the clutch or the equivalent thereof, with the ratchet by means of an index-wheel or perforated rim, which, at the required periods, liberates or acts upon the connections of the clutch to disengage it, substantially as described.

Seventh, making the chaser or cutter for chasing or cutting the threads of wood screws by machinery with a groove of the form of the thread in its cutting face and in the direction of its length, as described, whereby the said chaser can be sharpened by simple grinding off at the end, and without changing the form of the groove, and whereby also the said chaser cuts on both sides of the thread, and finally on the edge thereof, as described.