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THE SCIENTIFICAMERICAN SUPPLEMENT

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PROPERTY IN PATENTS.

There is a prejudice against patents. It may not be general; it may be only a lingering, remaining shadow of a once popular notion; but it crops out occasionally in conversation, in trading, in the newspaper, and even in the legislature of the country. Recently a customer in an agricultural warehouse refused an implement and questioned the price because it was a patented article. He said that all patented articles had a fictitious value attached to them. Some time ago a New York city paper published an article arguing against the issuing of letters patent, on the ground that "it is questionable if ideas can be bought, and sold, and protected in the same way as goods and chattels;" and in relation to the success of an inventor said, by way of illustration, that "possibly many men had the idea in a more or less developed state, but one, perhaps, reduces it to practice, gets a little ahead of the rest, claims a patent, and shuts out all the others." Followed to its ultimate, this argument would confine proprietorship to those tangible objects which do not require ideas to produce; or, soberly, it would limit personal proprietorship to those articles the ideal suggestion of which was confined to the patentee or the inventor.

This notion of the intangibility of property in ideas wrought into practical and useful form is held by many who may not be bold enough or thoughtful enough to formulate it into a proposition. But ideas are bought and sold every day; the writer, lecturer, author, preacher, all sell their ideas; why not the inventor? The man whose developed idea enables a farmer to house a crop in two days instead of twenty days, one who invents machinery that doubles the capacity of a mill, ought to be paid for his idea.

As matters now stand, inventors generally—successful inventors—are not too well paid for their ideas. In most instances the inventor is a poor man, and frequently he has to assign a portion of his patent right or of his improvement to another to obtain means to perfect it, to introduce it, and to sell it. In many cases pirating robs him of his profits, or legal contests reduce his income. It is rare that the price charged the purchaser for the improvement that is protected by a patent is greater than the value of the improvement. But whether this be so or not, it is undeniably true that an inventor's patent is his property as much as his hat or coat is, and his possession of it should be as much protected by law.

WIRE CUTTING.

There are jobs in which the treatment of wire in short lengths is a requisite, which require that the wire should be cut as evenly as possibly, that is, that the end cut should be square. In all usual methods the wire is held rigidly and immovable, while a downward or a swinging cutter severs the material. It is rare that a wire or small rod can be so cut without leaving the wire with jammed-in ends or a cross section like a squeezed lemon. It is evident that for many purposes it is desirable that sections of wire should be cut off square. This can be done. It is done by a machine similar to that which severs bars of steel and iron—by a turning tool or its equivalent. But such a machine is costly, and can pay for itself only where much of such work is required.

But a handy tool for squarely severing wire, so as to leave the ends square, can be made in any machine shop, on the principle of a rolling cut. The reason why a wire, or any other rod or bar of iron, is compressed when cut cold, is because the action of the cutters is that of shears—two inclined planes, acting in the same line, horizontal or vertical. If one blade was fixed and the other rotary, there need be no compression of the rod or wire that passed between them; the rotary cutter would simply mark a circumferential line, to which the fixed cutter would respond by deepening it.

A very simple implement may be produced in the shop for this purpose, capable of cutting rods from one quarter of an inch diameter to any size of wire. A steel blank of T form may be forged, the dependent or lower portion of the T to engage with the jaws of a vise, or be seated in a bench. In the other portion should be drilled a series of holes to fit the sizes of wire to be cut, all the holes on a line—horizontal—and another hole at the end of them to receive a bolt to hold a lever. The lever should be of steel at its acting portion, and both it and the standard be ground, and hardened, and tempered. But the lever should have at its pivot end a curved slot to engage with a fixed pivot in the standard, so that when brought down on the rod or wire it would slide over it, inducing a rolling of the rod or wire, cutting a score entirely around it before being "brought up" by the end of the curved slot against the fixed pivot or stud. The curve of the slot can be easily calculated, so that the cutting off action will suit all diameters within a range of from quarter inch to No. 6 wire or even much smaller.

A New Process for Toughening Steel.

The French Societe d'Encouragement have had under prolonged examination a process invented by M. Clemandot for working steel. This process is described by the *Revue Industrielle* as consisting in heating the metal until it acquires a sufficient ductility, and then subjecting it to high pressure during cooling. In this way a modification of the structure of the metal is produced, and the material acquires properties analogous to those developed by tempering. It is admitted that the compression of steel has already been practiced in England by Whitworth; but, it is contended, merely with a view to prevent air holes caused by the development of gaseous bubbles during the solidification of the steel. Similar processes have been tried in France, but only upon the same principle—that is to say, by operating upon the metal while yet in the state of fusion. M. Clemandot, on the contrary, takes steel already made, heats it simply to a cherry red, and submits it, by means of a hydraulic press, to pressures of from 1,000 to 3,000 kilos. per square centimeter. After having allowed the steel to cool between the two plates of the press, it is withdrawn with all its new qualities perfectly developed, and does not require any further treatment. The result of the process is to impart to the steel a fineness of grain, a degree of hardness, and a notable accession of strength to withstand rupture. This alteration is most considerable with highly carbonated steel; and in this respect the metal is made to resemble tempered steel, without being in all points identical with it. The cause of the alteration in physical condition is ascribed to the rapid heating and no less rapid cooling of the metal. When the red hot steel is first strongly compressed, the conversion of the mechanical energy into heat serves to raise the temperature of the entire mass, at the same time that the particles of the metal are more closely cemented together. This effect is followed by a rapid cooling, due to the contact of the plates of the hydraulic press with the surfaces of the metal. The close pressure materially increases this conducting effect of the cold metal.

The Patent Office Surplus.

There are some statements in the report of the Commissioner of Patents for the last fiscal year that demand the careful attention of Congress and of all who take an interest in the development of inventive genius. The receipts of the Patent Office in that year were $1,145,433, and the expenditures were $901,413, leaving a surplus of $244,020. The Patent Office is not supported by general taxation. Its maintenance is not a burden which the people bear. The receipts are paid in by inventors, and the money contributed by them in the form of fees, etc., is more than sufficient for the expenses of the office. There has been a surplus every year—only eight years excepted—since 1837. The report of the Commissioner for the calendar year ending Dec. 31, 1883, showed that in that year the surplus had been $471,005, or 41 per cent. of the receipts. That report also showed that the average annual surplus for the five years ending Dec. 31, 1883, had been $285,992.

It was not intended that the Patent Office should be a source of revenue for use in other directions. It was to be made self-sustaining by the fees required from inventors. But it appears that the inventors of the United States, very many of whom are not overloaded with money, pay not only the expenses of the office, but from 25 to 40 per cent. in addition to those expenses, piling up a surplus that has attracted the attention of liberal-minded legislators, some of whom have proposed that it should form part of a fund to be used in educating the illiterate in the South, without showing any good reason why patentees should be taxed for that purpose.

Now, if the Patent Office were so well equipped that applicants could not reasonably complain of delays, the inventors might fairly ask for a reduction of fees. But it is well known that its forces are not sufficient for the work that ought to be done every year. For example, the report published a few days ago says that there were on June 30, 1884, awaiting action in the office, no less than 9,186 applications, or 5,087 more than were awaiting action on the corresponding date in 1883. The arguments in the telephone interference cases closed in November, 1881, but the decision was not reached until July, 1883, and was not confirmed, on appeal, until two or three months ago. Surely, if inventors pay so much more than is required for expenses, they have a right to ask that their applications shall be promptly passed upon. That the force employed is too small, and that the salaries paid are so low that many examiners resign as soon as they have become qualified by their experience to serve as patent attorneys, has been shown again and again by Commissioners.

Because there is a large surplus it does not follow that there should be a general reduction of fees, but it does follow that inventors should be given the worth of their money, and not be forced to submit to delays that sometimes very seriously affect the value of their inventions. It may be that more than one Government bureau can be found in which the number of clerks might be reduced without doing any harm, but in the Patent Office the number of employes should be increased, and it is folly for Congress to disregard the requests of the Commissioner and the arguments suggested by the annual surplus and by the figures which show an accumulation of untouched applications.—*N. Y. Times.*

Criminal Plumbing.

The trial of Thomas C. Holland, plumber, of this city, for criminally negligent work, was held before Special Sessions, November 6; and resulted in the imposition of a fine of $250. In default of payment Holland was sent to prison. Dummy vent pipes from washbasin traps had been run into partitions and there terminated. The ends of these vents had been roughly battered together, but were, of course, not tight, and allowed foul air to escape into the partitions. The whole arrangement was designed simply to deceive the Board of Health inspectors; and to assist in carrying out the deception a dummy terminal pipe, supposed to be the end of a ventilating pipe, was fastened to the roof. The dummy had no connection with any *bona fide* pipes inside the house.