

THE METAL NICKEL—ITS USE IN COINAGE.

The people of this country have become somewhat familiarized with the name of the metal known as nickel from its employment in the composition of our lower class of coins. Indeed, our "lame duck" cents—so called from the abortive effigy of a flying eagle, resembling a duck flying—are denominated "nickels" from the known fact that nickel forms an important part of their composition. While the intention of the government in the coining of gold and silver is to give value for value received, and thus keep the intrinsic value of the coins as a bar against the use or export of the precious metals, except as coin, those coins composed of pure copper or copper with alloys were never intended to represent, by their weight and composition merely, the value of the metals employed. Such was, however, nearly the case years ago, when a copper cent was about one sixteenth or one twentieth the weight of a pound of copper when that metal was worth from 25 to 30 cents per pound; but our pure copper two cent pieces, less than one half the weight of an old fashioned cent, bear now no proper relation to the market value of copper.

Still, the object has been to keep our lower valued coins somewhere near the market price of the metals of which they are composed, and at the same time to prevent them from becoming inconveniently large; so nickel was introduced as a composition of our cents in order to reduce their size while preserving their value.

Nickle is a brilliant, ductile, and malleable metal discovered by Cronstedt in 1751. It is found associated with cobalt and with iron in the ore, and is a common constituent of meteoric iron. The usual sources of supply are the arseniurets of nickle in cobalt and in what the Germans *Kupfernicker* or copper-nickel, containing 56 per cent of arsenic and 44 per cent of nickle. Nickle is found in Saxony, Thuringia, Hesse, Styria, Dauphiné, and in Sweden. In this country its ores are found at Chatham, Conn., and in Lancaster, Pa., or rather about fourteen miles from the latter place; from which most of that used in the government mints is obtained.

Our nickel cents contain 88 parts copper and 12 nickle. It has been used for coinage also in Bavaria. It is valuable as an ingredient of the alloy known as German silver, the best of which is made of nickle, 3 parts; zinc, 3½; copper, 8. The Chinese *tutenag* also contains nickle, although often regarded as zinc. The *pakfong* of the East Indies is also a composition of which nickle forms a part. Nickle is more fusible than iron, and like iron is rendered still more so by combination with carbon. It is magnetic at ordinary temperatures. Owing to its freedom from oxidation in ordinary atmospheric temperatures it has been used for the needles of compasses. It appears to have some marked points of resemblance to iron.

POISONOUS CHARACTER OF SO-CALLED "CALIFORNIA ROSEWOOD."

We are aware that some trees in a state of growth are poisonous, but entertained the belief that when cut down and seasoned no injury could arise from their use; but our faith is now shaken by the assurance of one of our subscribers that he has frequently had his hands and face poisoned when turning the so-called "California rosewood."

This wood is of a more brilliant red than Brazilian rosewood, and very handsomely grained with dark lines; its texture is however, closer than rosewood, and it resembles in that respect, as well as in its agreeable odor when worked, the red cedar.

We wish some botanical reader of the *SCIENTIFIC AMERICAN* in California would investigate the subject and give us the result. Occasionally parcels of this wood arrive by sailing vessels from San Francisco at this port and are purchased by the dealers in fancy woods. A beautiful specimen of this wood is on our table, and from the end of it a piece was cut and turned by our informant to make an ear ring. This piece did not weigh an ounce, but the dust from it while it was being turned settled on the back of both hands and on the wrists of the turner. Not having used this kind of wood for some months he had forgotten to take the precaution of wearing a leather glove. The day was warm and perspiration extended over the hands, allowing the dust to lodge on them.

The effect was similar to nettle rash; the back of the hands and wrists became like those of a child with scarlatina, and the itching so intense that it kept him awake almost all of the night. This effect had invariably attended the turning of the wood when no precaution had been taken to guard the hands. Some one of our chemical friends might like to analyze the specimen on our table and give the benefit of his skill to our readers.

TRANSPLANTING TREES—THE BEST TIME AND WAY.

For most trees, especially fruit trees, no time is more propitious for transplanting than the autumn. If the leaves are green they may be either growing, or not yet in process of decay; the difference between these two stages must be determined by experience and a knowledge of the nature of the tree. The state of the soil and weather is a much more important matter than the condition of the trees. The time should not be chosen in the tempests of the late autumn nor the rains of the late summer. In the one case the newly transplanted trees may be strained, the roots loosened from the soil, and so injured or laid open to injury from mice and mold as to effectually kill them; and in the other the heavy rains may produce the same result. Yet trees can be transplanted at almost any time, as has been done in London and Paris at the World's exhibitions, where full grown trees have been borne from one locality to another without injury or any apparent detriment to their growth.

If growing and full-leaved, the leaves ought to be taken

from the twigs, otherwise the rapid evaporation of moisture from the roots by means of these lungs will certainly kill them. By the first of October in the northern sections of the country our fruit trees have ceased growing—such as cherries, plums, pears, etc. If the leaves are removed they may be transplanted without injury.

But the soil to which they are transplanted should be mellow, friable, and fine, so that it can be sifted well in among the roots and leave no interstices for water, frost, or mice. The roots should also be well covered and the stems buried to a depth of one or perhaps two feet, with a mound covering the roots, to be removed in the spring.

TRIAL OF STEAM FIRE ENGINES.

On Tuesday last we were present at a competitive trial of two steam engines manufactured the one by the Amoskeag Company, of Manchester, N. H., the other by the Gould Machine Company, of Newark, N. J. The trial was under the direction of the Metropolitan Fire Department of this city, and was undertaken to test the value of the claims for superiority made by the makers of the latter engine.

The Amoskeag steamer, *Metropolitan*, has a cylinder eight inches diameter, twelve inches stroke. The Gould engine has a cylinder seven and one-half inches in diameter, and ten inches stroke. The manufacturers assert that by their improvement in introducing two more pumps than are ordinarily employed, one of their second-class engines will throw a greater amount, and more streams of water, than a first-class steamer of other makers.

In the first trial for rapidity in generating steam, the engines were practically on a par. Both were then supplied with two hundred and fifty feet of hose, to which was attached a one and one-eighth inch nozzle. The streams were thrown nearly equal distance, the Amoskeag perhaps throwing a few feet further than her opponent, her steam and water gages showing at the same time a pressure of eighty and one hundred and sixty pounds, to fifty-five and one hundred and forty pounds respectively of the Gould engine. In the second test, but fifty feet of hose was used and with an open butt of two and one-half inches. The steam from the Gould engine was now thrown much further than the Amoskeag. Even when the former engine was partially disabled by breaking one of the four patent division pumps, its superiority in throwing a greater volume of water was very evident.

The last test was forcing a stream of water through one thousand feet of hose with the nozzles first used, attached. The result showed that the Gould engine with one pump working with ninety pounds of steam and two hundred and twenty of water pressure, could throw water to a distance of one hundred and forty eight feet. Her competitor with one hundred and sixty pounds steam, and two hundred and twenty-five pounds water, threw a stream one hundred and fifty-four feet.

The hose used on this occasion stood a very severe test, and satisfactorily demonstrated its great strength above that made of leather. This rubber hose, patented through this office by Messrs. Perry and Torrey, has a filling of duck cut in strips and so wound that the warp threads of the fabric will cross each other at right angles. It stands a water pressure of over three hundred and fifty pounds without bursting, and the water never oozes through to the outside. This hose has been adopted by the fire departments of this and other cities on account of its superior strength and durability.

Coal Gas Explosions.

When coal is stored in bulk in a confined space, highly explosive gases are given off which may accumulate and on being ignited cause the destruction of the confining structure. This catastrophe frequently happens on board vessels freighted with bituminous coal, and the provision should always be made, as we intimated in an article bearing on this subject some months since, for thoroughly ventilating the hold of all vessels engaged in the coal-carrying trade. The latest accident of this kind reported occurred on board the English screw steamship *Conservator* on a passage from Sunderland, bound for London. The cargo consisted chiefly of dust coal, and the gas appears to have been set on fire by a naked light that was burning in, the fore-castle. The lamp, it appears further, was purposely placed there under the supposition that it would consume the coal gas as it arose from the hold. With what success it accomplished its purpose, three of the crew who were severely injured by the explosion, can best testify.

The Ailanthus.

There is a great hue and cry throughout the West just now against the Ailanthus; but a writer in the *Cincinnati Times* thus defends it: "The Ailanthus tree is a native of the northern provinces of China, brought from there in 1750. The tree will grow in any soil, and to a large size where scarcely any other tree will grow at all. It grows so rapidly that it may be cut down for fuel every fourth year. As fuel, the wood is superior to that of most other trees; for open fires I prefer it to any other wood. It makes a clear, bright flame, and throws out a great deal of heat. Its charcoal is of a superior quality, and its ashes rich in potash. Its wood burns well when green, and every branch and limb may be cut into stove wood, leaving no brush on the ground. The wood is hard and of a fine grain, and well fitted for cabinet making. Sooner or later our farmers must grow wood for fuel and for cabinet making, and the Ailanthus tree offers itself as the most available tree for that purpose.

OFFICIAL REPORT OF PATENTS AND CLAIMS

Issued by the United States Patent Office,

FOR THE WEEK ENDING JULY 30, 1867.

Reported Officially for the Scientific American

PATENTS ARE GRANTED FOR SEVENTEEN YEARS the following being a schedule of fees—

On filing each caveat.....	\$10
On filing each application for a Patent, except for a design.....	\$30
On issuing each original Patent.....	\$20
On appeal to Commissioner of Patents.....	\$30
On application for Reissue.....	\$30
On application for Extension of Patent.....	\$50
On granting the Extension.....	\$50
On filing a Disclaimer.....	\$10
On filing application for Design (three and a half years).....	\$10
On filing application for Design (seven years).....	\$15
On filing application for Design (fourteen years).....	\$50

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay \$500 on application.

Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the *SCIENTIFIC AMERICAN*, New York.

67,155.—EAVES TROUGH, BRACKET, AND CORNICE.—John N. Ball, Buffalo, N. Y.

I claim a combined cornice, eave trough, and brackets, A B D, as a new article of manufacture, constructed and used in the manner substantially as described.

67,156.—CLOTHES-LINE FASTENING.—Samuel A. Barr, Pittsburgh, Pa.

I claim the within-described clothes-line fastener, as a new article of manufacture, consisting of a plate, A, with perforated lugs, B B, cast upon it, which receive a pin, C, through their perforations, and having, also, a recess formed between, and perforated ears, outside of said lugs, as and for the purpose specified.

67,157.—PLANE FOR CUTTING BLIND SLATS.—J. L. Bess and Adam Haggy, Keokuk, Iowa.

We claim the arrangement of the slitting cutters, E E E, edge cutters, D D, and swing cutters, C, in a frame, A A, expandible by means of set screws, G G, all as herein described and for the purpose specified.

67,158.—HOOP SKIRTS.—F. A. Brewster, Springfield, Mass.

I claim, 1st, The springs extending from the tape, b, around the skirt to the tape, b, in combination with the bands, a, and one or more semi-elliptical springs, d, the whole constructed substantially as and for the purpose set forth.

2d, In a hoop skirt, divided wholly or partially down the front, I claim the auxiliary ribs, or tie springs, f, applied and operating substantially as and for the purpose herein set forth.

67,159.—CARPET STRETCHER AND TACK DRIVER.—W. Brown, New York City.

1st, I claim the combination of the inclined carpet stretcher with the vertical column and tack-driving apparatus, arranged and operating in the manner and for the purposes described.

2d, The combination of the tack-conducting tube and the cord and pulleys, with the inclined shaft and vertical column, arranged and operating in the manner and for the purposes described.

67,160.—RELAY MAGNET.—Walter C. Brownson, Wells-ville, Ohio.

I claim the use of one or more adjusting or counter-balance magnets, W, in combination with the armature lever, K, of a telegraphic relay instrument, and its receiving magnet or magnets, A, when said adjusting magnet or magnets are excited simultaneously with the receiving magnet, by the same electrical current, the whole operating substantially in the manner and for the purpose set forth.

67,161.—GAS-PIPE JOINTS.—C. Bruss, Jr., Worcester, Mass.

1st, I claim the combination of the tubular stem, B, and grooved disk or plate, A, with the corresponding grooved cap, I, and its tubular stem, C, under the arrangement and for the purpose described.

2d, The combination with the concentrically grooved plates or disks, applied to each other as described, of the valve and its spindle, mounted and arranged in the joint, in the manner herein shown and described.

67,162.—UMBRELLA.—Chas. O. Buell, Stamford, Ct.

I claim the combination with the flange of the runner or crown piece of an umbrella, of a washer so arranged as to enclose between said flange and washer the rings or wires that hold the folding parts of the structure, substantially as described.

67,163.—PORTABLE WRITING AND COPYING CASE.—A. G. Rusby, Philadelphia, Pa.

1st, I claim a copying book having a case or receptacle in one of its boards or covers, as and for the purpose described.

2d, The strip, e, having a recess and elastic band, g, for the confinement of an ink stand and pen, as set forth.

67,164.—SHEEP SHEARS.—Geo. W. Carpenter (assignor to himself and Samuel Williams), Northville, Mich.

I claim the combination of the narrow blade, A, with the crooked brace, B, and the addition of the thumb plate, C.

67,165.—CAR SEATS.—J. R. Chiles, Richmond, Va.

1st, I claim the brace, I, in combination with the double joint, L, substantially as and for the purpose described.

2d, The combination and arrangement of the chair back, B, the joint, S, the curved seat, M, and the roller, n, substantially as and for the purpose described.

3d, The foot rest, P, fixed to a ratchet bar, which slides in a socket beneath the seat, and supported by resting on the floor of the car, substantially as described.

67,166.—CALENDAR CLOCK.—C. M. Clinton and L. Mood, Ithaca, N. Y.

1st, We claim the construction and use of the clutch cog wheel, E, when made of the several parts, and in the manner described, for the purpose of its combined use with, and means of motion of the thirty-one, or other similar wheel of a calendar clock, thereby preventing the motion of the said wheel or wheels from being affected, or the said wheel or wheels from being misplaced by the position of the clock, as described.

2d, We claim the specific combination of the cross bar, F, clutch wheel, E, held in place by its spring, I, with beveled teeth, controlled and held by the stud, J, the same making a whole, and acting on the wheel, B, or its substitute, as described.

3d, We claim balancing the cross bar, F, so that the motive power of the calendar shall be in the rod, c, and not in any use of the cross bar as a weight lever.

4th, We claim the specific device of the tumbler, M, attached to any part of the cross bar, F, and acting by an elbow joint or lifting action on the stop, D, as described.

5th, We claim the projection, L, from the stop, D, for the purpose of a point of action on the stop, D, by the tumbler, M, as described.

6th, We claim regulating the action of the tumbler, M, by the stud, O, when virtually made and acting as described.

7th, We claim the combination of the wheel, B, the stop, D, projection, L, tumbler, M, stud, O, and cross bar, F, or equivalents thereunto, the same making a whole, and being constructed and operated as described, thereby preventing the motion of the wheel, B, or similar wheel, from being affected, or the wheel itself from being misplaced by the position of the clock, as set forth.

67,167.—EYE GLASS.—Geo. N. Cummings, Providence, R. I.

I claim the employment or use of the Guides, E E, when operated in the manner and for the purposes set forth.

67,168.—SEEDING MACHINE.—Herman V. Davis, Amherst, and George E. Smith, Blakeville, N. H., assignors to George E. Smith.

1st, I claim the seed box or hopper, D, mounted upon the vibrating lever, C, and operated from wheel, B, in the manner substantially as described.

2d, The vibrating hopper arranged and operated as described, in combination with the funnel-shaped seed run or discharge opening, substantially as described.

3d, The vibrating hopper, provided with discharge openings of different sizes, and arranged to turn upon a center pivot, as described.

67,169.—KNIFE CLEANER.—C. F. Dean (assignor to himself and John S. Parker), St. Johnsbury, Vt.

I claim the combination and arrangement of the presser, C, and its screw, E, with the box, A, and its elastic lips, substantially as described.

I also claim the combination of the spring, B, with the presser, C, its screw, E, and the box, A, having elastic lips as described.

I also claim the combination of the slide, B, and the grooves, s s, with the box, A, the presser, C, and its strip of leather, d, applied to an india-rubber cylinder, c, or its equivalent, the whole being arranged substantially as specified.

67,170.—EMBALLING AND PRESERVING DEAD BODIES.—E. de la Granja (assignor to himself and Herman Sussmann), Boston, Mass.

1st, I claim the preparation above described for injection into the veins and arteries, substantially as specified.

2d, The preparation above described for filling the cavities of the head, chest, and abdomen, substantially as specified.

3d, The process of preserving dead bodies above described.

67,171.—MOLD FOR CASTING INGOTS.—Henry Dickinson, Jersey City, N. J.

I claim the above-described construction and arrangement of a mold for casting steel and other ingots, substantially as and for the purposes set forth.

67,172.—PORTABLE OVEN FOR DRYING FRUITS.—George Diefenderfer, Lewisburgh, Pa.

I claim a double-wall portable fruit drier which is adapted for application to a stove in place of a portion of the stove pipe, and which is constructed and strengthened, substantially as described.

67,173.—CULTIVATOR.—W. A. and C. E. Dryden, Monmouth, Ill.

1st, We claim the frame, a, in connection with the extended braces, b b, substantially as described and for the purpose set forth.

2d, The slotted axle, in combination with frame, a, and seat pieces, h h, for the purpose set forth and substantially as described.

3d, The sliding seat piece, k, in combination with pieces, h h, for the purpose set forth.

4th, The vertical adjustment of seat, as described.