

RECENT INVENTIONS.

Mould's Anti-Rattling Thill Coupling.

A novel and simple device, by which the rattling of ordinary thill couplings is prevented, recently patented by Mr. William Mould, of Saugerties, N. Y., is shown in the annexed engraving. The axle and bow of the axle clip are of the usual construction. The clip bar is slotted to receive the ends of arms of the clip bow, to which it is secured in place by nuts screwed on the arms. Upon the forward end of the clip bar is formed a spring, which extends upward, and is curved forward to fit upon the inner side of the eye of the thill iron. Should the thill coupling become loose and rattle, by slightly loosening the nuts of the clip bow and striking the rear end of the clip bar with a hammer, the spring on its end will be firmly pressed against the eye of the thill iron, taking up the wear and holding it so firmly that it will not rattle.



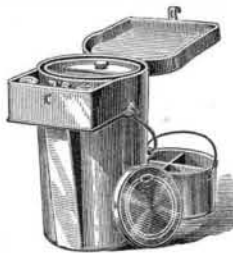
Combined Miner's Candlestick and Loading Tool.

Mr. Charles P. Des Moineaux, of Leadville, Col., has recently patented a device in which the tools required by a miner in preparing blasts are combined with a candlestick in such a manner that they may be compactly folded. The frame is formed of metal strips placed parallel and connected at the ends, as shown in the engraving, the strips being curved at one end to form pockets for the ends of some of the implements. A series of longitudinal compartments are formed in the same manner as in an ordinary knife, in which are pivoted the ends of the implements, as in a knife. The implements consist of a knife blade, a pointed prong, and a hook. One end of one of the side strips is curved outwardly to form a spring loop for receiving a candle. The groove shown on the cap of the fuse, that holds it to the fuse, is formed by inserting the cap in a recess formed in the ends of the pointed prong and hook, and pressing the two apart. With this device the implements are folded so as to occupy but little space.



Dinner Pail.

A dinner pail of convenient form and of such construction as to enable the user to carry a great variety of food without danger of mixing one kind with another, has been patented by Mr. William C. Dabney, of Princeton, Ky. The pail has attached at one side, to the top, a rectangular extension for containing boxes for condiments, and also a casing for receiving a knife, fork, and spoon. The pail is also provided with three compartment food pails for carrying different kinds of food and vegetables, each kind being separate from the other. A canteen for containing liquid forms a part of one of the pails, and a cover hinged to the back of the pail covers the whole, and is adapted to be secured by a padlock. The pail is especially adapted for the use of travelers, laboring men, and school children, and is much more cleanly than pails of ordinary construction. The device is clearly shown in the engraving.



Wallis's Calligraph.

An instrument, called by the inventor a "calligraph," for holding the hand and fingers, as well as the pen or pencil, in proper position for writing, is shown in the annexed engraving. The frame of the instrument is made of wire, or metal strips, and has at its lower end two curved prongs, bent toward each other to form an open ring to receive the forward part of the fore finger; and it has at its upper end a ring formed in a similar manner to receive the upper part of the finger. The upper ring has a projection on its outer side, upon which the penholder rests. A similar device, except the rest, is provided for the middle finger, and the two are connected together by a chain. A ring is also provided for the third and fourth fingers, that may or may not be used, as desired. With this device the pen will be held at the proper angle for writing, so that it will pass smoothly and evenly over the paper, and the fingers are compelled to remain in the correct position, which soon becomes natural to the writer. This instrument has been patented by Mr. Claude I. Wallis, P. O. Box 507, Atlanta, Ga.



Decker's Improved Gate.

A gate adapted to be opened and closed by a person at a distance from it has been patented by Mr. John M. Decker, of Kingston, O. The gate is formed by attaching crossbars to the opposite sides of the ends of horizontal bars, and is strengthened by crossbars and by inclined bars, as shown in the accompanying engraving. The rear lower corner of the gate is notched to receive a pivoted cross-piece, the ends of which work in blocks secured to posts placed on each side of the gate. The gate is strengthened vertically by triangular braces attached to the roller, and laterally by iron brace rods attached to the roller and gate. The gate being hinged at its rear lower corner, it is raised by means of rods secured to the sides of the gate near the rear end, and at the opposite end to the inner ends of levers pivoted in posts set at each side of the gate, the outer ends of the levers being extended and provided with a rope by which they are pulled down to raise the gate. The gate is secured when it is lowered by a sliding latch that engages with a recess in a post set at the lug of the gate.



The Alcohol of Fermented and Distilled Liquors.

It has generally been assumed that the alcohol of fermented and distilled liquors is identical, but it is by no means certain that such is the case. We know, says the *Brewer's Guardian*, that alcohol is produced by fermentation, and can be concentrated, and even isolated, by distillation, but it is possible that the action of heat necessary for distillation modifies and perhaps changes the chemical constitution of this substance. Although there is no direct evidence of the existence of these two kinds of alcohol, it is not altogether unreasonable to suppose that the action of heat causes a partial dehydration, and that in this way the alcohol of distilled spirits differs somewhat from the alcohol of fermented liquors. This hypothesis is supported by the well known fact that distilled spirits have a different and more injurious effect on the human system than the alcoholic liquors produced by fermentation. Medical men often prescribe beer and wine, but prohibit the use of brandy, whisky, gin, and all spirits which have undergone the process of distillation. It is within the personal experience of many that a wine which has been fortified by the addition of distilled spirit is far more potent, and, we may even say, unwholesome, than a wine of equal alcoholic strength, but produced by fermentation only; in like manner we believe that a larger quantity of alcohol may be safely consumed in the form of beer than in that of spirits. The question deserves further investigation, not only in the interests of the brewing trade, but in the interests of temperance and health.

The Oldest Newspaper.

The oldest newspaper in the world is the *King Pau*, or "Capital Sheet," published in Peking. It first appeared A.D. 911, but was irregular in its issues until 1351. Since then it has been published weekly until the 4th day of June last, when by order of the reigning emperor, it was converted into a daily, with three editions, morning, midday, and evening. The first edition appears early and is printed on yellow paper. This issue is called *Hsing-Pau* ("Business Sheet"), and contains trade prices, exchange quotations, and all manner of commercial intelligence. Its circulation is a little over 8,000. The second edition, which comes out during the forenoon, also printed upon yellow paper, is devoted to official announcements, fashionable intelligence, and general news. Besides its ancient title of *King-Pau* it owns another designation, that of *Shuen-Pau*, or "Official Sheet." The third edition appears late in the afternoon, is printed on red paper, and bears the name of *Tlan-Pau* ("Country Sheet"). It consists of extracts from the earliest editions and is largely subscribed for in the Provinces. All three issues of the *King-Pau* are edited by six members of the Han-Lin Academy of Science, appointed and salaried by the Chinese State. The total number of copies printed daily varies between 13,000 and 14,000.

Penalty for Stealing an Invention.

The attempt to steal an invention and the consequences is told by the *London Building and Engineering Times*. The prosecutors were Messrs. John Wright & Co., of Essex Works, Birmingham, gas engineers, and the theft by a clerk was of certain memoranda and drawings made by a member of the firm concerning a new invention which they are about to patent. The memoranda have never been seen but by the principals, and hence they are, so to speak, the inventor's private thoughts and property. The clerk had possessed himself of these, and was engaged copying them, as he averred, for his own private information. The report does not tell us under what act the appropriation of unpublished ideas is defined as felony, so we are left to guess that in all probability the actual charge related to the pieces of paper on which the copy was made. Paper is property, and perceptibly more so than ideas are, and for annexing one or the other the prisoner became amenable to the law, and he was therefore sentenced to three months' imprisonment. During that period of solitude he may, if he can, work out the plan which his employer's experience suggested to him.

An Early Gas Engine.

In looking over an early volume of the *SCIENTIFIC AMERICAN*, we find in the issue of July 23, 1846 (thirty-six years ago), the following description of a gas engine which had just been invented, and which, the article says, might have been seen at the store of Samuel Perry, in Front street, near Whitehall, in this city. This was probably one of the earliest gas motors constructed:

"The machinery consists in part of a cylinder, piston, pitman, flywheel, and governor; in this respect similar to a steam engine. A small quantity of spirits of turpentine is kept in a warm state, and the vapor arising therefrom is mixed with fifty times its volume of atmospheric air. A small quantity of this hydrogenated air is drawn into the cylinder, and ignited by a movement of the machinery, producing a slight explosion, whereby the remaining air—at least nine-tenths of the whole—becomes so heated that it drives forward the piston with great force. This engine is said to be capable of working ten horse powers, and it is intended to substitute rosin instead of turpentine, which will reduce the expense of feeding it to about 50 cents per day. The ingenious inventor has had some difficulties to encounter in the construction of the first engine, but has a fair prospect of being well remunerated for his labor."

Areas of our States.

The total area of the United States is 3,025,606 square miles, divided as follows among the various States and Territories:

Alabama.....	52,250	Missouri.....	69,415
Arizona.....	113,020	Montana.....	146,080
Arkansas.....	53,050	Nebraska.....	76,855
California.....	155,980	Nevada.....	110,700
Colorado.....	103,925	New Hampshire.....	9,305
Connecticut.....	4,930	New Jersey.....	7,815
Dakota.....	149,100	New Mexico.....	122,580
Delaware.....	2,050	New York.....	49,170
District of Columbia.....	70	North Carolina.....	52,250
Florida.....	58,680	Ohio.....	41,060
Georgia.....	59,475	Oregon.....	96,030
Idaho.....	84,800	Pennsylvania.....	45,215
Illinois.....	59,650	Rhode Island.....	1,250
Indiana.....	36,350	South Carolina.....	30,570
Indian Territory.....	64,690	Tennessee.....	42,950
Iowa.....	56,025	Texas.....	265,780
Kansas.....	82,080	Utah.....	84,970
Kentucky.....	40,400	Vermont.....	9,565
Louisiana.....	48,720	Virginia.....	42,450
Maine.....	33,040	Washington.....	69,180
Maryland.....	12,210	West Virginia.....	24,760
Massachusetts.....	8,315	Wisconsin.....	56,040
Michigan.....	58,915	Wyoming.....	97,890
Minnesota.....	83,365	Unorganized territory.....	5,740
Mississippi.....	46,810	Delaware Bay.....	620

Of the above area 56,600 square miles is water surface.

New Explosive.

An Austrian patent for an explosive, which is said to offer less danger than others in use, has just expired. It was taken out only a year ago by Koepfel. The inventor claimed for it that it is cheaper than any other, gives no injurious smoke or gases, and does not explode from concussion or friction. It is manufactured in two kinds, of which the following is the composition. No. 1 is specially adapted for hard rocks, basalt, etc.; and No. 2 for sandstone, lime, etc.

	No. 1. Parts.	No. 2. Parts.
Salt-peter.....	35	42
Soda.....	19	22
Refined sulphur.....	11	12 50
Sawdust.....	9 50	19 00
Chlorate of potash.....	9 50	..
Charcoal.....	6	7
Sulphate of soda.....	4 25	5
Prussiate of potash.....	2 25	..
Refined sugar.....	2 25	..
Picric acid.....	1 25	1 50
	100	100

Each ingredient is finely pulverized and passed through a sieve, then mixed in a mixing cylinder of copper or wood, until the sawdust is hardly noticeable. From 10 to 15 per cent of water is then added, and the whole stirred until large pieces are formed.

A Horse in Spectacles.

In a paper on nearsightedness lately read before the New York County Medical Society, Dr. W. F. Mittendorf told of a fine horse in Berlin that became intractable, and on examination proved to be suffering from myopia. The owner had a pair of glasses made for it, and it became as tractable as ever. American students, Dr. Mittendorf said, are not so subject to nearsightedness as German students. Sedentary occupations and want of exercise develop myopia, and women, therefore, are likelier than men to contract it. It generally sets in in childhood; rarely appears after 21 years of age. Blindness often follows neglect of it. Glasses should be worn early in life to prevent its progress. They should be rather weak than strong, and a slight blue tint is desirable.

THE total population of the United States is, in round numbers, fifty millions (50,000,000); of which 43,476,000 are native born, and 6,680,000 are foreign born. The colored people number 6,632,549. Thus about every seventh person, nearly, is a negro; and every seventh person, nearly, foreign born.