

India Ink.

A Chinaman named Chen-ki-souen has written a monograph on the famous Chinese ink, more commonly known here as India ink. We find the following interesting extracts, regarding its history and preparation, in the *Deutsche Industrie Zeitung*.

Many articles are found in the extensive literature of China written by their learned men about the paper, ink, and brushes that they use for writing, but unfortunately very little is said about the technology of their inks. It is quite otherwise in the recent book written by Chen-ki-souen, for he describes every stage of its preparation with great accuracy and in detail.

According to our Celestial author, a kind of pigment ink was discovered 2697 to 2597 B. C. It was employed for writing on silk with a bamboo rod. Afterward an ink was prepared from a certain stone (encre de pierre), which is still known in China as ché-héi. It was not until 280 or 220 B. C. that they began to make an ink from soot or lampblack. The soot was obtained by burning gum lac and pine wood. This ink was made at first in round balls and very soon supplanted the stone ink.

For a while the province of Kiang-si appears to have had a monopoly of ink making. Under the dynasty of Tang, in 618 to 905 A. D., there was a special officer called an inspector, who had charge of its manufacture. He had to furnish the Chinese court with a certain quantity of this ink annually. Some of the factories seem to have been "royal Chinese" factories. The Emperor Hinan-Tsong (713 to 756 A. D.) founded two universities, to which he sent 336 balls of ink four times a year.

The most celebrated ink factory in China is that of Li-ting-kouéi, who lived in the latter part of the reign of Tang, and is said to have made an excellent article. He made his ink in the shape of a sword or staff, or in round cakes. The test of its authenticity consisted in breaking up the rod and putting the pieces in water; if it remained intact at the end of a month, it was genuine Li-ting-kouei. Since the death of this celebrated man there seems to have been no perceptible advance made in the manufacture of India ink.

In the manufacture of lampblack nearly everything is used that will burn. Besides pine wood we may mention petroleum, oils obtained from different plants, perfumed rice flour, bark of the pomegranate tree, rhinoceros horn, pearls, musk, etc. Nor does fraud seem to have been entirely wanting. According to Chinese authorities, the principal thing is the proper preparation of the lampblack; the best smells like musk, and the addition of musk not only serves to give poor goods the resemblance of fine ones, but really makes it worse.

The binding agent plays the chief part next to the lampblack; ordinary glue and isinglass alone are now used. In old times glue made from the horns of the rhinoceros and of deer was employed.

Good Chinese ink improves with age, and should not be used for a few years after it is made. It is not easy to keep it as it must be protected from moisture. Some persons, in rubbing it up, make circular movements that soon ruin it. It is better to rub it in straight lines back and forth with the least possible pressure.

FIRE ESCAPE.

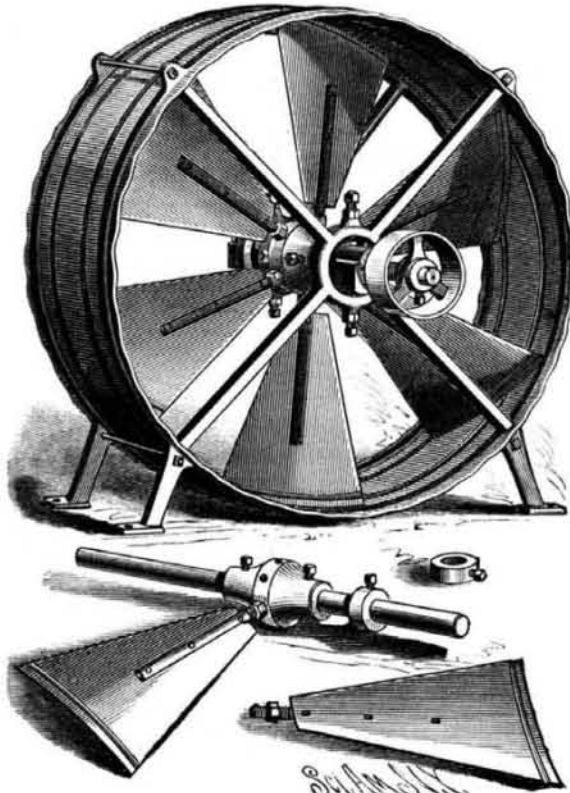
The fire escape herewith illustrated consists of balconies for each story, or for alternate stories, of a building, arranged on central pivots, on which they may be swung in such a way that the rising end of one will meet the lowering end of the next, thus forming a zigzag passage down which people may pass. Fig. 1 shows the balconies so arranged, the intermediate ones being permanently attached to the wall. The balconies are firmly bolted to the central shafts, which are square in the parts fitting the balconies, and which extend through the wall (Fig. 3), and are supported in bearing plates bolted to each side of the wall. Inside of the wall the pivots or shafts gear with a working lever by means of a toothed segment on each shaft and a vertical toothed bar gearing with the segments and also with the lever, as indicated in Fig. 4. The lever is located at the base of the wall, where it may be inclosed for its protection against fire. The vertical bar extends to the highest shaft, and is made in sections connected by swivels. The outer ends of the shafts have bearings in a long post diverging from the vertical line, in order that the rising end of one balcony will project beyond the falling end of the other, to provide safe transfer from one to the other. The balconies are made of sheet iron, with outwardly curved sides at their upper edges to deflect the flames, and are also made with double floors, between which the air will circulate, thus keeping the upper floor cool. Along the inside of the outer side plate of the balcony is a hand rail. The stationary balconies are made narrower than the others, so that persons may drop from one to the other without danger of falling to the ground. Fig. 3 is a vertical section through the wall.

The invention has been recently patented by Mr. William S. Cassidy, of Kelly's Station, Pa., who should be addressed for further information.

The French are experimenting with a new rifle, designed for infantry use, which is said to discharge three projectiles at a time.

A NEW DISK FAN OR EXHAUSTER.

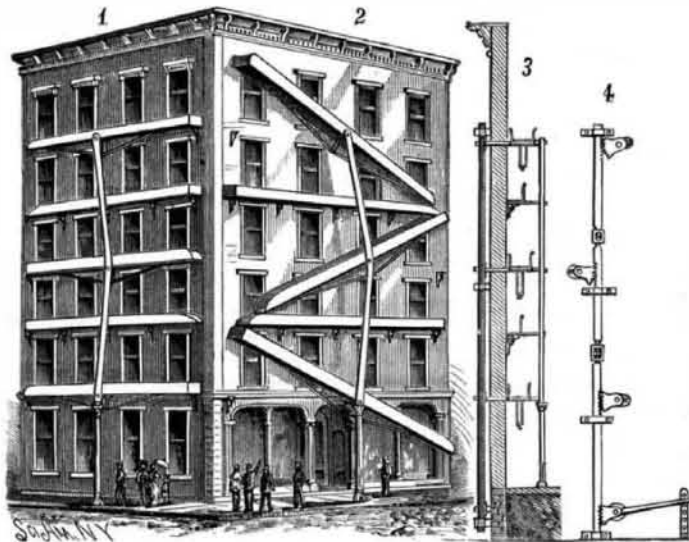
To economically move large quantities of air is a subject of great importance in many of the industries, and enters as one of the principal factors in the ventilation of large buildings. The accompanying engraving shows a fan of novel construction, which, although simple and of but few parts, may be readily and easily adjusted to suit conditions. The fan works on the principle of the screw propeller, and by a simple device the blades may be set at any pitch, so that the quantity of air moved may be varied to any point between the minimum and maximum capacity, and the same device enables the blades to be set so as to move the air in



NEW DISK FAN OR EXHAUSTER.

either direction. There are six curved blades made of sheet steel, having an increasing pitch augmenting the power and the amount of air moved. To each blade is riveted a heavy wrought iron arm having a thread cut upon the end, which screws into the hub and is set by means of a lock nut. This arrangement is indicated very plainly in the drawings of detached parts, representing the shaft, hub, and one blade in position, and the blade alone. The cast iron frames and sheet steel band make the "cut-off" in which the blades run, and cause a strong suction or force current. From the above it will be readily understood how the current can be changed in direction without disturbing either the belt or pipes. The shaft is in one piece, running in journals which are adjusted by two set screws, as shown. The fan may be fastened to the ceiling, the journals having been inverted.

The fan is noiseless in operation, and as the air is free to pass through the whole area, the current is much slower than in the usual forms, thus avoiding the unpleasant buzzing sound



CASSEY'S FIRE ESCAPE.

caused by air passing rapidly through small openings. When necessary a rapid current can be produced by reducing the size of the pipes. It can be put at either end or at the center of a pipe; in a wall or window, and will run equally well either horizontally or perpendicularly. A 48-inch fan now on exhibition at the American Institute Fair, running at about 450 revolutions a minute, draws through the small house to which it is attached the great amount of 26,175 cubic feet of air each minute. It is run with a 3-inch belt and uses 2 horse power. These fans were awarded the highest medal at the American Institute. The patented, Mr. L. J. Wing, has perfected a plan of ventilating large edifices

with the exhaust fan run by gas engines or other small motors. These fans are now being manufactured by the Simonds Manufacturing Company, of 50 Cliff Street, New York city, who have received many letters highly commending the fan and dwelling upon the large amount of air it moves, its lightness and simplicity, and the economy its use insures.

Mail Statistics of the World.

The statistics of the Universal Postal Union for the year 1881, published by the International Bureau at Berne, show that the United States ranks first in number, with 45,512 offices, Great Britain being next with 14,918. Japan leads Russia, Austria, Italy, Spain, and British India. Switzerland ranks first in the relative proportion between the number of offices and the population, having an average of 985 inhabitants to each post office. In the number of letters carried Great Britain ranks first with 1,229,354,800; the United States next with 1,046,107,848; then Germany with 563,225,700. The Argentine Republic stands at the bottom of the list. The United States used the most postal cards. In respect to the number of letters and postal cards to each inhabitant, the countries ranked as follows: Great Britain, 38.7; United States, 27.3; Switzerland, 19.9; Germany, 15.8. The United States ranks first in the number of newspapers conveyed in the domestic mails with 852,180,792; Germany next with 439,089,900; France, 320,188,696; Great Britain, 140,789,100. Germany leads in respect to the gross amount of revenue with 205,324,215 francs; United States next with 194,630,444 francs; Great Britain third with 175,690,000 francs.

Coffee and Alcohol in Brazil.

According to the statement of the Vice Director of the Rio Janeiro faculty of medicine, it appears that in Brazil, where great quantities of coffee are used and where all the inhabitants take it many times a day, alcoholism is completely unknown; it is further stated that the immigrants arriving in that country, though beset with the passion for alcohol, contract little by little the habits of the Brazilians, acquiring their fondness for drinking coffee and their aversion for liquors; and as the children of these immigrants brought up with coffee from their early years never contract the fatal habits known to their parents, it would seem that the number of drunkards in the country is in inverse ratio to the amount of coffee consumed. A South American correspondent of the *Medical Times* confirms the above statements, asserting that the number of cafes in the large cities of Brazil—where multitudes of persons from the highest down to the lowest classes go in to take a cup of that delicious beverage which none but Brazilians know how to make properly—is enormous, while drinking saloons or bars are very few, and their patrons fewer still.

If the above is correct, our temperance advocates might take a useful hint. Less oratory and more coffee would give better success to their efforts. The opening of a cheap coffee house alongside of every gin mill might have the effect to dry up the liquor business.

Scarlet Fever in Horses.

For some time past scarlet fever among horses has attracted considerable attention, and committees from three medical societies are now investigating the subject. The disease was first described in horses, in 1814, and from that date to 1810 there are evidences showing its simultaneous appearance in both horses and men. The conclusion has been drawn by some writers that it originated in horses and was by them communicated to man. The *New York Sun* reports Dr. John C. Peters, chairman of each committee, as saying:

"The most remarkable results have been obtained by D. J. W. Steckler, of Orange, N. J. He had some equine virus sent to him by Dr. Williams, of Edinburgh. Dr. Steckler inoculated twelve children, who were afterward exposed to the disease of scarlet fever and did not take it. That was last May or June. He has inoculated two young colts and reproduced the disease among them. He failed with a calf, showing that the horses were more susceptible of the disease. Another set of children was inoculated, all of whom were living in the same room where a case of scarlet fever had broken out. Some who had been exposed before the inoculation took the disease; but a majority escaped. There was only one case that looked like failure. Dr. Steckler will cultivate the virus and prove his experiments. He is sure to meet with great opposition, and possibly as much as Jenner did, but I have no doubt he has made a discovery as great as Jenner's, and one that will prove as signal an epoch in the history of medicine."

Cleanliness in the stable, good ventilation, pure water, and reliable disinfectants, are the best preventives.

Percussion of the Skull as a Means of Diagnosis.

In the course of an article in the *Lancet*, Dr. A. Robertson tells us that in a case under his care, percussion of the skull revealed a painful area over the motor region of one side of the brain. The patient had long been subject to convulsive seizures, mainly unilateral, and has greatly improved since the application of a series of blisters over this region.