

### MAGNET MARVELS

Modern Giants That Raise Tons of Metal at a Time.

#### LIFT BILLETS HOT OR COLD.

A Single One of These Monsters With Invisible Magic Fingers Will Do the Work of Half a Hundred Men—The Magnet in Medicine and in Surgery.

Those who have watched a toy magnet lift up pins and needles and marvelled not a little at the unseen power that causes the bits of metal to jump might well be excused for standing aghast at the sight of a modern giant magnet picking up several tons of iron and steel from the scrap heap and conveying it with ease and rapidity to the melting furnace beyond.

So great has been the commercial development of the magnet that it can lift five and a half tons. These giant magnets used in iron and steel mills can pick up hot as well as cold billets, and a single one of this character will displace half a hundred workmen.

A further improvement may be noted in the combination of skull cracker and magnet. The skull cracker is a huge pear shaped ball of iron suspended by a chain to a hook and steel ropes. This skull cracker is dropped with great force on scrap metal to be broken up for remelting. It breaks the metal into conveniently small pieces and is lifted up and down by the magnet until the scrap is reduced to proper size. Then the invisible fingers of the magnet gather up the small pieces and carry them to the melting furnace. The entire operation is accomplished in one-hundredth of the time formerly required by manual labor.

More recently magnets have been employed in the milling industry to pick out small particles of metal that frequently get into flour and cause explosions through friction when they come in contact with the big rollers. Not a particle of metal can escape the powerful magnets suspended over the chute through which the grain passes.

In mining and metallurgical work the magnet has become an indispensable labor saving agent. The magnetic separation of ores has saved thousands of dollars to mining companies. When the rocks are crushed and pulverized powerful magnets gather up the infinitesimal parts of metal released from their beds and convey them to the smelting furnace. Quantities of ore can thus be saved from old tailings that were formerly considered pure waste.

Recently commercial magnets were employed for the novel purpose of raising sunken treasures. A big cargo of nails was lost in twenty fathoms of water, and the loss seemed irreparable until some enterprising genius raised them easily and cheaply by means of a magnet suspended from a derrick by steel cables.

In the most improved commercial magnets hollow steel castings are used, in which magnetized coils are placed. The latter are built up of alternate layers of copper and asbestos and insulated from the cast steel frames by thick sheets of mica. A magnet of this construction is proof against heat and cold and free from the danger of short circuiting. There is nothing combustible used in its manufacture, and it can gather up a ton of hot scraps of steel with comparative ease.

But the invisible fingers of the magnet can pick up the most delicate splinter of steel no larger than a sewing needle as easily as it lifts a huge iron or steel beam weighing a ton or two. The small magnets have therefore found as great a field of usefulness as the big ones. In all trades they are employed for handling pieces of metal too small for fingers to pick up easily.

In a medical way they are used successfully for extracting iron or steel splinters from the eye and also for drawing out of the body needles and pieces of metal that have found lodgment there. A dressmaker who had inadvertently swallowed a dozen needles was operated upon in this way with entire success. For several days she was placed under a powerful magnet until every needle had been drawn from her body.

In a therapeutic way magnets have proved of value in destroying ulcerous and cancerous growths, and even blood diseases of some kinds have yielded to their curative effects. A man with the point of a dagger broken off in his body had it removed by a magnet. Another patient had been suffering from a painful ulcer on the chin for many years without finding relief. He was finally cured by treatment with a magnet, which drew from his chin a lot of steel filings that had caused all the trouble. The filings had found lodgment in a cut in his face one day when working before a turning lathe. No immediate trouble had followed, and the man had forgotten the incident until the magnet drew them out and gave the ulcer a chance to heal.—George E. Walsh in Chicago Record-Herald.

**A Pertinent Question.**  
There are great men who cannot spell, and small people who object to them. "Spell 'cat,'" said the teacher to the boy at the tail end of the class. "K-a-t," replied the boy. "Silly," replied the teacher. "Can't you spell out?" "Well," replied the sensible boy, "what does k-a-t spell?"—London Chronicle.

Idleness is only the refuge of weak minds and the holiday of fools.—Chestfield.

### MAKING GOLD PENS.

The Metals That Are Used and the Process of Manufacture.

The tiny tip of white metal seen on the under side of the point of a gold pen may be of platinum, but it is more likely to be iridium. Iridium is a very hard metal, and it is expensive. It costs about four times as much as gold. The purpose of the iridium tip is, of course, to give the pen a more durable point.

The gold pen maker buys his gold at the assay office in bars of pure 24 carat gold, which he melts and alloys with silver and copper to the degree of fineness required. Gold of 14 carats is used in the manufacture of the best American gold pens, that being the degree of fineness deemed most suitable for pen use, but good pens made in this country for sale in France are made of 18 carats, the French government requiring that all articles exposed for sale in that country as made of gold shall be of not less than 18 carats.

The gold from which the pens are to be made is rolled and rerolled until what was originally a thick, heavy bar of gold has been rolled into a thin gold ribbon about three feet in length by four inches wide. Then this gold ribbon is put into a machine which stamps out of it pen shapes, all still flat. Then on the top of each of these pen shapes is fused the iridium point, and then the shapes go to a slitting machine, which cuts the slit in the pen. From the slitting machine the pens go through another, which gives them their rounded, familiar pen form, and then the pens are ground and polished and finished ready for use.

American gold pens in fountain pens or as dip pens are sold in every country in Europe in competition with pens of British or of German manufacture, and under the same competition they are sold throughout the world in South America, Africa, Japan, China, wherever pens are used.—New York Sun.

### SILENT MEN.

Wallenstein, Who Never Smiled, Was the Most Dramatic of All.

Washington's reserve made him stiff, formal and ill at ease in company, but it also prevented his plans from being betrayed to the enemy and the country from being deceived by his promises.

William the Silent was frugal of words, because a reserve that concealed his designs, even from those acting with him, was necessary to the independence of the Netherlands.

The most dramatic of silent men was Wallenstein, the antagonist of Gustavus Adolphus and the commander of the emperor's armies in the Thirty Years' war. He insisted that the deepest silence should reign around him. His officers took care that no loud conversation should disturb their general. They knew a chamberlain had been hanged for waking him without orders, and an officer who would wear clanking spurs in the commander's presence had been secretly put to death. In the rooms of Wallenstein's palace the servants glided as if phantoms, and a dozen sentinels moved around his tent charged to secure the silence the general demanded. Chains were stretched across the streets and roads in order to guard him against the disturbance of sounds. Wallenstein's taciturnity and love of silence that caused him to be irritated at the slightest noise was due to his constitutional temperament. He never smiled, he never asked advice from any one, and he could not endure to be gazed at, even when giving an order. The soldiers when he crossed the camp pretended not to see him, knowing that a serious look would bring them punishment.—Exchange.

### Concrete Stays Put.

As concrete gets older it becomes harder and more durable—that is, of course, if the concrete is properly made. The usual means of wrecking a house have not the slightest effect on concrete. The sledgehammer, the drill and dynamite must be used. Acids might be used to disintegrate the concrete, but the expense would be enormous. The only thing to do is to loosen the material with explosives and then break it free from the steel reinforcement with sledgehammers, and that is a long, tedious job.—Boston Advertiser.

### Durability of Steel.

Nearly all the failures of steel occur very early in its history. A bar or a piece of steel that lasts a year in service may be regarded as perfectly durable. Continual bending backward and forward, as in what is called "panting" a boiler's end, is the most trying for steel which, according to an expert, is "transient in youth, trustworthy in middle age and beyond reproach in old age."

### The Running Gear.

"You say you have a new musical comedy?" asks the manager. "Have you a scenario of it?" "Yes, I brought it along," answers the author, producing a collapsible evening hat, a seltzer bottle, a set of eccentric whiskers, pink silk tights, an artificial nose and a German dialect joke.—Life.

### Deep Sea Life.

Animal life, existing under a pressure of five and a half tons to the square inch, has been found in the Tonga basin, near New Zealand, at a depth of four and three-quarter miles. The greatest ocean depth known is less than a mile deeper.

It is a great deal easier to teach an old dog new tricks than it is to make him forget his old ones.

### MOSLEM HOLY WARS.

Once Ordered They Are Waged Till Either Side is Wiped Out.

When a jihad or holy war is proclaimed by the Mohammedans it means that every male Moslem from eight years old to eighty must take up arms and fight to the death, if need be, in defense of his faith.

When a holy war is proclaimed the sacred green banner of the prophet, kept furled at all other times, is loosened to the breeze, and the Moslem who does not follow it is held to be forever accursed. Anybody may kill him with impunity. His wives, his children and his property cease any longer to belong to him. He is cut off from all communion with the faithful.

The man who engages in a holy war, on the other hand, is called "shahid," which means "martyr" or "glorious one." His sole aim and object henceforth is to kill as many infidels as possible. If he himself is killed in his turn it does not matter in the least. His religion teaches him that he goes straight to paradise, where bright eyed houris are watching to clasp him in their arms and acclaim him as "bravest of the brave."

It was because of a holy war, proclaimed against England by Gaylan, sultan of Fez, that England gave up Tangiers. For twenty-one years this particular holy war was waged, and during that time no quarter was asked or given by either side. To England it was one long series of disasters. The worst was that which befell the West Surrey regiment. Ambushed and surrounded, this corps was practically annihilated, only nine men out of more than 500 escaping with their lives.

In 1842 again a holy war was proclaimed against England by Akbar Khan, the favorite son of Dost Mohammed, ameer of Afghanistan, whom England had deposed. The savage hill tribes rose to a man at his bidding, and the entire British army of occupation—about 16,000 men, including camp followers—was wiped out of existence.

The worst of a holy war is that, once begun, it can only be ended by one side or the other being exterminated, so that it is liable to drag on almost indefinitely.—London Answers.

### Blackbuck's Extra Nostril.

Two visitors to the menagerie were discussing the why and wherefore of an opening on the face of an Indian antelope or blackbuck halfway between the eye and nose. One visitor said it was due to an injury; the other opined it led to the tear duct.

"You are both wrong," said the keeper. "That is an extra nostril for the fastest running member of the antelope or deer family. He runs so fast that his ordinary nostrils cannot supply enough air to his lungs nature came to the rescue with the extra air channel. No other animal that I know of is so well provided. The blackbuck is the fastest thing on hoofs. On favorable ground and spurred by fear the blackbuck could make sixty miles an hour."—New York Sun.

### The Lessening Death Rate.

Some of the greatest advances of civilization are made silently. They escape the flourish of trumpets, while other much less important advances are accompanied by incessant drum beating and pyrotechnics. The diminution of the death rate is one of the signal triumphs of modern enlightenment. It is also one of the most potent checks on economic waste. The average age of each generation is being materially lengthened, and that result is chiefly being reached by stopping the excessive loss of infant life. Yet few persons realize the extent of the beneficent progress thus made or what it has meant in the way of increasing the sum total of human happiness and efficiency.—New York Tribune.

### The Old Press Gang.

Desperate means were sometimes resorted to in order to get men for British warships. A chronicler writes that in the year 1738 "a fleet of ships being required immediately to be manned, the press gangs placed a live turkey on the top of a monument, which, drawing together a great number of idle people, they had the opportunity of selecting as many men as answered the purpose of their intended scheme." The scene so enraged a citizen that he fired a shot at the bird, "which occasioned it to fly away." But the mischief had been done.

### "St. Wapniac."

A person desiring to keep in mind which members of the cabinet would succeed to the executive office may remember the name St. Wapniac. Each letter suggests the secretary or head of department next in succession for president of the United States—for instance, state, treasury, war, attorney general, postmaster general, navy, interior, agriculture and commerce and labor.—Leslie's.

### Ending His Suspense.

"The widow promised to give me her answer tomorrow. Gee, I don't see how I can sleep tonight!" "Go to sleep and don't worry, old chap. She told me when I introduced you to her that she was going to marry you."—Houston Post.

### A Fact.

"Our prison doctor the other day evolved a new aphorism." "What was it?" "That a felon in jail is worth two on the hand."—Baltimore American.

Avoid greatness. In a cottage there may be found more real happiness than kings or their favorites enjoy in palaces.—Horace.

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