

fore. I now put the pony to full work, and he stands it well. He is more sure-footed; his tread is almost noiseless; his hoofs are in no danger from the rough hand of the farrier; and the change altogether has been a clear gain, without anything to set against it. My pony, I may add, was between four and five years old—rising four, I fancy, is the correct phrase. He had been regularly shod up to the present year.”

#### RECENT MECHANICAL INVENTIONS.

An improved hand stamp for canceling postage stamps, and printing, dating, and marking generally, has been patented by Mr. Wm. J. Blackwell, of Waynesborough, Va. The press has a cam shaft which moves the stamping devices, and a sliding plate, in such a way that when the plate is moved back to uncover the ink pads the canceling stamps are forced down upon the pads.

An improved brake for wagons has been patented by Mr. William de Ray, of Murray, Ky. It is constructed so that it will be applied by the team in holding back, and will be taken off as the team draws forward. It is provided with means for locking it in either position.

Mr. John H. Jenner, of Leavenworth, Ind., has patented an improved brake lever for wagons. It consists of two levers, the principal one fulcrumed to the wagon body or frame, and the other pivoted to it and connected with the brake rod. The slack motion is taken up by the second lever, and the brake is applied by the principal lever.

An improvement in magazine firearms has been patented by Mr. Peder Bergersan, of Cheyenne, Wyoming Ter. The breech mechanism is opened and closed by means of a lever hung on a pin that passes through ears projecting from the underside of the trigger plate. The firing bolt or hammer is straight and is operated by a spiral spring. The gun may be used as a magazine gun or as a single breech loading rifle.

An improved machine for flinching, grooving, and beveling barrel staves when set up in barrel form, has been patented by Mr. Thomas McKeever, of Pittsburg, Pa. It consists in a hollow cutter head carrying the grooving and crozing knives, and in peculiar mechanism for holding the barrel while being grooved and crozed.

Mr. C. Sullivan, of Three Rivers, Mass., has patented an improved spooling guide, which consists of a flanged and slotted head in which is a slotted plate held in a horizontal position by set screws. From this plate rises the guide, which is composed of two crescent shaped arms turned in opposite directions; with this device the yarn can be fed very evenly.

Mr. Wilson N. Fort, of Lewisville, Ark., has patented an improved rotary engine, which consists in a peculiar arrangement of a double rock valve, and hollow inlet and outlet valves, the whole being arranged with a view to simplicity and durability.

Messrs. John E. Duncan and Alanson B. Alden, of Bos-cobel, Wis., have patented a permutation lock, in which the combination is set by the act of locking, and in unlocking the parts are readjusted, so that the combination is not set while the lock is unlocked.

An improved hair trigger for firearms, which is complete in itself and may be applied to any kind of firearm without change in its construction, has been patented by Mr. Emil A. F. Toepfer wein, of Boerne, Texas.

Messrs. N. B. Gunn and A. D. Mendenhall, of Elwood, Ind., have patented an improved apple corer and cutter, in which the tube and its radial knives are detachably secured to the slotted sliding board, so that the machine may be readily taken apart for cleaning.

An improvement in gun locks, patented by Mr. Thomas Duncan, of West New Annan, Nova Scotia, consists in a stop pivoted under the end of the mainspring close to the swivel and controlled by the trigger and a spring.

Mr. F. H. Purenton, of Brunswick, Me., has invented an improved sectional steam boiler, having a lower section or water chamber surrounding the fire chamber, and connected with an upper section by means of inclined pipes, the said upper section being provided with curved flues that communicate with the smoke stack.

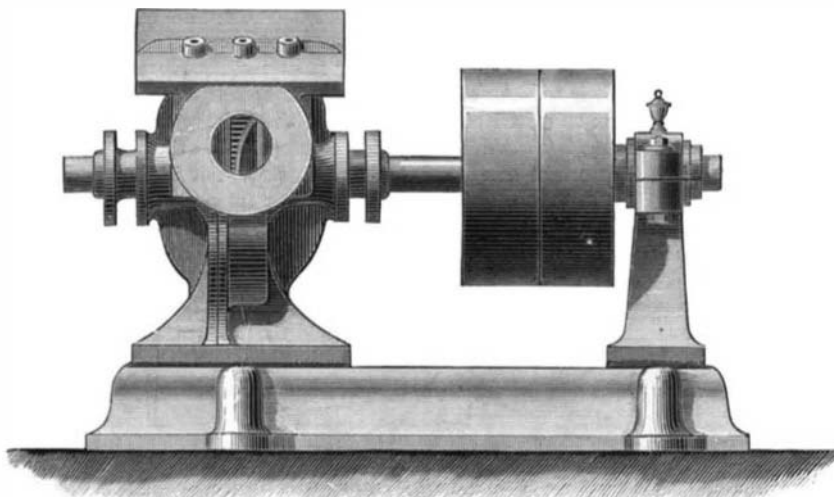
#### Spontaneous Combustion.

The St. Louis *Republican* gives this account of the origin of a recent mysterious fire in that city: A well authenticated case of spontaneous combustion occurred recently in the suburbs of Oak Hill, the residence of Mr. Edward Mead,

the jeweler, furnishing the sensation. The circumstances of the fire were, fortunately, such as to leave no doubt regarding its cause, and these circumstances are especially interesting in a city where fires of a mysterious origin have been remarkably frequent. The fire proved to be the result of spontaneous combustion, and from a cause which has been the one usually credited with effects of the kind. Some of the floors in Mr. Mead's house had lately received a thorough coating of colored varnish, and, in the polishing, hemp cloths (squares cut from sacks) had been used. One of these sacks, saturated with the varnish, had been put in the basket for further use. It had of itself smoldered, and finally produced the fire. The case is a curious one, and of value from the knowledge it affords of a dangerous combination.

#### A NOVEL ROTARY PUMP.

Ortman's rotary pump, which is shown in the accompanying engravings, is made by Messrs. Van Goethen &



ORTMAN'S ROTARY PUMP.

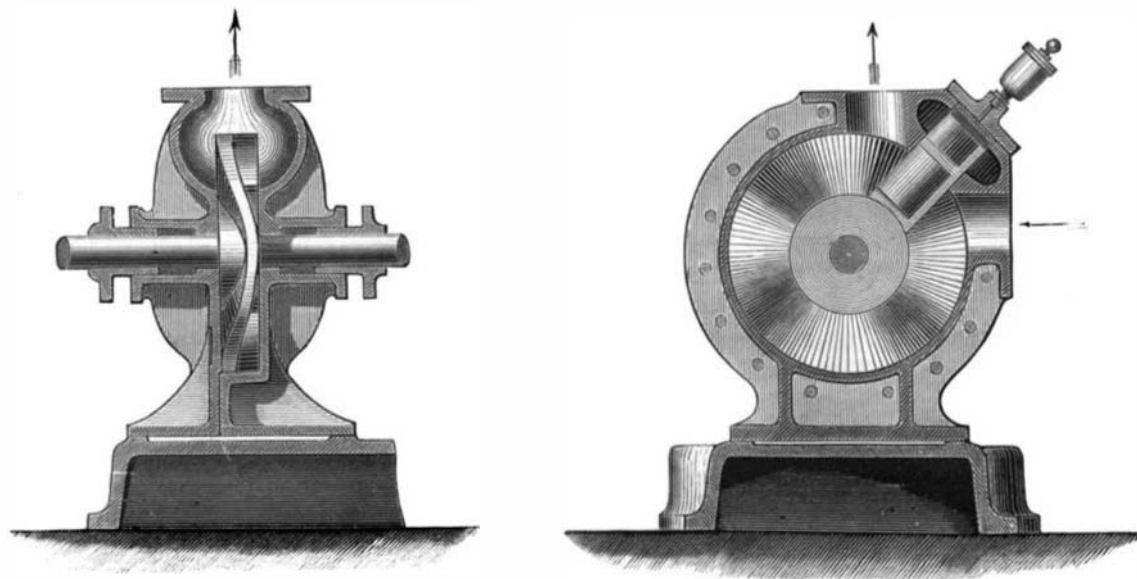
Reallier, of Brussels. It may be used either as a pump, a hydraulic motor, or an air compressor.

An undulated disk is fitted accurately to the pump casing, and in a transverse chamber, which intersects the cylinder, there is a slide, which is slotted to receive the edge of the undulated disk. At opposite sides of the slide there are openings in the casing for the ingress and egress of water. The slide acts as the abutment, and the undulated disk as the piston.

A pump of this kind, having a 39 inch disk, will deliver nearly 18 gallons per revolution and may be driven at the rate of 150 revolutions per minute.—*Cronique Industrielle*.

#### Glue.

Carpenters should remember that fresh glue dries much more readily than that which has been once or twice melted. Dry glue steeped in cold water absorbs different quantities of water according to the quality of the glue, while the proportion of the water so absorbed may be used as a test of the



ORTMAN'S ROTARY PUMP.—VERTICAL SECTIONS.

quality of the glue. From careful experiments with dry glue immersed for twenty-four hours in water at 60° Fah., and thereby transformed into a jelly, it was found that the finest ordinary glue, or that made from white bones, absorbs twelve times its weight of water in twenty-four hours; from dark bones, the glue absorbs nine times its weight of water; while the ordinary glue, made from animal refuse, absorbs but three to five times its weight of water.—*Building News*.

#### Carriage Pigeons.

The carrier-pigeon service is now in full operation in France. The number of birds fed by the government is 6,000. These pigeons are located in Paris and twelve other large fortified towns. A number of soldiers and officers

have been taught the art of pigeon breeding, and carriers are constantly sent from place to place. The Minister of Public Instruction and the Minister of Agriculture have established prizes for pigeon races.

#### Splitting Paper.

It is one of the most remarkable properties of that wonderful product, paper, that it can be split into two or even three parts, however thin the sheet. We have seen a leaf of the *Illustrated News* thus divided into three parts, or three thin leaves. One consisted of the surface on which the engravings are printed; another was the side containing the letter press, and a perfectly blank piece on each side was the paper that lay between. Many people who have not seen this done might think it impossible; yet it is not only possible, but extremely easy, as we shall show.

Get a piece of plate glass and place on it a sheet of paper; then let the latter be thoroughly soaked. With care and a little dexterity the sheet can be split by the top surface being removed. But the best plan is to paste a piece of cloth or strong paper to each side of the sheet to be split. When dry, violently and without hesitation pull the two pieces asunder, when part of the sheet will be found to have adhered to one and part to the other. Soften the paste in water and the pieces can be easily removed from the cloth.

The process is generally demonstrated as a matter of curiosity, yet it can be utilized in various ways. If we want to paste in a scrap-book a newspaper article printed on both sides of the paper, and possess only one copy, it is very convenient to know how to detach the one side from the other. The paper, when split, as may be imagined, is more transparent than it was before being subjected to the operation, and the printing ink is somewhat duller; otherwise the two pieces present the appearance of the original if again brought together.

Some time ago the information of how to do this splitting was advertised to be sold for a considerable sum. We now impart it to all our readers gratuitously.—*B. and O. Printer and Stationer*.

#### Sir Henry Bessemer.

Mr. Henry Bessemer, of Denmark-hill, Camberwell, on whom her Majesty has been graciously pleased to confer the honor of knighthood, in recognition of his services in the manufacture of malleable iron and steel, and in numerous other inventions, is a son of the late Mr. Anthony Bessemer, of Old Broad street, London, and subsequently of Charlton, Hertfordshire, where he was born on the 19th of January, 1813. He was, to a very great extent, self-taught, and at twenty years of age exhibited a design at the Royal Academy, then located at Somerset House. He first attracted the attention of Lord Althorp, then Chancellor of the Exchequer, by an ingenious contrivance which he made for preventing frauds which were carried on upon a large scale by the transference of stamps from old documents to new ones; but, though the saving to the public purse was estimated at nearly £400,000 a year, he never received any remuneration for his ingenuity. In 1856 he read before the British Association, at Cheltenham, his first paper on the manufacture of malleable iron and steel, which has given him a world-wide name—literally so, for the Americans have christened after him a thriving new town on the Cincinnati Railway, and “Bessemer metal” has become current in most of the languages of civilized communities. Mr. Bessemer's great inventions have been recognized both at home and abroad, for the Emperor of Austria conferred on him the rank of a Knight Commander of the Order of Francis Joseph, and the late Emperor of the French offered to his acceptance the Grand Cross of the Legion of Honor, in consequence of a report from the

jurors of the Universal Exhibition of 1867 that his invention was of exceptional merit. He has also been the recipient of the Albert Gold Medal, presented to him by the hand of the Prince of Wales. It is stated by Blanch, in his “History of Camberwell,” that in the course of his various experiments, Mr. Bessemer has taken out more than one hundred patents, and has paid to the Crown as much as £10,000 for stamps alone.

A PLAGUE of locusts fell upon the province of Caucasus, Russia, during April. Vineyards and fruit gardens were utterly destroyed. The water courses were choked by the swarming pests, and the village streets were so blocked by them that the shops were shut and all traffic suspended.