

RECENTLY PATENTED INVENTIONS.

A few novelties are shown in the accompanying engraving which illustrate the versatility of American inventive genius. Fig. 1 represents an improved can for containing common petroleum oil. The spout, which is enlarged at its lower end, contains a hinged valve, A, connected with the rod, B, which extends through a tube projecting from the can just above the handle. The rod carries a piston, which slides in the tube as the valve, A, is operated by pushing the rod. The movement of the piston opens an aperture, through which air enters the can, allowing the oil to flow out freely. On releasing the valve rod the spring returns the parts to their normal position, sealing the can completely.

In Figs. 2 and 3 a saw is shown that is capable of sawing in any direction without being turned. It consists of a bar or wire having struck up burr teeth. The saw is stretched in a frame in the usual way, and is designed to follow the line of the pattern in any direction without the necessity of turning the saw frame.

Figures 4 and 5 represent a simple device for attachment to ordinary pen holders, to enable a common pen to be used in drawing straight lines without danger of smearing the edge of the ruler with ink. The attachment consists of a simple narrow ring, which encircles the pen holder and supports the guide rod which slides in contact with the edge of the ruler as shown in the engraving.

In Figs. 6 and 7 are shown a gun and projectile for throwing lines. It is especially designed for use in cases of shipwreck. The gun is of common construction, but it is of quite large bore. The projectile is a hollow cylinder, closed at one end by a plug, B, and arranged to contain the line, C, which is secured to an eye in the plug and is coiled compactly in the cylinder. The butt of the projectile is stopped and packed by a suitable wad. When the gun is discharged the projectile, in its flight, pays out the line. Should the distance through which the projectile travels exceed the length of line contained in it, a relay line, which is connected with the line, C, supplies the deficiency.

Fig. 8 shows a novel postal envelope, which is made so that it may be easily opened to admit of examining its contents. It consists in a box spun or stamped from sheet metal, having the top and bottom made flaring for the double purpose of receiving packing, and protecting the screw threads by which the two parts are secured together.

Great Testing Machine.

The great testing machine designed by Mr. Albert Emery, for the United States Commission for testing iron and steel, which has been in process of construction for three years past at the Watertown (Mass.) Arsenal, is now completed. Some experimental tests made with it in the presence of the Commissioners are thus described in the Boston *Traveler*:

"The merit of this new testing machine is its great power united with its mathematical accuracy. In illustration of this a few of the interesting results it has reached in the course of the recent experiments may be cited. A five inch bar of iron was pulled apart, and the strain registered in doing it was 722,000 lbs. To attest its minute exactness, a horse hair was next submitted to the strain, and

it yielded to a registered force of 2 lbs. Again, a pine block of four inches thickness and two feet in length was taken and pressed into a board of two inches thickness.

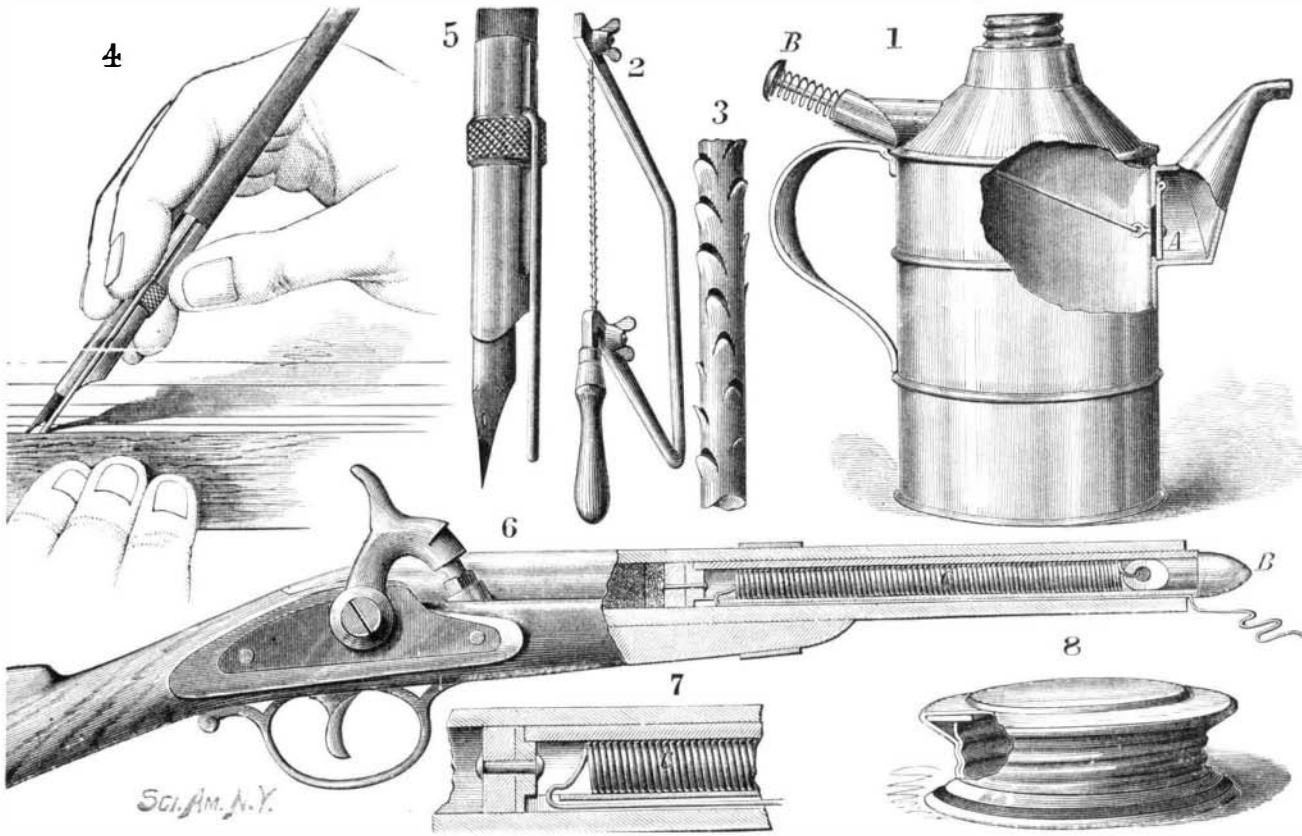
"Then to again ascertain its refinement of accuracy, a hen's egg was taken and inclosed in plaster of Paris, with two small holes at each end, and, the pressure being applied, the contents were forced out of these small apertures at a strain of 32 lbs., and such is the command over the action of the machine that the pressure was stopped in an instant, and the yolk ceased to be expelled, the shell of the egg remaining unbroken. A nut was also cracked by the machine without crushing the kernel.

"No such nicety of regulated pressure, combined with such

probably give six dozen pairs of wooden shoes. Other kinds of wood are spongy and soon penetrated with damp, but the beech sabots are light, of close grain, and keep the feet dry in spite of snow and mud, and in this respect are greatly superior to leather.

All is animation. The men cut down the tree; the trunk is sawn into lengths, and if the pieces prove too large they are divided into quarters. The first workman fashions the *sabots* roughly with the hatchet, taking care to give the bend for right and left; the second takes it in hand, pierces the hole for the interior, and scoops the wood out with an instrument called the *culler*.

The third is the artist of the company; it is his work to finish and polish it, carving a rose or primrose upon the top if it be for the fair sex. Sometimes he cuts an open border around the edge, so that a blue or white stocking may be shown by a coquettish girl. As they are finished they are placed in rows under the white shavings; twice a week the apprentice exposes them to a fire, which smokes and hardens the wood, giving it a warm, golden hue. The largest sizes are cut from the lowest part of the bole, to cover the workman's feet who is out in rain from morning to night. The middle part is for the busy housewife, who is treading the washhouse, the dairy, or stands beside the village fountain. Next come those of the little shepherd, who wanders all day long with his flock, and still smaller ones for the school boy. Those for the babies have the happiest lot; they are seldom worn out. As the foot grows the mother keeps the little sabots in a corner of her cupboard beside the baptismal robe.



1. Moran's Oil Can.—2 and 3. Griffin's Scroll Saw.—4 and 5. Hoffman's Ruling Attachment.—6 and 7. Eggers & Pierce's Projectile for Throwing Lines.—8. Pearson's Metallic Postal Envelope.

SOME RECENT AMERICAN INVENTIONS.

an enormous range of power and absolutely exact registration of the strain exerted, has ever before been attained. The cost of the machine to the government, under the contract, is \$31,000, but Mr. Emery has expended over \$100,000 in perfecting it."

How Wooden Shoes are Made.

An industry that cannot last many years more, thanks to the rapid cheapening of leather shoes by means of machinery, is the manufacture of wooden shoes, still the only wear of thousands of French peasantry. A writer in *Chambers' Journal* pleasantly describes the manner in which this industry is carried on. The surroundings are certainly picturesque. An encampment has been formed in the beech woods, and suitable trees are selected and felled. Each will

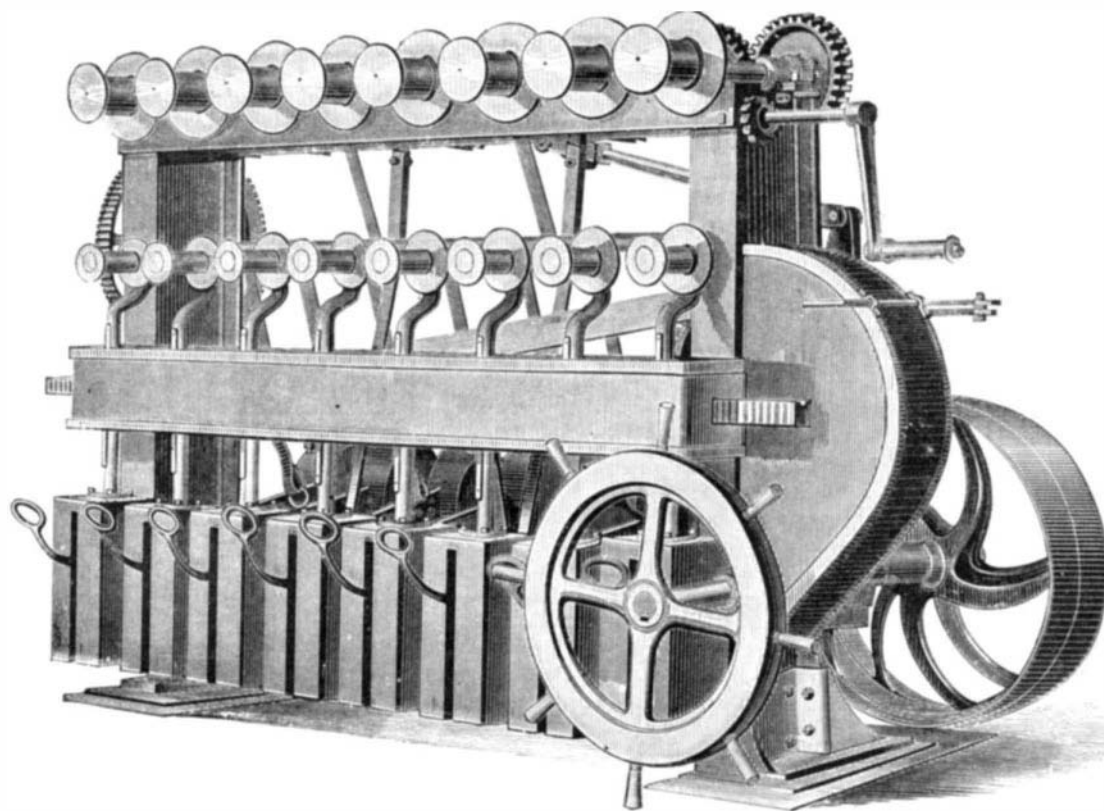
MACHINE FOR SOFTENING SILK.

The accompanying engraving represents an improved machine employed by French manufacturers to soften and polish silk after dyeing. The skeins of silk are hung over bobbins, the lower ones being slightly raised for that purpose. The support being withdrawn, the slotted weights suspended from the lower bobbins come in play and stretch the silk.

An ingenious mechanism gives an oscillating motion to a horizontal rack engaging the vertical bars which support the lower bobbins, and the skeins are thereby twisted and untwisted while revolving, every part of the silk being brought in turn under the desired manipulation by the slower revolution of the upper bobbins. In this way the silk is softened and given a glossy finish. The machine takes up but little room, and is said to do its work in a superior manner.

A Promising Experiment.

Some remarkable experiments in wheat cultivation have been tried in Michigan. Under the supervision of a committee appointed for the purpose, 68 lbs. of seed to the acre were sown in drills 16 inches apart, and the grain was cultivated with a horse hoe once in the fall and twice in the spring. For comparison, another plat of ground was sown with wheat drilled in, in the usual way, 90 lbs. to the acre. The committee reports that the average yield was 69½ per cent greater in the 16 inch drills than in the 8 inch, and while the former did not lodge or crinkle the latter did so badly.



MACHINE FOR SOFTENING SILK.