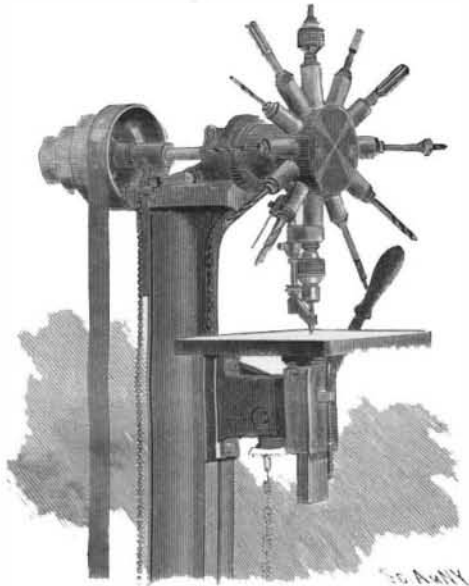


**QUINT'S TURRET DRILL.**

The illustration shows a twelve spindle turret drill in which the principle of construction is the same as the well known turret lathe, with the exception that the turret drill works in a vertical position in place of the horizontal. One other important difference is that the cutting tools revolve in place of the work, as is the case with all turret lathes; this allows the finishing of a hole in large or irregular work without moving same, thus assuring accuracy. The spindles are driven from inside turret by bevel gears. Only the spindle in a vertical position revolves, all others are stationary. Any spindle may be thrown into or out of position while machine is running.

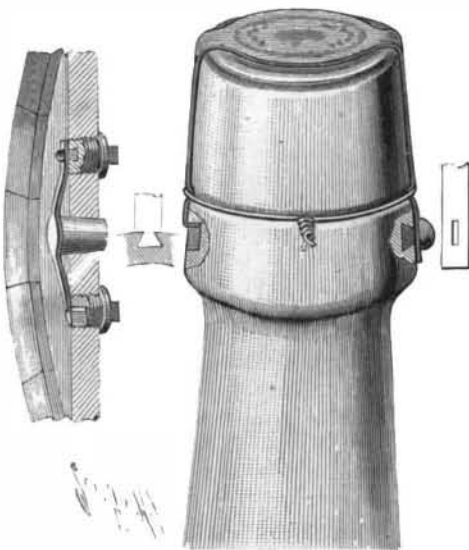
The turret drills have the following advantages: Small space occupied for the number of spindles. All

**QUINT'S TURRET DRILL.**

tools working to same point in center of table. The saving of operator's time in changing tools and moving work. Drilling and tapping at same operation. Small wear of spindles and bearings, as they revolve only when in position for work. The turret drills are built with from two to twelve spindles, as desired, and are specially adapted for drilling, reaming, tapping and hob milling, bicycle, electrical or any light or medium sized machine work. This admirable device is manufactured by A. D. Quint, Hartford, Conn.

**SEAL FOR VESSELS CONTAINING LIQUIDS.**

The sealing device for the corks of bottles or the bungs of casks shown in the engraving has been patented by Mr. Nicholas C. Patterson, of Junction City, Texas. On opposite sides of the neck of a bottle notches are formed, the opposite walls of the notches being undercut to form locking shoulders for the seal, which consists of a metal strip, of sufficient length to

**PATTERSON'S SEAL FOR VESSELS CONTAINING LIQUIDS.**

extend over the cork from one notch to the other. One end of the strip is dovetailed so as to securely engage the notch, and the opposite end is perforated with a narrow, longitudinal slot. After the bottle is filled and the cork inserted, the dovetailed end of the strip is inserted in its notch, and the strip is bent down over the cork until the perforation in the other end is opposite the other notch. Molten glass is then run through the perforation and into the notch, and a small bulb is formed on the outside of the strip. When the glass seal is hardened it will be firmly keyed in the notch, and the bulb only connected with the bottle by a narrow neck, where it passes through the perforation. It is evident that this neck will easily break should any attempt be made to slip the strip laterally off the cork, and the fraud would be at once detected. When it is desired to remove the seal and strip, a

slight tap on the bulb will break the seal and loosen the strip. To hold the ends of the strip in position while sealing, a groove is formed on the neck of the bottle and a small wire is wrapped around it.

When the device is applied to the bung of a barrel, glass sockets, with undercut walls, are used. These are screwed into the head of the cask from the inside, and are prevented from being pulled through by flanges which bear against the inner surface of the head. The sealing strip is similar to that above described, and is similarly secured. From the description it will be seen that the same bottle or cask cannot be filled twice, as any attempt to pick out the old plug would break a hole through the neck of the bottle.

**Nervous Strain of Railway Work.**

"There is reason to believe," says the British Medical Journal, "that at all times there are men on the line who are working very near to their breaking strain. We may in regard to this mention three well known instances which, at the least, show the tension under which work is often carried on. A station master, seeing a man run over on the line, himself fell down dead upon the platform. Here was a shock which permanently made his heart stand still; but how many times had not that man's heart stood still before? We may feel perfectly certain that if the major shock could kill, the minor daily recurring shocks of a railway life must have greatly damaged a heart so under the influence of the nervous system. Two trains collided at a junction. It was either the fault of the drivers or of the rails, certainly not of the signal man. The signals were right; yet when the box was entered the signal man was found to have gone mad, and had to be taken to an asylum, where he remained for long. He was broken utterly by the horror of the dilemma; but what shall we say about the smaller dilemmas which every hour of his working life he had had to solve? Did they not also have an effect, although a lesser one, upon his brain? A few years ago it was found that the sickness rate among the signal men of certain lines was becoming excessive, and it was determined to do away with the system of leaving to one man the whole responsibility of taking charge of a signal box. At great expense every box along the line was supplied with two men. Great evils were prophesied; it was thought the men would talk, and lark, and neglect their duties. This did not happen, but the sickness stopped. Under the shared responsibility they no longer broke down. If then, as seems to be indubitable, railway 'strain' can have definitely injurious effects upon the nervous system, it becomes an important question for inquiry whether this nervous derangement at all frequently has the effect of impairing the nutrition of the heart. Upon this special point we do not at present possess sufficient information to warrant the expression of a definite opinion."

**Reasons for the Siberian Railway.**

Siberia is a Russian Canada, larger and more populous, and, like Canada, it has a great future before it, says the Fortnightly Review. It is very rich in gold, while there are whole hills of graphite (black lead) and lapis lazuli; coal can be picked up on the very road near Nerchinsk, there is silver in the same district, and there are rich mines of iron near Nikolaeysk. Siberia, like Canada, is rich in fish. On the Amur River I was told that 200,000 pnds of the kita fish have been caught within a few weeks in August, when the fish ascend the rivers; the pud (pood) being 40 pounds, that means 8,000,000 pounds of fish. In the Khabarovka Museum is a stuffed kaluga fish weighing 30 puds, or 1,200 pounds, caught in the Amur. The Russians have been struck by the fact that "the prosperity of Canada and its productive activity have grown, and continue to grow, with a rapidity which appears to us (Russians) miraculous, and by us inimitable, just from the date of the completion of the Canadian Pacific Railway from the Pacific to the Atlantic Ocean."

In 1889 they deputed two engineers to observe the Canadian line and its conditions and results. Attention in Russia was drawn to the facts that Canada, a country then of 4,000,000 people, had, by its own resources, without any pecuniary help from outside, connected the two oceans by an iron road 4,500 versts (3,000 miles) long, over very difficult and expensive ground for building, in the short time of four years; that the energetic population of Canada, 3,600,000 in 1871, and only increased to 4,300,000 in 1881, reached 5,000,000 a year or two after the first through train passed Winnipeg in 1886; that the quantity of grain carried in Canada had increased from 303,571 tons in 1886 to 500,000 tons in 1888; that in places without population there had arisen seven new towns, such as

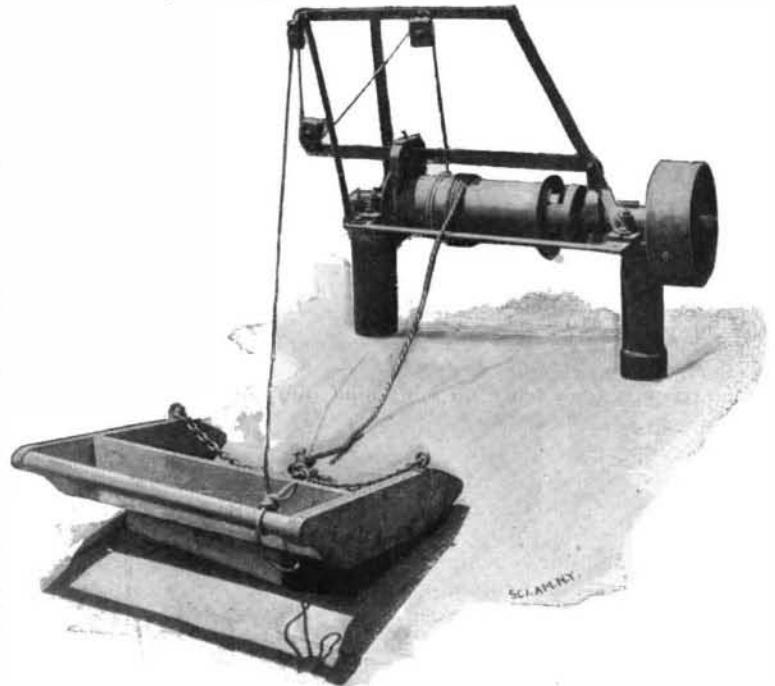
Vancouver, founded only in 1886, and holding 9,000 inhabitants in 1891. It was made known to Russia that "the cost of the Siberian Railway should not be even 65 per cent of the cost of the Canadian Pacific."

**Coffee as a Disinfectant.**

"A year ago, a Russian bacteriologist made some experiments for the purpose of determining the influence of coffee in destroying disease germs," says Modern Medicine. "The conclusion was that coffee is to some degree a disinfectant. The disinfectant properties of coffee depend, however, not upon the active principle of coffee, or caffeine, which it contains, but upon the substances developed in the roasting of the coffee. It was found that the various substitutes for coffee are also germicides, and, like it, develop disinfectant properties during the roasting process. A watery infusion of either coffee or its substitutes was found to be capable of killing the germs of cholera within a few hours, and of typhoid fever in a somewhat longer time. The conclusion should not, however, be drawn from these statements that either coffee or its substitutes are to be considered of value on account of their slight antiseptic properties, as too long a time is required for the destruction of germs by them."

**GRAIN SHOVEL FOR UNLOADING CARS.**

The accompanying illustration shows the general features of a device for saving time and labor in unloading grain cars, or in shifting grain within a warehouse, for which a patent has been granted to Mr. Edwin C. Harnden, of Carbondale, Pa. To the bale of the scoop or shovel is secured a pulling rope, which is arranged to wind upon a loose drum which revolves

**GRAIN SHOVEL FOR UNLOADING CARS.**

upon a shaft suitably journaled in a convenient position within the warehouse. The shaft is driven by means of a pulley and belting from the machinery of the warehouse and it is provided with a shifting clutch which is controlled by a spring which holds it in its normal position clear of the drum.

The clutch is operated by a shifting lever, which is pivoted on a wrought iron frame, carried above the journals, to which said frame is bolted. At the end of the long horizontal arm of the lever is a pulley, and two more pulleys are provided above the arm on the top bar of the frame. A controlling rope is attached to the drum, and after passing over the pulleys, as shown in the engraving, it is carried to the handle bar of the shovel. In operation the shovel is drawn back to the desired position on the grain heap, and on pulling the controlling cord the lever arm is raised, thereby throwing the clutch, which is keyed loosely upon the shaft, into gear with the drum. This winds up the rope, which is attached to the bale of the scoop, and drags it forward to the edge of the car, or to the desired position on the warehouse floor.

**A Demand for Better Motors.**

The Metropolitan Traction Company of this city have been experimenting with the underground trolley to take the place of the cable, which is now employed. President Vreeland has this to say regarding the result:

"We are willing to try any motor that promises to be of any value or to change to any form of propulsion that will give better results than the cable. Probably the most satisfactory motor at present is the overhead trolley, but we are not permitted to use that. We have tried experiments with the underground trolley, but find that it is in many ways unsatisfactory. Just as soon as anybody has a practical compressed air motor—or any other kind for that matter—we want him to bring it to us. But we can't be expected to rush into every hare-brained scheme."