

IMPROVED SPOKE-SETTING MACHINE.

We illustrate herewith an improved apparatus for setting and driving spokes in a rapid and convenient manner, and in such a way that an exact inclination of all the spokes in a wheel is obtained.

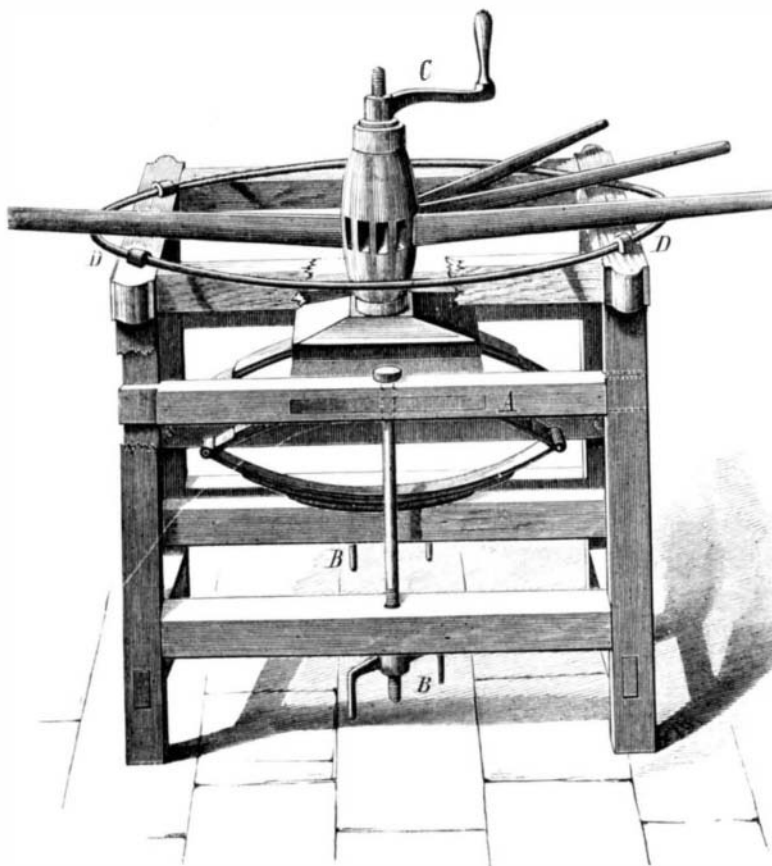
A is an adjustable frame which is supported on springs, as shown, so as to be moved vertically by the bolts and crank nuts, B. The hub is placed on a central bolt, and is rigidly secured by a crank nut, C. Above the main frame is the guide or set ring, D, on which the spokes are placed while being set and driven into the hub.

After the hub is fastened in place, the adjustable frame, B, is screwed down until the center line of the hub is on a level with the circle. The hub is then dotted above the leveling straight edge, and the bolts are screwed down until the desired dish or set of the spokes is obtained. This is necessary, as all hubs are made with straight front and sloping back mortises, throwing the outer ends of the spokes forward at the same inclination. It now only remains to rest the spokes upon the guide ring, and to drive them into the hub.

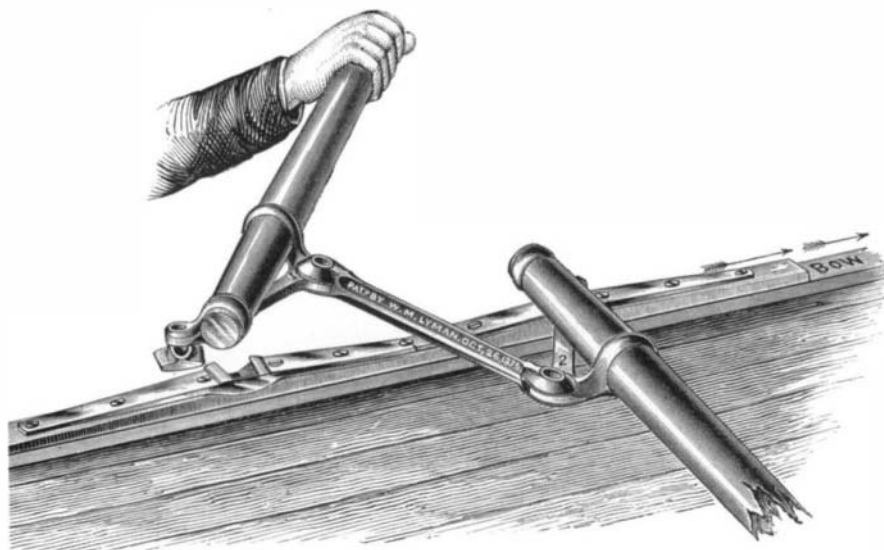
The inventor claims the apparatus to be a valuable aid to the wheelwright, inasmuch as it can fill four wheels while one is being filled in the usual manner. It can easily be constructed by any good workman, and needs no skill for its manipulation. It sets all the spokes at one setting; and in driving, each spoke is tapped in turn until all are driven, thus protecting the brace between the mortises. Being adjustable, any length of hub can be filled. Finally, the machine is well suited for refilling wheels, as the set is got by the mortises and not by the end of the hub.

Patented through the Scientific American Patent Agency, March 25, 1876. For further information relative to sale of rights or machines, address the inventor, Mr. Thomas S. Morgan, New Columbia, Massac county, Ill.

the beginning of the stroke. The parts of oars can easily be folded together for transportation, or may be closed up along the side of the boat, without detaching them from the gunwale, when not in use. A pair of the oars thus arranged weighs about five pounds more than ordinary oars, but this additional weight, it is claimed, has the advantage that, at the beginning and end of the stroke, it helps to lower and raise the blade, owing to the peculiar position of the oar.

**MORGAN'S SPOKE-SETTING MACHINE.**

The inventor informs us that last summer he rowed some 400 miles with this gear, spending his vacation in the Adirondacks and the Thousand Islands, and ending his cruise

**LYMAN'S ROWING GEAR.—Fig. 1.**

There are two cardinal objections to the present mode of propelling boats by rowing. The first is that the oarsman is obliged to travel backward and to rely upon occasional glances over his shoulder to direct his course, and the second is that his power is applied to the oar at a very decided disadvantage. The second objection is perhaps the most serious one of the two, inasmuch as it is well known that, just at the most effective part of the stroke, the end, there is where the power is weakest and worst applied. A new device has recently been patented (October 26, 1875) by Mr. William Lyman, of Middlefield, Conn., which gets rid of both of these objections in a very simple and practical manner, and, besides, secures some other advantages which will tend to commend it to oarsmen generally.

Mr. Lyman cuts his oar in two, and secures each part in a separate iron, as represented in Fig. 1. Each iron has a ball and socket joint which connects to a button, and each button slips into a slot made in the metal facing of the gunwale, and is there secured by turning a pivoted catch. Lastly, the two parts of the oar are connected by a rod hinged to each iron at 1 and 2, Fig. 1.

A moment's consideration will show that when the handle of the oar is pulled in one direction, the blade of the oar will travel, not in the opposite direction, as is usually the case, but in the same direction. Consequently, when the oarsman, seated as in Fig. 2, facing the bow, pulls in the usual way, he propels his boat bow foremost, instead of backing her, as he would do had he ordinary oars. Again, the arrangement of the lever is obviously such that the

Fig. 2.

strength of the rower is applied to excellent mechanical advantage, enabling him to pull a stronger stroke and to keep it up much longer than would otherwise be possible. Steering is also rendered much easier, and the catching of tabs is avoided through the oarsman seeing his blade at

by a row down the Connecticut river. The oars will be found on exhibition at the Centennial.

For further information, etc., address the inventor as above. The patents for foreign countries are for sale.

Underground Telegraphy in New York City.

The Western Union Telegraph Company have begun the work of laying the telegraph wires in this city underground. Experimental sections, made of iron pipes of a capacity of 125 wires each, are being placed in position, between the Cotton Exchange, the Telegraph Company's buildings, and other points. At the same time, pneumatic tubes for the transmission of written messages by the air blast are also being located on the line of the telegraph pipes. The pneumatic tubes are made of brass.

It is greatly to be hoped that this system of underground telegraphy may be extended throughout the whole city, to the exclusion of the present unsightly poles. That the plan is fully practicable has been amply demonstrated in London and other European cities.

The Discoverer of Bromine.

SCIENCE in general, and photography in particular, has just suffered a considerable loss in the death of M. Balard, who died recently in his 74th year. The illustrious chemist, to whom we owe the discovery of bromine, succeeded Baron Thénard in the professional chair in the Faculté de Sciences, in 1844, and Darcet as member of the Academy. He replaced Pérouse in the Collège de France, in 1851. M. Balard was President of the French Photographic Society, where his zeal for the new art, his great attainments, and his charming urbanity, won the respect and affection of all

Spontaneous Combustion.

"Yesterday, about three o'clock, a disagreeable odor was observed in and about R. H. Delmage's carpenter shop; a search was immediately instituted, and smoke was discovered issuing through a small crack in the floor, but in such a thin vapory state that it was at first taken for dust; a more careful examination revealed the fact that it was really smoke. There being no other means of access, the floor was immediately torn up, when it was found that sawdust had accumulated to the depth of some five or six inches, and of course some saw filings and other debris had become mixed with the sawdust; this combination was thoroughly saturated with boiled linseed oil, which had leaked from a large can placed immediately above it; from this mass the smoke was issuing, and further examination verified the startling conjecture that beneath the surface this composition was all on fire and was actually in a charred state. The surface was entirely unbroken, and smoke oozed slowly out, something as from a coal pit. There was no means of ingress to render it possible to have been the work of an incendiary, and no possible means of the fire in any way having come from above. The only solution of the matter seems to be that it was a case of spontaneous combustion. Mr. R. H. Delmage, the owner of the shop, is a man whose veracity will not be questioned, and, besides, we have the same facts attested by several others who are among the most reliable and intelligent men in this community. Here, now, is a question for scientists. Will a combination such as the above generate fire? If so, the sooner that matter is settled the better. But for the timely discovery, great damage would certainly have been the result.—*Afton (Iowa) Tribune*, May 4.

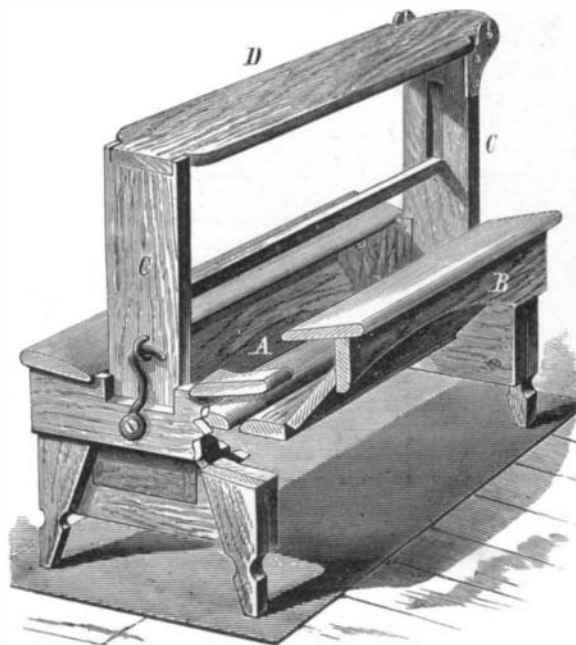
[We would inform our cotemporary that it is very well known that a combination of oil and combustible materials, such as that above described, will produce spontaneous combustion. Many such examples have been recorded in the pages of the SCIENTIFIC AMERICAN.—EDS.]

Purification of Sulphide of Carbon.

Instead of the usual method of purification with mercury salts, S. Kern recommends the nitrate of lead, pulverized and mixed with a little metallic lead. The bisulphide is shaken with fresh quantities of the salt as long as it continues to blacken it; then it is decanted and distilled. The affinity of lead for sulphuretted hydrogen and sulphur in general leads us to believe that Mr. Kern's method will prove a good one. Strips of bright metallic copper will also soon remove the color and much of the odor from bisulphide of carbon. Unfortunately exposure to light causes both odor and color to return.

WHITE'S IMPROVED WASHTUB STAND.

Housekeepers will, we think, be pleased with the new invention herewith illustrated, which is intended as a useful convenience for the laundry. It combines a hollow stand in which clothes may be kept until the arrival of wash day, an arrangement for supporting washtubs, and an ironing board. The clothes are placed in the receptacle, A, and the inclined opposite ledges, B, serve to receive the tubs. C C are hinged sections which sustain the ironing board, D. The latter fits between two studs at one end, and has at the other two side pivots that enter into section bearings, one of which is open to permit the ready removal of the ironing board when not required for use. The hooks shown on the ends of the stand also serve to hold the sections, C, in verti-



cal position. By closing the sections, C, and placing the ironing board on the stand, a very good bench is formed. The