

New Inventions.

Improvement on Saddles.

Mr. George Fisher has invented a very excellent improvement on riding saddles, which will enable the equestrian to ride the "flying courser," with a great deal more ease and pleasure than with the old kind of saddles, and it will also be easier for the animal. The improvement consists in having the seat of the saddle portable, or capable of being detached from the pad, (the old ones are fastened,) and by constructing the inside of the seat on both sides, and the surface of the pad, in such a way that coiled or elliptical springs may be placed between the seat and the pad, thus preventing jolting and jarring, by graduating the irregularity of action, and enabling the rider to sit and enjoy a gentle and easy motion on horseback.

Measures have been taken to secure a patent.

Cast Iron Sills.

Experiments by P. W. Barlow, C. E., lead him to recommend the substitution of cast iron sills for wood, as the only means of preventing those irregularities which prove so destructive to the way and to the carriages, as well as wasteful of the locomotive power and mechanism. He finds it to be a mistake, that a partially soft elastic material such as wood is requisite to smooth and easy motion; the more rigid, and level, and polished the surface, the easier has he found the traction, and the better suited at least to railway transit. Cast iron sleepers in two halves, with half chairs fitting the rail, and bolted together so as to avoid the use of the key, is that construction to which experiment has led him to yield the preference, from the facility with which it is laid, from the perfect joint which it gives, and the security from breakage in the event of getting off the line. The point of the meeting of the plates is situated between the chairs, so that the bolts act under a spring which destroys all liability of loosening, to which he has found any tendency.

Cure for Smoky Chimneys.

A writer in the "Builder," (London), says, "my experience is corroborative of the efficacy of the system of contraction at the bottom of the flue and the reverse at the top. I have tried it for the last dozen of years, and it has always succeeded. The last cure which I effected on this principle was a drawing-room chimney of a detached cottage, where the draught down the chimney was so strong as to drive the flame as well as smoke into the room."

The plan adopted was to cut into the back of the chimney exactly above the fire place and insert two chimney pots, a small and large one, applying the small end of the least downwards nearest the fire, and the small end of the larger one on the top of the small one, to carry the smoke into where the flue was of the regular size.

Transatlantic Telegraph.

John A. Roebling, Esq., Civil Engineer, of Trenton, N. J., considers the construction of a line of telegraph wire across the Atlantic entirely practicable, and the cost not to exceed \$1,300,000, on which he thinks very large dividends may be expected, 25 per cent. at least. His design is to sink a strong wire rope upon the bottom of the ocean. The wire rope to be composed of twenty strands of No. 13 or 14 wire, perfectly separated from each other and isolated, so that they will form twenty different and distinct transmitting wires, by which twenty machines can be operated at each end and twenty messages despatched at one time. He says, that iron wire of No. 14 size, measuring 50 feet per lb., possesses sufficient conducting capacity for the transmission of telegraphic currents, provided it is perfectly insulated, a necessary condition, no matter what size of wire is employed. The wires being perfectly insulated and protected against the action of the sea water, quietly resting upon the bottom of the ocean, where nothing whatever can disturb them, their efficiency may at all times be depended on—they will remain

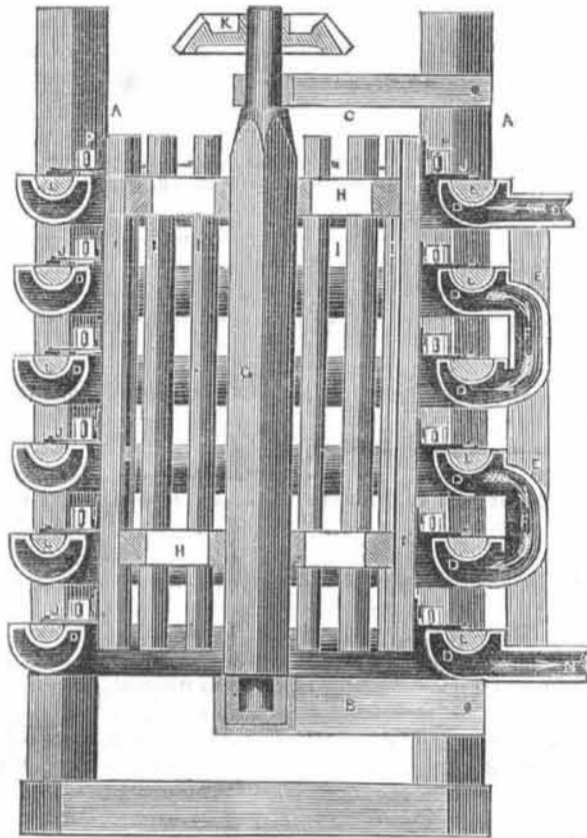
free from those vexations interruptions which are constantly interfering with land telegraph operations.

Balloons for the Arctic Expedition.

A correspondent, "Americus," in last Saturday's Tribune, suggests the using of balloons, to be taken by the two American vessels which are to go in search of Sir John Franklin. He should have credited the idea to the recent expedition which left England

for that purpose. It is publicly known that a great number of small balloons have been taken out, with materials for generating the gas. These balloons are to be sent up with papers in them stating where the expedition is, where stores may be found, &c. If Sir John is alive, and shut up in some inaccessible place, some of these balloons may reach him. The suggestion of Americus is no doubt a good one, and we hope it will be acted on by Mr. Grinnell's Expedition.

IMPROVED GRAIN DRYER.—Continued from First Page.



This engraving is a vertical section of fig. 1, showing the manner in which the steam is admitted, and how it passes into and around each drying pipe, and how it escapes. The form of the drying pipes, is also clearly represented. D D represents the hollow parts of the drying pipes, and the arrows indicate the course of the steam which enters at one side of the metal boxes, E, through the pipe, O, where there is a division plate in the hollow part of the pipe, then it passes all round and out at the other side of the division plate and down into the next pipe by the connecting metal box, F, and so on, passing around and heating all the pipes, and then passes out at the pipe, N. A A are the supports; P P are the flanges by which the pipes are secured by bolts to the supports. L L are the rakes, moving in the hollowed or concavo parts of the pipes; J J are the shoulders of the arms, I, on which the rakes are secured; G is the vertical shaft; B is the step on which the lower

gudgeon of the shaft revolves, and C is the upper supporting step. The frame which revolves the sets of rakes for each pipe, is like a vertical reel revolving with the shaft and propelled by the cog-wheel, K. This reel has radiating arms, and circular felloes, H, to which the arms are secured, all constructed and arranged for convenience and economy to revolve the rakes. The hopper is not shown, neither the delivery of the grain from one pipe to another, but all these things will be perfectly understood. This machine has been in successful operation for a considerable time by Mr. Snead, heated by the exhaust steam from his engine, and it has been perfectly successful, accomplishing its work well, and with great economy and safety. Any number of drying pipes may be employed, and it will dry all kinds of grain and meal, to fit it for safe keeping and transport.

Measures have been taken to secure a patent.

Abstract of some British Patents recently granted.

STEAM PLOW—Mr. James Usher, of Edinburgh, Scotland, has invented machinery for plowing, which principally consists of a series of rotary plows actuated by steam power.—He employs a locomotive boiler and engine placed in a frame above the wheels, the weight being so disposed as to be principally over the hind wheels. The fore wheels are fitted to a revolving frame, similar to an ordinary road carriage, to be turned round in a small compass. The plows can be elevated or depressed for deep or shallow plowing. The plows are placed so as to come into action successively, and a large spur wheel is employed to drive the plows on their shaft, they having a revolving motion, being circular, with one side each to turn over the furrows. A steam plow would not pay in America, except it may be on some of the rich southern plains, where an abundance of coal is to be found at a moderate price.

IMPROVEMENTS IN THE MANUFACTURE OF STEEL—John Holland, Esq., of Clapham, England, has discovered a singular way of converting iron into steel by employing the cocoons of silk worms, after the silk has been

wound off, then drying it highly, but not carbonizing, grinding it into powder and using it to make the steel by the ordinary process of cementation.

ANOTHER INVENTION RELATING TO THE SAME SUBJECT—Mr. J. M. Heath, of Hanwell, Eng., has taken out a patent for making steel, by converting iron into steel by a process of cementation, with manganese and carbon. The process is to obtain metallic iron from the purest ores, the magnetic being preferred. The metal thus obtained is reduced to a granular state and mixed with manganese and carbon, or carbonaceous matter, then heated to a welding heat in a suitable furnace, then formed into a bloom, and then made into slabs of a suitable size for the next operation, which is that usually employed to make iron into steel. The invention is in the preparation of the metal, to make it into blooms for that purpose. To 100 lbs. of granulated iron, 2 lbs. of chloride of manganese is used, and two gallons of coal tar. All these are mixed together and brought to the white heat spoken of.

Fire-Proof Paper.

Messrs. E. Cart, proprietors of one of the largest paper manufactories in Germany, at

Newstadt, Elberswald, has invented an incombustible cartridge paper termed "stone paper," which is now being used there for the roofing of houses. It is strong, durable and cheap. A commission of the government have tested it, and reported that it is impermeable and fire-proof, and they recommend its use for cheap roofing.

Singular Clock.

Joseph Cusson a farmer at Arguillon, France and only 25 years of age and with a very limited education, has but a short time ago completed a most wonderful piece of mechanism in the form of a clock. It is provided with several dials, which mark the hours, minutes, seconds, the days of the week, those of the month, the months of the years and centuries; the rising and setting of the sun, the rising and setting of the moon, &c., the *tout ensemble* moving with a regularity and precision truly remarkable.

The wheel works being admirably arranged behind a glass front, which is interposed for the purpose of protecting the delicate machinery from dust the visitor is enabled to examine the whole at a glance, and to satisfy himself of the wonderful perfection of each part of the apparatus, as well as of the regularity of its movements. Below the wheels and dials, upon a surface about a yard in length, ranges a beautiful gallery, with cells in the middle and a tower at each end. When the hour is about to strike, the door of one of the cells is seen to open, and Time, armed with his scythe, comes forth, followed by our Saviour, who, with whip in hand, pursues and drives the grim messenger before him, forces him into a cell, and secures the door. At the first stroke of the clock, a small cock, perched upon a cross surmounting one of the little towers, flaps its wings and stretches out its neck, as if about to crow. The striking of the clock having ceased. Time and the Saviour return to their respective cells, into which they enter and close the doors.

Three times a day, namely, at six o'clock in the morning, at noon, at six o'clock in the evening, by means of an ingenious piece of mechanism, the sound of the Angelus is heard. The Holy Virgin, leaving her cell, appears for a moment on the gallery, and then enters a chapel; at the same instant an angel is seen to descend, flapping its wings, from one of the miniature towers, and entering the chapel, places itself near the Virgin, towards whom it inclines, as if about to address her with the sublime salutation of which we read in the scripture. Mary becomes agitated; she trembles, and the beholder may perceive her holy fear. This touching scene takes place during the three first strokes of the Angelus. The angel twice ascends, and as often repeats the same movements and the same salutations just described.

The whole of the wheel-works are composed either of wood or brass. What an amount of patience, to fashion and impart to them that degree of finish and nicety of action so necessary in a work of this description! During the day, this peasant industriously labored in the fields, while at night, by the pale glimmer of a candle in one corner of his small inconvenient garret, he completed his wonderful clock. The obstacles which he must continually have had to contend against, would have effectually disheartened a less determined or enthusiastic mind. At every step a difficulty presented itself; but difficulties neither disturbed his patience nor shook his courage; he planned, reflected, and success crowned his efforts.

What greatly enhances the merits of young Cusson, is having done all himself; with his own hands he made the turning-lathe, the greater part of the tools with which he wrought, as well as the wood and brass wheels and their appendages, &c. And his work is so exquisitely fashioned and so beautifully finished, that it would be an ornament to the most elegant saloon or drawing room.

Marine Night Signals.

At a recent meeting of the Scottish Royal Society of Arts, R. Rettie, C. E., read a paper on the necessity of employing one universal system of marine night signals to prevent collisions at sea, and to show night signals of distress. There can be no doubt of the necessity and utility of such signals.