

**New Steamship Humboldt.**

This fine new ship, the consort of the Franklin, made her trial trip on Wednesday last week.

The interior of this vessel is remarkable for its simplicity; but, though plain, it is not wanting in elegance, and possesses for passengers and crew every essential comfort. The dining saloon runs aft to the stern lights, and is adorned with costly paintings, burnt in enamel. The state rooms, arranged in the saloon below, have excellent ventilation and are well lighted. The shafts of the engines work below the main deck, and the operation of all the machinery may be surveyed from the upper gallery of the engine room.

Her style of construction and her dimensions may be obtained from the following: length on deck, 290 feet; of keel, 283 feet; breadth of beam, 40 feet; depth 27 feet; registered tonnage, 2,200 tons. In place of the usual curved bow, her's is perfectly straight, and thus affords 6 feet additional breadth of deck room. The body of the vessel is of live oak, and by an adaptation of double floors, no butts or joints are visible below the engine and boilers. Her frames and timbers are secured by iron and copper bolts. The Humboldt is rigged with three masts and has no bowsprit.

The cylinders of her two side lever marine engines are 95 inches diameter, with pistons of 9 feet stroke; diameter of wheels 35 feet; shaft 21 inches. She has four of Miller's patent boilers, each 11 feet diameter by 27 feet 6 inches in length, and containing 32 furnaces.

She went out past the Light ship and returned about 4 p. m. We like her hull, she is sharp and of a graceful model. Her builders are Messrs. Westervelt and Mackay. Her engines were built at the Novelty Works by Messrs. Stillman & Allen.

**The Earth's Motion made Visible.**

We have seen accounts, in foreign papers, and many extracts in papers at home, stating that there was an experiment now going on in Paris, whereby the diurnal motion of the earth was rendered palpable to the senses. It is thus described:—

"At the centre of the dome of the Pantheon a fine wire is attached, from which a sphere of metal, four or five inches in diameter, is suspended so as to hang near the floor of the building. This apparatus is put in vibration after the manner of a pendulum. Under and concentric with it is placed a circular table, some twenty feet in diameter, the circumfer-

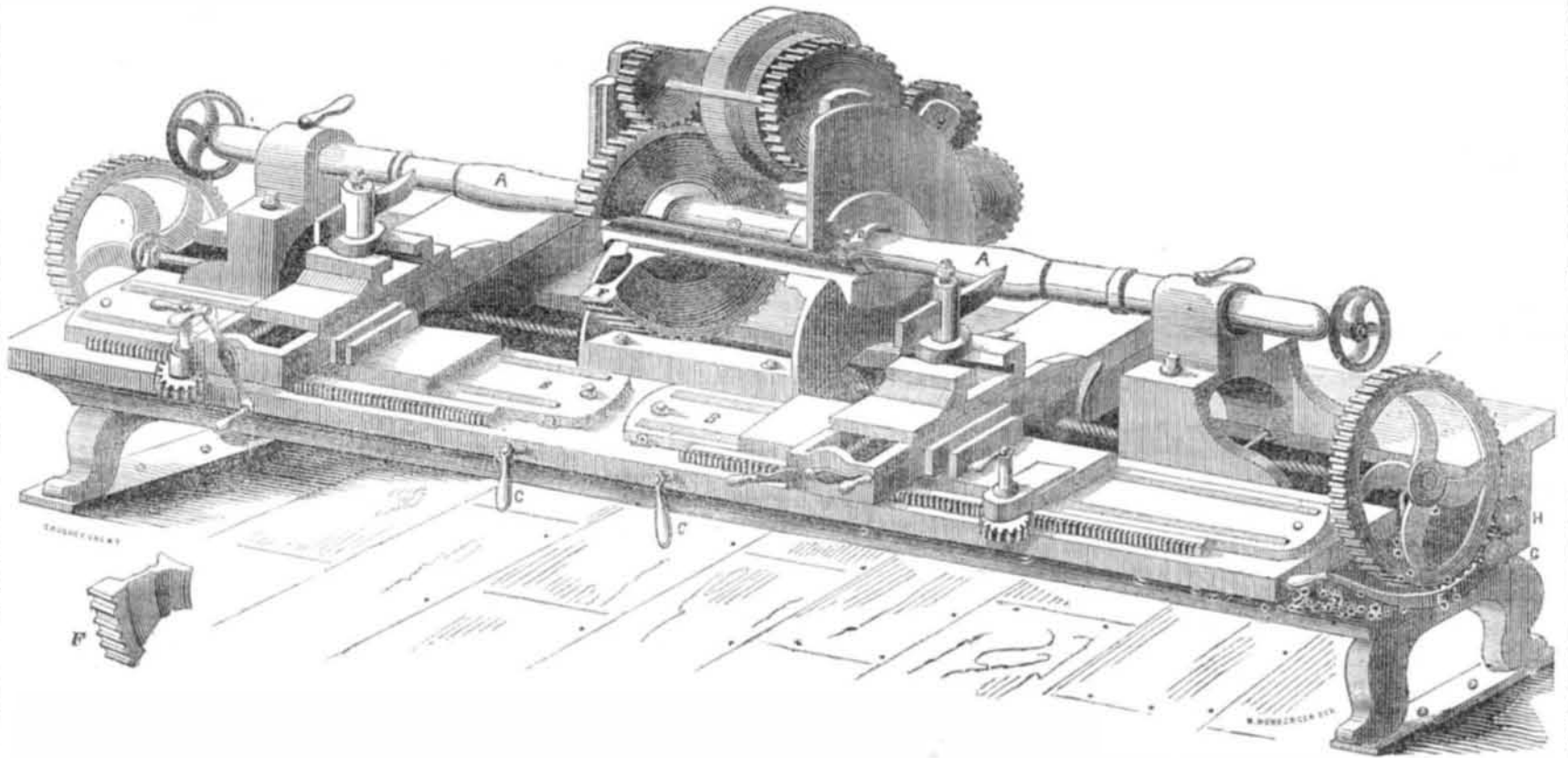
ence of which is divided into degrees, minutes, &c., and the divisions numbered. Now it can be shown by the most elementary principles of mechanics that, supposing the earth to have the diurnal motion upon its axis which is imputed to it, and which explains the phenomena of day and night, &c., the plane in which this pendulum vibrates will not be affected by this diurnal motion, but will maintain strictly the same direction during twenty-four hours. In this interval, however, the table over which the pendulum is suspended will continually change its position in virtue of the diurnal motion, so as to make a complete revolution round its centre. Since then the table thus revolves, and the pendulum which vibrates over it does not revolve, the consequence is, that a line traced upon the table by a point projecting from the bottom of the ball will change its direction relatively to the table from minute to minute, and from hour to hour, so that if such point were a pencil and that paper were spread upon the table, the course formed by this pencil during the 24 hours would form a system of lines radiating from the centre of the table, and the two lines formed after the interval of one hour would always form an angle with each other of  $15^\circ$ , being the 24th part of the circumference."

If any person by this experiment can be impressed with either seeing or feeling the earth in motion, it is strange to us, and so it will be to any person acquainted with astronomy or horology.

**Manufacture of Precious Gems.**

M. Ebelmen, the very distinguished mineralogist, director of the national porcelain manufactory of Sevres, France, has succeeded in producing crystalized minerals, resembling very closely those produced by nature; chiefly precious and rare stones employed by jewellers. To obtain this result, he has dissolved in boric acid of alum, zinc, magnesia oxides of iron, and chrome, and then subjecting the solution to evaporation during three days, he has obtained crystals of a mineral substance, equaling in hardness, and in clearness and in beauty of color, the natural stones. With chrome, M. E. has made most brilliant rubies, from two to three millimetres in length and about as thick as a grain of corn. This gentleman, the successor at Sevres of the illustrious Brogniart, has already connected his name with some remarkable improvements which have lately distinguished famous establishments, and he is universally designated for the vacant place soon to be filled in the Academy of Sciences, section of mineralogy.

**WHITE'S LATHE FOR TURNING TAPERS AND CAR AXLES'**



This improved Lathe is the invention of Mr. J. D. White, of Hartford, Conn., and was secured to him by patent on the 21st of May, last year.

A small perspective and a transverse section of this lathe were illustrated and described on page 121, Vol. 4, Sci. Am., before the patent was secured. Some improvements have been made in the details since that time, and one has been in operation for the past year in the establishment of Tracy & Fales, Hartford, gentlemen of enterprise and probity who have, during that period, turned off over 2,000 axles on it, and have not spent a single dollar on it for repairs. They state that it saves the labor of one man, and saves one lathe in turning axles. Mr. Hovey, their foreman, states that one man turns off six axles per day with it, and he considers it to be the best lathe for axles ever constructed.

The accompanying engraving is a perspective view, showing an axle placed in the lathe. A A is the axle. It will be observed that the chuck is in the middle and double, and that the two ends of the axle are acted on at the same time, for there are two slides and two cutters. The chuck gear wheel has a slot cut in it, and the chuck is constructed with slots in the centre heads, so that a heavy axle can be placed in and taken out with great facility. F is a section of the large gear wheel on the chuck, to fit into the slot so as to drive the

chuck by one pinion above, but this section is not absolutely required, as a compensation pinion is placed behind the direct driving one. The principle feature of this invention consists in moveable ways, which can be and are set to any angle so as to guide the cutting tool or tools (one or two) to turn any desired taper on the axle, or to turn it perfectly in line, as may be necessary. B B are the movable ways and the slides with the two tool stocks slide on them. These ways are guides for the tools by directing the slides. These ways are secured, each on a vertical axis at one end, and at the opposite end, B, it is moved in and out, and thus it can be set to guide the slide with the tool to form any angle with the axle in the lathe. C C, are handles of setting screws to move the ends of the ways in and out to any desired point. There are stops on the table of the lathe near the ends of the ways, to hold them at any part on the width of the table. The screws on the ends of the ways are to fasten them down. The lathe is fed by the apparatus and gearing common to all lathes. The large gear wheel at each end feeds by a screw in the common way, and H G are pinions fixed on a swinging lever, E, to gear the feed direct, and for the reversing motion. The bands and pulleys are not shown, as they are down below and behind the lathe. The tool stocks have reversing pinions, to move the slides rapidly back by hand. The cutters can

be set near to or distant from the axle by the setting screws shown, so as to cut large or fine chips. It will be observed that while one cutter is turning the taper at one end, the attendant can be squaring up his journal, which requires his attention, at the other. The dog, D, catches into the chuck head to carry round the axle. A screw bolt can be and is set through the tube of the chuck to retain the axle firmly and prevent it from springing at the centre, when the cutter is making large chips. The centres of this lathe are always in line, and are never required to be set off, thus the centres are preserved true under all circumstances. A taper of any degree can be turned, and by using a card of reference, a taper of a certain degree may be turned today, and in a year hence, by reference to the card, the same taper may be cut to a diamond shaving, by setting the way in a moment to the indicated point. The principle of the movable guide ways is as applicable to a single as a double lathe, and its convenience and utility are self-evident, for it is as well adapted to parallel turning as to taper turning. It is singularly adapted to chucking, and the facility with which work can be chucked by it is one of its essential qualities.

Mr. White is now having small single lathes made, embracing the tapering principle, which are better adapted to all kinds of chucking, turning, screw cutting, and general job work

than any other kind of lathes. The centres always remain in a direct line, which prevents the wearing of the work at the centre, as is usually the case when the centre in the tail stock, in common lathes, is set off to turn a taper. The way is set by an index and pointer, and the tool moves as guided to any angle along the whole way. By having a card on which are noted the number of degrees required to fit the drill socks, drill, centres and tapers that are used in machine establishments, the way can be set at any future time to the required angle noted on the card.

The large lathe weighs 4,000 lbs., and costs \$600. A small lathe (screw engine) embracing the taper principle weighs about 1500 lbs. and costs \$225. A cutting off feed, as an extra, applied to the tool stock, with back rests, for cutting off forged axles, is furnished, if required, at an additional expense of \$50.

Mr. White is agent for almost every description of machinery, and will warrant every piece that goes through his hands.

**Cholera in Animals.**

Evidence was produced to the French Academy, showing that during the prevalence of the cholera in France, horses were observed to be affected with the disease in a like manner with men, and that often, in the case of other epidemics, a common liability of men and horses had been noticed.