

New Inventions.

Float Protector in Steam Boilers.

Wm. H. Akins, of Ithaca, N. Y., has invented a new improvement for protecting the float which is employed for indicating and regulating the height of water in steam boilers. The float in steam boilers is oftentimes rendered very unsteady in its action by the foaming of the water in the boiler, and it therefore fails to indicate with accuracy the level of the water, and though often used as a means of governing the feed, it is not perfectly reliable. This improvement protects the float by enclosing it within a chamber, which extends from the top of the boiler down to the lowest range of the float, and which only has communication with the other part of the boiler through a number of small openings sufficient to keep the same water level and the same pressure of steam, within as without the casing. The water within this chamber will remain free from agitation during the time the most violent agitation is going on without, leaving the float unagitated, to indicate the water level.

Reaping and Mowing Machines.

John J. Weeks, of Oyster Bay, Long Island, N. Y., has taken measures to secure a patent for an improvement in reaping and mowing machines, consists, 1st, in the employment of a track clearer of a spiral form placed at the side of the machine opposite to the side where the gearing is secured. 2nd, in peculiar means employed for elevating and depressing the front end of the machine for the purpose of enabling the cutter to be set the required distance from the ground, to cut close or otherwise, and to be easily raised over any obstruction that may be in its path. 3d, The fingers are formed with a series of notches in their sides, immediately below the slots in the fingers, through which the teeth of the cutter pass, to prevent the grass or grain from being forced outward by the teeth when acted upon by them. 4th, Each tooth of the cutter or sickle works through the fingers, and every alternate tooth is bevelled in a direction opposite to the intervening teeth, so that if one tooth is so bevelled that its cutting edge works over the upper edge of the slot in the finger, the cutting edges of the two adjoining teeth will work over the lower surfaces of the adjoining fingers, and thus prevent clogging.

Improved Cotton Gin.

Israel F. Brown, of Columbus, Ga., has taken measures to secure a patent for an improvement in cotton gins, the nature of which consists in constructing the ribs in such a manner that the parts of them which wear out may be several times renewed without taking the bars from the machine. A cast iron hub with two or more arms at equal distances apart is employed; each of these arms is of the form of the upper portion of a rib, and contains a chilled part, corresponding with the chill in the arms usually employed. A number of these hubs corresponding with the required number of ribs, are arranged upon a shaft at equal distances apart, and one arm of each hub is made to occupy the position usually occupied by the upper part of a rib. Short ribs corresponding in form with the lower part of the ribs usually employed are secured to a bar, corresponding with the lower rib bar which is usually employed. The upper ends of these short ribs, fit to the lower ends of the arms on the hubs in such a manner that when the hub shaft is properly secured the short ribs and the arms, form a series of ribs like those commonly employed. When one set of arms is worn out, the shaft on which they are secured, has but to be turned in its bearings to bring a new set into contact with the short ribs; it is thus that the wearing parts are renewed, as completely as if a new set of ribs were furnished.

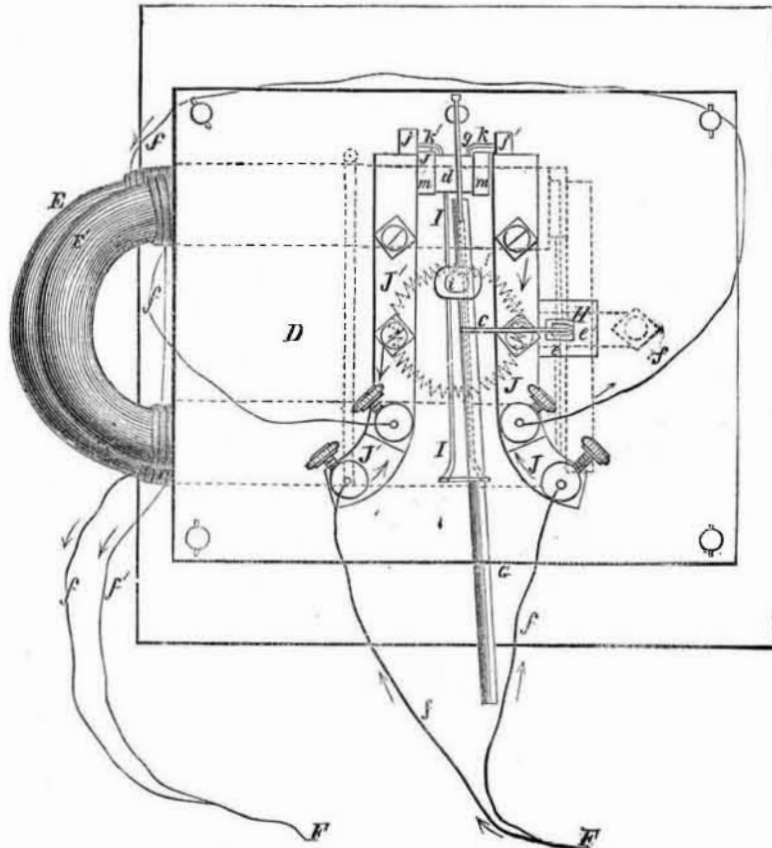
A memorial has been received by Congress, from the American Association for the advancement of Science, setting forth the necessity and advantages of establishing a national Geographical Department.

Halls Telegraph Clock.  
[Continued from the First Page.]

brought between the brass pieces, *j j*, on the magnets, *J J*, and thus the circuit through the wire, *f f'*, is broken, and a circuit is formed through the wire, *f*, following the direction of the arrows, figure 4, running from the magnet, *E*, along, *f*, above, and back from the thumb-screw, at *f*, on the lower wire below. The magnet, *E*, now attracts the armature, *e*, and the beam and pendulum resume the position

shown in said figure. By a repetition of this operation, the beam receives a continuous vibratory motion, and gives motion to the clock movement, and at the same time furnishes the maintaining power to keep up the motion of the pendulum. The main arbor, *K*, of the clock movement receives motion from the beam by means of two click teeth, *n n*, at equal distances from the center of the beam; they act upon the ratchet wheels, *l l*, on the arbor, as the beam vibrates. These ratchets have thirty

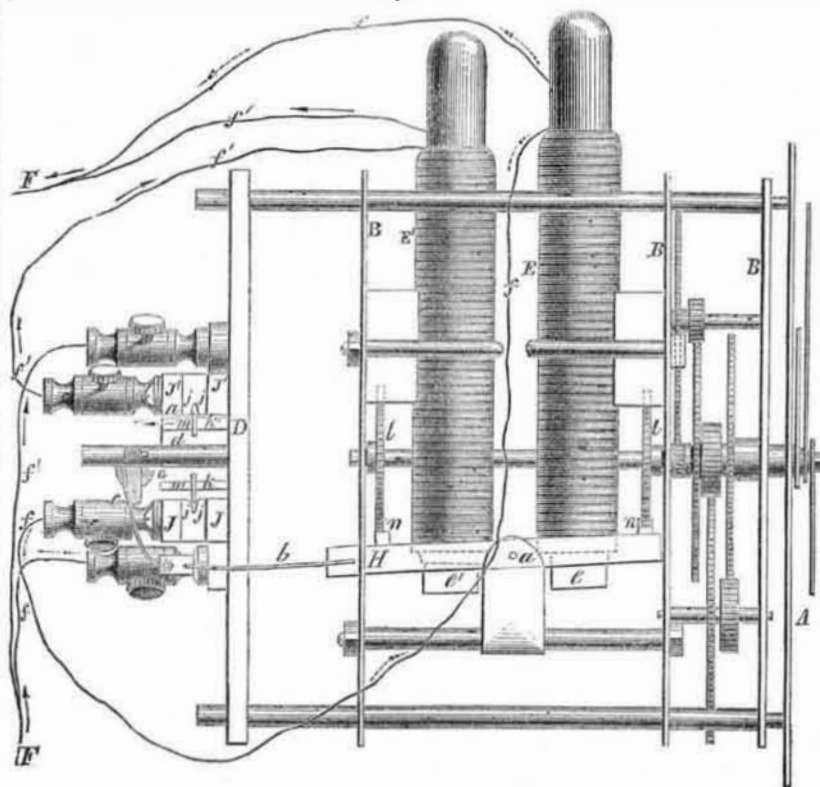
Figure 3.



teeth, and are arranged upon the shaft with the teeth of one opposite the spaces on the other; one click falls into a space at every vibration of the beam, and thus causes the ratchets to move half a tooth, thus requiring sixty vibrations of the beam to revolve the arbor once. The arbor has the second hand of the clock fast upon it, and the pendulum is of the proper length to vibrate once in a second; the second hand therefore makes one revolution in a minute. Motion is transmitted from the arbor, *K*, to the minute and hour hands by a suitable train of wheel-work.

This clock is believed to possess advantages over all other electric clocks. One consists in the application of the power to the pendulum near the axis of oscillation, as in the common clock that is driven by weights or springs, instead of at the pendulum ball. When the power is applied at the ball, variations in the strength of the battery, make the pendulum move irregularly. Another consists in the mode of applying the power by means of the vibratory beam and spring—the latter preventing shocks and deviations of the pendulum from a uniform isochronal movement, which might

Figure 4.



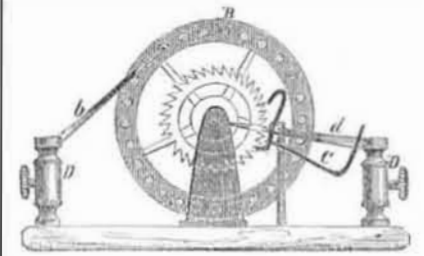
otherwise be caused by atmospheric influences and variations in the battery. The method of closing the circuits through the two electromagnets, and the arrangement for securing the connection, by which the circuits are closed, are such as to ensure perfect operation.

This clock is capable of communicating motion to a number of other clocks, and to them the motion may be communicated in a number of ways, but the most simple plan is to furnish each of the subordinate clocks with a single electromagnet, and to carry one of the wires, *f f'*,

around the whole series of magnets, before uniting it with the wire, *F*, as shown in fig. 1. A beam with the armature of the magnet attached to one end, and with a light spring at the other, applied in such a way as to throw the armature away from the magnet when the circuit through the wire is broken, will serve to give motion to the main arbor of each clock, in the same manner as the beam, *H*, gives motion to arbor, *K*.

Figure 5 represents a new mode of breaking and closing the electric circuit by means of an ordinary clock, when the pendulum is propelled by weights or springs. This improvement dispenses with a great portion of the battery power, which is required in the other case where the regulator or governing clock is moved by electricity, as described, so that a common regulator clock with this circuit breaker attached, can break and close the circuit of a line of clocks, without interfering with the motion of the pendulum in the least. There is a brass wheel, *B*, secured on the crown shaft, around the rim of which are thirty ivory pins, *a a*, equi-distant, with thirty intervals of brass of equal surface. On either side are binding screws, *D D*, from which wires pass in the usual manner to the battery, and through the line of clocks. To each of these binding screws is secured a small spring, *b d*, with a platinum point resting on the surface of the key wheel, to secure the connection of the electric circuit. The point of the spring, *d*, passing near the shaft, rests continually on the brass surface, while the point of the spring, *b*, rests alternately on the ivory and brass as the crown shaft revolves. Thus at one vibration of the pendulum, the platinum point of the spring, *b*, rests on the ivory pin, or other non-conducting substances, which breaks the circuit through the whole line of clocks, when the armatures are drawn back from the magnets, by means of a small

FIG. 5.



spring, in the usual manner; but at the next motion of the pendulum the key wheel moves a sufficient distance to bring the platinum point in contact with the brass, which closes the circuit throughout the line of clocks, bringing up the armatures of each magnet, which gives motion to the works of each clock on the line as described. Substituting this improvement for the pendulum clock, figure 1, its application to move the whole line of clocks in that figure will at once be understood.

One great advantage accompanying this invention is the employment, by Prof. Hall, of an electric battery upon a new principle, the expense of which is very small indeed. We have one of these batteries in our possession, and consider it to be one of the most economical we have ever seen.

Prof. Hall has sold a portion of this invention to James M. Thomson, of 505 Broadway, and Messrs. Smith Reeve, & Co., machinists, corner of Canal and Center streets, who can be consulted in reference to the matter. The attention of railroad companies is invited to this improvement, as one for increasing the safety of the travelling public.

The inventor proposes giving a public demonstration with a series of telegraph clocks in a short time, having been tendered the use of the Merchants Exchange in Wall street, for that purpose.

More information may be obtained by letter addressed to Prof. Hall, at Loydsville.

Sewing Machine---Important Patent Case.

We have received a newly printed copy of the late decision of Judge Sprague, of Boston, in the Sewing Machine Case, of Howe, vs. Underwood. Having no room to present the subject clearly in this, we will take the opportunity of doing so in our next number. This decision is of great importance to all those who use, construct, and sell sewing machines.