Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME IX.] NEW-YORK APRIL 8, 1854. [NUMBER 30.

THE SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY,
At 128 Fulton street, N. Y. (Sun Buildings.)
BY MUNN & CO.

Agents.

Federhen & Co., Boston.	Dexter & Bro. New York
Stokes & Bro., Philadelphia.	B. Dawson, Montreal, C.E
Cook, Kinney & Co., San Francisco.	M. Boullemet, Mobile, Ala
Le Count & Strong, San Fran.	E. W. Wiley, New Orleans
Avery Bellford & Co., London	E. G. Fuller, Halifax, N. S
S. G. Courtenay, Charleston.	M. M. Gardissal & Co. Paris
	S. W. Pease, Cincinnati. O

Responsible Agents may also be found in all the principal cities and towns in the United States.

TERMS—$2 a-year:—$1 in advance and the remainder in six months.

Steamboat Disasters.

During the operation, last year, of the new Steamboat Law, for the better preservation of life, we had great reason for congratulation on its success during that brief period. We were always fearful, however, of things soon dropping back into their old and terrific condition; and these fears, we regret to say, have been verified. When the law was passed, we stated that however good and stringent were its provisions, they were all worthless if the officers appointed to carry them out were either incapableof, ornegligent in performing their duties.

Since the opening of navigation, this year, on our Western waters, three dreadful casualties have already taken place. The explosion of the "Kate Kearney" we described on page 211; since then the steamer "Caroline" was burned, and 40 lives lost; and on the 13th ult. the "Reindeer" exploded her boilers at the first turn of her wheels in leaving the wharf at Cannelton, Ky., by which from thirty to forty persons were instantly killed, and a great number dangerously wounded. The scene of agony, it is said, baffled all description. This vessel was bound down to take the place of the "Kate Kearney," and was said to be a fine boat. It appears to us that the Inspectors on our Western waters have not done their duty, or these accidents would not have occurred. We hope their conduct will be promptly investigated, and we call upon the government to issue a Commission at once for this purpose. The country holds the President and his Cabinet responsible for the improper execution of the laws. The blood of 150 of our fellow beings, who have been murdered within two months by explosions and burnings, cry aloud for judgment against the guilty.

The Courage of Science.

Courage in the battle-field is celebrated in history and in song, but little is said of the courage exhibited in pursuing scientific investigations, though often displaying more real elements of braverythanever were called into action in war. It is said that when Arago and Dulong were employed by the French Government to make experiments upon the subject of the construction and safety of steam boilers, the task executed by the two philosophers was one of as much danger as difficulty. The bursting of boilers, to which they were constantly exposed in a limited locality, was more hazardous than that of shells upon a battle field, and while military officers who assisted them—men of tried courage in the conflict—grew pale and fled from the scene, the savans proceeded coolly to make their calculations, and observe the temperature and pressure upon boilers almost at the very point of explosion.

Another Asteroid.

A new planet has been discovered between Mars and Jupiter, making the twenty-eighth of the group of asteroids, which are supposed to be the fragments of a large planet that once existed between Mars and Jupiter. The new member of this group was discovered almost simultaneously at Bishop's observatory in London, and at Radliff's in Oxford.

HALL'S TELEGRAPH CLOCK.

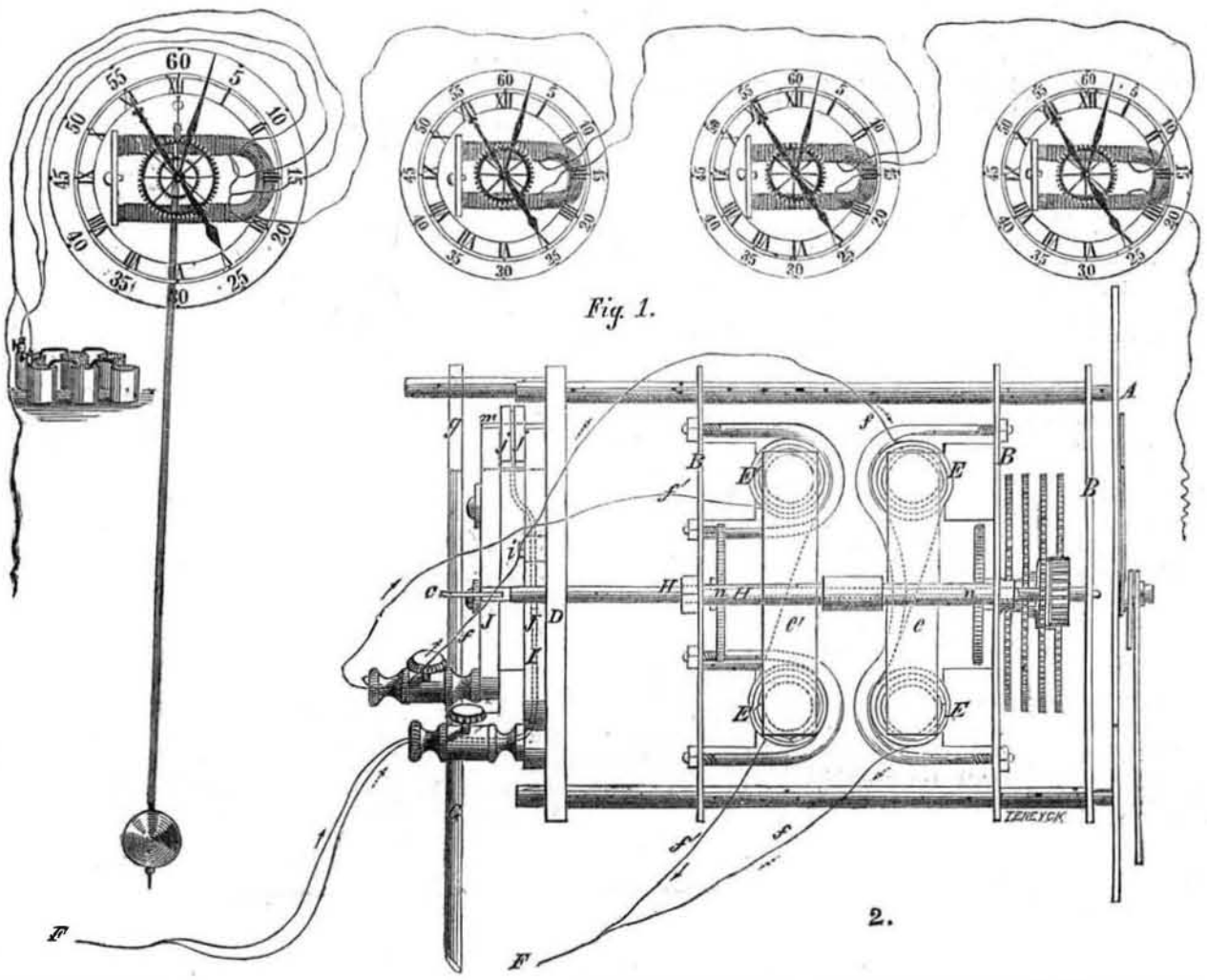

Fig. 1.

2.

The annexed engravings are views of the Telegraph Clock of Prof. Alexander Hall, of Loydsville, Ohio, who has taken measures to secure a patent for the same. The great object of this clock is its application to railroads for maintaining uniform time at all the stations (the whole series of clocks in the line being moved by one) in order to prevent accidents, a numberof collisions having occurred by the variations of clocks at different stations, and the time kept by the conductors.

Figure 1 is a front view of a series of clocks, each at a different station on the line of railway, and all operated by one pendulum; figure 2 is a side view of the clock, constructed like the one with the pendulum in figure 1; figure 3 is a back view of the same, and figure 4 is a top view. The same letters refer to like parts. Figure 5 is a front view of an improvement applied to a common clock, whereby it can be made to work a series of clocks and make them keep uniform time.

This invention relates, 1st, to certain mechanism which is employed for the purpose of transmitting to the pendulum the motion which is obtained by the alternate attraction of the amatures of two electro-magnets, as an electric current is caused to flow through them. 2nd. It also relates to certain means of closing the circuit as it is changed from one electro magnet to the other, to give motion to the pendulum. 3rd. It also relates to the peculiar arrangement of permanent magnets for the purpose of perfectly securing and retaining the connection by which the circuit is closed, until it is required to be broken or opened.

A is the dial of the clock; B B are the plates, and C C the posts which are of metal, and constitute the frame; D is the back which is of wood; G is the pendulum rod suspended by a spring, *g*, from a post standing out from the back; E E′ are two electro-magnets placed side by side in a horizontal position. Each of these magnets is coiled round with one of two wires, *f f′*, which branch off from and again unite in the wire or conductor, F, which is supposed to be connected at opposite ends with a battery. The two branches, *f f′*, of the wire, F, are for the purpose of making an electric current pass through each of the magnets alternately by breaking the circuit through one branch and closing it through the other; H is a vibrating beam secured on a center pin, *a*; it has attached to it—at equal distances from the center—the armatures, *e e′*, of the magnets. Being thus arranged, by a slight vibratory motion, one of the armatures will be brought in contact and the other thrown out of contact with the poles of its magnet. To the rear end of the beam, H, is firmly attached a thin flat steel spring, Z, which possesses sufficient strength to transmit the necessary amount of maintaining power from the beam to the pendulum, and is connected to the upper part of the pendulum rod by a light wire, *c*. The pendulum as it vibrates gives motion to a light lever, I, of the first order which vibrates on a fixed stud, *i*. This lever is formed of wire and forked at the bottom to receive the pendulum rod, and the rod is allowed some play in the fork. At its top end it carries a small wooden block, *d*, on either side of which is secured a piece of soft iron, *m*, and on the top are two pieces of silver wire, *k k′*, which are bent towards opposite sides, and made of wedge form at their extremities. On one side of the lever, I, a pair of *permanent* magnets, J J, are secured to the back, D, and on the opposite side a similar pair, J′ J′. The magnets of each pair are separated by a piece of ivory or dry wood between them; the pair J J, are intended to form part of the circuit through the branch wire, *f*, and the pair, J′ J′, part of the circuit through the branch wire, *f′*, and hence the wires are connected with their lower ends. The upper ends are not connected, in order that the circuits may be broken, but each pair has two small pieces of brass, *j j*, soldered to the upper poles in such a position that the wedge points of the wires, *k k′*, will be carried between and away from them alternately by the vibrating of the pendulum, and thus close the circuit through one branch wire, and break the circuit through the other, alternately in succession. When the point of either wire is between and in contact with the pieces, *j j*; the piece of soft iron, *m*, on the same side, is in contact with or near enough to the poles of the magnets to be sufficiently under the influence of their attraction to hold the point in its place and thus keep the circuit closed until the proper time for breaking it. The manner in which the change of the direction of the current from one branch wire is effected, is as follows: suppose the pendulum to be in motion, and to have just completed its stroke to the right as shown in figure 3; the lower end of the lever, I, has been moved to the right also, the upper end towards the left, and the point of the wire, K′, has just arrived between the brass pieces, *j j*, on the top of the magnets, J′ J′, as shown in figure 4. The circuit through the branch, *f′*, of the wire is just closed, and about to follow the direction of the arrow running to the left, at F, above in figure 4, and to the right returning at F, below. The beam, H, in same figure, with the armature, *e*, in contact with the magnet, E, which is now inoperative, is just about to move under the influence of the magnet, E′, on the armature, *e*. The movement of the beam and the pendulum take place, and that of the latter—just before it terminates—causes the point of the wire, K′, to be withdrawn from between the brass pieces, *j j*, on the magnets, J′ J′, and the points of the wire, K′, to be

[*Continued on the Fourth Page.*]