

PATENTS FOR PROTECTING THE DEAD.

In consequence of the increasing number of graveyard desecrations, the genius of the inventor has been incited to devise means for their defeat. Among the most recent patents is one for a coffin torpedo, which consists of a canister containing powder, balls, and a firing trigger, so arranged, that on placing the torpedo within the coffin, and finally closing the lid, should any attempt be made to open the coffin, the torpedo will be instantly exploded, a noise like thunder ensue, and deadly balls will fly in all directions. Had the remains of the late millionaire, Mr. Stewart, been protected by means of this invention, the neighborhood in that part of our city where his body rested would have been alarmed, while the robbers themselves would doubtless have suffered sudden death as the penalty of their rash and sacrilegious attempt.

THE OFFICIAL REPORTS OF THE PARIS EXHIBITION.

The general report of the Paris Exhibition will be made by Assistant Commissioner General F. A. P. Barnard, President of Columbia College. Dr. Barnard proposes to depart from the usual custom of making a voluminous catalogue of all the articles on exhibit and making more or less superficial comments on each class. Instead he will view the Exhibition chiefly from the standpoint of a political economist as to the evidences it furnishes in its exhibits of the gradual but certain substitution of machine work for hand work, and the social and political effect of this as shown by statistics carefully gathered from the best sources in all countries. In the collection of these statistics he has met with the cordial assistance of the largest manufacturers of Great Britain and continental Europe. Special reports are to be made by each of the nine commissioners in charge of the nine groups into which the American section was divided. These commissioners are expected to embrace in their report all the classes in the respective groups under their control. These reports, Dr. Barnard says, in the very nature of things must be incomplete and unsatisfactory, owing to the fact that the group of classes embraces industries of so miscellaneous a character that it would be hard to find any one man capable of making a detailed report upon each. For instance, under the head of education and science are grouped education in its primary and higher branches, medicine, surgery, printing, books, instruments of precision, asylums, schools, colleges, prisons, and a multiplicity of other things which no one man is likely to possess a sufficiently intimate knowledge of scientifically and exhaustively to report upon them. As in this group so it is in all the others.

SKILLED LABOR IN NEW YORK CITY.

In order to discover the real condition of the labor market of this city, the *Daily Bulletin* has thoroughly canvassed the leading industries of the city, and in its issue of October 24 it published in detail the result of its inquiries. The grand results are shown in the table below, in comparison with the corresponding statistics for the fall of 1873, just preceding the great financial and industrial collapse:

	Hands Employed.		Wages.	
	Oct. 1878.	Oct. 1873.	October, 1878.	October, 1873.
Printers and electrotypers ..	207	188	\$9 50	\$10 50
Printers and bookbinders ..	406	300	10 00	12 00
Job printers ..	—	—	16 00	20 00
Tobacco manufacturers ..	2,060	1,925	7 to 12 per c. lower	8 50
Book publishers ..	1,800	1,300	14 00	20 00
Stationers ..	275	275	13 00 to 15 00	18 00 to 21 00
Cabinet makers ..	450	305	15 00	22 50
Billiard table manufacturers ..	100	100	15 00	35 00
Carvers (Eureka Company) ..	10	40	15 00 to 18 00	7 50
Card manufacturers ..	150	300	7 00	18 00
Pianoforte manufacturers ..	650	700	14 00	18 00
Sewing machine manufs. ..	1,000	800	18 00	18 00
Soap manufacturers ..	150	150	9 50 to 10 00	12 00 to 15 00
Plumbers ..	14	14	15 00	15 00
Hydraulic works ..	350	100	13 50	15 00
Steam engine works ..	160	125	12 00	15 00
Paint manufacturers ..	80	66	9 00	12 50
Jewelers ..	75	55	12 00	14 50
Sugar refineries ..	1,100	650	8 50	11 00
Silversmiths ..	90	90	24 00	30 00
Iron manufacturers (about) ..	50	300	16 00	16 00
	8,877	7,578	\$13 00	\$19 20

While this table is not offered as an exhaustive statement of the industrial condition of the city, it at least affords a fair presumption that the demand for skilled labor in this city is quite as good as it was in the flush times before the panic. So far as the inquiries went, there had been an increase of 17½ per cent in the number employed. On the other hand, the average decline in wages was nearly one third; that is, nominally. It is to be doubted whether three dollars would have purchased more in 1873 than two dollars will now.

THE COST OF INSECURITY.

The great robbery of the Manhattan Savings Bank has incited a *Herald* writer to look up the more notable burglaries of the past fifteen years. The list embraces some seventy-five or more banking institutions that have suffered in this way, the aggregate loss footing up about \$15,000,000. Thus it appears that in this country alone, in one class of robberies, an average loss of a million dollars a year has been sustained. A single year's burglar tax would probably supply time locks and electric alarms to every bank vault in the land.

Electric Light Patents.

The revenue of the English Patent Office is being greatly increased by the number of applications for appliances in connection with the electric light. It is said that as many as two or three applications are filed every day, and that the inventive genius of the Old World has never been so active as at the present time.

ELECTRIC TIME SERVICE FOR NEW YORK.

(Continued from first page.)

city has for some months been determined by the dropping of a ball above the Western Union Telegraph building, at the corner of Broadway and Dey street, precisely at noon each day; and few of those who daily avail themselves of the means thus afforded for regulating their timepieces understand the mechanism by which the ball is dropped at the right moment by an operator seated in the National Observatory at Washington, two hundred and forty miles away.

The upper portion of Fig. 1, front page, shows the time ball raised a little above the supports on which it is received when it falls, and also the structure of the iron pole on which the ball slides. The plan of the ball is shown in Fig. 2. Though from a distance the ball appears to be solid, it is in reality composed of a dozen thin vanes of sheet copper disposed radially, half of them semicircles, the rest crescents. By this device the visual effect of a solid ball is secured with the least possible resistance to the wind, or to the air when falling. The man in the figure stands 287 feet above the street, and the ball rises 28 feet higher. The ball falls 23 feet, and is received by the six plungers already mentioned, which enter the closed cylinders attached to the ball, providing as many air cushions for the arrest of the motion of the ball without the shock. The moment the ball begins its downward course is noon.

The operating of the ball is a matter easily explained. Five minutes before noon the officer in charge of the station climbs to the room shown in the lower part of Fig. 1, and raises the ball nearly to the top of the pole. This is done by means of a drum fixed at the right hand end of the table; the cord from the drum passing upward through a box to the foot of the tower, thence through the air to the top of the pole, where it passes over a pulley and is attached to the ball. Two minutes before noon a signal is received from Washington that all is ready, whereupon the ball is raised to the top of the pole, and the crank removed. The ball is now held in position by means of the lever shown in the cut, one end of which engages the ratchet wheel of the drum, the other being caught in the notch in the little standard to the left. The latter is attached to the armature of an electro-magnet, which is placed in telegraphic connection with the National Observatory at Washington. At the moment of noon, New York time, the officer in charge at Washington closes the circuit; the armature is retracted, the lever disengaged, and the ball

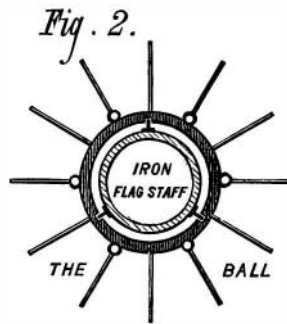
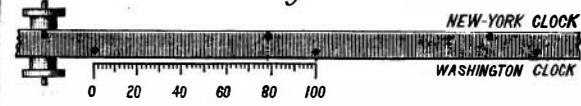
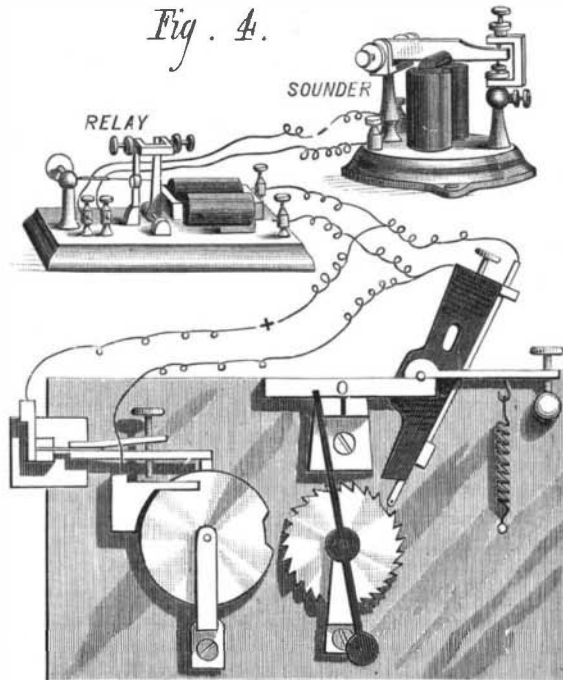


Fig. 3.



drops. The instant the ball reaches the base of the pole the fact is automatically reported at Washington through the electric tell tale shown at the left end of the table, Fig. 1. Owing to the great height of the ball when raised, it is visible for many miles around; and directly or indirectly the clocks and watches of some two millions of people are thereby kept from straying far from the true time. Even as far off as Bayonne, N. J., according to a local paper, the principal of a public school regulates his clock daily by the

Fig. 4.



falling ball. The ball and its discharging apparatus were designed by Mr. George M. Phelps, Superintendent of the Western Union manufactory. The public service thus rendered by the Western Union Telegraph Company is wholly gratuitous, and affords not only a notable illustration of the

public spirit of our great commercial corporations, but also an illustration of the far-reaching indirect benefits which applied science is constantly conferring upon modern life, free of expense to the recipients.

But the time service does not end here. To reap the full benefit of the time ball, a great number of people must watch for its fall; that takes time, and time is money. It is cheaper to employ one man with a little machinery to regulate the time of all, and the service is much more surely attended to. Accordingly Mr. J. Hamblet has introduced a system of constant time service, by which our clocks may be kept constantly under the electrical control of a central regulator or standard clock, which is kept in exact time with the clock of the National Observatory, due allowance being made of course for the difference in geographical position.

The central regulator is stationed in the Western Union Telegraph Company's Building, and is so constructed as to keep time with the highest attainable accuracy. In addition, it is every day compared with the clock of the National Observatory at Washington, and checked by the daily time observations made at the observatories at Allegheny, Pa., and Cambridge, Mass., with which it is in telegraphic connection. By this it must not be inferred that the clock in question is kept in exact accord with either or all of the observatory clocks, that being a mechanical impossibility. The range of variation, however, is kept within a few hundredths of a second.

The reader must not be incredulous; it is possible to measure, nay more, to record, the hundredth part of a second. Fig. 3 will make clear how it is done. It shows a section of the paper tape of the chronograph, which is used in comparing the standard clock with the clock of the Washington Observatory. The chronograph is electrically connected with both clocks, and records the pendulum beats of each on the strip of paper. If the beats are exactly synchronous the dots stand side by side. If the beats are not synchronous the dots will be separated by an interval, long or short, according to the difference of the clocks—that is, the difference in time between the beginnings of corresponding beats—and the speed of the chronograph. Supposing the clock to be beating seconds, and the chronograph to discharge an inch of tape each second, it is obvious that the dots recording the beats of each clock will stand one inch apart. It is obvious, too, that the lineal space between the recording dots of two clocks not beating exactly together, can easily be measured, as shown by the scale placed below the dots in the cut (Fig. 3), and thereby the difference in time exactly determined.

The next step in the time service is to distribute the accurate time thus maintained to such as want it, which is done through an electrical attachment to the standard clock. This controlling clock was constructed by E. Howard & Co., of Boston, from designs by Mr. Hamblet, and has a Dennison gravity escapement. The front clock plate and the electrical mechanism are shown in Fig. 4. The wheel in the center with the second hand revolves once a minute. One of its thirty teeth has been filed away, the vacant space causing the omission of the tick which would otherwise mark the fifty-eighth second of the minute. The remaining teeth act upon a delicate jeweled spring, which breaks an electric circuit at the passage of each tooth. The two wires connecting with this spring and its banking operate the relay, at the left of the figure, and through it the sounder, which indicates the beginning of each minute by a pause of two seconds. The beginning of each five minutes is identified by a pause of twenty seconds, obtained through the agency of the five minute wheel to the left of the seconds wheel. At each revolution of the five minute wheel the lever at the top drops into the notch in the wheel, making electric connection between the two wires governing the relay, thus preventing the minute wheel from breaking the circuit for the space of twenty seconds. At the right near the top of the figure is shown a sounder, which may be located at any point on the lines. It is by means of these sounders, with which the recipients of the service are supplied, that their timepieces are regulated.

The practical advantages of this constant and trustworthy time service will appear to any one who has to do with important commercial or industrial affairs. One of the great sources of friction in social and business intercourse is time variation and uncertainty. The maintenance of a common and authoritative standard will go far to lessen such friction, to the great time saving of all classes, and the prevention of many mistakes and misunderstandings. Where thousands are engaged, delays of no more than a minute at a time amount in practical effect to the loss of hours, days, even months of individual labor. In a factory employing only three hundred men, a variation of one minute in the signal for starting and stopping means the loss of one man's work for a whole day.

The immediate direction of the New York Time Service is in the hands of Mr. Hamblet, Room 40, Western Union Telegraph Building. The business generally is controlled by the Gold and Stock Telegraph Company.

Left Handedness.

At the late meeting of the British Association, Dr. H. Muirhead made a communication on "left handedness." He thought it depended upon which half of the brain took the lead. Left handedness once begun in a family was likely to run in it. It was a curious fact that left handed people had the left foot one third to one eighth of an inch longer than the right.—*Med. and Surg. Rep.*