

Inventions.

Neville's Patent Electrical Signalling Apparatus.

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THE advance of deep mining and the increased tonnage in mines has created the necessity for a more perfect and comprehensive system of signalling.

The mental strain in counting the numerous knocks and the liability to error in existing systems, the absence of a reply and interlevel signalling, thus causing considerable delays and inconvenience in mining, all contributed to the urgent demand for some system that would obviate these faults and supply the necessary requirements.

Mr. F. H. R. Neville, at one time electrician on the Lake View Consols, Limited, Kalgoorlie, but now in Wellington, New Zealand, invented and patented what is known as Neville's Electrical Signalling Apparatus, and which is claimed to supply all that can be desired in the way of speed, economy and general utility.

All knocks are abolished and the signal is communicated by symbols. That is to say, by making a contact in the mine the platman instantaneously places the required signal before the driver. The driver can then immediately reply, showing the signal in all plats simultaneously, so that the platman knows the driver has received the signal correctly, and it can be known in all parts of the mine where the cage is being employed. At the same time any person in the mine can communicate with every plat without connecting with the driver's signal, and thus call the platman's attention to any requirement in any other level, such as an accident, etc., in which his services are immediately required.

It must be understood that the platman is the only man permitted to signal the driver, and the driver only replies to the platman; any one in the mine may communicate with the platman.

Several exhibitions of this invention have been given at the chambers of the Mine Managers' Association, Kalgoorlie, at which members of that association engine drivers and platman were present, and many useful hints and suggestions were made which were taken advantage of, and improvements made in the apparatus. Its adoption has increased the usefulness of the system.

The apparatus as at present constructed is as follows:—

In the engine room and at each level in the mine is placed an indicator and a plug board connected by wires, i.e., a wire for each separate signal, and a feeder wire. These wires are properly protected from injury by being encased in a gas pipe filled with bitumen, or some similar material.

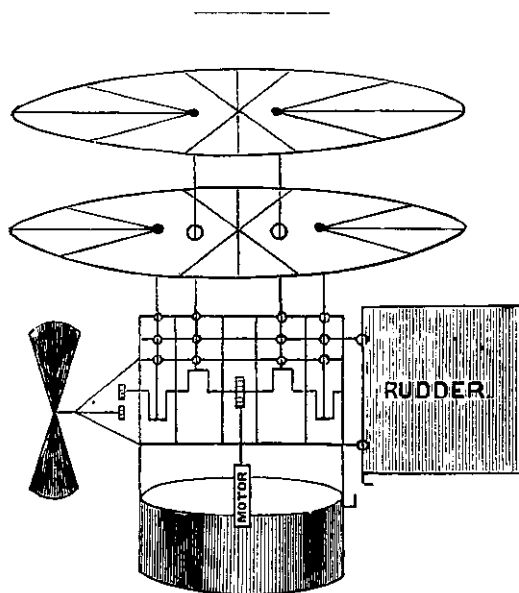
The indicator consists of a light tight box divided into a number of compartments and covered with a translucent front, and inside each compartment is an incandescent lamp. The required signal is cut out of an opaque sheet, such as tin or cardboard, and placed behind the translucent surface, each symbol being coincident with one of the compartments, so that when any lamp is in contact, the figure, letter or word is plainly visible. Each signal is in circuit with a bell which strikes once, thus attracting the attention of the driver. A large continuous bell is also placed in circuit with the stop signal which calls immediate attention while the cage is in motion and the driver watching his level gauge.

A very clever system of wiring is introduced by means of which one plug inserted in the plug board will give any required signal. The Government code is used, with the exception that "and" is used instead of the pause. For instance, "1 pause 1" means No. 1 or 100 ft. level, 1 pause 2, No 2 level, and so on; whereas, in Neville's system 1 and 1 and 2, etc., are shown on the indicator. By the use of one plug the operator can show any signal required, and the driver, by the use of one plug, can reply to that signal. Thus 1 and 1, 1 and 2, 2 and 1, or any level signal, can be given and replied to. A separate plug board is required at each level, connected by a feeder wire to the driver's plug board, and to each level indicator box, but not to the driver's indicator; by this means any one can signal from level to level and receive a reply by the same agency. The drivers plug board may be constructed with spring contacts or switches so that he may simply have to press the switch to reply to the signal received. There is no confusion occasioned by this system, as the driver receiving only the plat-

man's instructions is saved the mental strain of counting, and so replies to this signal by a single contact, then receives the signal "hoist" or "lower," as the case may be, and it is all done in a moment.

In the old system the knocks would be for 1500 feet level - - - - - then a pause, and for hoist - - - - - In place of this 3 and 5 would flash on the driver's indicators. He would press No. 13 switch and 3 and 5 would flash in the plats; then the figure 1 would flash on the driver's indicator, all in less time than would take to give the first two knocks in the old system. Again, in case of an accident the platman and underground manager have to be found, which sometimes takes an hour or more under the present system in a big mine, while with this the signal is immediately communicated to all levels, the platman gets it wherever he may be, and signals the driver, the cage being immediately at his command. The underground manager has the news in a few minutes, can obtain the platman and the cage, and be on the spot in the shortest possible time.

It is estimated that by this system in a busy mine, such as the Golden Mine, as much time as two hours per shift could be saved, while accidents due to mistaken signals would be minimized, if not entirely abolished.



Novelty in Flying Machines.

The last word has not been said about flying machines, and plenty of inventors are endeavouring to say it. Among them is Mr S di Lauro, of 3 Bedfordbury, Charing Cross. His airship is devised to rise immediately and vertically without travelling forward. He achieves this by providing horizontal planes of considerable width at the top of a perfectly round machine. These planes have a series of openings fitted with valves. The air passes through these as the machine rises, but it cannot return through them. These planes

move up and down (through the action of cranks), but always in opposite directions to each other, and the lifting power depends on the width of the planes and the rapidity of their movements. Any number of pairs of these planes may be employed. The inventor's idea is that the planes will not only serve to raise or drag up the machine in the manner roughly sketched, but when lowering it they will act after the fashion of a parachute.

The Holmes-Allen Trolley Head.

SUCCESSFUL TOUR OF THE INVENTORS IN AUSTRALIA.

In the course of a conversation with a PROGRESS representative Mr. Garnet B. Holmes stated that negotiations are now proceeding for the purchase of the patent rights of the trolley head in the Commonwealth, and Mr. Allen has been in West Australia for some weeks superintending trials in several of the cities. The latest advice is that the tramway authorities of Kalgoorlie, Coolgardie, Perth and Fremantle are all watching with much interest a very extensive trial now under way in Perth, and should it prove successful, it is certain that this new type of trolley head will become universally adopted in that part of Australia. Trial heads have also been supplied to the Brisbane Tramway Company, and negotiations, it is hoped, will be completed very shortly. The heads are now running permanently on the Ballarat and Bendigo tramways, while the Essendon line will very shortly adopt them throughout.

While in Australia the inventors discovered that, on systems where the fixed trolley head had been running, they could with ease apply their swivelling and cushioning action in a much simpler manner. This had to be done with their complete swivelling trolley head, and they had to set to work and make fresh designs strictly in conformity with a request from the New South Wales Government, with a view to adoption on their system.

The Ultramicroscope.

One of the latest scientific inventions, which is due to Professors Sledenopi and Zsigmondy, of Vienna, is the ultramicroscope, an instrument which will enable scientists to examine even the minutest particles which are beyond the range of the most powerful ordinary microscopes. It is said that, with the aid of the new instrument, the five million globules contained in a cubic centimetre of human blood can be examined as if they were spread on a surface of eighteen square feet. It is even possible with the new instrument to see particles measuring the hundred-millionth of an inch in diameter.

A New Fog Signal.

A new fog signal is installed at the Needles Light house, which takes the form of reed trumpets worked by compressed air, and can be started instantaneously when fog descends. The blast of five seconds' duration every fifteen seconds can be heard at treble the distance of the old fog-bell signal.



THE HOLMES-ALLEN TROLLEY HEAD IN AUSTRALIA.