New Mode of Using the Concave Diffraction Grating.

I GREATLY regret that in a note of mine on a "new mode of using the concave diffraction grating," in the "Astronomical Column" of March 22 (p. 501), I wrongly interpreted a sentence of Prof Rizzo's article, which led me to think it was inconvenient for him to use the instrument in the usual way. The words "Dr Rizzo investigated this disposition on account of being unable to use the instrument as usually set up," should therefore not have been included THE WRITER OF THE NOTE

Internal Stresses in Iron and Steel.

CAN you kindly inform me where I may obtain a copy of the researches of General Kalakoutsky on the "Internal Stresses in Cast Iron and Steel," translated by the late Sir William Anderson, F.R.S., Director-General, Royal Ordnance Factories. THOS. ANDREWS.

Sheffield, March 27.

THE work in question—"Investigations into the Internal Stresses in Cast Iron and Steel," by General Nicholas Kalakoutsky—was published by George Reveirs, 4 and 5 Graystoke Place, Fetter Lane, E.C., in 1888.

Second-hand copies can occasionally be procured from dealers in technical books. B. H. B.

ELECTRICITY IN WAR.

UNDER the Presidency of the late Dr. Hopkinson, the Institution of Electrical Engineers established an Electrical Engineer Volunteer Corps affiliated to the Royal Engineers. Lord Kelvin is now its Honorary Colonel; the well-known electrical and mechanical engineer, Mr. R. E. Crompton (formerly Captain in the Rifle Brigade) is its Major. It is a corps consisting of 350 young men, most of whom have had a scientific education; they are all engaged every day in practical electrical engineering work; many of them are constantly engaged in inventing new apparatus and improving old apparatus; all of them are athletic, and enjoy such exercise as the volunteer drill affords; many of them are experienced bicyclists; all of them are curious as to the existing applications of electricity in warfare, and in consequence of their unfamiliarity with existing apparatus are very likely to quickly notice methods of improving it.

Hitherto many of these men have had a yearly drill in the management of the electrical apparatus in use for submarine mining and home defence.

I would point out that the ordinary volunteer drill of these men is only a part of their preparation for the nervous tension of an enemy's presence. There is no more trying experience than that of a young engineer in a central electric light station when the "peak" of the evening load is coming on, and every appliance is worked to its highest capacity; when the stoker cannot get enough draught for his boilers, and a short-circuit suddenly takes place. It is interesting to note how the man who was nervously afraid of himself beforehand, braces himself up to meet the emergency, and to his own wonder afterwards, manages to do exactly the right thing at the critical moment. A man who has proved his coolness in this sort of way is not likely to be flurried in the field, even when a rain of those most dangerous of all missiles, the 37 mm. Vickers-Maxim shells, are exploding about his search-light.

A few years ago, when Major Crompton vainly urged the necessity for the provision of new apparatus, practice in the use of existing field search-lights, &c., such as might lead to better designs, and money to enable such better apparatus to be constructed and tested, some of us felt very strongly that the War Office was wasting an invaluable opportunity.

A committee of the Institution of Electrical Engineers was able to assure Major Crompton of considerable pecuniary help in case the War Office gave facilities, and it was proposed that the corps should take up some one problem at a time, and work it out to a thoroughly good practical result. For example, the production of a really good field search-light was proposed. To work awhile with the existing things, which were like ship search-lights carried upon ordinary waggons, and to expend all the ingenuity of the corps upon the creation of a piece of apparatus perfect for military purposes. This involves also the best design of mobile steam engine and dynamo plant; the best kind of cable, and the best ways of paying

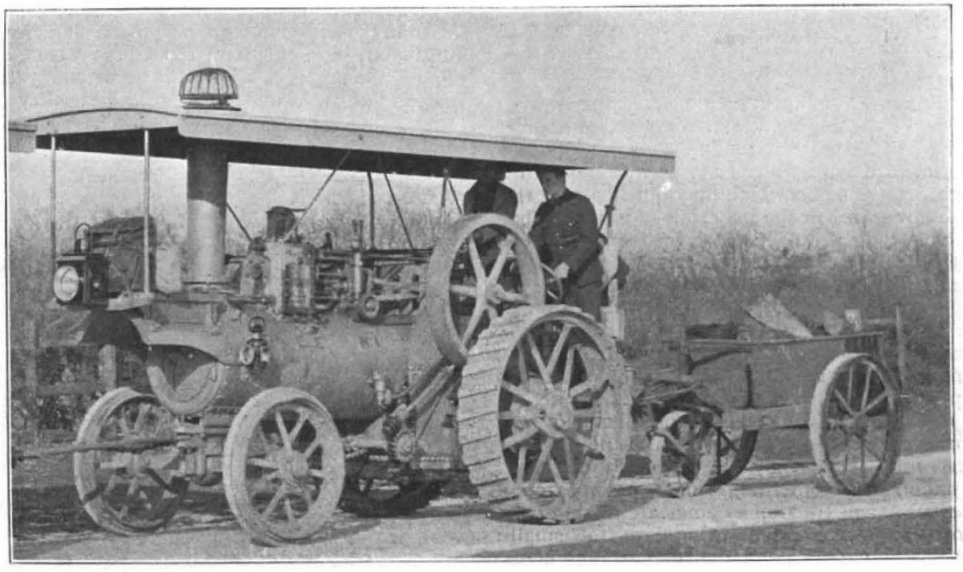

FIG. 1.—Traction engine.