New Inventions.

A MACHINE FOR APPLYING "RESISTANCE" EXERCISES IN DEFORMITIES OF THE FEET AND ANKLES.

I HAVE found the apparatus which is shown in the accompanying figure to be of great use in the treatment of all those conditions of the foot and ankle in which it may be desirable to strengthen any muscle or group of muscles, as in all forms of talipes and in flat foot and in-ankle. The apparatus consists of a padded trough A (supported by a pedestal B) in which the thigh and knee of the patient are securely strapped. Two side pillars C, C, carry pulleys D, D, which can be shifted up and down as necessary and over which run cords E and F, each of which is attached to a weight W at one end and fastened at the other end to a strap which goes round the fore part of the patient's foot. In cases of varus or valgus in which it is desired to strengthen the abductors or adductors respectively, only one pulley and cord and weight are employed. That to the inner side of the foot is used for varus and that to the outer side for valgus. A third pulley fixed to the base-board of the apparatus is used for equinus when it is desired to strengthen the dorsi-flexor muscles of the ankle.

As it is difficult to induce young children to carry out these exercises, which they do not find amusing in themselves, I have added a dry cell K, and an ordinary electric bell with insulated wire circuits I, I, to the two side pillars.

Each circuit is broken at the metal contact-makers G, G, which take the place of the familiar bell-push. When the weight is lifted, G, G are acted upon by the adjustable stops H, H, which press the leaves of the contact-makers together and close the circuit, whereupon the bell rings and continues to ring until the weight is allowed to fall. The temptation to ring the bell and to keep it sounding at will is one which few children can resist and it becomes a treat to be allowed to use the exerciser. It is employed as follows. The patient is seated on a chair contiguous to the thigh-piece and the thigh and knee are securely fixed. The strap is secured round the front of the foot and the appropriate cord is fastened to it. The screw on the stop H is loosened and the stop is slid upon the cord until it reaches the desired spot where it is fixed. This should be in such a position that it will press against the contact-maker G, when the weight is lifted high enough and the desired amount of movement is done. In the figure the cord F is arranged as for a case of varus, while the cord E is arranged as for the treatment of equinus. If it be desired to use the machine to strengthen the calf muscles, as in a case of talipes calcaneus, both cords are to be used and both side pulleys raised up as high as they will go, but

the middle pulley on the base-board is of course not used. It is in cases of congenital talipes and in flat foot that this exerciser is most useful. In infantile paralysis it is only useful to strengthen any muscles which are not palsied completely but only paretic.

The apparatus is well made and is supplied at a reasonable price by Mr. Albert Evans of Oakley-crescent, City-road, London, E.C.

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A HOSPITAL CHART.

WE have received from Messrs. Reynolds and Branson, Briggate, Leeds, a form of chart which has been in use in Dr. T. Churton's ward in the Leeds General Infirmary for two years. It shows the pulse and respiration rates in the same space by means of dots and connecting lines for the pulse and crosses for the respiration rate. The proportional figures (pulse : respiration as 4 : 1) are in parallel columns, so that an abnormal proportion is detected at a glance. The chief use of the chart is the instantaneous perception of the ratio existing between the temperature, the pulse, and the respiration. Spaces for recording the quantity and the specific gravity of the urine, and particulars of diet and drugs are ruled at the foot of the chart. With these additions its dimensions are eight inches by 10½ inches.

A MODIFIED CLOVER'S INHALER.

MANY who have been accustomed to administer ether with the ordinary Clover's inhaler will have had some experience of the inconvenient tendency which the reservoir has to become separated from the face-piece during administration. This is especially liable to occur when for some reason the patient has to assume the lateral or semi-prone position. I have had a slight modification made in the apparatus which prevents this detachment taking place. A projecting rim A is fixed round the lower margin of the reservoir. In this rim there is a slit opposite the O through which the upright portion of the indicator B passes. This portion of the indicator is curved so that it hooks over the rim as soon as the reservoir is turned on the face-piece. The reservoir is thus firmly fixed and cannot be separated from the face-piece

until the indicator again points to O. The modification has been carried out for me by Messrs. Mayer and Meltzer of Great Portland-street, W., and can be adapted to the ordinary apparatus at a small cost.

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