



GYMNASTIC EXERCISES WITH THE STICK.

Suitable lifting gear and slings are arranged upon the beam, the gearing being worked from the ends of the beams. By means of this apparatus the heaviest guns may be quickly picked up, moved to the desired point, and the load deposited with the utmost precision. Our engraving is from *La Ilustracion Espanola*.

GYMNASTIC EXERCISES WITH THE STICK.

Among the various form of gymnastic exercises, some of the simplest and best are those that are performed with a stiff stick about five feet in length and three-quarters of an inch in diameter. It may be turned out of strong wood, but we consider as preferable a section of a bamboo pole, for it is light, strong and smooth. It may be cut from the smaller part of an ordinary bamboo fishing pole, which, undressed, sells for a quarter of a dollar.

The stick is to be held by the hands in front of the body and the arms then lifted, and the stick thrown over the head to a position in the middle of the back. Inflate the lungs and hold the breath during the exercise. This may be repeated a number of times, and will be found excellent in developing the breast and lungs. With the stick held in the position last described the body may then be rotated, holding the knees firm and the feet with toes turned out. This helps to develop the muscles of the loins.

Then, holding the stick in a vertical position down the back, the body may be swayed back and forth sidewise, and in that way the various muscles of the back, loins and arms developed in a high degree.

We have now to call attention to a more difficult form of exercise with the stick, which is illustrated in the diagrams herewith presented. In the position seen in Fig. 1 the stick is held horizontally behind the body. Care should be taken to place the fingers and thumbs on the stick in the manner shown in the engraving. The next movement, shown in dotted lines, Fig. 1, still holding the hands upon the stick as first described, is to bring the stick over the head in front of the body, into the position shown in Fig. 2. It will be noticed that the elbows in this case, are, by the movement described, bent outward. Take care that the stick is held in the hands as represented in Fig. 2.

The next movement, shown in dotted lines, Fig. 2, is to lift the right leg and place it over the right arm in front between the stick and the body, as indicated in Fig. 3, and to carry down the leg to the floor as in-

dicated in dotted lines, Fig. 3, bringing the stick outside of the leg, which necessitates the stooping posture shown in Fig. 4; then carry the stick back along exterior of the body as shown in dotted lines, Fig. 4, to position shown in Fig. 5, thence along the body to middle of back, as shown in dotted lines, Fig. 5, and bring the stick up into horizontal position between the legs, as shown in Fig. 6. The last and final movement is simply to lift the left leg back over the stick, which will then be in front of the body in the position shown in Fig. 7. The exercise may be repeated in reverse order, commencing with Fig. 7 and going back to Fig. 1. This looks like a very simple exercise, but to those who are unaccustomed to its performance it will be found at first difficult to accomplish; but do not be discouraged. With perseverance, any person, young or old, can finally succeed. Its practice will be found of very great advantage in promoting the strength and suppleness of the muscles, not only of the arms and legs, but of the hands, wrists, knees, shoulders, chest, loins, back, and other parts of the body.

Exercises such as we have described are of the highest benefit to young persons of both sexes, who should make a practice of going through a series of them every day. They require but little time and for home gymnastics are unequalled. They are promotive of good health, beauty, and symmetry of the human figure.—*The Scientific American*.

MANAGING SAFETY VALVES.

An engineer, speaking of neglected safety valves, said: "Safety valves that stick will stick even though tried every day, if they are simply lifted and dropped to the old place on the seat again. If a boiler should be found with an excessively high pressure, it would be one of the worst things to do to start the safety valve from its seat unless extra weight was added, for should the valve once start, it would so suddenly relieve the boiler of such a volume of steam as would cause a rush of water to the opening, and by a blow just the same as in water hammer rupture the boiler. Such a condition is very possible to occur of itself when a safety valve sticks. The valve holds the pressure, that gets higher and higher, until so high that the safety valve does give way and allows so much steam to escape that the sudden changing of conditions sets the water in motion, and an explosion is the result.—*American Engineer*.