C. KLEMM.

IN-DOOR GYMNASTIC INSTRUMENTS

No. 193,449. Patented July 24, 1877.

Fig. 1

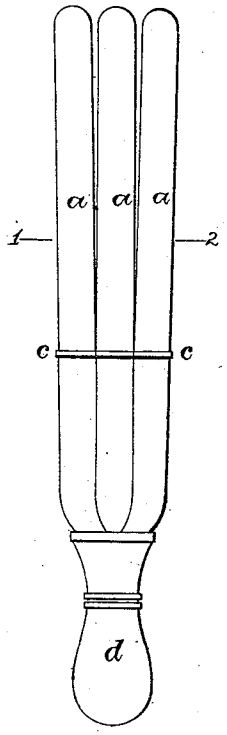


Fig. 3

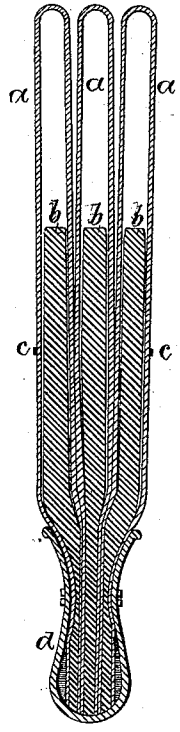


Fig. 4

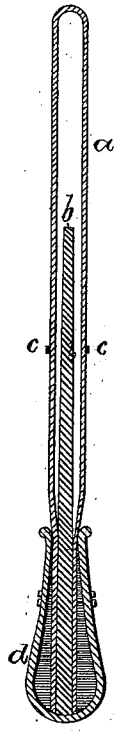
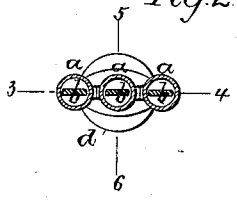


Fig. 2



Witnesses
Harry A. Crawford
Harry Smith

Inventor
Charles Klemm
by his Attorneys
Howson and Son

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES KLEMM, OF RIGA, RUSSIA.

IMPROVEMENT IN INDOOR GYMNASTIC INSTRUMENTS.

Specification forming part of Letters Patent No. **193,449**, dated July 24, 1877; application filed June 28, 1877.

To all whom it may concern:

Be it known that I, CHARLES KLEMM, of Riga, in the Empire of Russia, have invented a new and useful Improvement in Instruments for Indoor Gymnastics, of which the following is a specification:

The object of my invention is an instrument called "muscle-beater," destined to promote peripheral circulation of the blood, and to serve for medico-gymnastic manipulation.

During my long professional career I have had many occasions to convince myself of the powerful sanative action obtained by mechanical manipulations in cases of slowness or deficiency of peripheral innervation and capillary circulation. Besides the so-called duplicate motions (resisting motions) generally employed with advantage in establishments for medical gymnastics, the success of many an important cure has been principally owing to passive manipulations, especially to "beating" and "chopping."

Having frequently, in the exercise of my gymnastical profession, obtained the best results in curing various disorders in the peripherical blood circulation—as, for instance, congestions in organs of the head, the chest, and the abdomen, propensity for apoplexy, in cases of paralysis, weakness, and stiffness of limbs, &c.—by mechanical excitation of the muscles through the process of beating and chopping, I was struck by the idea how desirable it would be to render this simple and natural remedy fit for practical domestic use without needing the aid of another person.

For the sake of composing a convenient implement I tried to imitate the manipulating fingers of the gymnast, which led to the invention of my muscle-beater.

Construction of the muscle-beater: In the drawings hereto annexed, Figure 1 shows the front view of the muscle-beater. Fig. 2 is a horizontal section on line 1 2 in Fig. 1. Fig. 3 is a vertical section on the line 3 4 in Fig. 2; Fig. 4, a vertical section on the line 5 6 in Fig. 2.

The muscle-beater principally consists in three elastic tubes or fingers about a finger thick, and connected with each other. Their length, as well as the thickness of material employed, can vary according to the different purposes the instrument is destined to serve. For instance, in cases of deficient alimentation of the exterior periphery of the brain, and of the head in general, causing nervous headache, accompanied with an irritability often quite intolerable, it is always necessary to use thin-walled, short, and very soft muscle-beaters, while for reviving the activity of blood-vessels in limbs of a vigorous muscular structure, a thick-walled, longer, and harder instrument is required. Therefore the muscle-beater should always be specially adapted to the different modes of its dietetical or medical use.

Various experiments have taught me that for answering all purposes it is advisable to have about nine sizes of muscle-beaters, differing in length, (I, II, III,) and each length to be subdivided into three different types as to the thickness of walls.

The three connected elastic hollow fingers or tubes *a a a*, forming the muscle-beater, are made of vulcanized india-rubber, the specific weight of which must be adapted to the use for which the the instrument is destined—*i. e.*, the walls of the different muscle-beaters must be of more spongy or more solid structure, according to the service they are called upon to render.

The diameter of the tubes varies likewise, according to the different uses. Therefore the indefinite expression "a finger thick" is perfectly suitable in this case.

In order to obtain a regular and springy swinging of the three connected parts of the muscle-beater in the manipulating action, each tube is provided inside with a flattened cane or stick, *b*, of about two-thirds of its whole length, placed in such manner that a part of the tube at the upper end, opposite the handle, is left free. The sticks in thick-walled tubes are shorter; those in the thin-walled are longer. The sticks are gradually flattened toward their upper ends. Their diameter depends on the specific weight and the length of tube. At the lower end (the handle) the sticks are conveniently placed alongside of each other, and united with the india-rubber, so as to prevent their getting loose and entering the upper free part of the tubes.

For forming a handle, *d*, to the muscle-beater the three tubes and sticks can be tied together with hempen or other string, then wrapped in some stuff, and lastly covered with some net or tress work, or with an india-rubber cap. The handle must have a certain rigidity, which may be easily obtained by placing some convenient object inside. It is a matter of course that the handle can be made in different forms and manner, more or less costly and refined.

In order to give more consistence to the separate parts of the muscle-beater, the three tubes are tied together by a string or band at *c c c*, toward the lower third of their length.

The canes or sticks *b*, serving to produce a regular springy action, can, of course, be replaced by stays of spring-steel, hard rubber, whalebone, or some other elastic material. The tubes or fingers *a* can also be of some other suitable material instead of vulcanized india-rubber, and their number may vary likewise.

Of all such modifications, however, which do not alter the nature of my invention, I expect no practical benefit, preferring to construct the muscle-beater in manner above described, and as shown in the drawings.

Directions for use of the muscle-beater: The muscle-beater must always answer in length, elasticity, and solidity to the different modes of use to which it is destined.

Delicate persons must employ the thin-walled type, while individuals of a powerful muscular system should adopt a thick-walled muscle-beater. To render the beating sufficiently soft, elastic, and springy, it is to be performed by the action of the wrist, rather than of the whole arm. Every muscle-beating should be performed crescendo and decrescendo, (< >,) *i. e.*, it should be strongest in the middle of the time during which it takes place, and applied more gently in the beginning and toward the end of the manipulation. If, in the manipulation, a regular even touching of the body by the tubes of the muscle-beater is desired, it should not be performed too rapidly, and the measure of a moderate allegretto (4-4) time be kept. The limbs, (arms and legs,) especially the lower extremities, should undergo a more vigorous beating, while the head, the chest, and the abdomen are to be manipulated more gently. Every muscle-beating is to go on until an elevation of temperature is felt in the manipulated parts. It is always useful, in muscle-beating, to make pauses of one or two minutes, because only during these interruptions is it possible exactly to ascertain the degree of temperature in the part undergoing the manipulation. The time of manipulating any single part of the body must not exceed about ten minutes, including the pauses.

Whenever it is required, for some particular purpose, to apply prolonged local beatings, it is advisable from time to time to manipulate the whole body all over.

It is very important that the action be not hindered by clothing. A shirt, pantaloons, or drawers, and stockings are the most suitable attire for easily performing muscle-beating in every direction.

In cases of cold feet, for instance, muscle-beating is to be performed as follows: The person manipulating has to take off the shoes, keeping, however, stockings on, and take a sitting posture. Then the left leg is laid on the right knee in such manner that the left sole may be easily manipulated by the right hand. For beating the right sole the muscle-beater must, of course, be held in the left hand, and it wants but little practice to attain sufficient address in the left hand for performing this operation. Beating of the top part of the foot and the toes is done best when the patient places his foot on a chair, taking care to put something soft under the sole, which greatly diminishes the sensitiveness during the operation.

It would lead me too far if I were to describe in detail all the different modifications of muscle-beating that may be applied in various cases, or its medico-gymnastical and dietetical virtues, for its effect can be as well agitating or exciting as abductive or adductive, reductive or reproductive. For instance, in cases of nervous headache, the head itself is treated with gentle beating, while in case of congestive headache the extremities have to undergo the manipulation.

I claim as my invention—

1. A muscle-beater consisting of hollow elastic tubes or fingers *a*, provided with springy stays *b* inside, kept together at *c*, and ending in the handle *d*, substantially as and for the purpose set forth.

2. A muscle-beater consisting of hollow elastic tubes *a*, having interior elastic stays *b*, and a handle, *d*, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES KLEMM.

Witnesses:

JACOB SCHAAFF,

C. MENTS.