peripheral resistance of systemic circulatory system, and thus, improves the circulation of blood through the body providing the nutrients and oxygen to the injured tissues.

By combining different positions on the vibrational platform of the automatic massaging machine, patient may adjust the massage session to the most suitable for him mode and reach a desired healing effect in a shorter period of time and in the most effective way without any complications. For instance, some patient with high blood pressure may avoid a sedentary position during the massage because the latter increases the load on the heart. The standing position may be preferable in some cases for its cumulative effect on the heart and vessels.

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CREATION AND PROPERTIES OF PHOTOSENSITIVE n-SnS2 / p-InSe HETEROSTRUCTURES

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Currently, heterojunctions based on thin films are quite interesting and promising in terms of manufacturing new heterostructures. The n-SnS_2 / p-InSe heterojunction is no exception.

Indium monoselenide InSe by the value of the band gap Eg = 1.2 eV refers to suitable materials for photoelectric energy conversion under terrestrial conditions. The layered structure of InSe crystals with a weak Van der Waals bond makes it easy to make substrates for heterostructures and eliminate the need to cut ingots into plates and their mechanical and chemical processing. Indium selenide uses photosensitive and diode structures of various types: Schottky barrier, p-n junctions and heterojunctions.

n-SnS_2 / p-InSe heterostructures are known to be created by the method of landing on optical contact with the occurrence of the inversion layer in p-InSe. Thin films of tin sulfides (SnS, SnS_2, Sn_2S_3) are characterized by different phase composition, which determines their basic physical properties. SnS_2 tin disulfide films with a band gap width Eg ≈ 2.45 eV are suitable for the manufacture of the front layer of photodetectors based on heterojunctions. SnS_2 film contains the chemical elements Sn and S, which are widespread, low cost and low toxicity.

To obtain n-SnS_2 / p-InSe structures, bridgman crystals of indium selenium p-type conductivity were used. For the hole conductor was doped with an admixture of Cd (0.1% by weight). According to the study of the Hall effect, the concentration of charge carriers was p »1014 cm^{-3} and their mobility perpendicular to the axis of symmetry C in InSe at a temperature of 295 K was equal to $\mu_pH \approx 50$ cm^2 / Vs. n-SnS2 / p-InSe heterostructures were prepared by applying ~ 0.3 - 0.4 μm thick SnS_2 films to the surface of p-InSe substrates heated to T_S = 350 ºC by spray pyrolysis at atmospheric pressure of 0.1 M aqueous solutions of tin (IV) chloride pentahydrate Sn •$5H_2O$ and thiourea (NH_2) $_2CS$.

As a result of this work and data measurement, the diode properties of the structures were found to be determined by the difference between the energy parameters of n-SnS_2 and p-InSe and the energy barrier of the tunnel-thin layer In_2Se_3 with temperature-independent height qφB ≈ 0.5 eV. At direct displacements V <0.6 V (T (290 K), the main mechanism of current flow is the tunneling of electrons from the bottom of the n-SnS_2 conduction band through the barrier to states in the forbidden region of p-InSe, followed by recombination with valence band holes.

At direct voltages V> 0.6 V (T (290 K) the decrease of external voltage is concentrated on the high-impedance base region p-InSe and the space charge limit mechanism is realized. With increasing temperature, the voltage of the space charge limit increases to V = 1.6 V (T (330 K). The reverse current in the range of investigated voltages - 3 V <V <0 V in the heterostructure n-SnS2 / p-InSe is formed by tunneling electrons from the bottom of the conduction band and energy states of the band gap E_{C2} - E_F = 0.3 - 0.4 eV p-InSe in the conduction band n -SnS_2 through the energy barrier formed In_2Se_3.

A wide range of quantum efficiencies of n-SnS_2 / p-InSe 1.2 - 3.2 eV heterostructures contributes to the prospect of their use as photodetectors, providing that the non-photoactive absorption of light in the n-SnS_2 film is reduced.