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The paper discusses the problem of a machine being "sensed" by its operator. It is shown that reducing the operator's loading with work necessary for controlling — caused by a wide use of servomechanisms — can result in deterioration of the quality of work of the human-machine system. To study this quality, the quality of regulation criterion used in automatic control engineering was chosen. It is based on the shape of the time characteristics of the operator's response to a change in the input signal. Research was conducted to find a combination of the values of the parameters of the control system (with a hand lever as input) for which the quality of regulation is best. Those parameters were: the length of the lever arm, the operating force and the transmission ratio. By transforming the results, a dependence was found between the lever grip travel and the operating force. Their optimal values are given.