

## **Innovation in a bed assembly unit design to reduce the symptoms of GERD and Snoring during sleep**

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### **Abstract:**

Stomach acid reflux disease (GERD) and esophagus reflux are classified as widespread diseases in Egypt and the Arab world as some of the most widespread gastrointestinal tract disorders. These disorders result in symptoms such as disturbing voices during sleep periods (snoring). Studies show that both men and women of all ages experience an increase in cases of esophageal reflux, whether temporary, intermittent, or permanent reflux.

It has been shown that the middle-aged group is the most vulnerable to the disease, and the cost of treatment is estimated to about \$ 5.4 billion annually, which leads to negative repercussions on the national economies. (ElMestekawy: 2019)

The bed in Egypt and the Arab world is characterized by perseverance and incapability to adjust its level, (ElMestekawy: 2014), Physicians advise patients to raise the back of the bed to alleviate the symptoms of esophageal reflux during sleep so as not to cause suffocation to the sleeping person, which in turn leads to the elimination of snoring sounds during sleep, and when raising the sleeping person's back with cushions due to the stability of the bed position at home, this resulted in an increased feeling of fatigue after sleeping for sufficient periods of time for rest, causing back pain and neck tension.

Hence, the designer had to step in to solve part of the problem, which is adjusting the bed horizontal axis to get an ideal sleeping position for patients so that the back of the bed can be tilted and moved according to the weight and size of the sleeping person, such as medical beds in hospitals and medical clinics, but in a different way and easier to use in order to reduce pains suffered by patients.

### **Key words.**

Bed - Design - Esophageal reflux - Snoring - Assembly connections.