

This invention relates to a plastic spring, consisting of a spring tongue attached to a spring support by means of a web.

Plastic springs can be used for many purposes, and they are employed for instance in tablet dispensers as a return spring for the tablet ejector. These plastic springs are mostly injection-molded in one single operation together with the spring support, and up to now have consisted of a bow-shaped web ending as a spring tongue at its free end. For safety reasons a material must be chosen for the production of the plastic spring or the spring support, which in case of rupture does not involve a risk of injury by sharp edges, acute parts or the like, so that the material properties of the used plastic material cannot be adjusted to the required spring properties. Therefore, the known plastic springs are often too weak and cannot satisfy the requirements as regards the range of spring and the spring force.

It is thus the object underlying the invention to eliminate these deficiencies and create a plastic spring as described above, which can easily be injection-molded from the same material as the associated spring support, and whose spring properties can nevertheless easily be adapted to different conditions.

This object is solved by the invention in that the web is rigidly supported with respect to the spring support, and at least one auxiliary spring tongue parallel to the spring tongue extends from the web below the spring tongue. Spring tongue and auxiliary spring tongues constitute a cooperating spring assembly, whose spring force increases with increasing range of spring, as under a load the deflecting spring tongue is supported by the underlying auxiliary spring tongue after

a corresponding range of spring, and then to the spring force of the spring tongue the spring force of the auxiliary spring tongue is added. This increase in spring force can be adjusted to the desired conditions by the number of auxiliary spring tongues, and by means of the mutual distance of spring tongue and auxiliary spring tongue the associated range of spring is influenced accordingly. The plastic spring can therefore be injection-molded from a suitable material which is break-proof even under higher loads, where by reinforcing the web with respect to the spring support the dangerous point of attachment of the web is secured, and there is nevertheless produced a spring whose properties can be adapted to the respective requirements.

When the spring tongue and the auxiliary spring tongues have a length which decreases towards the spring support, the stiffness increasing with decreasing length results in a progressive increase in spring force with increasing range of spring, and there is in addition achieved a space-saving arrangement of the auxiliary spring tongues closely conforming to below the spring tongue.

For properly utilizing the material properties, the spring tongue and the auxiliary spring tongues have a width tapering towards the free end of the tongue, so that the material stresses can be uniformly distributed over the length of the tongue when a load is acting on the spring.

It is also advantageous to provide lateral supporting cheeks between web and spring support, as these supporting cheeks do not only provide a corresponding stability of the web support, but between the supporting cheeks and the web a protective housing is formed, so to speak, for the spring tongue and the auxiliary spring tongues.

In the drawing, the subject-matter of the invention is represented by way of example, wherein:

Fig. 1 and 2 illustrate an inventive plastic spring in a schematic side view and top view, respectively.

A plastic spring 1, which is injection-molded together with the spring support 2, for instance a tablet dispenser magazine, consists of a web 3 attached to the spring support 2, which web verges into a transversely extending spring tongue 4, and from which below the spring tongue 4 for instance two auxiliary spring tongues 5, 6 protrude in the same direction, where the auxiliary spring tongues 5, 6 are shorter than the spring tongue 4, and the length of these auxiliary spring tongues gradually decreases with increasing distance from the spring tongue 4. In addition, the widths of the spring tongue 4 and the auxiliary spring tongues 5, 6 can taper towards the free end of the tongue, as is indicated in Fig. 2 in dash-dotted lines. For the rigid support, the web 3 is connected with the spring support 2 by means of lateral supporting cheeks 7, where a kind of spring housing is formed by the supporting cheeks 7 and the web 3.

The spring tongue 4 and the auxiliary spring tongues 5, 6 constitute a spring assembly, whose individual spring tongues progressively cooperate step by step under a load K , so that in dependence on the range of spring an increasing spring force is achieved (dash-dotted representation in Fig. 1). It is thus possible to produce a plastic spring injection-molded from the same material as the spring support, whose spring characteristic can easily be adapted to the respective requirements as regards range of spring and spring force.



C l a i m s :

1. A plastic spring, consisting of a spring tongue attached to a spring support by means of a web, characterized in that the web (3) is rigidly supported with respect to the spring support (2), and at least one auxiliary spring tongue (5, 6) parallel to the spring tongue extends from the web (3) below the spring tongue (4).
2. The plastic spring as claimed in claim 1, characterized in that the spring tongue (4) and the auxiliary spring tongues (5, 6) have a length decreasing towards the spring support (2).
3. The plastic spring as claimed in claim 1 or 2, characterized in that the spring tongue (4) and the auxiliary spring tongues (5, 6) have a width tapering towards the free end of the tongue.
4. The plastic spring as claimed in any of claims 1 to 3, characterized in that between web (3) and spring support (2) lateral supporting cheeks (7) are provided.

A b s t r a c t :

A plastic spring (1) consists of a spring tongue (4) attached to a spring support (2) by means of a web (3).

For adapting the spring characteristic to different conditions independent of the material, the web (3) is rigidly supported with respect to the spring support (2), and at least one auxiliary spring tongue (5, 6) parallel to the spring tongue (4) extends from the web (3) below the spring tongue (4).

Fig. 1

FIG.1

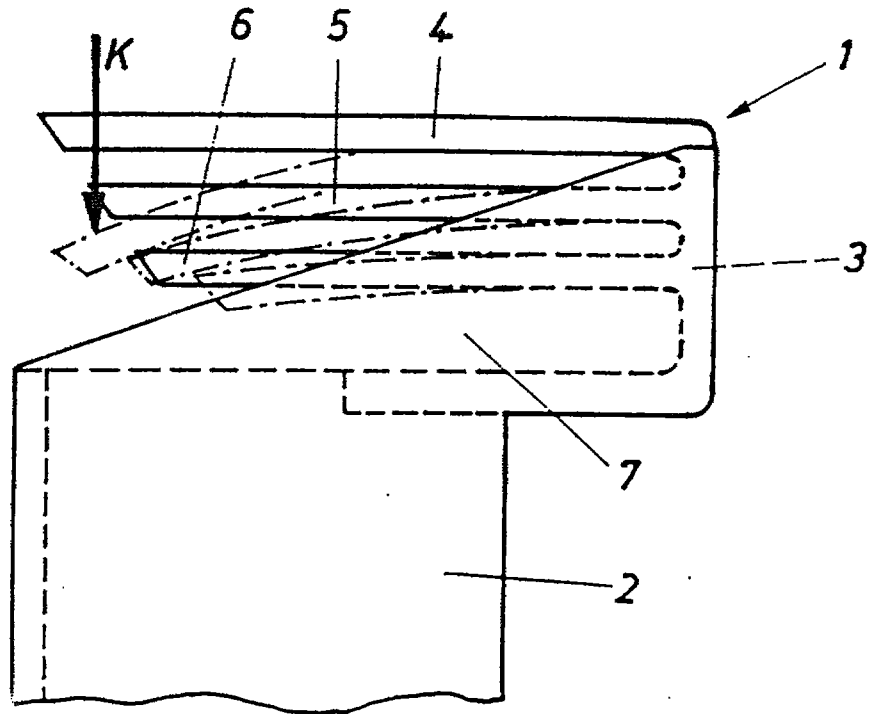


FIG.2

