

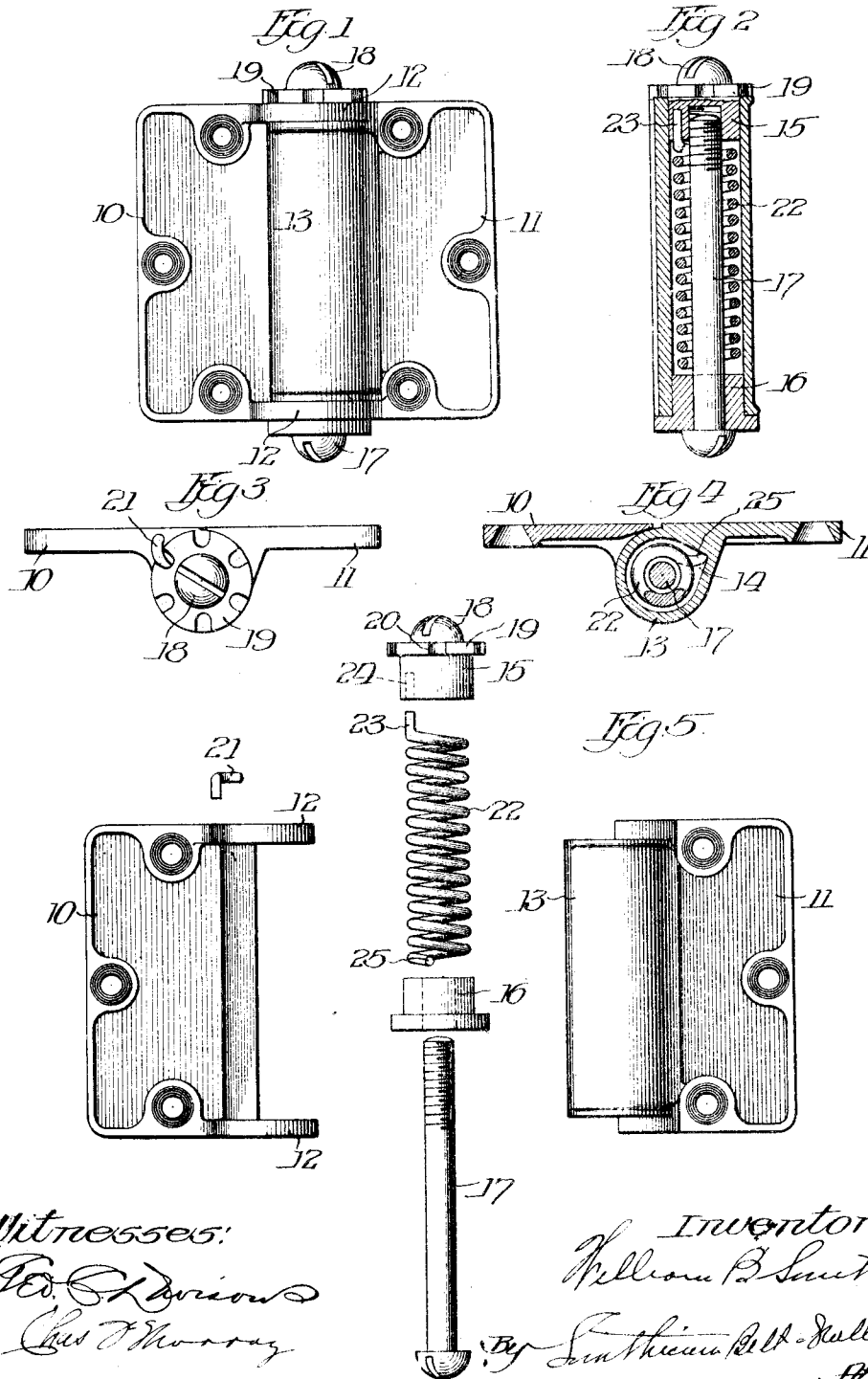
W. B. SMITH.

SPRING HINGE.

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1,127,688.

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Witnesses:
Geo. H. Brown
Chas. J. Murray

Inventor:
William B. Smith

By *Smith & Co. Attorneys*

UNITED STATES PATENT OFFICE.

WILLIAM B. SMITH, OF DANVILLE, ILLINOIS.

SPRING-HINGE.

1,127,688.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM B. SMITH, a citizen of the United States, and resident of Danville, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a specification.

My invention relates to door hinges and has particular reference to a novel spring hinge.

An object of my invention is to provide a spring hinge which shall be exceedingly simple in construction and readily dismantled and repaired.

A further object is to provide a spring hinge, the spring of which may be readily replaced by an unskilled user without removing the entire hinge from the door and without the necessity for discarding the hinge. My device is readily removable by the use of the ordinary tools.

A further object is to provide such a spring hinge in which the tension of the spring may be readily adjusted by the use of a common tool.

A still further object is to provide a construction which shall be composed of two separable wings, one of which may be attached to the door, the other to the casing, the removal of the door merely requiring a simple operation of separating the wings, one portion of the hinge remaining on the casing and another portion on the door.

The invention will be more readily understood by reference to the accompanying drawings, wherein,

Figure 1 is a front elevation of a hinge constructed in accordance with my invention; Fig. 2 is a longitudinal, vertical section through the construction shown in Fig. 1; Fig. 3 is a top plan view; Fig. 4 is a transverse sectional view, and, Fig. 5 is a composite view showing the parts of the hinge in dismantled condition.

Referring more particularly to the drawings it will be seen that the hinge is composed of two wings or plates 10, 11, the former having apertured ears 12, and the latter provided with an integral spring barrel 13, said barrel having, as shown in Fig. 4, an internal groove or offset portion 14. As a bearing for the two members when in assembled relation, I provide upper and lower bearing nuts 15, 16, respectively, the lower member being apertured to permit the passage therethrough of a bolt 17, having

a threaded end, which threaded end is adapted to enter a threaded aperture in the nut 15. The nut 15 is provided with a grooved boss 18, with which a screw driver may cooperate. This nut is also provided with a flange 19, having notches 20, therein, these notches being engaged by a pawl 21, seated in the member 10. A helical spring 22 is provided, this spring having a projection 23, adapted to enter a recess 24, in the nut 15, the other end 25, of the spring projecting radially and cooperating with the groove or enlargement 14, of the spring barrel to prevent rotation of the spring.

To assemble the parts shown in Fig. 5, the portions 10, 11, are brought into proper relation, the spring is placed within the spring barrel with its portion 25, cooperating with the groove 14, the nut 15 is fitted onto the end 23, of the spring, the lower end 16 is located and the bolt 17 inserted in place and tightened as required. Thus the hinge is completely assembled. In order to apply tension to the spring a screw driver is placed in the slot in the boss 18, and the nut 15 rotated as required, the dog 21 engaging a notch 20 to hold the nut in adjusted position. It will be seen that the hinge may be readily dismantled and a broken spring replaced by anyone without removal from the door the only tool necessary being a screw driver.

From the construction shown and described it will also be seen that if desired the hinge may be dismantled, leaving one wing thereof on the door casing and the other on the door as is common in the ordinary hinges without springs. This permits of ready removal of screen doors without the removal of the fastening screws. It is obvious also that certain modifications may be made in the construction, all without departing from the spirit of my invention.

I claim:

1. In a spring hinge, the combination of a pair of wings, a spring barrel carried by one wing, means within said barrel for engaging a spring and preventing its bodily rotation, bearing nuts arranged at each end of said hinge, a spring, means on one nut for engaging said spring, and a single bolt for holding said parts in assembled relation, substantially as described.

2. In a spring hinge, the combination of a pair of hinge members, one thereof having an integral spring barrel, said barrel having

an internal eccentric portion, a spring disposed within said barrel and held against bodily rotation by cooperation with said eccentric portion, nuts at each end of said hinge, said nuts forming a bearing between the hinge members, one of said nuts engaging and being arranged to apply tension to said spring, and a bolt cooperating with said nuts to hold the parts in assembled relation, substantially as described.

3. In a spring hinge, the combination of a pair of hinge members, one thereof having a spring barrel, a spring disposed in said barrel, means within said barrel to prevent bodily rotation of said spring, a pair of nuts closing said barrel and acting as bearings between said hinge members, one of said nuts cooperating with and arranged to apply tension to said spring, and a single bolt extending longitudinally through said barrel and said spring and threaded into one of said nuts, substantially as described.

4. In a spring hinge, the combination of a pair of hinge members, an integral barrel on one member, said barrel being provided with a groove or enlargement internally thereof, a spring within said barrel, said spring having a portion cooperating with said groove, a pair of nuts, said nuts acting as bearing members between said hinge members, one of said nuts cooperating with said spring to apply tension thereto, a single bolt for holding the parts in assembled relation, and means disposed exteriorly of the hinge for adjusting the tension on said spring, substantially as described.

5. In a spring hinge, the combination of a pair of hinge members, a barrel carried by one member, apertured ears carried by the other hinge member, a spring, means associated with said barrel and spring for preventing rotation of said spring with relation to the barrel, a nut having an annular boss, said boss being adapted to project through one of said apertured ears and to extend within said barrel and engage the opposite end of said spring, the transverse diameter of said boss at the point where it passes through said ear and into said barrel

being at least as great as the transverse diameter of said spring, and means for holding the parts in assembled relation, substantially as described.

6. In a spring hinge, the combination of a pair of hinge members, a spring barrel carried by one member, said barrel having an internal groove extending substantially from end to end thereof, a spring mounted within said barrel and having an extension cooperating with said groove, a nut engaging the opposite end of said spring, said nut having an annular projection adapted to enter said barrel and to act as a bearing between the hinge members, said projection having a diameter at least equal to the diameter of the spring, and means for maintaining the parts in assembled relation, substantially as described.

7. In a spring hinge, a pair of hinge members, a spring barrel integral with one of said members, a spring mounted within said barrel, the latter having an internal groove adapted to receive a terminal of the spring, a nut rotatably mounted at the opposite end of the spring barrel and fixedly engaging the other terminal of the spring, and a pivot pin for connecting said hinge members for maintaining said nut in proper relation to the barrel, substantially as described.

8. In a spring hinge, the combination of a pair of wings, a spring, a spring barrel carried by one wing, a part of said barrel being eccentric with reference to the axis of the hinge to prevent the spring from rotation, an adjustment member arranged outside of said other wing and adapted to apply tension to said spring, said member passing through said other wing and into the concentric portion of the spring barrel where it engages an end of said spring, and means for maintaining the parts in assembled relation, substantially as described.

WILLIAM B. SMITH.

Witnesses:

CHARLES C. LINTHICUM.
T. D. BUTLER.