S. P. SMITH.
Spring Bed-Bottoms.

No. 198,423. Patented Dec. 18, 1877.

Fig. 1.

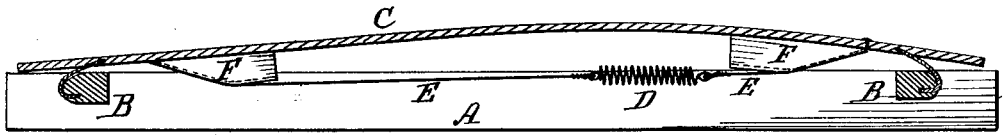


Fig. 2.

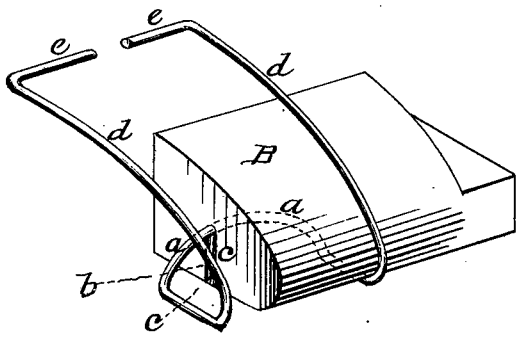


Fig. 3.

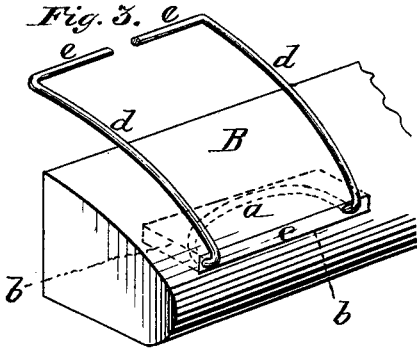


Fig. 4.

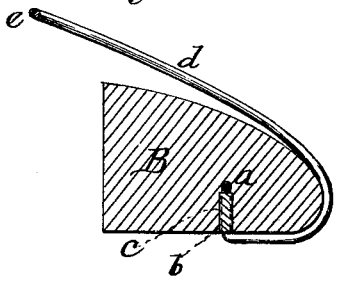
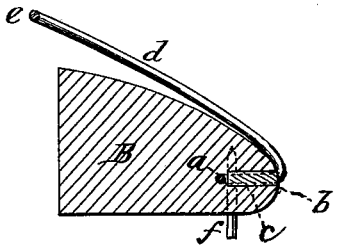


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

SOLOMON P. SMITH, OF TROY, NEW YORK, ASSIGNOR TO HARVEY J. KING, OF SAME PLACE.

IMPROVEMENT IN SPRING BED-BOTTOMS.

Specification forming part of Letters Patent No. **198,423,** dated December 18, 1877; application filed February 24, 1877.

To all whom it may concern:

Be it known that I, SOLOMON P. SMITH, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Spring Bed-Bottoms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

The slats forming the bed-bottom are supported upon springs, and it is the manner of applying these springs to their supporting-bars that constitutes one part of my invention. The wire spring is completely formed with two side arms, a bow-shaped cross-brace at their lower or under curved portions, and right-angled upper ends to support the slats, thus making the spring complete before it is applied to the cross-bar, and in this particular very materially lessening the expense of manufacture, the quantity of wire required, and the trouble in applying the spring.

Hitherto a spring of stout wire has been bent and passed through holes in the cross-bar, with a cross portion resting thereon, and the arms bent up over the rear curved side of said bar, and then its ends bent up at right angles, making very considerable labor and trouble, and endangering the splitting of the bar and breaking of the wire. I provide a means for easily and quickly applying and securing the formed spring, such means consisting of the cross brace or bow, and providing the cross-bar with a gain or recess to receive such bow or bent brace, and securing it in place by a filling strip or plug glued fast, and closing up the recess to exclude vermin. This means of attachment may be made either at the rear side or at the bottom of the bar, as may be deemed best, the gains or recesses being readily formed in the bar by a circular saw. The slats are maintained cambered by spiral springs, connected by straining-rods fitted over saddle-blocks, so that the end springs are peculiarly adapted to the action of the camber spring slats, the straining-rod springs yielding to the straightening of the camber, and the end springs yielding to the increased length of the slats under such action, so that this construction and adaptation of camber-springs and bent end springs gives a very strong and easy bed-foundation.

Referring to the drawings, Figure 1 represents a vertical longitudinal section of a bed-bottom embracing my invention; Fig. 2, a view, in perspective, of the end portion of one of the cross-bars, with the end spring as applied in the recess thereof, and bound secure by a filling-strip; Fig. 3, a similar view of the cross-bar with the spring applied in a different position; and Figs. 4 and 5 are views of said spring and bar in section.

The bed bottom or foundation comprises the longitudinal side rails A, the cross-bars B, and the spring-slats C, which are supported directly above said bars by springs connected therewith. The slats are cambered and provided with spiral springs D, arranged on their under sides, and connected at each end by straining-rods E, which pass over saddle-blocks F, secured to the slats. These blocks may be grooved, so as to retain the straining-rods, or staples may be used for a like purpose, and the ends of the rods are secured by passing them through the slats.

The springs upon which the slats are supported near their ends are made complete, as shown in Figs. 2 or 4, before being applied to the cross-bars, each spring having a bowed or curved connecting cross-brace, *a*, adapted to be fitted into a gain or recess, *b*, made in the under side of the cross-bar, and its bottom conforming to the curved form of the cross-brace, a filling or plug strip, *c*, being driven into said gain or recess over and covering the cross-brace, and glued fast, thus effecting a ready and very convenient means of application and security of the spring to said bar, and closing the opening made for the insertion of the spring-brace.

The arms *d d* of the spring have inwardly right-angled bent ends *e e*, upon which the ends of the slats are supported, being fitted into an opening bored crosswise through the slat near each end thereof. The gains or recesses are quickly made by a saw, and of a

depth just to be filled by the bowed brace, and the plug-filling has its inner edge curved to fit upon the brace when driven in place and secured, closing the gain flush with the bar.

When the gain or brace is made on the under side of the bar the bowed brace rises upward from the under-bent portions of the arms *d d*, as shown in Fig. 2; but when such gain or recess is made in the rear side of the bar, said bowed brace *a* is made to extend horizontally beneath said spring-arms, and may, in addition to being secured by the plug-filling, be further secured by a pin, *f*, driven vertically through the rail outside of the bend or central portion of the cross-brace.

I find in practice, however, the plug-filling, of wood or other suitable material, fastened by glue or otherwise, to be sufficient to hold the spring securely in place. The slats, being cambered, constantly tend to force the bent ends of the end springs outward, and to counteract this tendency and preserve the camber form, the slats are provided with the tension-springs, in the manner described; but straight slats may be used without the tension-springs.

The manner of applying and securing the springs gives the advantage of making them complete and in form for ready application to the bar and the slats, and avoids all liability of being broken, as would be the case when drawn through holes and bent upward over the bar, besides effecting a great saving of wire over the plan heretofore adopted.

I claim—

1. The combination, with the bent slat-supporting springs, of the cross-bars provided with gains or recesses to receive the cross-braces of the springs, substantially as described.

2. A bed-spring formed complete with the bent arms *d d*, the under cross-brace *a*, and the slat-supporting pins *e e*, in combination with the supporting-bars B, having the gain or recess *b*, to receive the cross-brace, and the plug-filling or plug-strip *c*, for securing said cross-brace, as described.

In testimony that I claim the foregoing I have affixed my signature in presence of two witnesses.

SOLOMON P. SMITH.

Witnesses:
WM. W. MANCHESTER,
FRED. P. SMITH.