M. M. BEEMAN & R. C. BICKERSTAFF.

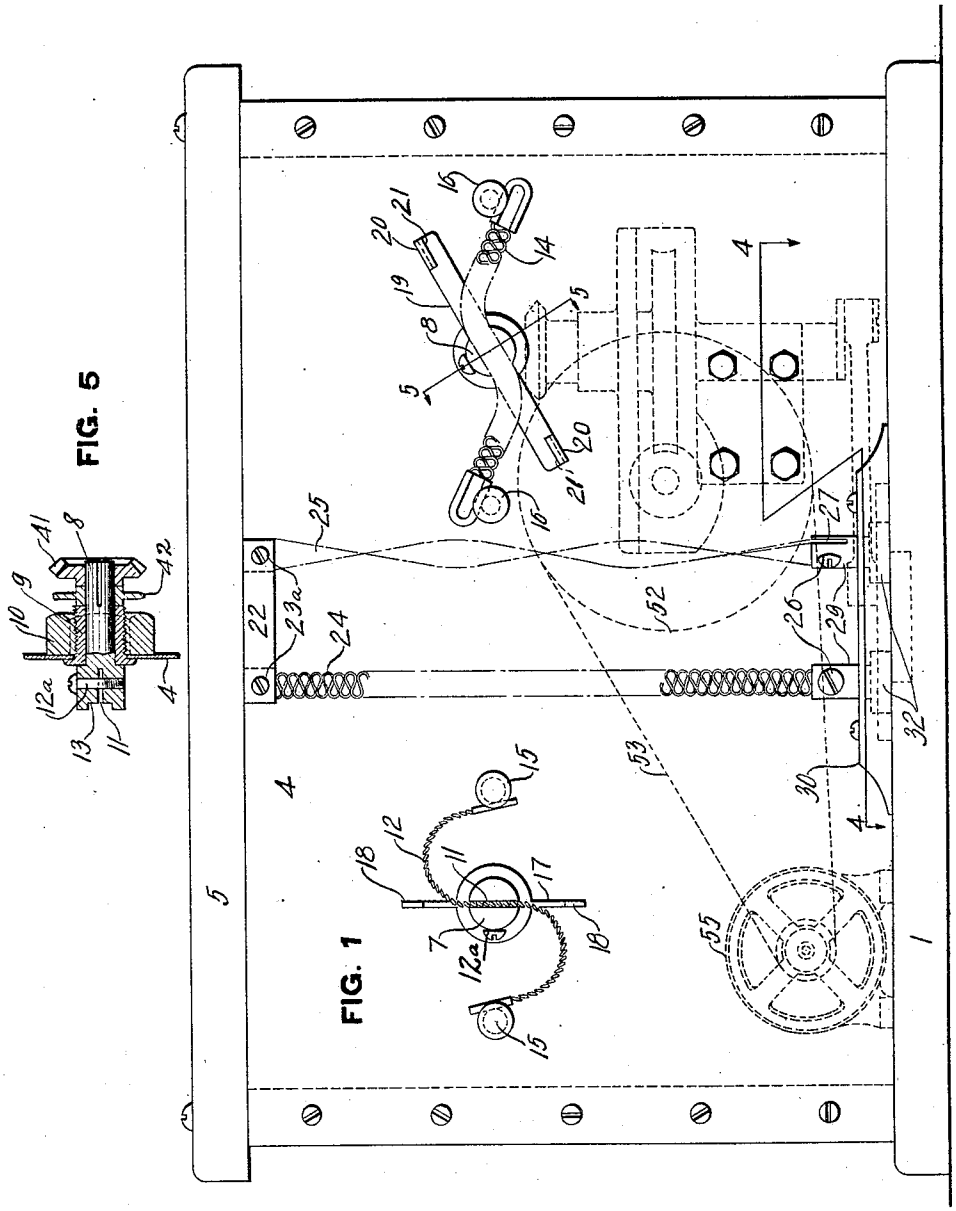
DISPLAY TESTING DEVICE.

APPLICATION FILED SEPT. 27, 1911.

1,050,331.

Patented Jan. 14, 1913.

3 SHEETS—SHEET 1.



WITNESSES

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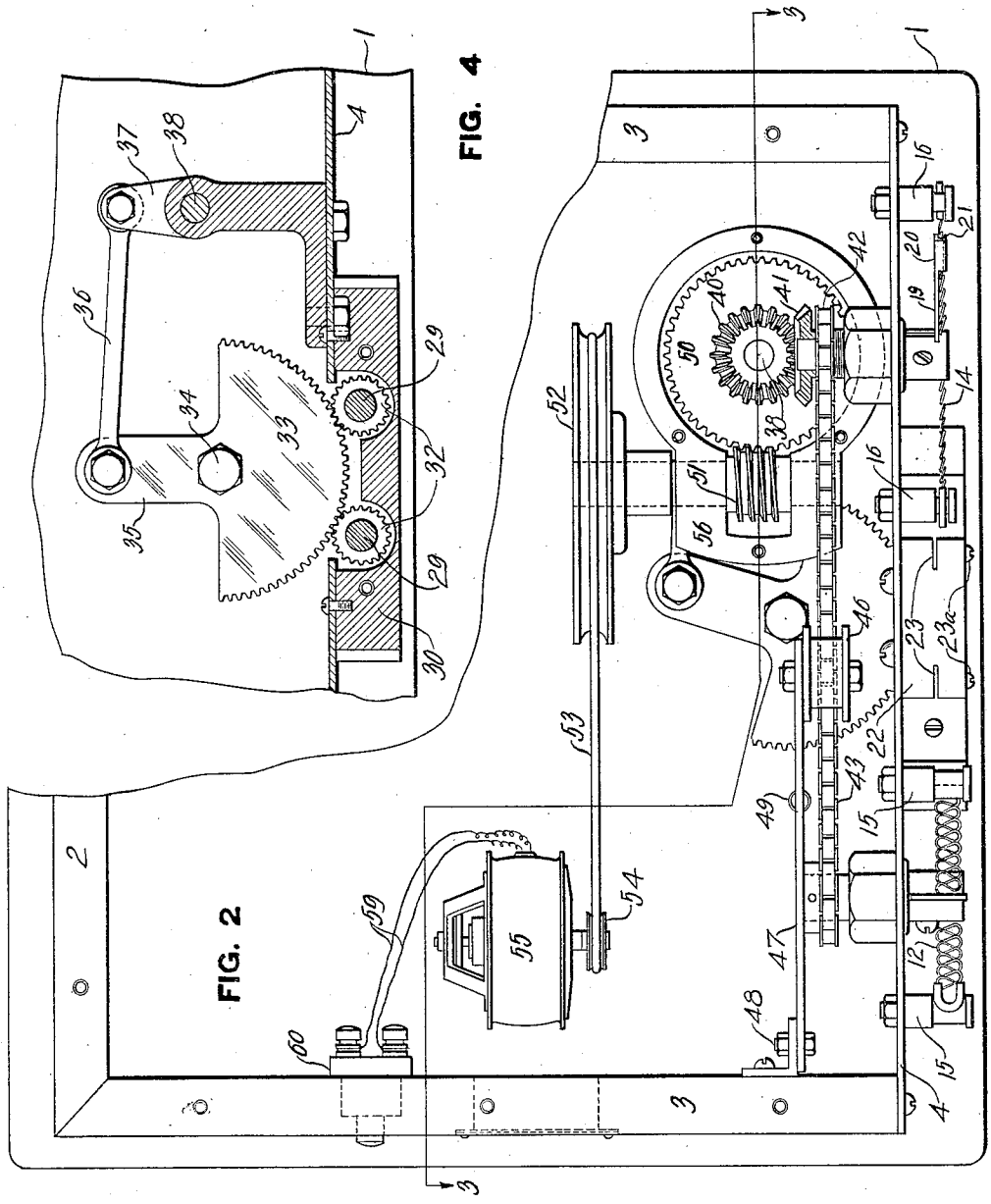

FIG. 4

FIG. 2

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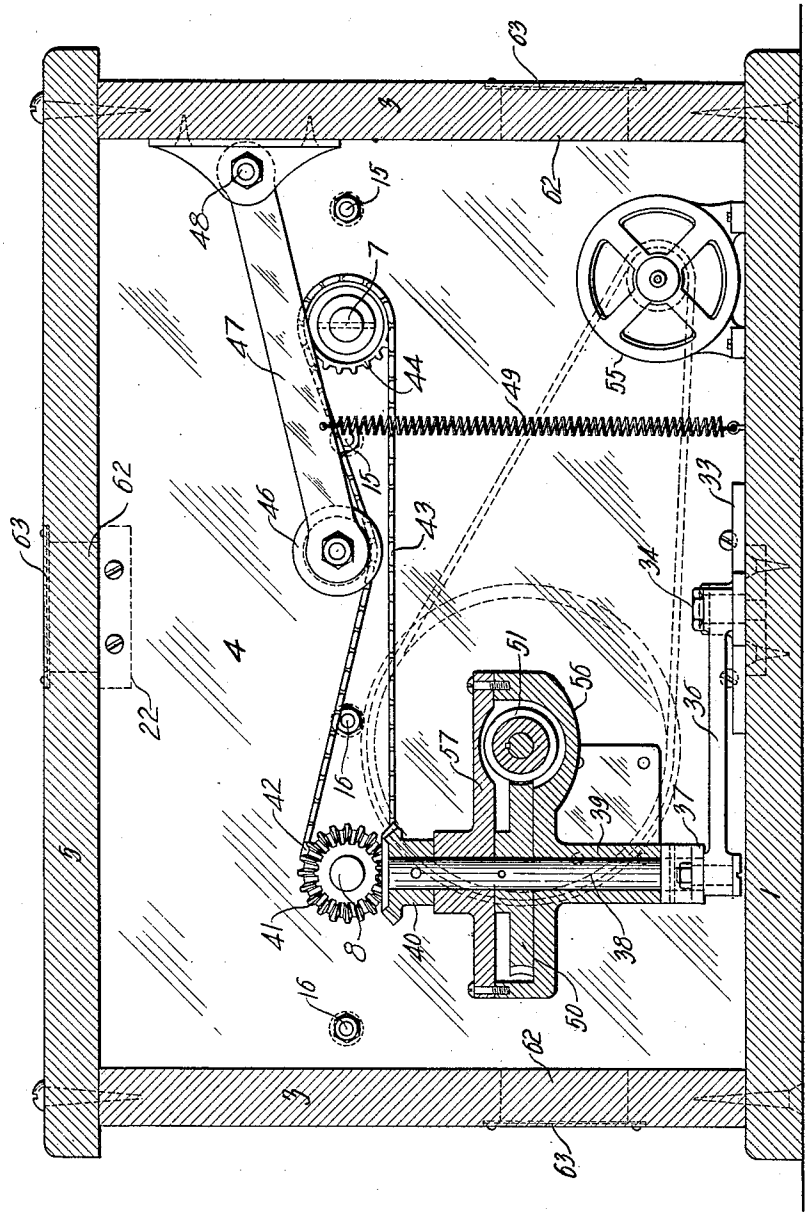

FIG. 3

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UNITED STATES PATENT OFFICE.

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DISPLAY TESTING DEVICE.

1,050,331. Specification of Letters Patent. **Patented Jan. 14, 1913.**

Application filed September 27, 1911. Serial No. 651,542.

To all whom it may concern:

Be it known that we, MARCUS M. BEEMAN and ROBERT C. BICKERSTAFF, both residents of Meadville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Display Testing Devices, of which the following is a specification.

This invention relates to a device for displaying and demonstrating the resilient and lasting qualities of resilient articles, and more particularly wire garment stays.

The purpose of the invention is to provide an apparatus which can be placed in a show window and will attract attention and therefore serve as an advertising medium, as well as demonstrate the durability and elastic qualities of the resilient article, such as a stay.

The invention comprises an arrangement of parts which will subject the elastic article to repeated bendings both flatwise and edgewise, as well as twisting the same.

In the accompanying drawings Figure 1 is a front elevation of the device showing part of the mechanism within the cabinet in dotted lines; Fig. 2 is a broken out plan view of the device with the cover removed; Fig. 3 is a vertical section on the line 3—3, Fig. 2, looking in the direction of the arrows; Fig. 4 is a horizontal section on the line 4—4, Fig. 1, and Fig. 5, is a horizontal section on the line 5—5, Fig. 1.

The device preferably comprises a box or cabinet in which the mechanism is inclosed and having its front wall formed for display purposes. The box illustrated comprises a bottom 1, rear wall 2, end walls 3, and front wall or plate 4, and top or cover 5. All of these parts are shown as formed of wood except the front wall or plate 4, which is of metal and which preferably has its outer surface highly polished or otherwise treated so as to present a neat and ornamental appearance. The display portions of the device are outside of the front wall or plate, while the actuating mechanism therefor is concealed within the box or cabinet.

The device is shown for demonstrating and displaying wire corset stays formed by bending a wire back and forth into alternately progressive loops or eyes and of a formation clearly illustrated in Fig. 1. It, however, is capable of demonstrating and displaying other wire or resilient articles. The device is provided with means for flexing the wire stay both flatwise and edgewise, and also for twisting the same, in order to illustrate the flexibility of the stay in all directions, as well as demonstrating its durability.

Extending from the front plate or wall are a pair of shafts 7 and 8 each of which is rotatably mounted in a bushing 9 extending through an opening in the front wall and clamped in position by means of a nut 10 on its inner threaded end. The shafts 7 and 8 are rotatable in their respective bushings and at their outer ends are enlarged and provided with stay clamping means. The shaft 7 has its outer end provided with a narrow slit or kerf 11 into which a stay 12 can be inserted edgewise and it is clamped therein by means of the diametric clamping screw 12^a. The outer end of shaft 8 is likewise provided with the slot or kerf 11 and clamping screw 12^a but is also cut away as at 13 so as to receive the stay 14 in flatwise position. The result is that the stay 12 will be flexed flatwise while the stay 14 is flexed edgewise, as shown clearly in Fig. 1. Cooperating with the shaft 7 are a pair of studs 15 projecting from the front plate and located at such distance from the shaft as to impart to the stay a very decided double bend when the shaft 7 is rotated, as clearly shown in Fig. 1. Coöperating with shaft 8 are a similar pair of studs 16 so located that as shaft 8 rotates the end portions of the stay will contact therewith and flex said stay edgewise in a double curve, as shown. The shaft 7 also carries a cross bar 17 provided with ends 18 which project outwardly into the plane of the stay and which serve to catch the ends of the stay when they slip past the studs 15 and stop the vibration thereof. The shaft 7 likewise carries a cross arm 19 provided with outwardly projecting parts 20 provided with upturned lips 21 lying in the plane of the stay 14 and serving to catch the stay when it slips past the projection 16 and stop the vibration thereof.

The devices for twisting the stays are shown in duplicate comprising a stationary block or clamp 22 secured to the front plate 4 near the top thereof and provided at each end with a kerf 23 in which the end of a stay can be inserted and secured by suitable

means such as screw 23a. Two stays, to-wit, 24 and 25, are shown in Fig. 1 clamped in the block 22. The lower end of each of these stays is secured by means of a screw 26 in a kerf 27 in the upper end of a short vertical stub shaft 29, said shafts being rotatable in a block 30 secured to the base 1 of the device. Each of the stub shafts 29 has formed on or secured to its lower end a small pinion 32 which pinions are engaged by a segment of gear 33 fulcrumed to the bottom 1 of the cabinet at 34 and provided with an arm 35 which is connected by means of connecting rod 36 to a crank 37 on the lower end of a shaft 38 which is mounted in a suitable bearing 39 secured to the front plate or wall 4. The crank 37 and arm 35 are of such relative length as to impart to the gear segment 33 an oscillatory movement thereby imparting a back and forth rotary movement to the pinions 32 and stub shafts 29. The consequence is that the stays 24 and 25 are alternately twisted and untwisted. Preferably the stays will be initially placed in the clamps in such position that one thereof is untwisted while the other is twisted to its maximum degree, as illustrated in Fig. 1.

To the upper end of shaft 38 is secured a bevel pinion 40 which meshes with a similar pinion 41 on the inner end of the short stub shaft 8. Also secured to said stub shaft or to the pinion 41 is a sprocket wheel 42 which is connected by means of sprocket chain 43 with a similar wheel 44 on the inner end of the stub shaft 7. By this means constant rotary motion in the same direction is imparted to the shafts 7 and 8 thereby imparting to the stays 12 and 14 repeated flexures in the same direction. A tightener for sprocket chain 43 is preferably provided, this being shown in the form of a wheel 46 mounted in the end of arm 47 pivoted at 48 and held against the sprocket chain 43 by means of spring 49. This is for the purpose of taking up the slack and stretch of the sprocket chain.

The shaft 38 is rotated by means of a worm wheel 50 secured thereto and engaged by means of a worm 51 which is provided at one end with a sheave or pulley 52 connected by belt or the like 53 with a similar sheave or pulley 54 on the armature shaft of a small electric motor 55. Any other suitable motor may be employed. The worm 51 is mounted in a suitable gear case 56 which fully incloses the worm 51 and also the worm wheel 50, and which is provided with a cover 57 for tightly closing the same. This gear case is packed full of grease so that proper lubrication of the worm and worm wheel is provided for a long time.

The electric wires 59 from the motor 55 lead to a suitable switch 60 accessible from the outside of the case or cabinet so that the motor can be stopped or started at will. The case or cabinet is also provided with suitable ventilating openings 62 covered by screen 63 in order that the motor may receive proper ventilation to remain cool.

The actuating parts of the apparatus are entirely concealed behind the front wall or plate and only the displaying or demonstrating parts are exposed on the outside. These parts are so arranged as to impart to the stay flexing or bending movements both flatwise and edgewise, and also alternately twisting and untwisting movements, thereby demonstrating the flexibility of the article in all directions and at the same time demonstrating its durability by the repeated flexing stresses to which subjected. The device is attractive in external appearance and can be placed in a show window or other position where it does not fail to attract attention and therefore serves admirably as an advertising device. The actuating mechanism is very simple and noiseless and also requires only a very small amount of power.

The device illustrated may be used for displaying and demonstrating flexible articles other than corset stays, or corset stays of different character than those illustrated in the drawings.

What we claim is:—

1. In a display device, the combination of a rotary member adapted to have a flexible member clamped therein, and a projection located in proximity to said rotary member and adapted to be contacted by the end portions of the flexible article.

2. In a stay displaying device, the combination of a rotating member adapted to have a flexible article clamped thereto, and a pair of projections located on opposite sides of said rotary member and in such proximity thereto as to be contacted by the end portions of the flexible article.

3. In a display device, the combination of a rotating member adapted to have a flexible article clamped thereto, a projection located in such proximity to said rotating member as to be contacted by the end portions of the flexible article, and means for stopping the vibration of said flexible article when freed from said projection.

4. In a display device, the combination of a rotary member adapted to have a flexible article clamped thereto, a pair of projections located in such proximity to said rotary member as to be contacted by the end portions of the flexible article, and a cross member on said rotary member having its end portions lying in the plane of vibration of the flexible article.

5. In a display device, the combination of a pair of members adapted to have a flexible article clamped therebetween, of power driven means for rotating one of said

members alternately in opposite directions to twist the flexible article.

6. In a display device, the combination of a pair of members, each arranged to have one end of a flexible article secured thereto, of means for causing relative rotation between said members whereby a flexible article held between said members is alternately twisted and untwisted.

7. In a display device, the combination of a pair of members arranged to have a flexible article clamped therebetween, of means for causing relative rotation between said members, first in one direction and then in the other, to alternately twist and untwist the article in opposite directions.

8. In a display device, the combination of a rotatable member adapted to have one end of a flexible article clamped therein, a coöperating clamping member in axial alinement therewith, and means for imparting rotary movement to said member alternately in opposite directions.

9. In a display device, the combination of a driven shaft, a rotary member provided with article-clamping means, a projection for coöperation therewith, an oscillatory member also provided with article clamping means, a clamping member for coöperation therewith, and connections from said driven shaft to said rotary and oscillatory members.

10. In a display device, the combination of a rotary member provided with article-clamping means, a projection for coöperation therewith, an oscillatory member also provided with article-clamping means, an article-clamping member for coöperation therewith, a driven shaft, a gear train connection from the driven shaft to said rotary member, and driving connections from the driven shaft to the oscillatory member comprising a crank, a connecting rod, and an oscillatory segment.

11. In a stay display device, the combination of a rotary member provided with article-securing means, a coöperating projection therefor, inter-connected oscillatory members also provided with article-securing means, a coöperating article-clamping member therefor, an oscillating segment engaging one of said oscillatory members, a shaft, a crank on said shaft, a rod connecting said crank and oscillating segment, and a driving connection between said shaft and said rotary member.

12. In a stay display device, the combination of a pair of rotating members each adapted to have an article clamped thereto, projections in such proximity to said rotary members as to be contacted by the end portions of the articles, gearing connecting said rotary members, a driving shaft actuating said gearing; another rotary member adapted to have one end of an article clamped therein, a coöperating clamping member in axial alinement therewith, and connections from said driving shaft whereby said last named rotary member is rotated alternately in opposite directions.

In testimony whereof we have hereunto set our hands.

MARCUS M. BEEMAN.
ROBERT C. BICKERSTAFF.

Witnesses:
J. H. PARDEE,
T. F. CHARLTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."