May 23, 1939. S. H. PETERSEN 2,159,633

POST FOR TENNIS NETS

Filed April 17, 1936 2 Sheets-Sheet 1

Fig. 1.

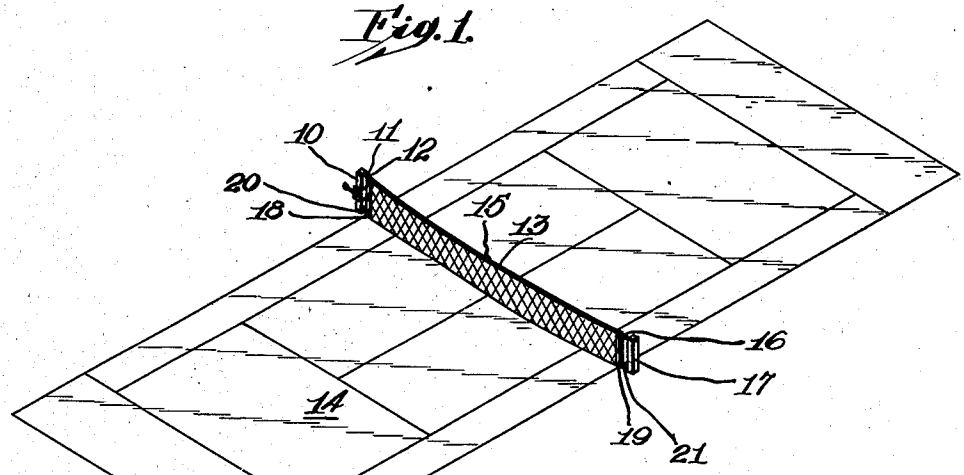


Fig. 2.

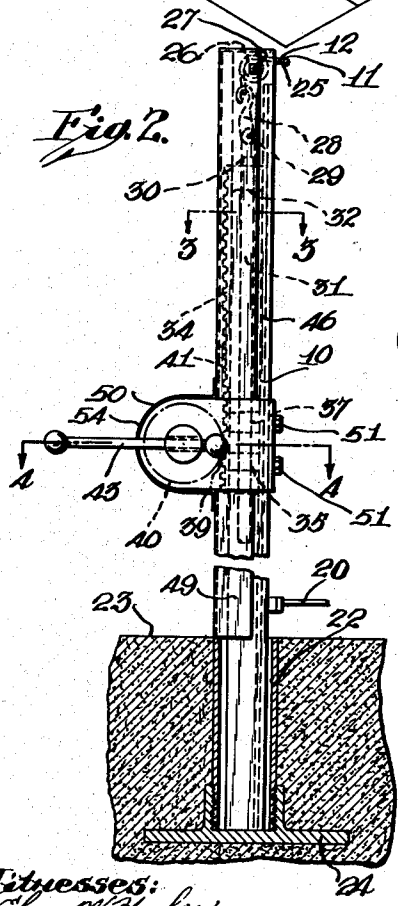


Fig. 3.

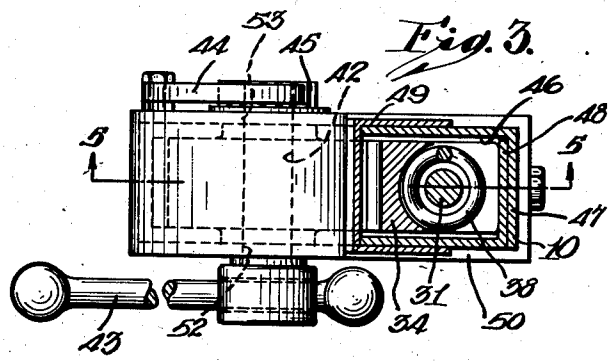
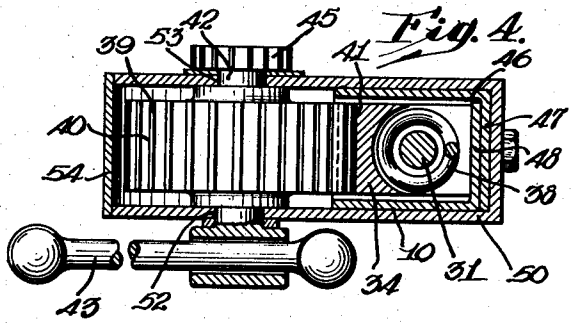


Fig. 4.



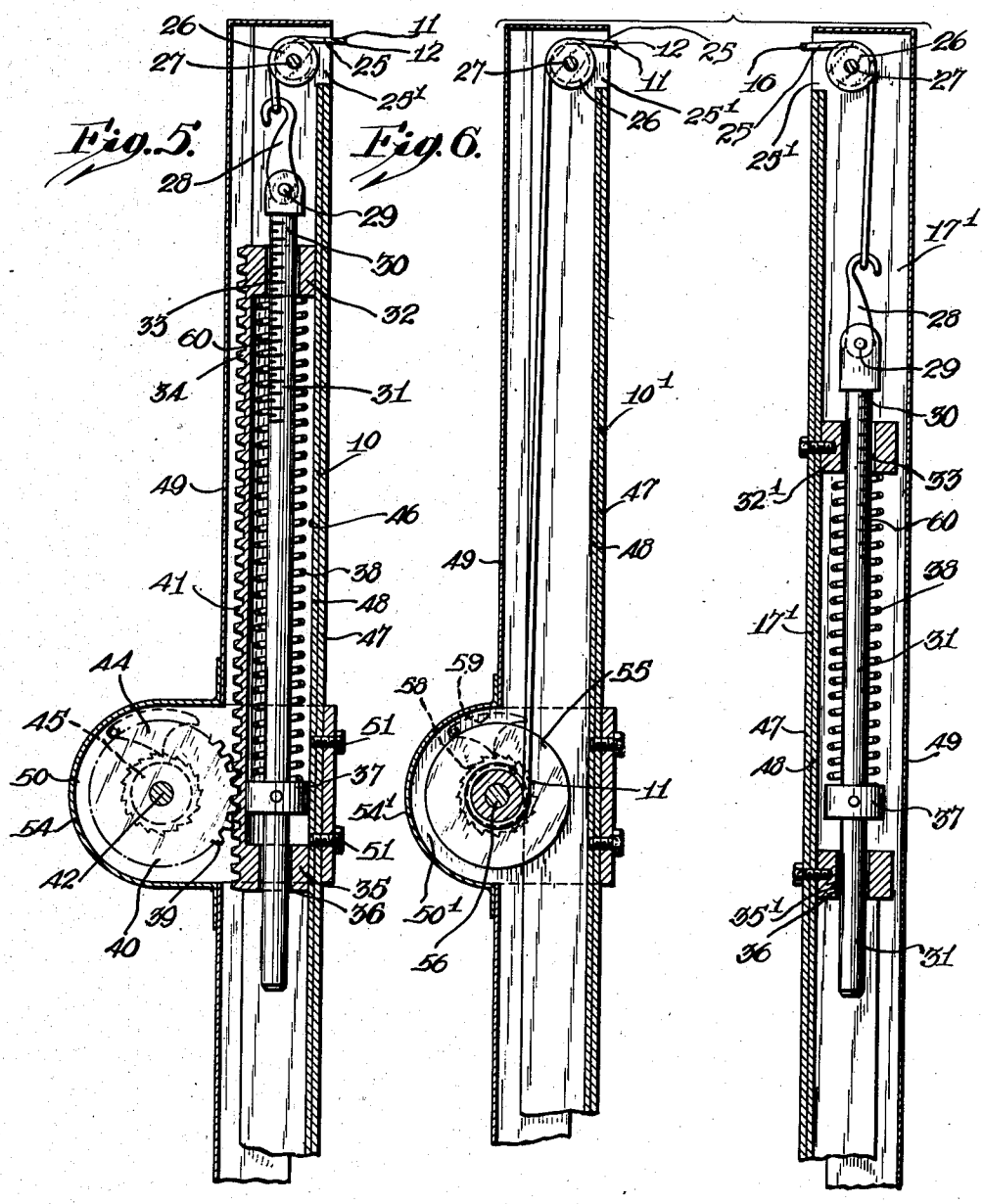
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Filed April 17, 1936 2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,159,633

POST FOR TENNIS NETS

Samuel H. Petersen, Philadelphia, Pa.

Application April 17, 1936, Serial No. 74,843

15 Claims. (Cl. 273—29)

My invention relates to standards or posts for supporting tennis nets or the like.

A purpose of my invention is to adjustably support the cable of a net used in games such as tennis or the like by mechanism including a compression spring, whereby the resilience due to the spring affords take-up and relief for the cable.

A further purpose is to provide a channeled tennis net post or standard with a compression spring located within the channel and compressively connected with a net cable, moving the spring or pulling upon the cable, as preferred, to place the cable under the required tension, balanced by a corresponding degree of compression of the spring.

A further purpose is to insert a movable cable terminal and surrounding compression spring within a vertical standard of a supporting post and to compress the spring as part of a cable tension system.

A further purpose is to provide rack and pinion operation for a tension take-up and relief mechanism stretching a tennis net or the like.

A further purpose is to provide a tension take-up and relief tennis net stretcher with ratchet-retained rack and pinion tightening mechanism.

A further purpose is to locate a compression spring within the rack of a rack and pinion tightening mechanism to vary the height of a tennis net or the like.

A further purpose is to adjust the tension of a net cable from one post or standard and to provide resilience and take up for variation at the other post or standard.

I have preferred to illustrate my invention by showing two embodiments only, selecting forms which are practical and effective but which have been selected because they well illustrate the principles involved.

Further purposes will appear in the specification and in the claims.

Describing in illustration and not in limitation and referring to the drawings:

Figure 1 is a perspective view of a game court with my post supporting one end of a net in place upon the court.

Figure 2 is an enlarged elevation of one form of my post partly in section.

Figure 3 is an enlarged sectional plan view taken on the line 3—3 of Figure 2.

Figure 4 is a further enlarged sectional plan view taken on the line 4—4 of Figure 2.

Figure 5 is an enlarged vertical section of the structure shown in Figures 1–4, taken on the line 5—5 of Figure 3.

Figure 6 is a fragmentary vertical section similar to Figure 5 but illustrating two posts for supporting a net. In this form of my invention the compression spring is located in one post and the adjusting mechanism in another post and the rack and pinion have been omitted.

In supporting nets, such as tennis nets used in playing games on courts, difficulty has been encountered in maintaining the net at a required height. Dew and rain saturate the net with moisture, increasing the weight of the net and cause the cable to sag which lowers the net out of position. Unless the cable be slacked in preparation for this, there is danger of pulling the cable posts inwardly. Temperature conditions also have a tendency to expand and contract the steel cable. Both of these conditions put an uneven strain on the posts and on the cable, sometimes causing posts to bend on hard courts and on grass courts, causing them to shift in the soft ground and to lean toward the net. With my equipment the spring tension takes care of variations in weight of the net and length of the cable, making it possible to keep the net in playing position automatically at all times.

My invention is directed to overcoming the difficulties encountered, equalizing the tension upon the cable, protecting against shocks and maintaining the level of the net under all conditions. I have found that the necessary take-up and resilience in the net can be provided and controlled easily by the use of my mechanism hereinafter described.

The invention has been applied herein to a tennis court only but is applicable to any game in which it is desirable to maintain an obstacle such as a net in the desired position.

In Figures 1–5 I have shown my post or standard 10 connected with one end 11 of a cable 12 for a tennis net 13. The tennis net is suspended across the approximate middle of a tennis court 14 and must have a certain height at the center 15. The other end 16 of the net cable is attached to any suitable fixed vertical post or standard 17.

At the lower ends 18 and 19 the net 13 is connected to the standards 10 and 17 by additional cords 20 and 21. The cords 20 and 21 prevent the net from swinging and assist in holding the net in vertical alignment above the court but the cable 12 carries the weight of the net.

Referring more specifically to one of the posts or standards shown in Figure 1, I have illustrated in enlarged views, Figures 2–5, the detail struc-

ture by which the proper position of the net with respect to the court is obtained. In Figure 2, I have illustrated the standard or post 10 inserted into a sleeve or pocket 22 below the ground level 23 of the court 14. The sleeve 22 is shown as screwed into a flanged socket 24 firmly held in place below the ground. The standard 10 is thus easily inserted into the socket or removed therefrom.

At 25 the cable 12 passes about a roller 26 journaled at 27 in the upper end of the standard and is then connected to a hook 28 pivoted at 29 to the upper end—here to a shoulder 30—upon a vertically positioned and vertically movable cable terminal, here shown as a rod 31.

The terminal 31 passes through an upper guide block 32 which in this case is vertically movable. The block is apertured at 33 and is here rigid with a rack 34. The lower part of the rack carries a guide block 35 apertured at 36. A collar 37 secured to the rod 31 is positioned in the present showing between the two guide blocks, initially near to or against the lower block. It constitutes a compressing member. The blocks 32 and 35 are preferably integral with the rack. The rod 31 passes through and is guided in apertures 33 and 36.

A compression spring 38 surrounds the terminal 31 and lies between the collar 37 and guide block 32, so that, as the rack is moved downwardly the cable slack is first taken up and then the cable is tightened coincidently with compression of the spring between the collar and guide block 32 to a pressure corresponding to the tension in the cable. If vertical alignment be otherwise maintained the guides are not necessary; but if the pull upon the cable is to be effected and adjusted at the same post which carries the spring the latter must abut some portion of the movable compression adjusting member, here some portion of the rack.

The teeth 39 of a pinion 40 mesh with the teeth 41 upon the rack and thus permit the rack to be forced down against the increasing resistance due to an increasing tension in the cable with corresponding compression of the spring. The pinion 40 is mounted upon a shaft 42 which is turned by handle 43 and is held in position by latch 44 engaging successive teeth of ratchet 45.

The rack travels in a channel of preferred rectangular cross-section, at 46, shown as conveniently made up of two vertically arranged overlapping angle bars 47, 48 which receive the back and sides of the rack. This is a mere convenience of manufacture to give stiffness and strength and at the same time avoid necessity for manufacturing or bending a special "shape". The angle bars are existing "shapes".

The face of the rack is covered by a light channel 49. The pinion and ratchet are supported in a yoke 50 shown as bolted to the angle bars at 51 and which provides bearings 52 and 53 for shaft 42. The front of the yoke is covered at 54.

In Figure 6 standards 10' and 17' are shown, each of which may be seated within a suitable socket, such for example, as that shown in Figure 2. The rack and pinion have been eliminated.

The standard 10' may be of the same character as seen in Figure 5 for example, and with the same pulley 26 on shaft 27 and the same mechanism within it except for the omission of the rack and its pinion. The apertured guide blocks 32', 35' instead of being movable and rigid with the rack both act as guides alone for the cable terminal 31, here again shown as a rod. The blocks are fixed to the post. The spring 38 surrounds the terminal and lies between one of the blocks, 32' and the collar 37 secured to the terminal. The collar acts to compress the spring. The terminal passes through the guiding apertures 33 and 36 in the blocks, compressing the spring in response to the pull upon the cable.

The action of the spring in this instance will be the same as in the structure of Figures 2–5.

It is not necessary in the structure of Figure 6 to provide a rack to move the stop 32' as in Figure 5, because the positioning and holding of the cable end is accomplished by other means. In other words, the only real difference in the structure of Figure 6 from that of Figures 2–5 is that some of the mechanism is placed within the post 17' and the remainder of the mechanism (with a reel instead of the rack and pinion) is placed in the standard 10'.

In the illustration, Figure 6, the take-up of the cable takes place at the post 10' where the end of the cable passes about a reel 55 operated through its shaft 56 and handle 57 as in the case of the pinion. The reel is held in tightened position by the ratchet 58 and latch 59 as in the case of the holding devices for the pinion position in Figure 5.

The reel and operating and retaining mechanism are shown as mounted in a yoke 50', covered at 54' similar to the yoke and cover used for the pinion operating and retaining mechanism in Figure 5.

At the top of the post 10' the same type of pulley 26 on shaft 27 may be used as in Figures 2–5 to guide the end of the cable down toward the reel.

The structure of Figure 6 is a very simple and effective one, whose simplicity makes it quite desirable where two special posts are permissible, as distinguished from having the entire operating mechanism self-contained, in the one post.

In the event that the structure of Figure 6 be used the lower ends of the standards would be the same and would be adapted to easy insertion within and removal from sockets placed and fastened into the ground or cement adjacent the middle of the game court.

In both forms the parts of the operating mechanism are almost entirely enclosed except at the opening 25' into which the cable is inserted. By closing off the top and sides of the operating mechanism the danger of any of the parts becoming corroded will be small.

In both forms markings 60 may be used to give actual or comparative values, read against edge of block 32, for example, of compression of the spring and of corresponding tension upon the cable.

It will be evident that the operation of the two forms of Figures 2–5 and Figure 6 respectively is very much the same notwithstanding that in one case there is movement of one of the two compression members, namely, the compression member nearer to the net to cause compression of the spring against a projection from the cable terminal, and through the projection to cause tension upon the cable, whereas in the form of Figure 6 the pull upon the cable from operation of the reel in the other standard causes movement of a projection upon the cable to compress the spring.

In both there are coincident and corresponding responsive tension upon the cable and com-

pression of the spring, respectively. In both the spring is compressed and the cable is held resiliently, resting as it were upon the compressed spring. Both take up the tension in the cable or yield to sudden or additional tension there.

It will be evident that my invention is practiced in any construction in which the cable is supported as it were upon or pulls against a compression spring.

It will be evident that the rectangular or channeled cross section, while a convenience, is not essential and the invention may be practiced in various types and forms of post.

While I have referred to the upper tie line of the net as a cable because in the best practice tennis nets are stretched at so high tension as to require wire cable, it will be evident that the word "cable" is intended to cover any type of tie line which sufficiently serves the purpose required, including nonmetallic tie lines for such uses as do not require the high tension used for up-to-date tennis cables.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A pair of posts for supporting the cable of a tennis net or the like, including a compressible spring within and extending generally longitudinally of one of the posts, a projection connected with the cable and adapted to engage the end of the spring farther from the other post, and means for compressing the spring against the projection to tighten the cable.

2. A pair of posts for supporting the cable of a tennis net or the like, one of them vertically hollow, a terminal inside said one post extending longitudinally thereof and at its upper end connected with the cable, a spring surrounding a longitudinal portion of the terminal and within the hollow post, an interior projection from the post and against which projection the spring impinges at its upper end, a second projection carried by the terminal and engaged by the spring at the other end, and means operative at the other post applying tension to the cable, moving one projection toward the other and coincidentally compressing the spring.

3. A pair of posts for supporting the cable of a tennis net or the like, one of them forming a vertical hollow support, within which the cable passes, a terminal extending longitudinally of and being movable within the support and at one end connected with the cable, a projection on the terminal at its lower end, a spring about the terminal located within the interior of the said one post and upwardly engaged by the projection, a second projection engaged by the upper end of the spring, means located at the other post for moving one projection toward the other by coincidentally bringing tension upon the cable and compressing the spring between the projections and other means located at the said other post for holding the parts with the cable under tension and the spring under compression.

4. A plurality of posts, one of them hollow, a compression spring in the hollow of one post and extending therein longitudinally along a portion of the length thereof, a pair of compression members between which the spring is compressed, a cable, a net supported by the cable, connections from the cable through the spring to that compression member farther from the net, means for moving one compression member toward the other and coincidentally progressively compressing the spring and progressively building up tension in the cable and means for retaining the member with the spring compressed and pulling on the cable.

5. A pair of hollow supporting posts, a compression spring located within one of the posts and extending within and along the hollow thereof, an interior projection on the said one post downwardly engaging the upper end of the spring, a net between the posts, a cable and connections supporting the net, the connections passing through the compression spring, a compressing member located on the connections at a portion thereof below the spring and upwardly engaging the lower end of the spring and means located at the other post for applying and holding tension in the cable.

6. A pair of supporting posts, a compression spring supported within one of the posts and extending therein longitudinally along a portion of the length thereof, a net between the posts, a cable and connections supporting the net, the connections extending beyond the compression spring, a projection connected with the cable, located at the end of the spring farther from the net, engaging the compression spring and holding the cable under tension and the spring under corresponding compression and adjustable means for setting and holding the extent of tension and thereby the compression.

7. A pair of supporting posts, a net between them, a cable under tension between the posts, holding up the net and a compression spring inside and longitudinally of one of the posts, at its upper end supported by the post and at its lower end supporting and compressed by the tension of the cable and in proportion thereto.

8. A tennis net having a cable in combination with a hollow post connected inside the post with the cable, a compression spring inside and longitudinally of the post in the line of connection, and means for adjustably and concurrently setting the tightness of cable and the compression of the spring.

9. A post for tennis nets or the like, comprising a hollow vertical channel member, a spring therein extending longitudinally along a portion of the length thereof, a terminal for a cable, the terminal extending longitudinally through the spring, a compression member on the terminal engaging the lower end of the spring and a second compression member rigidly connected to the post and engaging the upper end of the spring in combination with means outside the post for concurrently tightening the cable and compressing the spring whereby the cable is maintained under tension provided by the tendency of the spring to expand and strains on the cable are taken up by further compression of the spring.

10. A tennis net having a cable, a post to which the cable is attached at one end and a second post to which the cable is connected at the other end, a compression spring forming part of the connection, means within the connection engaging that end of the spring farther from the net, a rack engaging that end of the spring nearer to the net, a pinion engaging the rack, means for turning the pinion to cause compression of the spring and tension upon the cable and means for holding the pinion in position.

11. A post for supporting the cable of a tennis net or the like, comprising a vertical hollow support, a pulley in the upper part of the support about which the cable is adapted to pass, a rod vertically positioned in the support and connected with the cable, a collar on the rod, a spring about the rod above the collar, a rack engaged by the upper end of the spring, a pinion for operating the rack, a handle by which the pinion is turned to force the rack into compression with the spring to bring tension upon the cable, and latch means for holding the rack in set positions.

12. A post for supporting the cable of a tennis net or the like comprising a vertical hollow support, a pulley in the upper part of the support about which the cable is adated to pass, a rod vertically positioned in the support and connected with the cable, a collar on the rod, a spring about the rod above the collar, a rack having a guide for the rod and pinion means for moving the rack to compress the spring between the collar and the guide.

13. A net having a cable, an upright post, a terminal connected with the net cable, a compression member secured to the terminal, a rack within the post, a compression member carried by the rack, a spring engaged at its upper end with the rack compression member and at the lower end by the compression member of the terminal, a guide carried by the rack, a pinion engaging the rack to compress the spring and means for holding the spring in compressed position.

14. A tennis net cable, a post comprising a vertically arranged channel, a rack having top and bottom guide portions, and sliding in the channel, a compression spring lying between the guide portions of the rack, a bar connected with the cable and moving in the guides, a collar on the bar engaging one end of the spring, the other end of the spring engaging one of the guide portions and pinion means for shifting the rack to compress the spring and coincidentally to tighten the cable.

15. A cable for tennis nets and the like, comprising a vertical casing, a pair of guides within the casing, a cable terminal movable within the guides, a compression member on the terminal, a compression spring located between the terminal and one of the guides whereby tension on the cable causes compression of the spring, a second post and means supported by the second post for placing and holding the cable under tension.

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