Jan. 16, 1923.

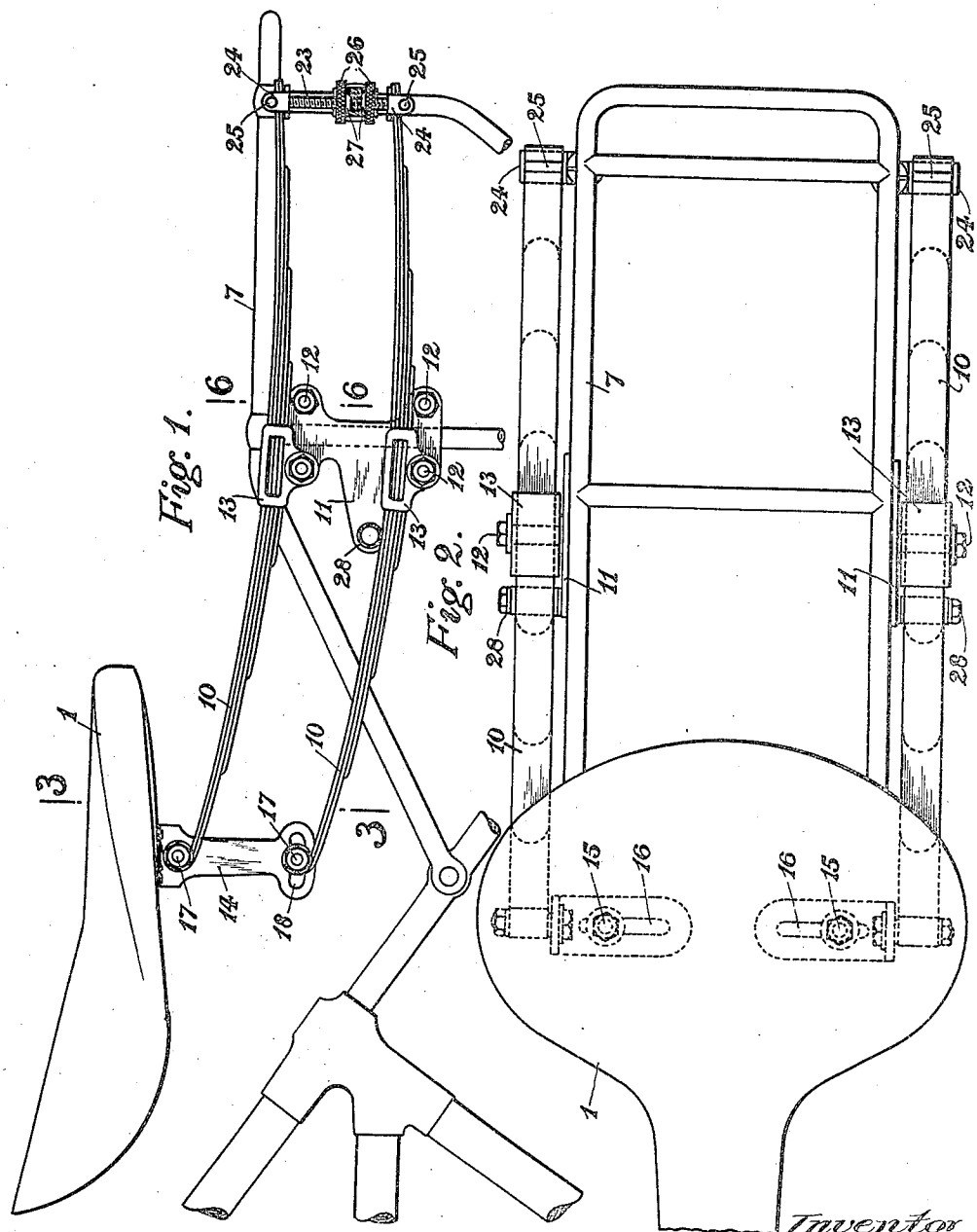
1,442,643.

B. BROOKS.

CYCLE SEAT.

FILED SEPT. 22, 1920.

4 SHEETS—SHEET 1.



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4 SHEETS—SHEET 2.

Fig. 3.

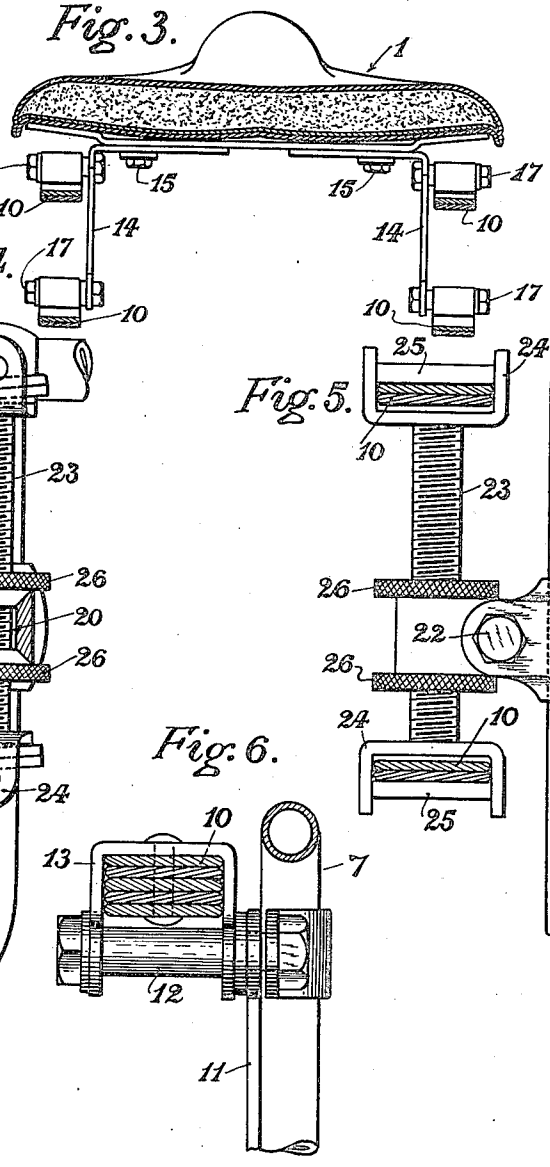


Fig. 4.

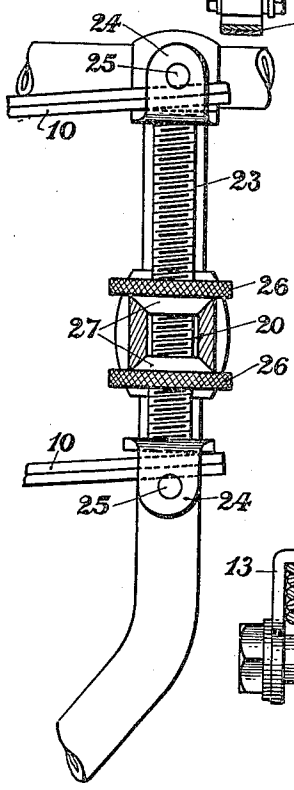


Fig. 5.

Fig. 6.

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4 SHEETS—SHEET 3.

Fig. 7.

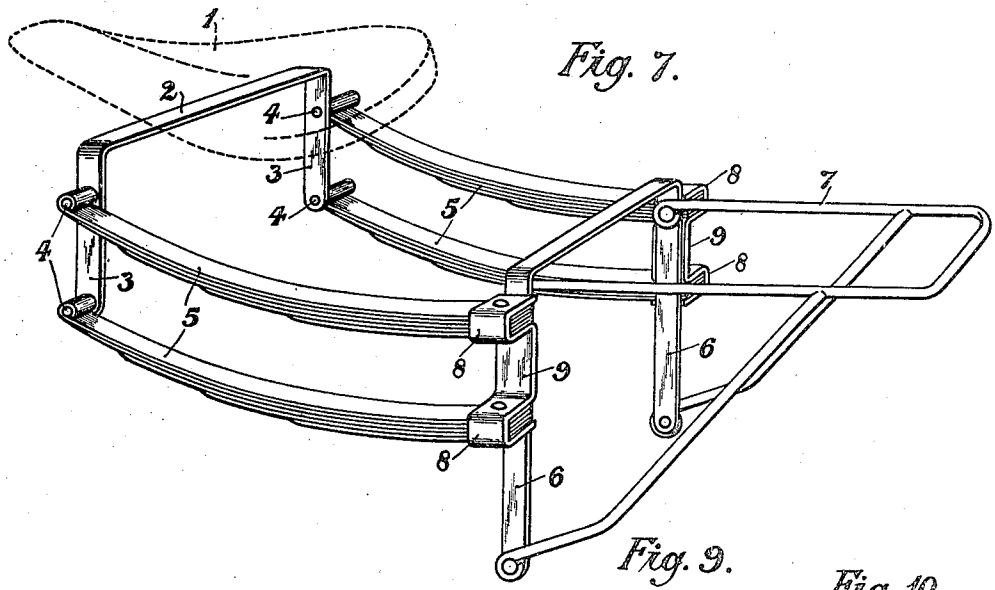


Fig. 9.

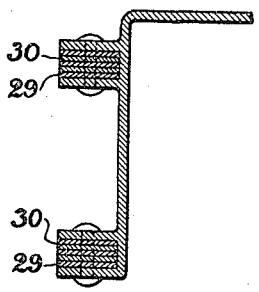


Fig. 10.

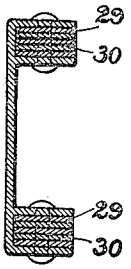
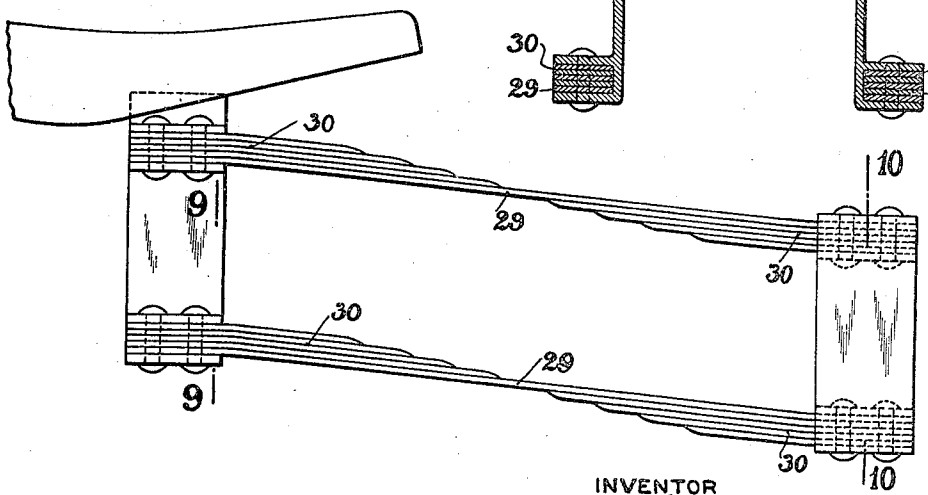


Fig. 8.



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FILED SEPT. 22, 1920.

4 SHEETS—SHEET 4.

Fig. 11.

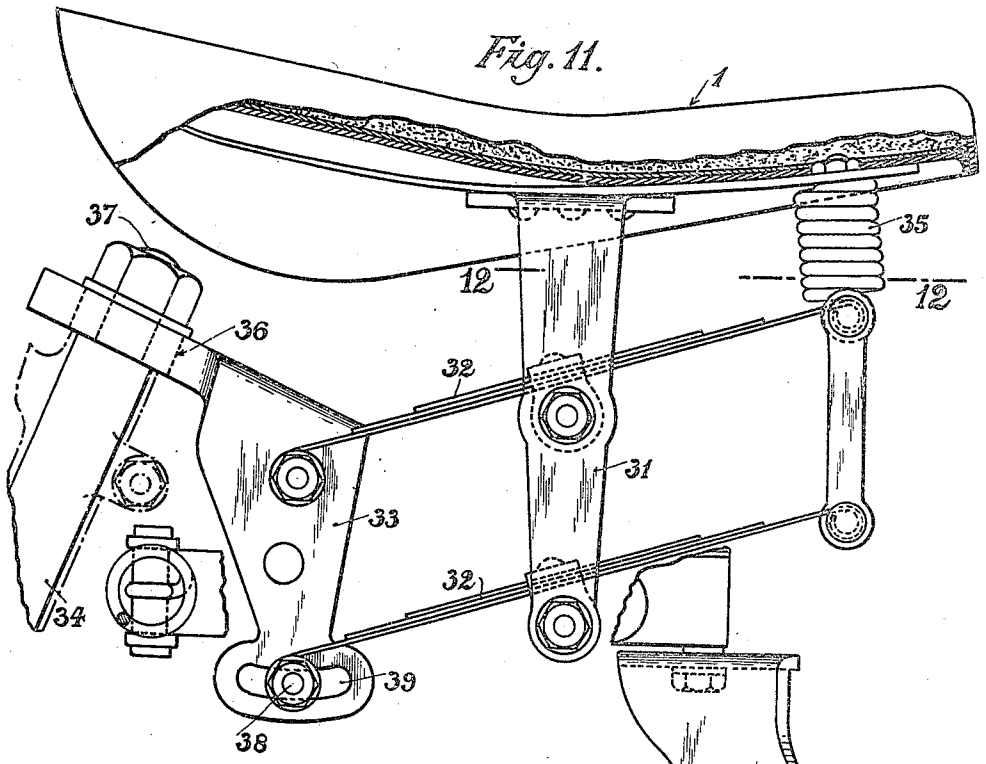
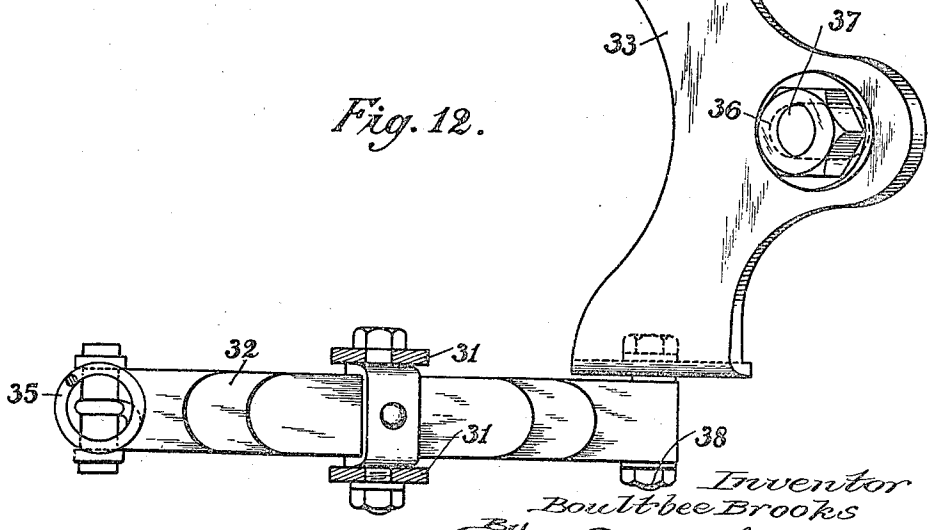


Fig. 12.



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Patented Jan. 16, 1923. 1,442,643

UNITED STATES PATENT OFFICE.

BOULTBEE BROOKS, OF BIRMINGHAM, ENGLAND, ASSIGNOR TO J. B. BROOKS AND COMPANY LIMITED, OF BIRMINGHAM, ENGLAND.

CYCLE SEAT.

Application filed September 22, 1920. Serial No. 411,923.

To all whom it may concern:

Be it known that BOULTBEE BROOKS, a subject of the King of Great Britain, residing at Birmingham, England, has invented certain new and useful Improvements in Cycle Seats, of which the following is a specification.

The invention relates to motor-cycle, cycle and analogous saddles and seats, of that type in which the seat proper is supported by a system of parallel-motion members.

The object of the present invention is to provide an improved and simplified method of mounting the saddle top whereby a vertical parallel motion is imparted to the latter, a slight forward or rearward motion preferably being also given to the saddle-top when the latter is moved in a downward direction.

Further objects of the invention are to provide (1) means whereby the tension on the springs supporting the saddle top may be adjusted to suit the weights of different riders, (2) means whereby the inclination of the saddle top may be adjusted at will, (3) the provision of an improved mounting for the springs, and (4) means whereby the saddle can be adapted to any width of machine.

The invention consists essentially in mounting the saddle top at each side upon a plurality of parallel motion cantilever laminated leaf springs arranged one above the other and which are carried by a fixed part of the machine.

According to a further feature of the invention I provide means for adjusting the tension on the springs comprising a bracket member secured to a fixed part of the machine, a screwed member the ends of which engage with the free ends of the springs, and a pair of nuts carried by said screwed member, these nuts engaging with upper and lower surfaces of the said bracket member.

Another feature of the invention provides means whereby the inclination of the saddle top can be adjusted at will and consists in securing the ends of the springs supporting the saddle to the brackets carrying same, by means of transverse pins, the pins securing the lower springs being mounted in slots which enable the brackets to pivot about the pins securing the upper springs.

Yet a further feature of the invention provides means to enable the saddle to be adapted to machines of varying widths and consists in mounting the saddle top on a pair of angle members the horizontal portions of which carry the saddle top which is secured thereto by means of bolts disposed in elongated slots in these said horizontal positions.

Still a further feature of the invention consists in securing the springs to a fixed part of the motor-cycle by means of clips, one of the securing bolts acting as the pivot pin upon which the springs are free to turn.

According to a modified form of the invention the saddle is supported at each side by a pair of parallel-motion laminated leaf springs of the compensated cantilever type superimposed one above the other, the forward ends of each pair of springs being jointed to a bracket member carried by the seat pillar of the machine, whilst the rear extremities of each pair of springs are connected together by a link member, the rear of the saddle seat being connected to the rear extremity of the upper spring of each pair through the medium of a suitable member.

In order that our invention may be fully understood and more readily carried into practice I have appended hereto four sheets of drawings illustrating the same, wherein:—

Figure 1 is a front elevation showing one form of the invention.

Figure 2 is a plan view of Figure 1.

Figure 3 is a section on the line 3—3 Figure 1.

Figure 4 is an enlarged front elevation of the spring tension adjusting device.

Figure 5 is a rear elevation of Figure 4.

Figure 6 is a section on the line 6—6 Figure 1.

Figure 7 is a perspective view showing a modified form of the invention.

Figure 8 is a front elevation of a modified form of spring.

Figure 9 is a section on the line 9—9 Figure 8.

Figure 10 is a section on the line 10—10 Figure 8.

Figure 11 is a front elevation of a further modified form of the invention, and

Figure 12 is a section on the line 12—12 Figure 11.

In carrying out this invention as shown at Figures 1 to 6, the saddle 1 is supported by the upper and lower pairs of parallel com-

pensated laminated leaf springs 10 which are pivotally mounted upon a fixed part of the machine, such as the carrier 7. The mounting for the springs comprise plates 11 secured by bolts 12 to each side of the carrier. Enclosing the top and sides of each spring is a clip 13 (Figure 6) of U-shape provided with holes through which one of the securing bolts pass, the arrangement being such that the spring is free to oscillate about this bolt which acts both as a pivot pin and also as a means for securing the U-clip to the plate or bracket. One or more rubber or metal stops 28 are provided upon the plate to limit the upwad movement of the springs.

The saddle is mounted upon a pair of angle members 14 which are supported by the forward ends of the springs. The saddle top is secured to the horizontal portions of these angle members by means of bolts 15 passing through elongated slots 16 in same, these slots enabling the angle members to be adjusted relatively to each other according to the width of the carrier of the machine to which the saddle is to be fixed. The forward ends of the springs are secured to the depending portions of the angle members, the upper springs being secured by transverse pins 17 passing through the eyes of the springs and a hole in the angle member. The lower springs are secured by pins similar to the upper ones, but these are disposed in arcuate slots 18 having a radius equal to the distance between the upper and lower pins, these slots allowing the inclination of the saddle top to be adjusted at will by simply slackening off the securing nuts, adjusting the inclination as desired by pivoting about the upper transverse pins and then tightening up the securing nuts again.

The rear ends of the springs are provided with means for adjusting the tension of same to accommodate the weights of different riders. Secured to both sides of the carrier of the machine between the rear ends of the upper and lower springs are brackets each provided with a pair of parallel holes, 20, 21, through one of which 21 passes the vertical stay of the carrier to which the bracket is secured by means of bolts 22. Thru the other hole 20 passes a screwed member 23, the upper and lower ends of which engage the upper and lower ends of the springs. These upper and lower ends are of U-shape, the side wings 24 of the U being bridged across by a pin 25 between which and the base of the U the end of the spring is located.

Mounted on the screwed member are a pair of nuts 26 which bear upon the upper and lower surfaces of the bracket. The underside of the upper nut and the upper-side of the lower nut are provided with conical bosses 27 which operate respectively upon conical seatings provided at either end of the hole through which the screwed member passes. All that is necessary to increase the tension on the springs to suit a heavier rider is to slacken off the upper nut and screw up the lower one which operation will cause the screwed member to move vertically downwards bringing the ends of the spring with it through the medium of the U shaped connection above described. To lessen the tension on the springs this operation is reversed. The adjusting nuts are preferably provided with knurled heads.

A modified form of the invention, is shown on the accompanying drawings at Figure 7 wherein the saddle top is rigidly mounted upon a transverse bar 2 whose ends are bent vertically downwards into a pair of parallel arms 3, each of which is provided, preferably upon its outer face, with a pair of laterally extending and vertically separated pins 4. The pins upon each arm are attached to the respective forward ends of a pair of cantilever laminated leaf springs 5, arranged parallel to one another and rigidly fixed at their rear ends to the vertical stays 6 of the carrier 7 of the motor-cycle, and said ends being vertically separated and preferably embraced by U-shaped attachment clips 8, both of which may be formed by a single metal strip 9. The laminated leaf springs are preferably curved in an upward direction, their forward ends being normally higher than their rear ends, so that when the saddle seat is moved in a downward direction a slight forward movement is imparted to same owing to the straightening out of the springs. Under the influence of a load the saddle is caused to move downwards with a vertical parallel motion, owing to the parallel leaf springs, the saddle moving slightly forwards as the latter are straightened out under the load.

Instead of quarter elliptic springs being employed the saddle top may be supported at each side by parallel motion springs such as shown at Figures 8 to 10. Each of these springs comprises a leaf 29 extending from the saddle top to a fixed part of the machine, the upper face of one end and the under face of the opposite end being each built up with a series of laminations 30, so that the whole forms a double quarter elliptic spring, the built up ends of which are connected respectively to the saddle top and to a fixed part of the machine. These two connections are shown at Figures 9 and 10 respectively.

In carrying out the invention as shown at Figures 11 and 12, the middle portion of the saddle seat carries upon its underside two pairs of depending bracket members 31, one pair on either side of the saddle. Pivoted at about their middle between each pair of bracket members, at vertically separated points, are a pair of parallel-motion compensated cantilever laminated leaf springs

32. The forward extremities of each pair of springs are jointed to the respective outer sides of a bracket member 33 carried by the seat pillar 34 of a motor-cycle or the like, whilst the rear extremities of each pair of springs are connected together by means of a pair of links, whose extremities are jointed to the respective rear extremities of said springs. The rear portion of the saddle seat is connected at each side to the rear extremity of the upper spring of the respective pairs through the medium of a coiled compression spring 35.

The bracket member connecting the forward ends of the two pairs of springs to the seat pillar of the machine is preferably formed with a longitudinal slot 36 for the reception of a bolt 37 whereby it may be rigidly secured to the said seat pillar, the slot admitting of the saddle being adjusted in a longitudinal direction. To admit of the angular adjustment of the saddle the forward end of the lower spring of each pair is jointed to the bracket member by means of a bolt 38 engaging with a curved slot 39 in the latter. By loosening the bolt it may be readily adjusted within the slot, thus altering the tilt of the saddle.

Having fully described my invention, what I desire to claim and secure by Letters Patent is:—

1. A cycle or motor-cycle saddle, comprising a rigid top, dependent bracket members directly and rigidly secured to said top and lying in spaced parallel relation on opposite sides of the longitudinal mid-line of said top, pairs of parallel-motion cantilever leaf springs arranged in upper and lower planes, both members of each of said pairs being directly connected at one end to one of said depending bracket members and at vertically separated points, means secured to said springs for mounting and for carrying said springs upon a fixed part of the machine.

2. A cycle or motor-cycle saddle comprising a rigid top, dependent bracket members directly and rigidly secured to said top, a pair of parallel-motion cantilever leaf springs arranged in upper and lower planes both directly connected at one end to said depending bracket members and at vertically separated points, means secured intermediate the ends of said springs for mounting and for carrying said springs upon a fixed part of the machine.

3. A cycle or motor-cycle saddle comprising a rigid top, bracket members directly carried by the said top and comprising two depending members at opposite sides of said top, a plurality of parallel-motion leaf springs arranged in upper and lower planes and connected to the said depending bracket members, said parallel-motion springs comprising cantilever springs at opposite sides of the saddle and connected to the two depending bracket members at opposite sides of the saddle top, and means for mounting the said parallel-motion springs upon a fixed part of the machine.

4. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion compensated cantilever laminated leaf springs, upon each side of, and carrying the said saddle top at their free ends, stops against which the upper faces of certain of the springs abut, and means for pivoting the said springs at about their middle to a fixed part of the machine.

5. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion compensated cantilever laminated leaf springs upon each side of, and carrying the said saddle top at their free ends, stops against which the upper faces of certain of the springs abut, means for pivoting the said springs at about their middle to a fixed part of the machine, and means for adjusting the tension on the said springs to suit the weights of different riders.

6. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion compensated cantilever laminated leaf springs upon each side of, and carrying the said saddle top at their free ends, stops against which the upper faces of certain of the springs abut, means for pivoting the said springs at about their middle to a fixed part of the machine, and means for adjusting the tension on the said springs to suit the weight of different riders, such means comprising bracket members mounted upon a fixed part of the machine, screw-threaded members the ends of which engage with the ends of the springs not carrying the saddle-top, and pairs of nuts carried by the said screw-threaded members, these nuts engaging with the upper and lower surfaces of the bracket member.

7. A seat or saddle for motor-cycle or like machines, comprising a saddle top, a plurality of parallel-motion cantilever laminated leaf springs upon each side of, and carrying the said saddle top, these springs being mounted upon a fixed part of the machine; and means for adapting the saddle to fit machines of varying widths.

8. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion compensated cantilever laminated leaf springs, upon each side of, and carrying the said saddle top at their free ends, stops against which the upper faces of certain of the springs abut, means for pivoting the said springs at about their middle to a fixed part of the machine; and means for adapting the saddle to fit machines of varying widths.

9. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion cantilever laminated leaf springs upon each side of, and carrying the said saddle top, these springs being mounted upon a fixed part of the machine, and means for adapting the saddle to fit machines of varying widths, the said means comprising a pair of angle members to the vertical arms of which the free ends of the springs are connected, elongated slots in the horizontal arms of the said members and bolts passing through the said slots and adapted to secure the saddle top thereto.

10. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion compensated cantilever laminated leaf springs, upon each side of, and carrying the said saddle top at their free ends, stops against which the upper faces of certain of the springs abut, means for pivoting the said springs at about their middle to a fixed part of the machine; and means for adapting the saddle to fit machines of varying widths, the said means comprising a pair of angle members to the vertical arms of which the free ends of the springs are connected, elongated slots in the horizontal arms of the said members and bolts passing through the said slots and adapted to secure the saddle top thereto.

11. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion cantilever laminated leaf springs upon each side of, and carrying the said saddle-top, these springs being mounted upon a fixed part of the machine; and means for adjusting the inclination of the saddle-top.

12. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion compensated cantilever laminated leaf springs upon each side of, and carrying the said saddle top at their free ends, stops against which the upper faces of certain of the springs abut, means for pivoting the said springs at about their middle to a fixed part of the machine; and means for adjusting the inclination of the saddle-top.

13. A seat or saddle for motor-cycle or like machines comprising a saddle top, a plurality of parallel-motion cantilever laminated leaf springs upon each side of, and carrying the said saddle-top, these springs being mounted upon a fixed part of the machine, means for adapting the saddle to fit machines of varying widths; and means for adjusting the inclination of the saddle-top.

14. A seat or saddle for motor-cycle or like machines comprising a saddle-top, a plurality of parallel-motion compensated cantilever laminated leaf springs, upon each side of, and carrying the said saddle-top at their free ends, stops against which the upper faces of certain of the springs abut, means for pivoting the said springs at about their middle to a fixed part of the machine; means for adapting the saddle to fit machines of varying widths; and means for adjusting the inclination of the saddle-top.

15. A cycle or motor-cycle saddle comprising a rigid top, bracket members directly carried by the said top and comprising two depending members at opposite sides of said top, a plurality of parallel-motion leaf springs arranged in upper and lower planes and connected to the said depending bracket members, said parallel motion springs comprising cantilever springs at opposite sides of the saddle and connected to the two depending bracket members at opposite sides of the saddle top, and means for mounting the said parallel-motion springs upon a part of the frame of the machine situated immediately over the rear wheel and so that springs upon opposite sides of the saddle embrace the said rear wheel.

16. A seat or saddle for motor-cycle or like machines comprising a saddle-top, a plurality of parallel-motion compensated cantilever laminated leaf springs upon each side of, and carrying the said saddle-top at their free ends, stops against which the upper faces of certain of the springs abut, means for pivoting the said springs at about their middle to a fixed part of the machine; and means for limiting the upward movement of the springs.

17. A seat or saddle for motor-cycle or like machines comprising a saddle-top, a plurality of parallel-motion cantilever laminated leaf springs upon each side of, and carrying the said saddle-top, these springs being mounted upon a fixed part of the machine, means for adapting the saddle to fit machines of varying widths, means for adjusting the inclination of the saddle-top; and means for limiting the upward movement of the springs.

18. A seat or saddle for motor cycle or like machines comprising a saddle-top, a plurality of parallel-motion cantilever laminated leaf springs upon each side of, and carrying the said saddle-top, these springs being mounted upon a fixed part of the machine, means for adjusting the inclination of the saddle-top; and means for limiting the upward movement of the springs.

19. A seat or saddle for motor-cycle or like machines comprising a saddle-top, angle members upon which the saddle-top is mounted, elongated slots in the horizontal arms of the said angle members, securing bolts disposed in said slots, a plurality of parallel-motion compensated cantilever laminated leaf springs at either side of the saddle-top the free ends of the said springs carrying the aforesaid angle members, clips pivotally mounted upon a fixed part of the

machine and embracing the springs about their middle, brackets carried by the machine, screw-threaded members carried by the said bracket the ends of which embrace the anchored ends of the springs, pairs of nuts carried by the screw-threaded members for adjusting the tension on the springs, stops for limiting the upward movement of the springs, and means for adjusting the inclination of the saddle-top.

In testimony whereof I affix my signature in the presence of two witnesses.

BOULTBEE BROOKS.

Witnesses:

H. O. PRATT,

L. I. MARKS.