

No. 611,773.

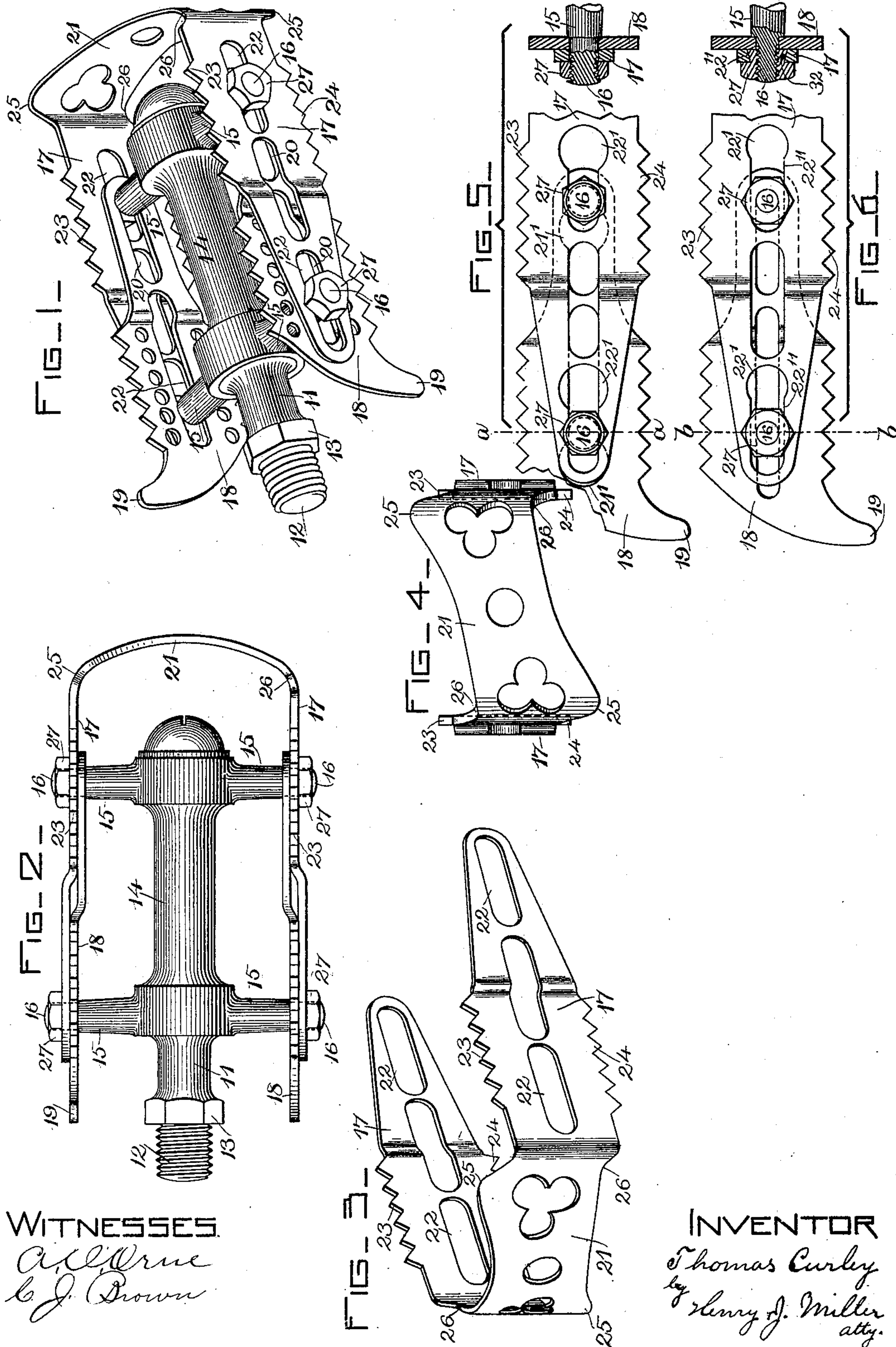
Patented Oct. 4, 1898.

T. CURLEY.
PEDAL.

(Application filed Nov. 5, 1895.)

(No Model.)

2 Sheets—Sheet 1.



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FIG. 7.

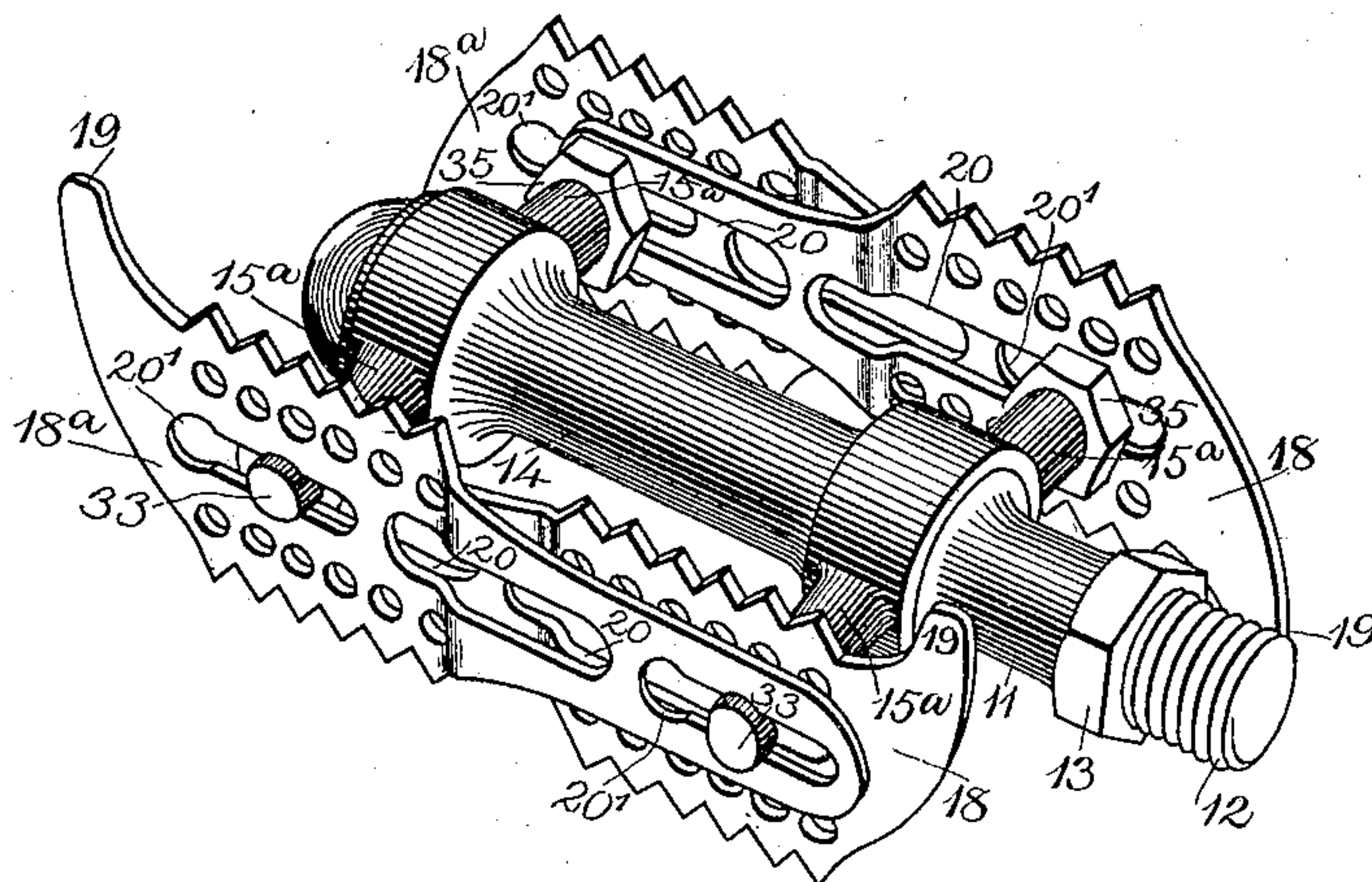


FIG. 8.

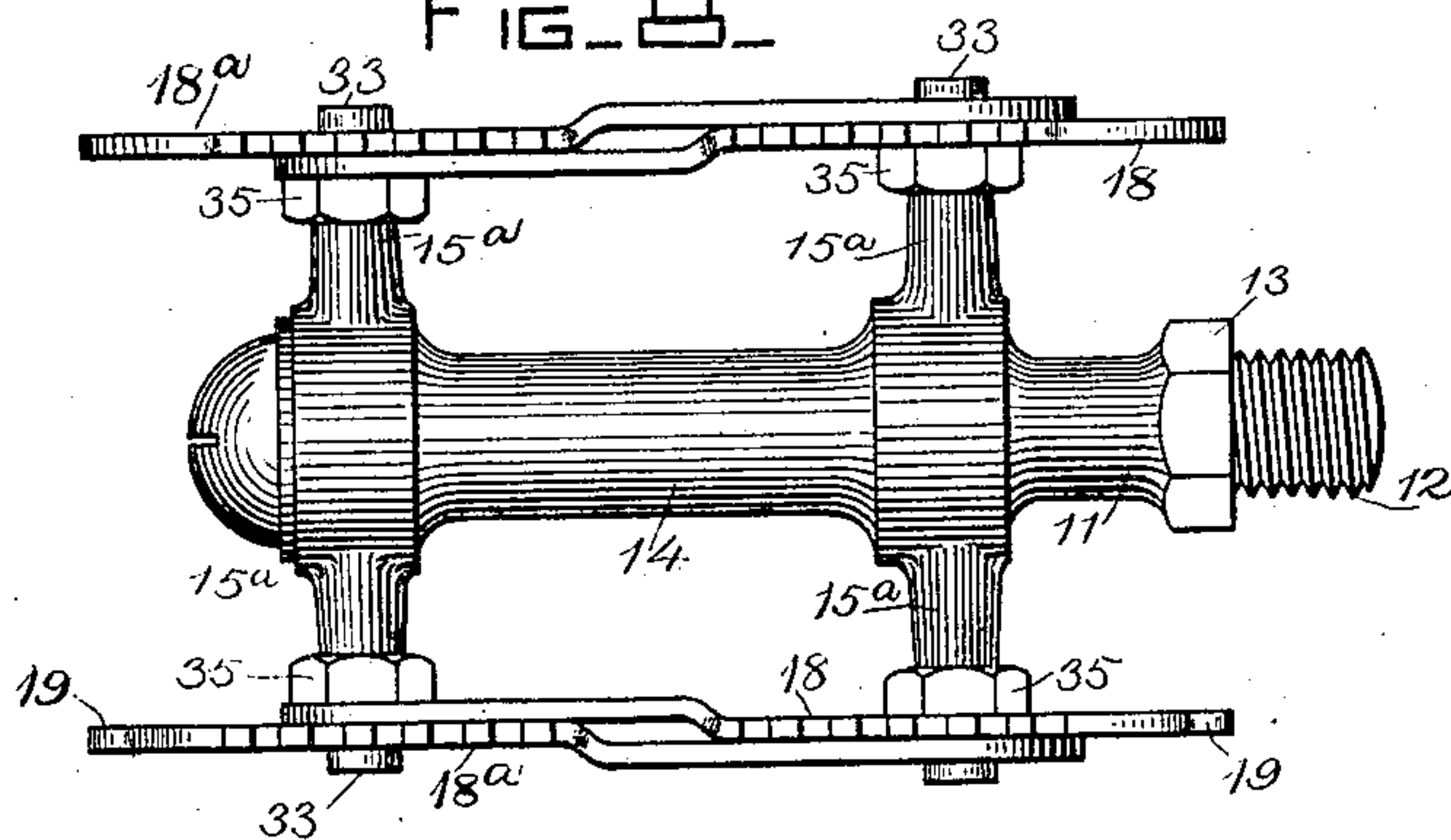
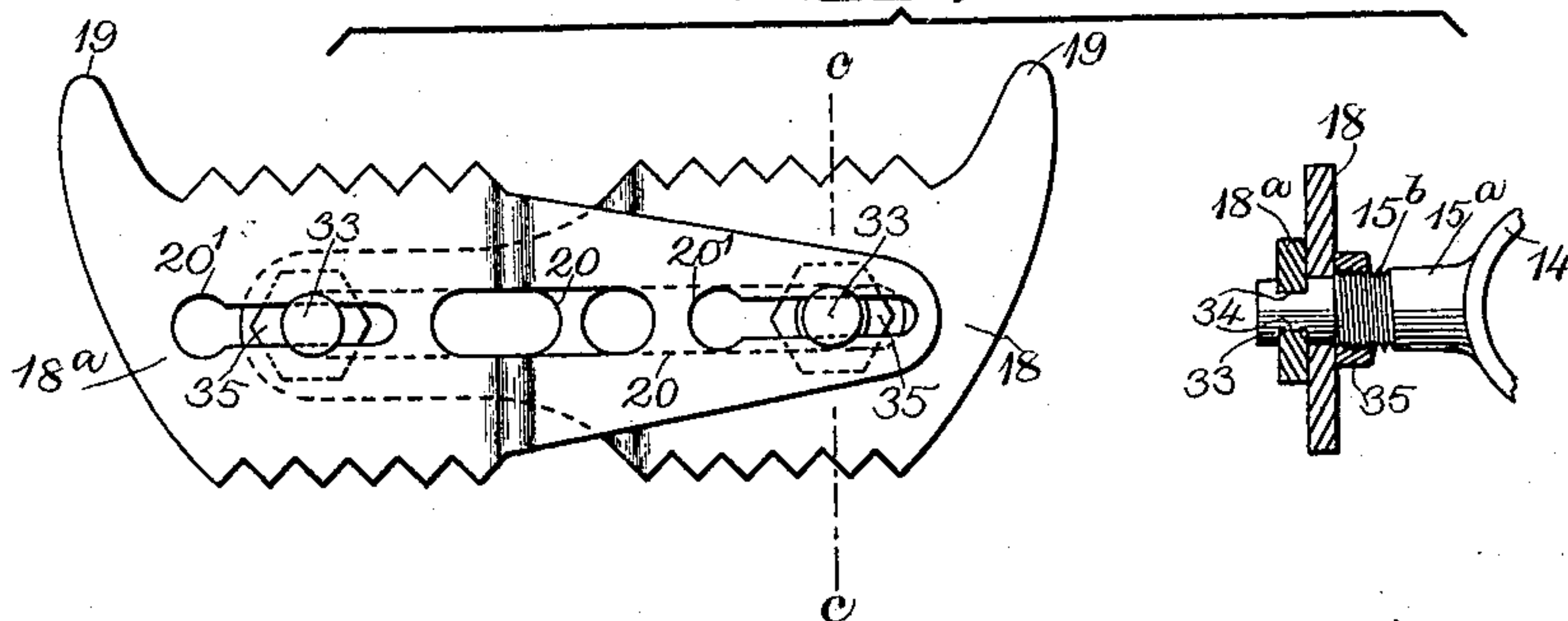


FIG. 9.



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UNITED STATES PATENT OFFICE.

THOMAS CURLEY, OF WALTHAM, MASSACHUSETTS.

PEDAL.

SPECIFICATION forming part of Letters Patent No. 611,773, dated October 4, 1898.

Application filed November 5, 1895. Serial No. 567,974. (No model.)

To all whom it may concern:

Be it known that I, THOMAS CURLEY, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain
5 new and useful Improvements in Pedals; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

10 This invention has reference to improvements in crank-pedals which are particularly adapted for use on bicycles.

The object of the invention is to improve the construction of the pedal with relation to
15 the means for engaging and supporting the rider's shoe.

Another object of the invention is to increase the adjustability of the pedal.

Another object is to improve the construction of the pedal with reference to the manner of mounting the foot-plates and securing
20 the same.

The invention consists in the buffer-plate having the diagonally-disposed stops.

25 The invention also consists in the pedal-hub having a pair of arms extending laterally in opposite directions from the hub and a stop-plate comprising portions adjustably mounted on the arms and a connecting or
30 buffer plate extending between the slotted portions and having diagonally-disposed stops which are adapted to engage the rider's shoe when in the operative position.

The invention also consists in the foot-plates mounted at points which are intermediate the ends of the pedal-arms and the securing devices for the plates carried by said
35 arms.

40 The invention also consists in such other novel features of construction and combinations of parts as shall hereinafter be more fully described, and pointed out in the claims.

Figure 1 represents a perspective view of the improved pedal. Fig. 2 represents a plan
45 view of the same. Fig. 3 represents a perspective view of the foot-plates and their connecting or buffer plate removed from the pedal. Fig. 4 represents an end view thereof. Fig. 5 represents an elevation and a section,
50 taken on line *a a* of this figure, of parts of the pedal, showing a means for securing the foot-

plates in position. Fig. 6 represents a similar view showing a modified form of securing device, the section being taken on line *b b* of this figure. Fig. 7 represents a perspective
55 view of the pedal, showing pairs of stop-plates without the connecting or buffer plate and illustrating the preferred form of securing device for the plates. Fig. 8 represents
60 a plan view of the same. Fig. 9 represents an elevation and a section, taken at line *c c* of this figure, to more fully illustrate the securing device and the manner of its coöperation with the parts of the pedal.

Similar numbers of reference designate corresponding parts throughout.

In the drawings, 11 indicates a pedal shaft or pintle which is furnished with a screw-threaded end 12, a wrench-shoulder 13, and
70 suitable cones for ball-bearings. Mounted on this shaft is the hub or sleeve 14, having race-ways between which and the cones of the shaft are the usual bearing-balls. From the
75 hub extend the arms 15 15, separated a distance less than the width of the user's shoe-sole, the foot-supporting portions being
80 mounted on these arms and removably secured thereto. In the forms shown in Figs. 5 and 6 the outer ends of these arms are shown as having screw-threaded portions 16 16, reduced in diameter from that of the main
85 portion, so that shoulders are formed by the larger ends of these main portions.

The foot-supporting portions each consist of two independent plates, herein respectively
85 designated as the "outer" stop-plates 17 and the "inner" stop-plates 18. The inner stop-plates 18 have the upwardly-turned horns or stops 19, serrated edges, and the slots 20 20,
90 which are of a width to closely fit the contracted portions 16 of the arms 15 and long enough to allow for the adjustment of the plates on these arms. These plates are also
95 bent, as shown in Fig. 2, so that the narrow portion of the plate will lie in a plane parallel to, but slightly removed from, that of the stop and the serrated portion. The outer stop-plates 17 are connected by the curved buffer-plate 21, which extends around the end of the hub 14, but is entirely disconnected therefrom and
100 from the pedal-shaft, except through the medium of the plates 17 and the arms 15. These

plates 17 are bent in a similar manner to the inner stop-plates and have the slots 22 22 to closely fit the reduced portions 16 of the arms and long enough to allow for adjustment thereon. These plates have the serrated foot-supporting portion 23 and 24, and that part of the connecting-plate 21 which in the operative position of the pedal lies in front is furnished with the upwardly-projecting stop 25, the material of which follows the curve of the plate 21 and gains strength thereby both against pressure exerted on its edge and from pressure or sudden shock exerted on its curved surface. From this stop 25 the upper edge of the plate 21 curves downward below the foot-supporting edge of the rear plate, as at 26, thus permitting a free swinging movement of the rider's foot off the rear plate in dismounting.

The inner stop-plates 18 18 and the outer stop-plates 17 17 having been placed on the reduced portions 16 16 of the hub-arms are adjusted so that the front portions of the rider's shoe-sole will be conveniently received between the stop 19 and the stop 25. The nuts 27 27 are then screwed in place on the ends 16 16 of the arms to securely clamp the plates between the same and the ends of the arms 15.

Various modifications of the devices for securing the plates to the arms 15 may be used without departing from the spirit of my invention. The slots 20 and 22 of the plates 17 and 18 may be furnished with enlargements, as at 21' and 22' in Fig. 5, these enlargements being of a diameter and shape to allow for the passage of the nuts 27, as these nuts are permanently secured to the portions 16 of the arms 15 by riveting over the ends of the arms when the nuts 27 have been screwed on the same. In Fig. 6 the slots 22'' are shown as furnished with beveled edges which engage a dovetail base 32 on the nuts 27'', which prevents the falling off of the nut, the dovetail portions of the nuts being in this case entered through the enlarged portions 22'' of the slots 22 and the plates then moved to engage the dovetail.

The construction shown in Figs. 7, 8, and 9 shows the use of two stop-plates 18 and 18^a, having the slots 20 20 with enlarged portions 20' 20'. It is also evident that a single plate having these peculiarities might be used. In this form the fastening device consists of buttons 33 33 at the outer ends of the arms 15^a, transverse grooves 34 34 in the arms to be received in the slots 20, and the screw-threaded portions, as 15^b, on which the nuts 35 35 work. The enlargements 20' of the slots 20 in the plates 18^a are just large enough to pass over the buttons, heads, or enlargements 33, and the slots 20 in these plates are of a smaller diameter than said buttons, so that after the buttons have been passed through the enlargements 20' the plates 18^a may be secured by simply moving them laterally. The plates 18 have slots 20 of larger diameter than those

of the plates 18^a. In assembling a pedal the plates 18 are first placed on the arms and rest against the nuts 35. The plates 18^a are then placed in position, as has just been described, and after the proper adjustment of the plates for the width of the rider's foot the nuts 35 are screwed outward, pressing the plate 18 against 18^a and that against the buttons 33, and thus securing the plates in place, while allowing for their ready adjustment at any time. This construction permits the adjustment of the stops to perfectly engage the edges of the shoe-sole, so that the ball of the foot may be located with nicety immediately above the pedal-hub, while accommodating various widths of shoes by a simple adjustment and preventing the slipping forward of the foot. Another advantage of this construction is that the foot-plates may be sufficiently separated to allow of the insertion between them of a rubber cushion, which is firmly secured in place by tightening the clamping-nuts. Thus this pedal may be readily changed from a "rat-trap" pedal to a "rubber" pedal, so called.

It is obvious that the purpose of the stops 25 25 on the buffer or connecting plate is to engage and hold the outer portion of the shoe and that their exact shape may be modified to more perfectly perform this function without departing from the spirit of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a pedal, the combination with a hub, and fixed arms, arranged in pairs, extending laterally therefrom, each of said arms having a reduced portion adjacent to its outer end, of a foot-supporting plate mounted on the reduced portions of each pair of arms, and having a stop located in the lateral plane of the plate, a pair of foot-supporting plates, each adjustable on the reduced portions of a pair of arms, and clamping devices for securing the adjustable plates, said plates being connected by a buffer-plate having diagonally-disposed stops located at the junctures of the buffer-plate with the foot-supporting plates and extending at angles from the foot-plates, whereby they serve as guides to direct the foot.

2. In a pedal, the combination with a hub, and a pair of arms extending laterally, in opposite directions, from the hub, of a stop-plate comprising slotted portions movable on the arms, and a connecting-plate extending between the slotted portions, around the end of the hub, and furnished with diagonally-disposed stops, forming side supports which act approximately in, or slightly to the rear of, the plane of the slotted portions, and means for securing the stop-plate.

3. In a pedal, the combination with a hub, and arms extending laterally, in opposite directions, therefrom, of plates adjustable on the outer ends of these arms, and having the connecting-plate 21 furnished with the diag-

onally-disposed stops 25 25 and with the cut-away portions 26 26, forming clearances.

4. A pedal for bicycles consisting of a hub,
pairs of fixed arms extending laterally there-
5 from on opposite sides, and pairs of plates
situated on opposite sides of the pedal, each
plate being longitudinally adjustable upon

and supported by one pair of said arms at
points which are intermediate of its ends.

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Witnesses:

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A. O. PACKARD.