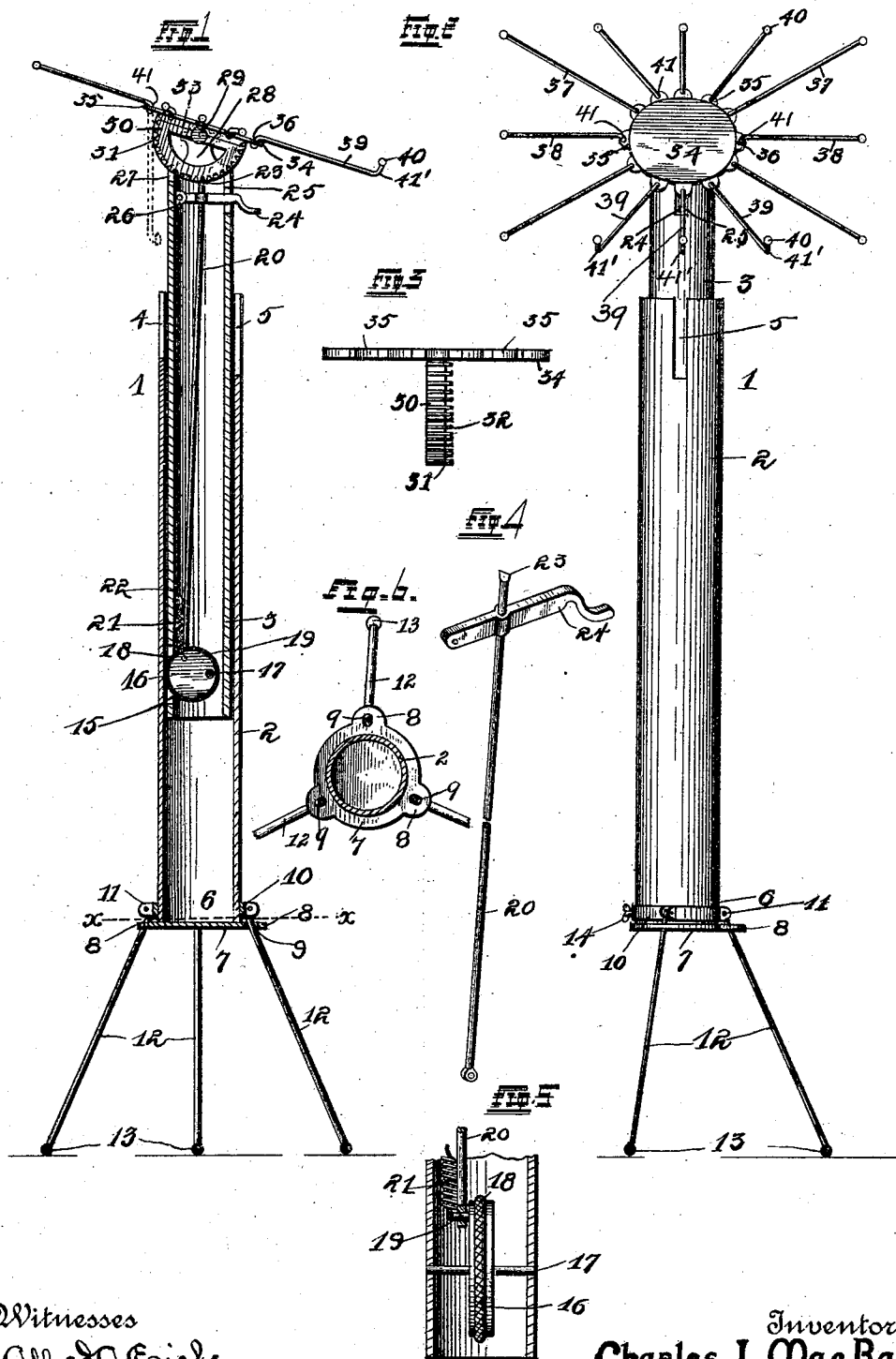


(No Model.)

C. J. MACRAE.
ADJUSTABLE MUSIC STAND.

No. 502,980.

Patented Aug. 8, 1893.



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UNITED STATES PATENT OFFICE.

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TO EDMUND J. PIPER AND HERMAN H. BOLLMAN, OF SAME PLACE.

ADJUSTABLE MUSIC-STAND.

SPECIFICATION forming part of Letters Patent No. 502,980, dated August 8, 1893.

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To all whom it may concern:

Be it known that I, CHARLES J. MACRAE, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Automatic Adjustable Music-Stands, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in "adjustable music-stands," and consists in the novel arrangement and combination of parts as will be more fully hereinafter described and set forth in the claims.

The main feature of my improvement lies in the construction of a music-stand which carries parts adapted to be automatically locked in adjusted position, and which at the same time has such a relative combination and arrangement of other parts, that when not in use, the complete device may be so adjusted as to fit into a very small and convenient space for carrying.

The employment of a device which in operation allows of the adjusting of the stand to any desired height and at the same time, the changing of the incline of the music-table, with the same movement, forms a combination which has heretofore not been employed in this line of manufacture.

Other features which will be more fully hereinafter set forth, conform to expedite the operation of the complete device.

In the drawings: Figure 1 is a vertical sectional view of my complete invention with parts broken away, to show the relative position of other parts. Fig. 2 is a front detail view of my complete invention. Fig. 3 is an enlarged detail view of the table segment, by means of which the table is secured adjustably. Fig. 4 is a detail view in perspective of a rod, pawl and means for operating same. Fig. 5 is a detail sectional view of the eccentrically pivoted cam, made use of in carrying out my invention. Fig. 6 is a transverse sectional view on the line $x-x$ Fig. 1.

Referring to the drawings: 1 indicates my complete invention having two cylindrical shaped barrels 2 and 3, and said barrel 3 fitting inside of and having a frictional bearing in said outer barrel 2. The upper end of

said outer barrel 2 is open in construction and provided with two longitudinal slots 4 and 5, located at opposite sides of the barrel, and said slot 5 extending downwardly farther than the slot 4, for purposes more fully hereinafter described. The lower end 6 of said outer barrel 2, is closed by a cap 7 provided with a number of ears 8, (preferably three) and said ears are provided with slots 9. A sliding-collar 10, upon the outside of the outer barrel 2 is provided with projecting ears 11 in relative alignment with the slots 9 and to said ears are pivoted depending legs or standards 12 which project downwardly through the slots 9, and have upon their outer ends rubber balls 13 to facilitate and guarantee the steady position of the complete device upon the floor. The operation and function of this construction will be described in the operation of my invention, and part of this construction consists in an adjustable thumb-screw 14 in said collar 10.

The inner barrel 3 is provided near its lower end, and in its periphery with a slot 15 through which the cam (16) eccentrically pivoted on a pivot 17, projects, and the milled edge 18, of which is in direct contact with the inner periphery of the outer barrel 2. As shown in Fig. 5, the cam-disk 16 is secured upon the pivot or shaft 17, immediately in the center of the interior of the barrel 3 and has a pivot 19 near its upper edge upon which a rod 20 projecting upwardly, oscillates, and also to said pin 19 is secured one end of a spring 21, the other end of which is secured to a lug 22 upon the interior of the barrel 3 and immediately above the slot 15. Said rod 20 projects upwardly and has its end tapered to form a pawl 23. Near the upper end of said rod 20, it passes through and is secured to a thumb-lever 24 operating in a slot 25, in the periphery of the barrel 3, and said lever 24 has its rear end pivoted to a lug 26 upon the interior of said barrel 3, and immediately above which is a slot 27 coinciding in transverse alignment with the slot 25, but the same is not of such a depth as said slot 25. The upper end of said barrel 3 terminates in two castings 28, which provide a bearing for the shaft 29 and through and between which extend the slots 25 and 27, forming a space for

the operation of the tooth segment 30, mounted upon said shaft 29. Said toothed-segment 30 is provided with teeth 31 upon its periphery and also with teeth 32 upon its side and adjacent the periphery. This construction, while I preferably use the side teeth 32, strengthens the entire segment by having the teeth 31 upon the periphery.

The object of employing the teeth upon the side is to provide for the variations in the position of the rod 20, caused by the varying position of the cam 16 to which said rod is attached. The rod 20 is thus susceptible of greater longitudinal play, owing to the degree of friction of the cam 16 when locked, without disengagement from the teeth, than would be the case were the upward movement of the rod 20 limited by contact with the plate 30.

Secured upon the upper cross-frame 33 of the segment 30, is a circular flat plate 34 which has a number of projecting ears 35 upon its periphery, each of which is provided with a perforation 36, through which a number of rods 37 and 38 are placed, said rods with the exception of three indicated by the numeral 39, being provided with balls 40, upon one of their ends, while the other ends are provided with a bent or set-off portion 41 terminating with a similar ball 40. The three rods indicated by 39 are provided upon both ends with the bent or set-off portion 41', terminating with similar balls 40. The function of this construction will be explained later on.

The rods or arms 37 are of such a length and project in such a relative position from the plate 34 that by themselves, they form the four points of a square, while the shorter arms 38 and 39 are of such a length as to project to the outline formed by the arms 37 and complete a rack for holding the music which is kept from sliding downwardly and off the rack by the bent portions 41 upon the outer ends of the rods 39.

The object of constructing the rods 37, 38, and 39 with their inner ends provided with a bent portion 41 and terminating with balls 40, is to provide a joint, adjustable, and by means of which the bars may either be in a flat relative position with the table 34 or may be allowed to slide down through the slots in the ears 35 and normally lie against the outer barrel 2, when it is desired to pack the device for transferring.

The object of constructing the table-rod with balls or other enlargements upon their ends is as follows: When the bars are adjusted in a horizontal position said balls render the rods fixed, that is, they prevent said rods from slipping downwardly, by reason of the bent portion 41, which is of the length of the thickness of the ears 35, and when the rods are in a vertical position, said balls prevent the rod from slipping through the perforations 36 in said ears 35.

The operation of my invention is as follows: As will be seen in Fig. 1, the slots 25 and 27

are to allow the operation of the segment 30, as hereinafter described, and the slots 4 and 5 allow the segment 30 to drop far enough into the barrel 2 so that the table 34 will be practically adjacent to the top of said barrel 2 when the instrument is closed, and the arms 37, 38, and 39 depending and adjacent the barrel 2. As seen in Fig. 1, when the entire stand is in position, the standards 12 depend through the slots 9 in the ears 8 and by reason of the length of said slots 9, the rods 12 when pushed at an angle from the plane of the barrel 2, are bound against the walls of said slots 9 and prevent the collar 10 from slipping up the barrel 2 and the position of the collar 10 is furthermore guaranteed by the operation of the thumb-screw 14. When it is desired to fold up the instrument for packing, said thumb-screw 14 is released and the collar 10 is pushed up the barrel 2, carrying said rods 12 through the slots 9, with it until nothing but the rubber balls 13 protrude below the ears 8.

It will readily be perceived that the entire device is in a compact form and can be packed into a very small case as is usual in the handling of the present style of music-stands, the length of the device comprising but very little more than the length of the barrel 2, as the barrel 3 and its accompanying parts recede into said barrel 3, upon the operation of the cam 16.

The principle involved in the employment of the eccentrically pivoted cam 16 is well known, and with the following explanations, the operation of same in connection with my device will be more fully understood. Referring to Fig. 1 in which said cam is shown in its relative position, it will be seen that the same is pivoted near one side, and opposite the edge of same which is milled and comes in contact with the interior of the barrel 2. The natural tendency of the cam 16 is to bear upwardly with its free or eccentric portion against the barrel 2, such movement of the eccentric being assisted by the spring 21, which naturally tends to keep the cam up. At the same time that the position of the cam locks the barrel 3 in a position in the barrel 2, the rod 20 pivoted to said cam 16 is held in a rigid position with its pawl end 23 engaging the teeth upon the segment 30. By pushing down upon the thumb-lever 24 the pawl 23 is brought out of engagement with the teeth upon the segment 30 and the table can be tilted to any desired incline, when the lever is released and the pawl 23 re-engages the teeth and holds the table in a fixed position. The downward movement of the lever 24 by its connection with the rod 20, pushes down the cam 16 and releases the contact between the milled edge 18 of the said cam 16 and the interior of the barrel 2, and allows the barrel 3 with its accompanying parts to slide downwardly into the barrel 2.

Having described my invention, what I claim is—

1. In an adjustable music stand, the combination, with a tubular support, an adjustable member working therein, and a music table pivotally mounted on said adjustable member and carrying a segmental rack plate, of a locking cam carried by the adjustable member, a rod having one end pivoted to the cam and the opposite end adapted to engage said rack plate, and means for operating said rod; substantially as and for the purpose set forth.

2. In an adjustable music stand, the combination, with a tubular support, and a tubular adjustable member working therein and provided at one side its periphery and near its lower end with a vertical slot, of a cam journaled in said adjustable member opposite the slot, said cam being adapted to automatically bind against the inner surface of the support, and means for releasing the cam; substantially as and for the purpose set forth.

3. In an adjustable music stand, the combination, with a tubular support, a tubular adjustable member working therein and provided near its lower end with a slot, and a music table pivotally mounted on said adjustable member and provided with a segmental rack plate, of a vertically-arranged, spring-held cam mounted in said adjustable member and opposite the slot therein, a rod pivotally connected at one end with the cam and having its opposite end adapted to engage the rack-plate, and an operating lever fulcrumed within the adjustable member and secured to the rod; substantially as and for the purpose set forth.

4. An adjustable music-stand having a barrel 2 a barrel 3, a slot 15 in the periphery of the barrel 3 near its lower end, an eccentrically pivoted vertically arranged cam mounted upon a pivot 17, within said barrel 3, and protruding through said slot 15 to bind against the inner surface of the barrel 2, with its roughened periphery 18, substantially as set forth.

5. An adjustable music-stand having telescoping barrels 2 and 3, a music table carried by the latter and provided with a segmental rack-plate 30 a cam 16 operative to hold the barrel 3 in which said cam is pivoted, in a fixed position within said barrel 2, a shaft 19, a rod 20 mounted upon the latter and having its free end adapted to engage the rack plate 30, a spring 21 fastened to said shaft 19, the opposite end of said spring 21 secured to a lug 22 upon the interior of the barrel 3, and said spring 21 assisting the cam 16 in its tendency to permanently engage the surface of the barrel 2, substantially as set forth.

6. An adjustable music-stand having telescoping barrels 2 and 3, a music table carried by the latter and provided with a segmental rack plate 30 a cam 16, a shaft 19 near its upper periphery, a rod 20 secured to said shaft 19, the upper end of said rod 20 being shaped

in the form of a pawl 23, a thumb-lever 24 secured to said rod, said thumb lever pivoted at one end to lugs 26 upon the interior of the barrel 3, and the operation of said thumb-lever releasing the engagement between the cam 16 and the interior of the barrel 2, substantially as set forth.

7. An adjustable music-stand having a barrel 3 provided upon its upper end with projecting standards 28, an open space between said standards 28, terminating in slots 25 and 27 in said barrel 3, a shaft 29 in bearings in said standards 28 a toothed-segment 30 mounted upon said shaft 29, a music table carried by said segment, a pawl 23 adapted to engage said segment, and means for operating the pawl substantially as set forth.

8. An adjustable music-stand having a number of table-rods 37, 38, and 39, one end of each rod provided with a bent portion 41, said rods 39, having bent portions 41' at their opposite ends to prevent the sliding of the music from the table, and both ends of said rods 37, 38, and 39 provided with enlarged portions or balls 40, substantially as set forth.

9. As an improvement in music stands, a music table comprising a plate 34 provided with apertured ears 36, and rods working in said apertures and provided with headed ends and a bent retaining portion 41, said rods being of varying lengths whereby when adjusted a table of rectangular outline is formed; substantially as and for the purpose set forth.

10. In an adjustable music stand, the combination, with a support provided with a cap 7 at its lower end, said cap having radially-arranged slots 9, of a collar 10 sliding on the support, and supporting standards 12 pivoted to said collar and passing respectively through the slots 9; substantially as and for the purpose set forth.

11. In an adjustable music stand, the combination, with a support provided at its lower end with radially-projecting, slotted lugs 8, of a collar 10 sliding on said support, and supporting standards 12 pivoted to said collar and projecting through the slots in the respective lugs, said standards being provided with yielding or elastic feet; substantially as and for the purpose set forth.

12. An adjustable music-stand having a barrel 2, a cap 7 provided with projecting ears 8 having slots 9 a collar 10, having a number of standards 12 depending therefrom, through said slots 9 and a thumb-screw 14 in said collar 10 and said collar and accompanying parts slidingly adjustable upon the outside of said barrel 2, substantially as set forth.

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

CHARLES J. MACRAE.

Witnesses:

HERBERT S. ROBINSON,
ALFRED A. EICKS.