

(No Model.)

J. RATH.
HARP.

No. 485,354.

Patented Nov. 1, 1892.

Fig. 1.

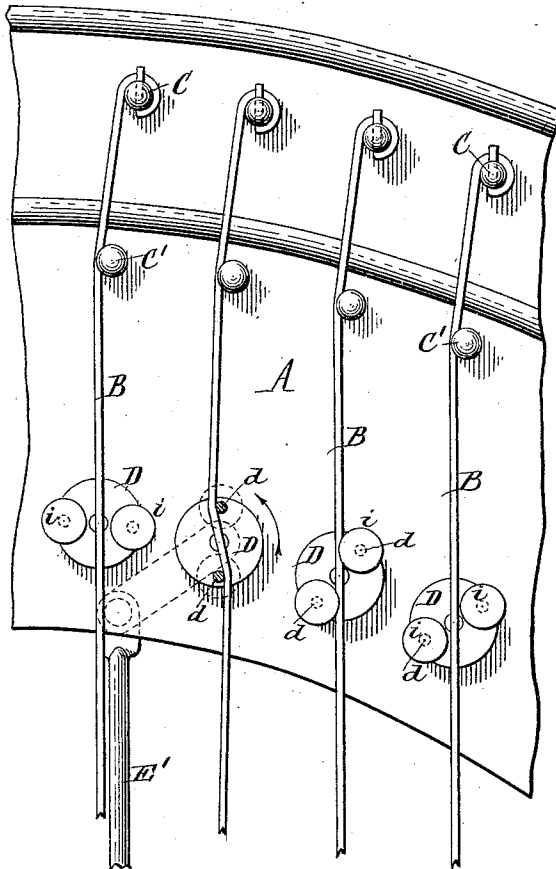


Fig. 4

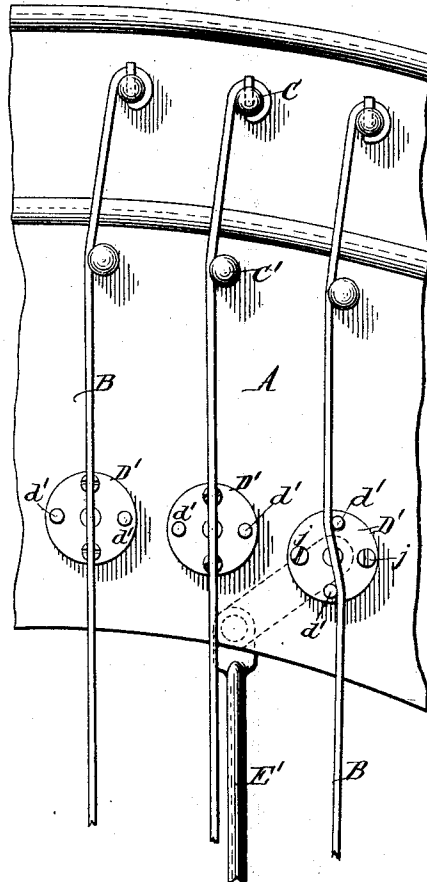


Fig. 2

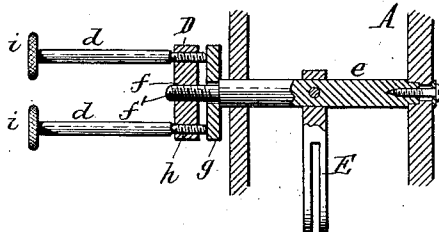


Fig. 5.

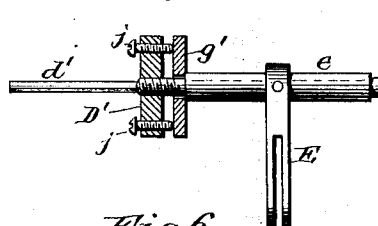


Fig. 3.

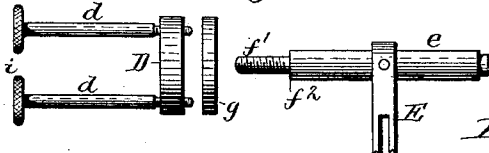


Fig. 6.

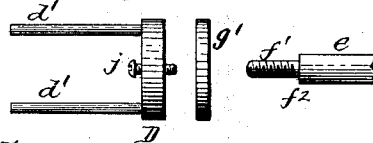
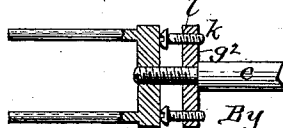


Fig. 7.



Witnesses:

Emil Neuhart
Theo. L. Popp.

Jack Rath

Inventor.

By Wilhelm Pommel
Attorneys.

UNITED STATES PATENT OFFICE.

JACK RATH, OF JACKSON, MICHIGAN.

HARP.

SPECIFICATION forming part of Letters Patent No. 485,354, dated November 1, 1892.

Application filed December 7, 1891. Serial No. 414,345. (No model.)

To all whom it may concern:

Be it known that I, JACK RATH, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Devices for Adjusting the Strings of the Harp, of which the following is a specification, reference being had therein to the accompanying drawings on one sheet, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the mechanism whereby the effective lengths of the strings are changed for producing naturals and sharps, and which is known as the "action" of the harp, and has particular reference to the devices whereby each of the forks which are connected with the same pedal can be individually adjusted relatively to the strings without affecting the adjustment of the other forks connected with such pedal.

The object of my invention is to provide a simple and convenient adjusting device of this kind.

In the accompanying drawings, Figure 1 is a fragmentary side elevation of the head of a single-action harp containing my improvement and showing different adjustments of the sharpening-pins. Fig. 2 is a cross-section of the head through one of the sharpening-disks, the sharpening-pins and a part of the spindle being shown in elevation. Fig. 3 is a detached side elevation of one of such disks and its connecting parts, showing the parts separated. Fig. 4 is a view similar to Fig. 1, showing a modified construction of the adjusting devices of the sharpening-disks. Fig. 5 is a sectional elevation of the sharpening-disk and connecting parts embodying such modification. Fig. 6 is a side elevation of such modified construction, showing the parts separated. Fig. 7 is a sectional elevation of a sharpening-disk and connecting parts, showing another modified form of the adjusting device.

Like letters of reference refer to like parts in the several figures.

A represents the head of the harp; B, the strings; C, the pegs, to which the upper ends of the strings are fastened, and C' the pins, against which the upper portions of the strings rest.

D are the oscillating disks, which carry the sharpening forks or pins d , between which latter the upper portions of the strings pass in the usual manner, and e are the horizontal rock-shafts or spindles upon which the sharpening-disks are mounted and which turn in bearings formed in the side plates of the head A.

E is the usual arm or lever, whereby the spindle is turned, and E' the rod connecting the same with the pedal, which latter is not shown in the drawings. Each sharpening-disk is provided centrally with an internally-threaded opening f , which engages with an external screw-thread f' , formed on the outer projecting end of the spindle. The screw-threaded portion of the spindle is preferably reduced, as shown, to form a shoulder f^2 .

g is a collar, flange, or washer arranged upon the threaded portion of the spindle and resting against the shoulder f^2 thereof, the collar being provided with a central opening through which the spindle passes.

In the construction represented in Figs. 1, 2, and 3 the inner portions of the sharpening-pins d are externally screw-threaded and engage in threaded openings h , formed in the sharpening-disk on diametrically-opposite sides of the spindle. The inner ends of the sharpening-pins project inwardly beyond the disk and bear against the outer side of the collar or flange g , thereby forming stops, which firmly hold the disk against turning upon the threaded stem of the spindle when the inner ends of the pins bear against the washer. The screw-threaded sharpening-pins thus act as adjustable stops, which can be adjusted to prevent the rotative movement of the disk on the spindle when the pins are in the desired position. The sharpening-pins are preferably formed at their outer ends with milled heads i , whereby they may be conveniently turned, or, if desired, the heads may be nicked to receive a screw-driver. Upon loosening the adjustable pins the disk is released and can be turned in either direction on its spindle to bring the sharpening-pins into the required position to properly bear against the strings when the pedal is depressed. After the disk has been adjusted it is again secured in position by tightening the sharpening-pins against the washer.

In the drawings the spindle is represented as having a right-hand screw-thread, and its actuating-lever E is arranged on the left-hand side thereof, so that the depression of the pedal tends to tighten the sharpening-disk on the spindle. The lever may, however, be arranged on the right-hand side of the spindle by providing the latter with a left-hand thread and the disk with a corresponding internal thread. The flange, collar, or washer *g* is preferably separate from the spindle, as shown; but, if desired, it may be formed integrally therewith, and if the spindle is large in diameter the shoulder surrounding the screw-stem may serve as this flange.

In the modified construction of my improvement shown in Figs. 4, 5, and 6 the sharpening-pins *d'* are rigidly secured to or formed with the disk *D'*, and separate stop-screws *j* are employed, which are arranged in threaded openings in the disk and bear with their inner ends against the front side of the collar or flange *g'*. Upon loosening the screw *j* the sharpening-disk can be adjusted to the desired position on the screw-thread of the spindle, as in the first-described construction, and after effecting the adjustment the screws are again tightened to secure the disk against rotation on the spindle.

In the modification of the invention shown in Fig. 7 the sharpening-pins are rigidly attached to the disk, and the latter is adjustable on the screw-stem of the spindle, and separate clamping-screws *k* are employed, as in the construction represented in Figs. 4, 5, and 6; but these screws, instead of being arranged in threaded openings in the sharpening-disk and bearing against the collar or flange *g'* of the spindle, are arranged in threaded

openings *l* in said collar and bear with their heads against the rear side of the disk.

In the constructions illustrated in Figs. 4, 5, 6, and 7 two clamping-screws are shown; but, if desired, a single screw may be used.

The constructions represented in Figs. 4, 5, 6, and 7 can be readily applied to harps of ordinary construction already in existence, in which the pins are rigidly secured to the disks, while the construction represented in Figs. 1, 2, and 3 is more desirable for new harps.

I claim as my invention—

1. The combination, with the spindle having a flange or collar and a screw-stem projecting outwardly beyond said flange or collar, of an adjustable sharpening-disk having a threaded opening engaging with the screw-stem of the spindle and a stop-screw whereby the adjustable sharpening-disk is held away from the flange or collar and prevented from turning on the screw-stem of the spindle, substantially as set forth.

2. The combination, with the spindle having a flange or collar and a screw-stem projecting outwardly beyond said flange or collar, of an adjustable disk arranged upon said screw-stem and sharpening-pins having screw-threads engaging in threaded openings in the sharpening-disk and bearing with their inner ends against the flange or collar of the spindle, substantially as set forth.

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

JACK RATH.

Witnesses:

GEO. S. WILSON,
C. H. BROWN.