No. 798,527. PATENTED AUG. 29, 1905.

H. H. NEILSON.

HARMONICA OR MOUTH ORGAN.

APPLICATION FILED DEC. 23, 1904.

Fig 1

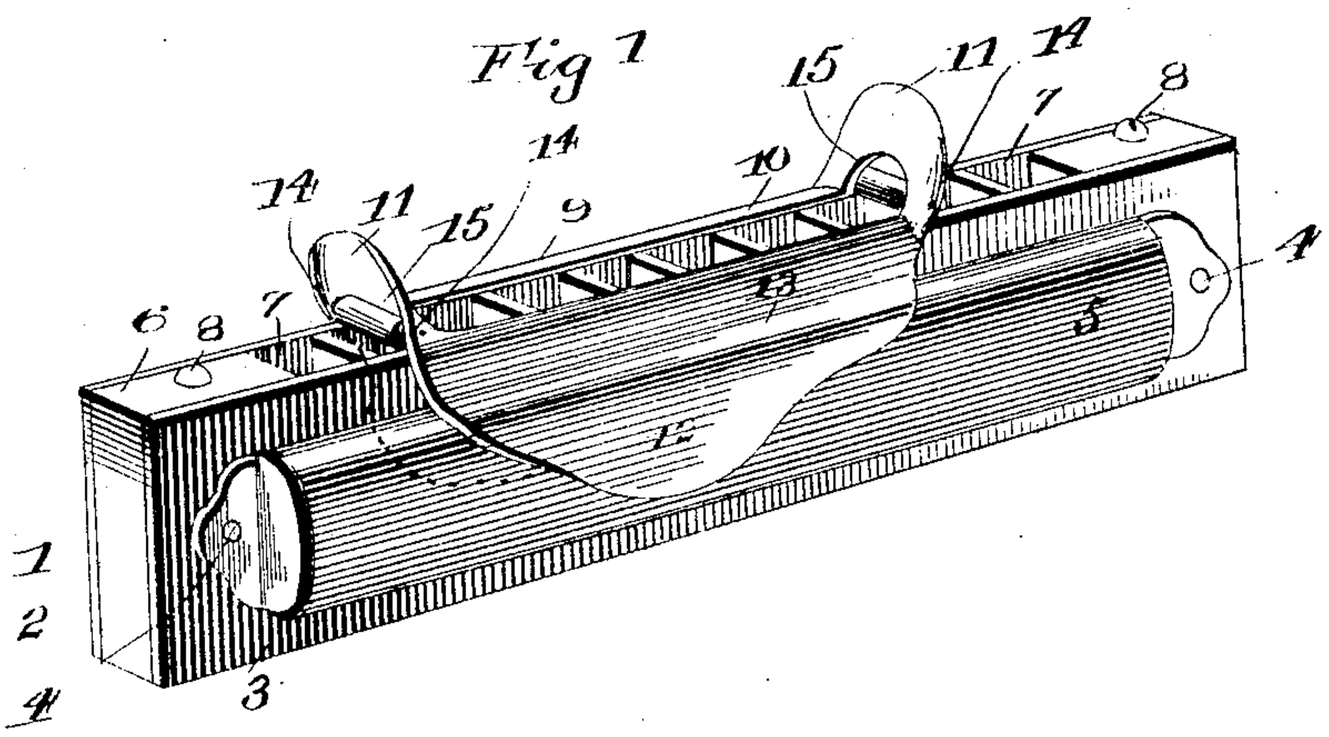


Fig 2

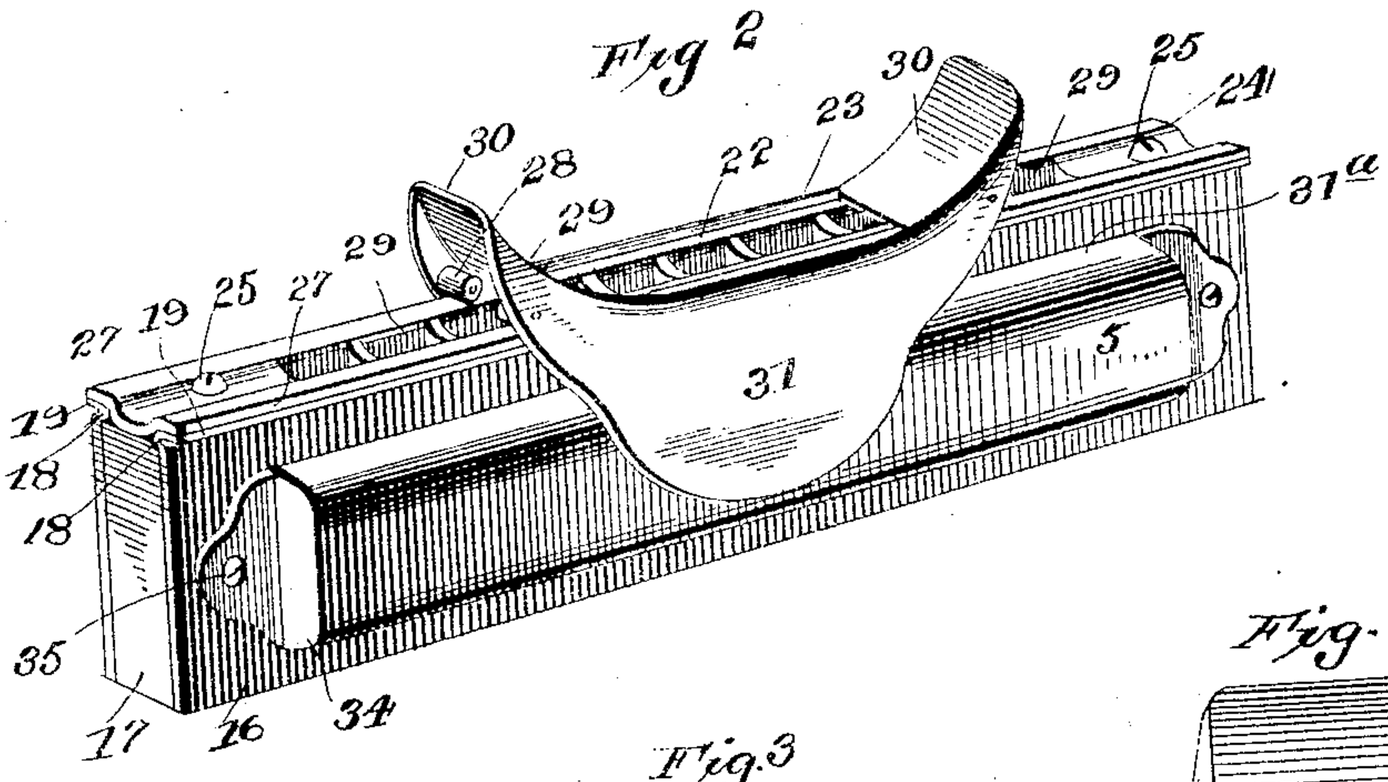


Fig. 4

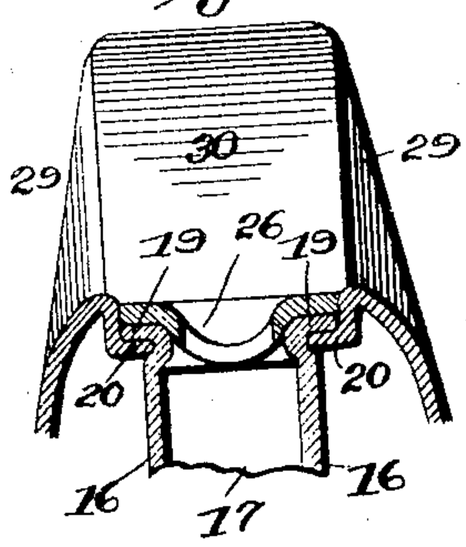


Fig 5

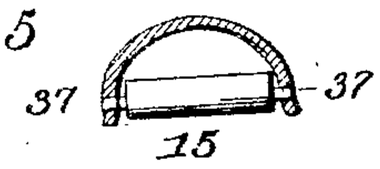


Fig. 6

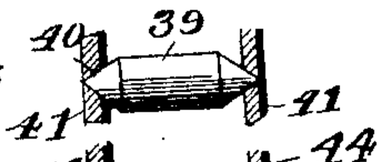


Fig. 7

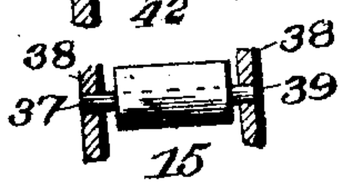
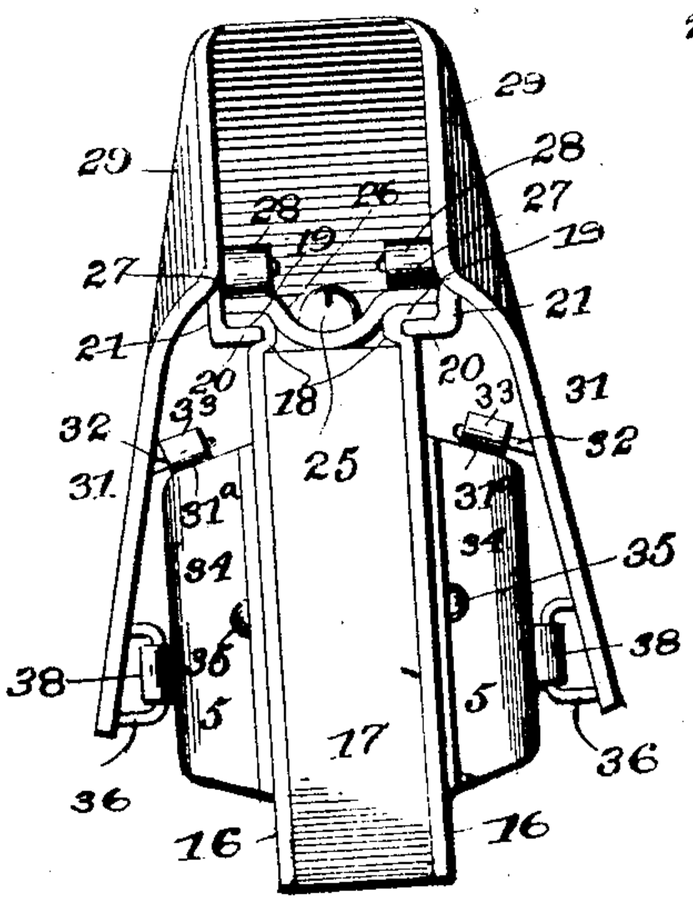


Fig. 8

Fig. 3



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UNITED STATES PATENT OFFICE.

HENRY HORATIO NEILSON, OF PERTH, CANADA.

HARMONICA OR MOUTH-ORGAN.

No. 798,527. Specification of Letters Patent. Patented Aug. 29, 1905.

Application filed December 23, 1904. Serial No. 238,102.

To all whom it may concern:

Be it known that I, HENRY HORATIO NEILSON, a subject of the King of Great Britain, and a resident of Perth, in the Province of Ontario and Dominion of Canada, have made certain new and useful Improvements in Harmonicas or Mouth-Organs, of which the following is a specification.

This invention relates to harmonicas or mouth-organs; and it consists, substantially, in the improvements hereinafter particularly described.

The invention has reference more especially to harmonicas or mouth-organs of that class or type in which a longitudinally-slidable mouthpiece is employed upon the instrument for the purpose of facilitating the playing of the instrument, as well as preventing soreness of the lips of the player by abrasive contact of the lips with portions of the instrument in the act of playing thereon. In harmonicas or mouth-organs of this particular class or type various forms of mouthpieces have been hitherto devised and various means have also been devised for mounting the mouthpiece upon the instrument in such manner as to enable the same to be operated with the greatest ease of movement or the least amount of friction between the instrument and the mouthpiece. Even with the more effective of these, however, it has been found by many players or performers upon the instrument that there is still such hardness or resistance offered by the mouthpiece to the lips of the player as also to result in an unpleasant tingling sensation to the lips. Another objection to be found with many former constructions of harmonicas or mouth-organs of the class or type referred to is the impairment of the musical tones of the instrument caused by the metallic sounds produced by the slidable contact of the bearing portions of the mouthpiece with adjacent bearing portions of the instrument, which also sets up vibration of the metallic parts of the structure to such an extent as to be exceedingly unpleasant to the performer.

One of the principal objects of the present invention is to overcome the disadvantages and objections above pointed out and also to provide a harmonica or mouth-organ of the class or type specified which is exceedingly simple and inexpensive to manufacture and thoroughly effective and reliable for its purposes, besides possessing the capacity for long and repeated service.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of one embodiment of harmonica or mouth-organ comprising my improvements. Fig. 2 is a similar view of another embodiment of harmonica or mouth-organ also comprising my improvements. Fig. 3 is an enlarged end elevation of the structure shown in Fig. 2. Fig. 4 is an enlarged sectional view in detail, showing the construction more clearly. Figs. 5 to 8, inclusive, are also enlarged sectional views in detail, showing different means for supporting the rolling cushioning-bearings for the slidable mouthpiece of the instrument.

Before proceeding with a more detailed description it may be stated that my improvements are applicable to many forms of harmonicas or mouth-organs at present in use, from which it is to be understood that the embodiments thereof herein shown are simply selected for the purposes of illustration, although I have also incorporated therein certain features of construction, which are to be considered as a part of my invention. In each of said embodiments, as well as in the carrying out of my invention in any other way, I provide the instrument with any preferred form of slidable mouthpiece, having therein the usual slot or opening communicating with the reed-compartments of the body of the instrument, and between the instrument and the mouthpiece I dispose or locate cushioning-bearings of any desired character, preferably of rubber or other resilient material or a composition of rubber and wood or the like. The said cushioning-bearings are preferably constructed and supported to have a rolling motion under the action of the sliding movements imparted to the mouthpiece, the latter being mounted thereon, and while the instrument itself may be constructed to support the said cushioning-bearings I prefer that the same be supported by the mouthpiece, for then not only am I enabled to sell to the trade a complete instrument equipped with my improvements, but I am also enabled to manufacture and sell the mouthpiece so equipped as a separate or new article of manufacture. Incidentally the cushioning-bearings serve

also to reduce to a minimum the friction between the instrument and the mouthpiece, and in one of the embodiments herein illustrated a suitable number of the bearings are so distributed and supported as to overcome any tendency to lateral rocking of the mouthpiece transversely of the instrument. I do not limit myself to any of the details herein referred to, since immaterial changes therein may be made without departing from the spirit or scope of my invention.

Reference being had to the drawings by the designating characters marked thereon, 1, Fig. 1, represents in entirety an ordinary harmonica or mouth-organ having at either side of the body 2 thereof the usual side or reed plates 3, near to the ends of which are secured at 4 a curved reed-guard 5, forming between the same and the corresponding side of the instrument a chamber into and from which pass the breath and sound as the instrument is being played upon. The top plate 6 (hereinafter designated "frontispiece") is provided with openings 7 therein corresponding to the usual reed-compartments in the said body 2 of the instrument, the frontispiece being secured in place near its ends by means of screws 8, the heads of which project above the surface of the frontispiece, as shown. Mounted upon the harmonica or mouth-organ is any preferred type of longitudinally-slidable mouthpiece 9, formed with the usual longitudinal slot or opening 10 and also shown herein as constructed with outstanding end members 11, into which the slot may extend at either end of the mouthpiece, together with side portions 12, which are curved outwardly at 13 in correspondence with the curved formation of the said reed-guard 5, thus enabling the mouthpiece to be easily reciprocated longitudinally of the instrument in the ordinary way. In said Fig. 1 each of the end members 11 of the mouthpiece is preferably provided at the sides with opposite wings 14, and journaled in each pair of these wings is a rotatable device 15, of rubber or other preferred resilient material, said devices constituting cushioning-bearings for the mouthpiece 9 when mounted upon the instrument and imparting a yielding resistance both to the mouthpiece and to the mouth of the player. It is of course apparent that the sides of the harmonica or mouth-organ may be devoid of external appendages, such as are presented by the curved reed-guards 5, in which case both the sides of the instrument as well as the side portions of the mouthpiece may be constructed practically straight. I may dispense with the frontispiece in some instances, but preferably employ the same, the heads of the said fastening-screws 8 therefor serving as stops for limiting the movement of the mouthpiece in either direction. In the event the same is dispensed with, however, the cushioning-bearing 15 will then be mounted to roll either upon the upper edges of the side or reed plates or along the upper longitudinal edges of the body of the instrument itself, all of which will be readily understood from the construction herein shown and described.

As illustrated in Figs. 2, 3, and 4, the side or reed plates 16 of the body 17 of the instrument are turned inwardly at 18 over the adjacent upper edges of the said body, and thence outwardly at 19, forming outer longitudinal grooves, into which are received the edge portions 20 of downwardly and inwardly extending integral flanges 21, leading from the edges of the longitudinal slot 22 in the slidable mouthpiece 23. In this embodiment of the structure I also preferably employ a frontispiece 24, fastened in place by screws 25, the heads of which serve as stops for the mouthpiece, similarly as the heads of the screws shown in Fig. 1, this frontispiece being dished transversely at 26 to rest upon the upper surface of the body 17 between the inturned bends 18 of the side or reed plates and having the remaining longitudinal portions 27 thereof turned flatwise to rest upon the said outwardly-turned flat portions 19 of the said side or reed plates. The said longitudinal portions 27 of the frontispiece constitute tracks or ways, upon which roll or travel the rotatable resilient or cushioning bearings 28, oppositely journaled at the inner sides of the opposite wings 29 of the outstanding end members 30 of the mouthpiece, the latter in this instance being provided with hanging side portions 31, extending outwardly or away from the sides of the instrument in a downward direction and supporting from the inner surfaces thereof suitable pins or journals 32, on which are mounted other rotatable cushioning devices or bearings 33, which roll or travel along the adjacent surface portions 31^a of the outwardly-curved reed-guards 34, which are secured near their ends to the side or reed plates 16 by means of screws 35. Also projecting inwardly from the side portions 31 of the mouthpiece are brackets 36, on which are rotatably held additional cushioning devices or bearings 38, which roll or travel along the outer surfaces of the reed-guards 34 (see Fig. 3) and serve to overcome any tendency of the mouthpiece and its appurtenances to rock transversely of the structure.

The construction of the mounting for the severally-mentioned cushioning devices may be varied in different ways, Figs. 5 and 8 showing each of the cushioning-bearings 15, for instance, as having journals 37, which are supported in bearings therefor in the opposite wings 38, supposed to form a part of the outstanding end members of the slidable mouthpiece. In Fig. 6 the cushioning device 39 is shown as constructed with tapered ends 40, which are received in openings in the supports 41 therein. In Fig. 7 the cushioning device 42 is constructed with conical recesses in its ends,

in which are received projections 43 from the inner sides of the supports 44.

Referring back to the structure shown in Figs. 2, 3, and 4, it may be stated that the different parts of the complete instrument may be formed of any desirable material, as is apparent, it being preferable in some instances to construct the frontispiece of celluloid, vulcanite, or similar material, so as not to impart an unpleasant taste to the lips of the player of the instrument. I may dispense with said frontispiece in some instances, in which case the outwardly-turned flat portions 19 of the side or reed plates of the instrument would then constitute the tracks or ways for the cushioning-bearings 28 to roll or travel upon, the mounting for said bearings being changed accordingly, as will of course be understood. Other modifications or changes of structure may be resorted to and still come within the scope of the invention.

In the embodiment shown in Figs. 2, 3, and 4 the mouthpiece will be evenly guided in its movements both by the working of the edge portions 20 of the flanges 21 in the grooves in the side or reed plates and the working of the lowermost cushioning devices against the sides of the reed-guards, as will be apparent. Said embodiment also is practically air-tight, and, if desired, the said lowermost cushioning devices thereof may be dispensed with, in which event the side portions of the mouthpiece could be considerably reduced in height. I prefer the use of these devices, however, in most instances. The frontispiece is dished, as shown, to prevent as much as possible any jarring which might possibly be imparted thereto by the cushioning-bearings 28 if the same were straight or flat transversely.

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

1. A harmonica or mouth-organ comprising a longitudinally-slidable mouthpiece and rolling cushioning-bearings therefor.

2. A harmonica or mouth-organ comprising a longitudinally-slidable mouthpiece and rolling cushioning-bearings therefor adapted to be rotated by the movements of the organ in relation to the mouthpiece.

3. A harmonica or mouth-organ comprising a longitudinally-slidable mouthpiece and rolling bearings therefor constructed of a resilient material and mounted to move on parts of the organ.

4. A harmonica or mouth-organ comprising a longitudinally-slidable mouthpiece, having therein a longitudinal slot, and rolling cushioning-bearings for the mouthpiece supported by the latter at the ends of said slot.

5. A harmonica or mouth-organ, comprising a longitudinally-slidable mouthpiece having therein a longitudinal slot, and rotatable and rolling rubber bearings for the mouthpiece supported by the latter at the ends of said slot.

6. A harmonica or mouth-organ, comprising a longitudinally-slidable mouthpiece having side portions embracing the sides of the instrument, cushioning-bearings for the mouthpiece located between the latter and the adjacent upper parts of the instrument, and similar bearings between the sides of the instrument and said side portions of the mouthpiece for preventing transverse rocking of the latter.

7. A harmonica or mouth-organ, comprising a longitudinally-slidable mouthpiece having outstanding end members, and formed with a longitudinal slot, and rotatable cushioning-bearings for the mouthpiece supported by said end members.

8. A harmonica or mouth-organ, comprising a body having side plates formed at their upper portions with outer longitudinal grooves, and a longitudinally-slidable mouthpiece mounted on the instrument and formed with a longitudinal slot, the portions of the mouthpiece forming the slot being turned downwardly and inwardly and having the edges thereof working in said grooves.

9. A harmonica or mouth-organ, comprising a body having side plates formed at their upper portions with outer longitudinal grooves, and a longitudinally-slidable mouthpiece mounted on the instrument and formed with a longitudinal slot, the portions of the mouthpiece forming the slot being turned downwardly and inwardly and having the edges thereof working in said grooves, said mouthpiece carrying cushioning-bearings therefor.

10. A harmonica or mouth-organ, comprising a body having reed-guards at the sides thereof, a longitudinally-slidable mouthpiece, and cushioning-bearings between the latter and the instrument movable along the open side of the instrument and parts of said reed-guards.

11. A harmonica or mouth-organ, comprising a longitudinally-slidable mouthpiece having side portions embracing the sides of the instrument, and cushioning devices between the instrument and said side portions for preventing transverse rocking or tilting of the mouthpiece.

12. A harmonica or mouth-organ, comprising a body having side plates formed with tracks or ways on opposite sides of the open ends of the reed-compartments therein, a frontispiece having corresponding tracks or ways superposed upon the first, and a longitudinally-slidable mouthpiece carrying cushioning-bearings therefor movable on the said second-mentioned tracks or ways.

13. A harmonica or mouth-organ, comprising a body having side plates formed with tracks or ways on opposite sides of the open ends of the reed-compartments therein, a frontispiece having corresponding tracks or ways superposed upon the first, and a longitudinally-slidable mouthpiece carrying cush-

ioning-bearings therefor movable on the said second-mentioned tracks or ways, said frontispiece being dished transversely, as shown and for the purpose described.

14. As a new article of manufacture, a mouthpiece for harmonicas or mouth-organs provided with rotatable cushioning-bearings for supporting the same when mounted on an instrument.

HENRY HORATIO NEILSON.

Witnesses:
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JAMES ROBERTSON.