

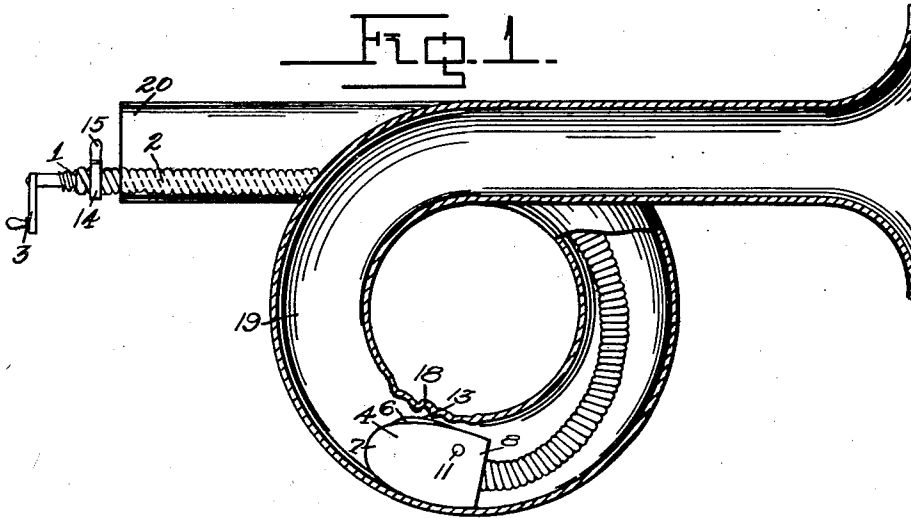
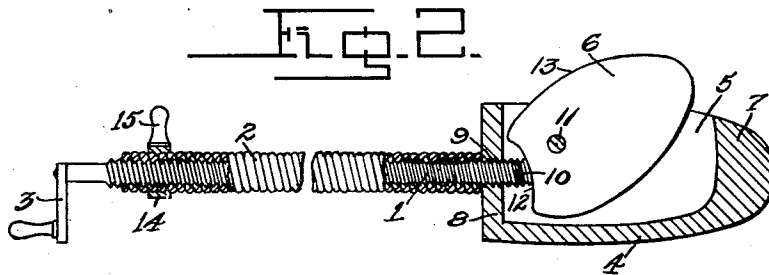
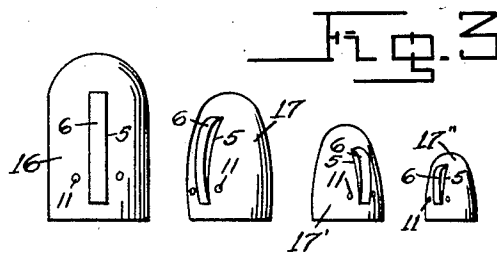
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W. WILLIAMS

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DENT REMOVING DEVICE

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Inventor
Willed Williams
BY
Frank N. Halliday
Attorney

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DENT REMOVING DEVICE

Willed Williams, Fort Humphreys, Washington,
D. C.

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2 Claims. (Cl. 153—80)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

This invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

5 This invention relates to a dent removing device, more particularly it is directed to an apparatus of the character specified for removing indentations in musical instruments of the horn type and one of its objects is to provide an improved dent remover adapted to be inserted in a tubular element either straight or curved and remotely operated, exterior of the element to remove surface irregularities.

10 Another object of this invention is to provide a dent removing device of simple, strong and thoroughly practical construction embodying a head having an expanding member pivotally mounted therein and including a remotely controlled mechanism whereby the expanding member may be controlled at will to bear with any desired force upon the interior surface of a casing and force the indented surface into its normal plane thus restoring the surface to its original form.

15 Another object of this invention is to provide a plurality of removable heads of various sizes to meet the bore requirements of the different musical instruments now in use.

20 Heretofore the devices for removing dents from the tubular casings of musical instruments of the horn type have been so constructed that only dents in the straight portions of the casing could be removed and it is therefore the purpose of this invention to provide a dent removing device which may be inserted in the tubular casing of a horn musical instrument and properly located with respect to the dent, regardless of the path described by the casing.

25 With the above and other objects and advantages in view, the invention consists of certain details of construction and operation of parts which will hereinafter appear. For purposes of illustration the invention will be described and claimed with reference to the accompanying drawing in which like numbers distinguish like parts and in which:

30 Fig. 1 is a sectional view of a horn musical instrument partly in elevation having my invention inserted therein for removing dents therefrom;

35 Fig. 2 is a longitudinal sectional view partly in elevation of my invention, and

40 Fig. 3 is a side elevation of a plurality of removable heads of various sizes adapted to be used on my device for different size tubing.

In the illustrated embodiment characterizing my invention 1 indicates a flexible shaft of any suitable length and diameter which is mounted threadably in an internally threaded sheaf or housing 2 and which is provided at one end with an operating handle or crank 3 and at the opposite end with a head 4.

5 The head 4 is made of a single casting of metal having a longitudinally extending slot 5 provided therein in which an expanding member 6 is pivotally mounted. The slot 5 of the head 4 provides a front nose portion 7 and a rear wall portion 8.

10 The rear wall portion 8 of the head is provided with a screw threaded opening 9 through which the inner end 10 of the flexible shaft 1 is threadably mounted.

15 The expanding member 6 is pivotally supported at one end to the head 4, closely adjacent the rear wall portion 8 thereof by means of a pivot pin 11. The pivoted end of the expanding member 6 is inwardly curved at 12 to provide a working surface against which the inner end 10 of the flexible screw shaft 1 is adapted to bear for actuating the expanding member. The surface 13 provided on the expanding member 6 is curved outwardly in such manner as to provide a suitable working surface for bearing against the indentation to be removed from a tubular casing.

20 In order to prevent the device from turning within the tubular casing when operated, suitable holding means such as a clamping band 14 having a gripping member 15 provided therein is fixably secured to the sheaf or housing 2.

25 For the purpose of adapting the device for tubing of various sizes, a plurality of heads of any given size or shape may be provided. Referring to Fig. 3 of the drawing the head 16 is adapted for use in straight tubing, the said head being provided with a cylindrical shaped body portion which may be rounded on the upper end thereof and the heads 17, 17' and 17'' are adapted for curved tubing by being made conoidal shaped.

30 In operation, assuming that the above is to be put in service to obliterate an indentation 18 in a tubular casing 19 of a horn musical instrument as illustrated in Fig. 1 of the drawing. The head 4 of the device is inserted in the open end 20 of the horn musical instrument and pushed around the casing thereof until it is contiguous to the indentation to be removed. By gripping the member 15 with one hand to prevent rotation of the sheaf or housing 2 and turning handle 3 in a clockwise direction, the flexible screw shaft 1 is

rotated and is caused to move in a limited longitudinal direction due to its threaded connection with the sheaf 2 and the head 4, whereby the inner end 10 of the flexible shaft is caused to bear
5 against the working surface 12 of the expanding member 6 which in turn causes the expanding member to be operated to bear with practically any desired force upon the interior surface of the casing 19 to force the dent or indentation 13 into
10 the normal plane of the casing thereby obliterating the indentation and in effect reforming said casing to provide a true cylindrical interior. Upon turning the handle 3 in a counter-clockwise direction the pressure of the flexible screw shaft
15 upon the expanding member 6 is released thereby permitting the expanding member to return to its normal inoperative position.

It will thus be seen that I have provided a simplified form of dent removing device which is
20 well adapted for all the purposes indicated. Even though I have herein disclosed my invention as comprising certain details of construction it is nevertheless to be understood that various

changes may be made therein without departing from the spirit or scope of my invention.

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

1. A dent removing device comprising a head, 5 an expanding member pivoted to said head, and means for actuating said expanding member, said means comprising a screw threaded flexible shaft having one end adapted to abut against said expanding member and a handle secured to the 10 other end of said flexible shaft.

2. A dent removing device comprising a head, an expanding member pivoted to said head, a sheaf, and means for actuating said expanding member, said means comprising a flexible shaft 15 mounted screw threadably in said sheaf and having one end connected detachably to said head and adapted to abut against said expanding member, means for moving said flexible shaft in said sheaf longitudinally against said expanding 20 member or away therefrom and means for holding said sheaf in fixed position.

WILLED WILLIAMS.