

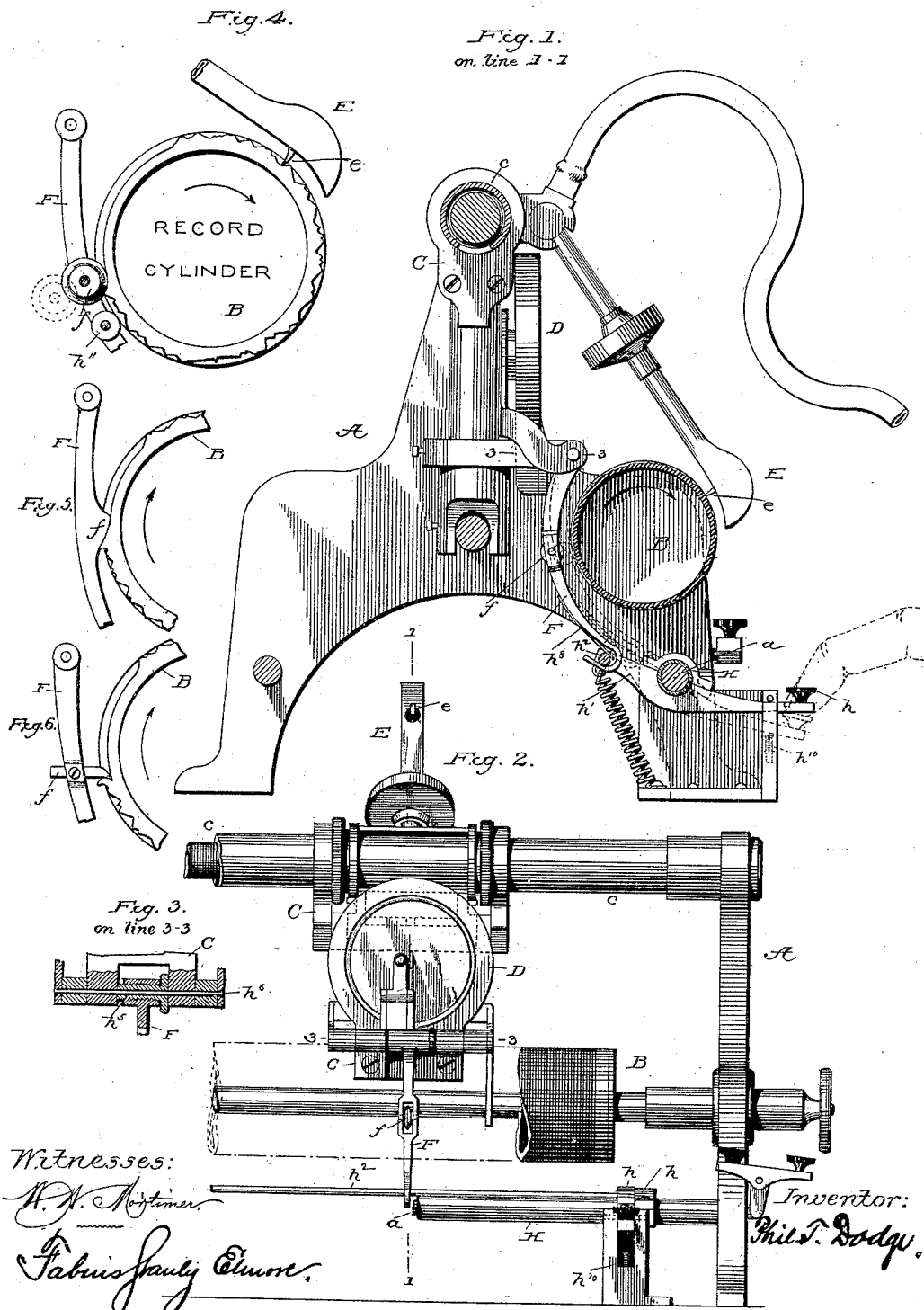
(No Model.)

P. T. DODGE.

ERASING ATTACHMENT FOR PHONOGRAPHS.

No. 449,349.

Patented Mar. 31, 1891.



UNITED STATES PATENT OFFICE.

PHILIP T. DODGE, OF WASHINGTON, DISTRICT OF COLUMBIA.

ERASING ATTACHMENT FOR PHONOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 449,349, dated March 31, 1891.

Application filed October 29, 1890. Serial No. 369,743. (No model.)

To all whom it may concern:

Be it known that I, PHILIP T. DODGE, of Washington, in the District of Columbia, have invented certain Improvements in Phonographs, of which the following is a specification.

At the present day it is the common practice for one person to dictate to a phonograph matter which is to be written out by another. It frequently becomes desirable to have portions of the matter recorded on the cylinder omitted by the amanuensis; but as this fact cannot be indicated on the cylinder in advance of the part to be omitted, and as the machine is without means for canceling the undesirable portions, much time is wasted in obtaining clean manuscript. My invention is intended to overcome these troubles by enabling the person dictating to erase or obliterate from the cylinder at will any desired portion of the record. This I accomplish by providing the instrument with a device, for convenience termed an "eraser," which may be called into action at will to erase, cancel, or obliterate from the record progressively the required portions of the record. The eraser is arranged to act in one line of the record at a time and immediately behind the reproducing-style, so that the user, listening to the words as they are reproduced, is thereby enabled to determine the precise times for starting and stopping the eraser to effect the erasure of the required words.

My eraser may be made in many forms and combined with operating devices variously arranged, the only requirements being that it shall follow behind the style, be adapted to obliterate one line without disturbing the next, and be under the control of the attendant as to the time of its action. I prefer, however, to make the eraser in the form of a sharp-edged roller to travel in and smooth down the record-surface and to attach it to the carriage by which the reproducing-style and diaphragm are carried along the cylinder.

The improvement is applicable alike to the graphophone, the Edison phonograph, and all similar instruments; but for purposes of illustration I have shown the same in connection with the graphophone of the construction represented in Letters Patent of the United

States issued to John H. White on the 10th day of June, 1890, No. 429,827, to which reference may be had for a detailed description of those parts foreign to my invention which are not described herein.

In the accompanying drawings, Figure 1 represents a transverse vertical section through the instrument now known in the art as the "graphophone" with my improvement applied thereto, the section being taken on the line 1 1 of Fig. 2. Fig. 2 is a front elevation of the instrument, the reproducer being turned upward and a portion of the cylinder broken away in order to expose the erasing device to view. Fig. 3 is a sectional elevation on the line 3 3 of the preceding figure. Fig. 4 is an enlarged view showing in elevation the erasing device in its preferred form. Figs. 5 and 6 are similar views showing the erasing devices in modified forms.

Referring to the drawings, A represents the main frame; B, the record-cylinder having a wax-like surface and sustained by rotary supports at its ends; C, a carriage movable gradually along the guide *c* by a screw-feed, and carrying the recorder D and reproducer E, both of which are hinged thereto, so that either may be turned down in operative relation to the record cylinder or phonogram when the other is turned up. The reproducer has a style *e*, which, traveling in the continuous record-groove of varying depth, receives therefrom a vibratory motion which it communicates to the sound-producing diaphragm. The foregoing parts are constructed and operate as usual.

Passing now to my improvement, F represents a depending arm hinged to the carriage to swing to and from the record-cylinder and carrying a sharp-edged roller *f*, which constitutes the eraser proper. By swinging the arm forward the edge of the roller is caused to enter and travel in the record-groove a short distance behind the reproducer-style, its effect being to erase or roll down those irregularities which give character to the groove and to produce a smooth surface therein, so that when the style again traverses the smooth portion of the groove the instrument will remain mute or practically so.

As a convenient means of controlling the

action of the eraser, I mount around one of the horizontal frame-bars a , parallel with the cylinder, a tube H , having a front finger-piece h , and at opposite ends two arms h' , which sustain a horizontal rod h^2 , which lies behind the lower end of the eraser-carrying arm F . When the finger-piece is depressed, it raises rod h^2 , which in turn throws the eraser into action. As the carriage advances and carries the style along the cylinder, the eraser-arm slides along the elevated rod h^2 , sustained in operative position thereby, and the eraser, traveling behind the style, continues to obliterate the record, word after word, as they are announced by the diaphragm, so long as the operator maintains a pressure on the finger-piece h .

In order that the eraser may be caused to align with the style, I provide means for adjusting the eraser laterally. One simple contrivance for this purpose is shown in Fig. 3, in which the eraser-arm is mounted on a threaded sleeve or nut h^5 , which is in turn mounted on the hinge-pin h^6 between the arms of the carriage, so that its end motion is prevented. This nut turns freely on the pin, but is seated tightly in the arm, so that it forms in effect a rigid part of the latter; but by the application of moderate force it may be turned in the arm, so as to shift the latter sidewise.

In practice I find it advantageous to hold the eraser to its work by spring-pressure, and to this end I provide the eraser-arm, as shown in Fig. 1, with a sustaining-spring h^8 , which rides on rod h^2 .

The depth to which the eraser acts in the record-surface should be controlled to the end that it may not force the substance of the cylinder laterally, so as to disturb or impair the record in the adjacent convolutions of the groove. This may be accomplished by means of an adjustable stop-screw h^{10} , located beneath the finger-piece or elsewhere in connection with the erasing devices.

As an additional means of controlling the depth of action of the eraser, I propose to provide the arm F with a roller or equivalent support—such, for example, as that shown at h^{11} , Fig. 4—to ride on the surface of the cylinder without disturbing the record therein.

While I have found that the best results are secured by a rolling eraser, it is to be understood that I may employ in the same manner an arm or blade, such as shown in Fig. 5, to smooth down the surfaces of the record-groove, or a blade, as shown in Fig. 6, to deepen the groove and give the same a smooth surface.

I am aware that a phonograph has been provided with a mechanism for paring or shaving off its outer surface from end to end to adapt it to receive a new record. This mechanism, however, is neither intended nor adapted for the erasure of a single line of

matter at a time; nor was it so constructed that the operator listening to the reading of the record could select and eliminate at will definite portions of the record.

I believe myself to be the first to provide a phonograph in any form or manner with means whereby the operator may select and cancel at will a definite portion of the record, and it is to be understood that my invention includes any eraser for this purpose having a mode of action analogous to that herein described.

In order to distinguish my eraser, which acts in one line or at one point only at a time, from paring-knives, which remove a wide slice, including two or more convolutions of the record-groove, I designate it in the claims as a "line-eraser."

Having thus described my invention, what I claim is—

1. In combination with a phonograph, an eraser adapted to act on and to obliterate a single line of the record at a time, and means whereby the attendant may throw the same into and out of action at will.

2. In a phonograph, the combination of a grooved record or phonogram, a reproducer having a style arranged to travel in the record-groove, as usual, and an eraser arranged to act in the record-groove immediately behind the reproducer-style, and means for throwing said eraser into and out of action at will, whereby the attendant, listening to the reproduction of the words upon the cylinder, is enabled to select and obliterate from the record the particular words desired.

3. In a phonograph, the combination of the revolving record-cylinder, the traveling carriage having the reproducer attached, the eraser also attached to said carriage, a finger-key, and intermediate connections through which said key acts to throw the eraser into action during the operation of the machine.

4. In a phonograph, an eraser consisting of a sharp-edged wheel or roller mounted to act within the record-groove to obliterate the inequalities and produce a smooth surface, to the end that the style may remain inactive while traversing such smooth surface.

5. In a phonograph, and in combination with the record-cylinder, a spring-sustained eraser adapted to act within the record-groove, substantially as described.

6. In a phonograph, the combination of a record-cylinder, an eraser mounted to travel lengthwise of said cylinder and adapted to act in a single groove or convolution of the groove at a time, means for throwing said eraser into action, and a stop device to control the depth of its action in the cylinder.

7. In combination with the rotary record-cylinder, the traveling carriage having the reproducer attached, the line-eraser also connected to the carriage, and means, substantially as described, for adjusting said eraser

laterally to secure and maintain its alignment with the reproducer-style.

5 8. In combination with the rotary cylinder, the traveling carriage, the eraser-arm jointed to the carriage, and the rocking frame having a rod or support parallel with the cylinder to operate and sustain the eraser-arm.

In testimony whereof I hereunto set my hand, this 27th day of October, 1890, in the presence of two attesting witnesses.

PHILIP T. DODGE.

Witnesses:

W. R. KENNEDY,

FABIUS STANLY ELMORE.