May 2, 1933. R. BECK 1,906,514

RECORDING INSTRUMENT PEN ARM

Original Filed Oct. 20, 1931

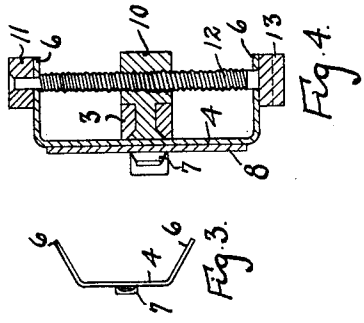

Fig. 4.

Fig. 3.

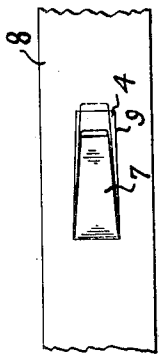

Fig. 7.

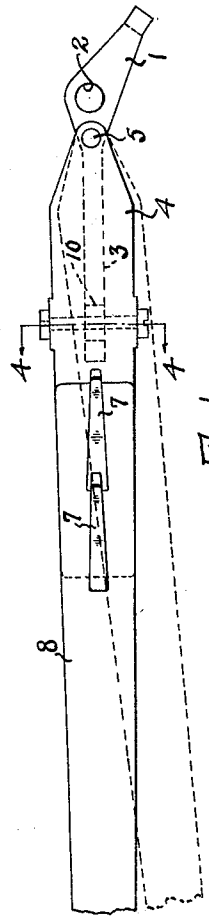

Fig. 1.

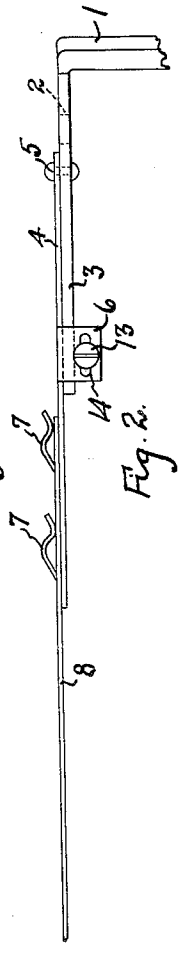

Fig. 2.

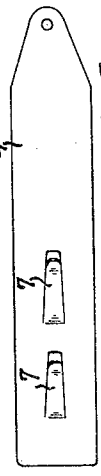

Fig. 5.

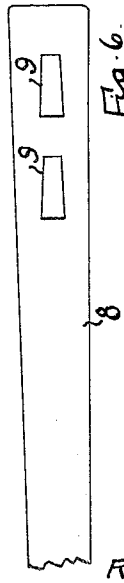

Fig. 6.

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UNITED STATES PATENT OFFICE

RUDOLF BECK, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO CONSOLIDATED ASHCROFT HANCOCK COMPANY, INC., OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF DELAWARE

RECORDING INSTRUMENT PEN ARM

Original application filed October 20, 1931, Serial No. 569,868. Divided and this application filed May 3, 1932. Serial No. 608,911.

This invention involves improvements in construction of recording instrument pen arms.

One of the objects of this invention is to provide a relatively simple pen arm construction involving two parts which may be quickly and accurately secured together.

Another object of this invention is to provide in such construction a portion of the pen arm as a detachable element which, when secured in place, is accurately held there against any movement with respect to the other portion of the arm to which it is attached.

A further object of the invention involves an arrangement for angularly adjusting the pen arm with respect to its support and insuring that it remain in adjusted position.

These and other objects as will appear from the following disclosure are secured by means of this invention.

This invention resides substantially in the combination, construction, arrangement and relative location of parts, all as will be described in greater detail hereinafter.

Referring to the drawing:—

Figure 1 is a top plan view of the pen arm of this invention;

Fig. 2 is a side elevational view thereof showing a portion of the support therefor;

Fig. 3 is an end elevational view of one part of the pen arm;

Fig. 4 is a cross sectional view taken on the line 4—4 of Fig. 1;

Figs. 5 and 6 show the two separable portions which together form the pen arm;

Fig. 7 is an enlarged detail view of the clip securing the two parts together;

This disclosure relates to the pen arm construction set forth in my co-pending application, Serial No. 569,868, filed October 20, 1931, of which this application is a division.

Recording instruments such as the type set forth in my co-pending application employ a pen arm by means of which a permanent record is marked on the record sheet which moves with respect to the recording stylus of the arm.

This invention is particularly directed to an exceedingly simple and efficient construction for such a pen arm.

Referring to the drawing there is shown in part at 1, a supporting member such as is often used in recording instruments which pivotally supports the pen arm on a bearing member not shown and connects it with the operating mechanism. The member 1 may be pivotally supported on a pin for example on which the member is journaled by means of the holes 2.

Pivotally attached to the horizontal arm 3 of the member 1 by means of a rivet 5 is an arm 4 which is provided at its outer end with integral spring finger 7 struck out of the material of the arm intermediate its ends. The arm 4 is provided with a pair of ears 6 which preferably lie at an obtuse angle with the main body of the lever as indicated in Fig. 3 when no pressure is applied thereto. Each of these ears is provided with a transverse slot 14 as is clear from Fig. 2.

Referring to Fig. 4, the arm 3 is shown with a nut 10 riveted thereto and depending therefrom. Passing through the threaded bore of the nut is a threaded screw 12 which likewise passes through the slots 14 of the ears 6 and is provided at one end with a slotted head 13 and at the other end with a collar 11. As will be apparent from this construction, as the screw 12 is revolved, the lever 4 is given angular movement with respect to the arm 3. The nut 10 being fixed on the arm 3, the longitudinal axis of the screw 12 remains fixed. Obviously, as the lever 4 will assume various angular positions with respect to the arm 3, and the longitudinal axis of the screw 12, it is necessary to provide the slots 14 so that the ears themselves will not bind on the screw. The other portion 8 of the pen arm to which the stylus

now shown is attached, is provided with openings through which the slips 7 project when the parts are assembled as shown in Figs. 1 and 2.

The spring fingers 7 are trapezoidal in form as are the openings 9. The transverse width of the trapezoidal openings 9 at the smaller end is slightly less than the transverse width of the spring slips at the point of attachment to the lever 4. This will be apparent from Fig. 7. Thus, the portion 8 of the pen arm is attached to the lever 4 by placing them together so that the spring clips 7 project through the openings 9. See Fig. 7. The portion 8 is then pulled to the left so that the small ends of the openings 9 engage and bind the bases of the spring clips 7. In this position of the parts as is clear in Figs. 1 and 2, the free ends of the clips frictionally engage the upper surface of the portion 8. Thus, the lever 4 and the portion 8 are rigidly secured together against longitudinal and angular movement with respect to each other forming a rigid, unitary structure. The portion 8 of the pen arm and its attached stylus may be completely detached from the lever 4 for repair or replacement without losing any of the advantages which would be obtained if the portions 4 and 8 are of a single piece of material. The lever 4 would probably be made of spring metal so that when the ears 6 are pulled down at right angles to the main body portion to assume the position shown in Fig. 4, they exert a binding action on the head 13 of the screw and the collar 11 so as to substantially lock the lever 4 in any position to which it is adjusted.

From the above description it will be apparent that this invention resides in certain principles of construction and operation which may be embodied by those skilled in the art in other physical forms and I do not therefore desire to be strictly limited to the disclosure as given for purposes of illustration but rather to the scope of the appended claims.

What I seek to secure by United States Letters Patent is:

1. In a construction for pen arms for recording instruments, the combination comprising a supporting arm having struck out transversely tapering spring fingers, and a detachable pen arm having oppositely tapering openings secured thereto by the spring fingers which project through the openings.

2. In a construction of the type described, the combination comprising a supporting arm having struck out spring fingers of trapezoidal form, and a pen arm detachably secured thereto by said fingers having trapezoidal openings through which the fingers pass.

3. A pen arm construction consisting of two parts, one part having struck up spring fingers of trapezoidal form and the other part having openings of trapezoidal form through which the spring fingers pass, the width of the trapezoidal openings at the small end being slightly less than the width of the spring clips adjacent their bases.

In testimony whereof I have hereunto set my hand on this 25th day of April A. D., 1932.

RUDOLF BECK.