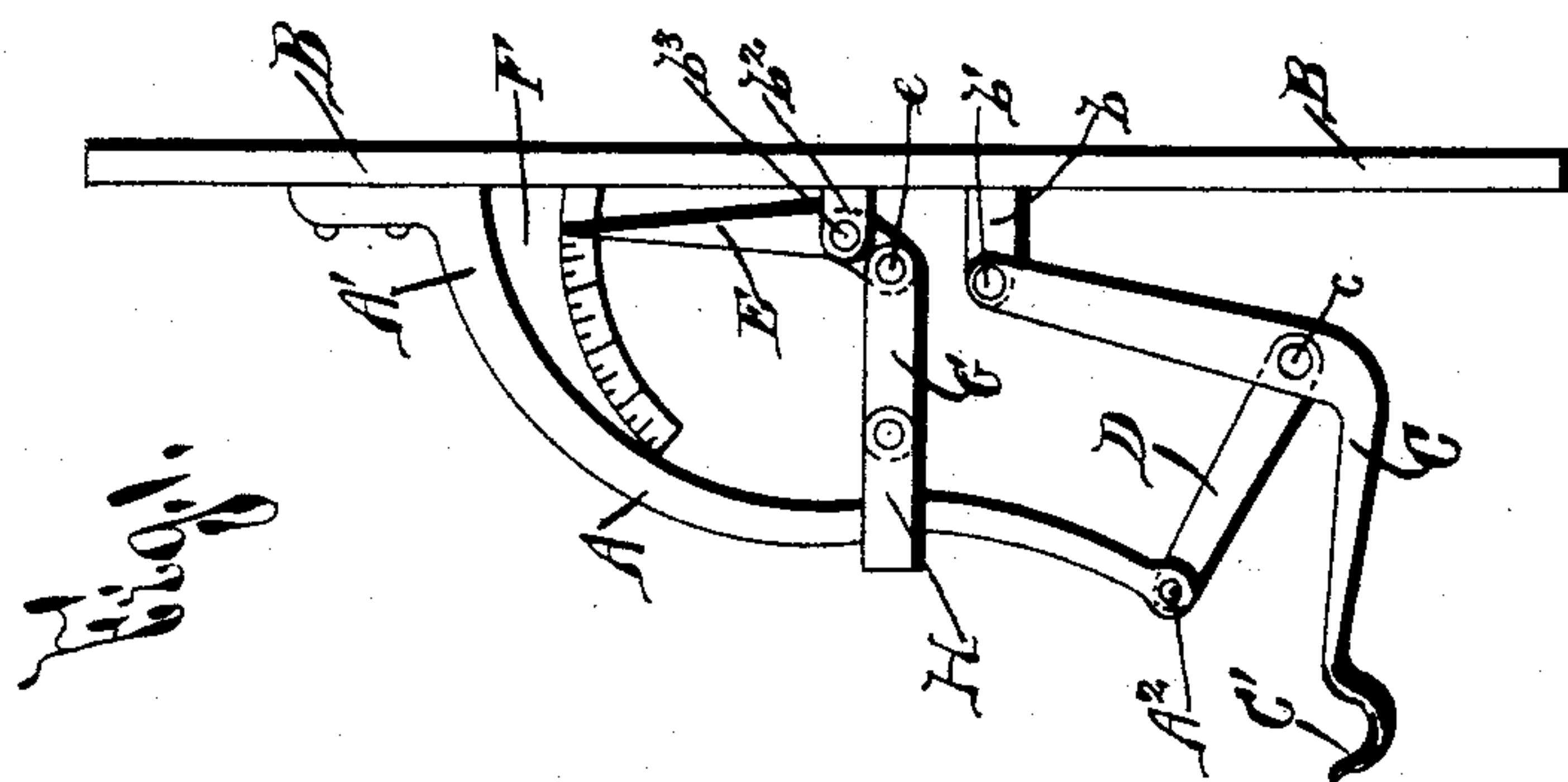
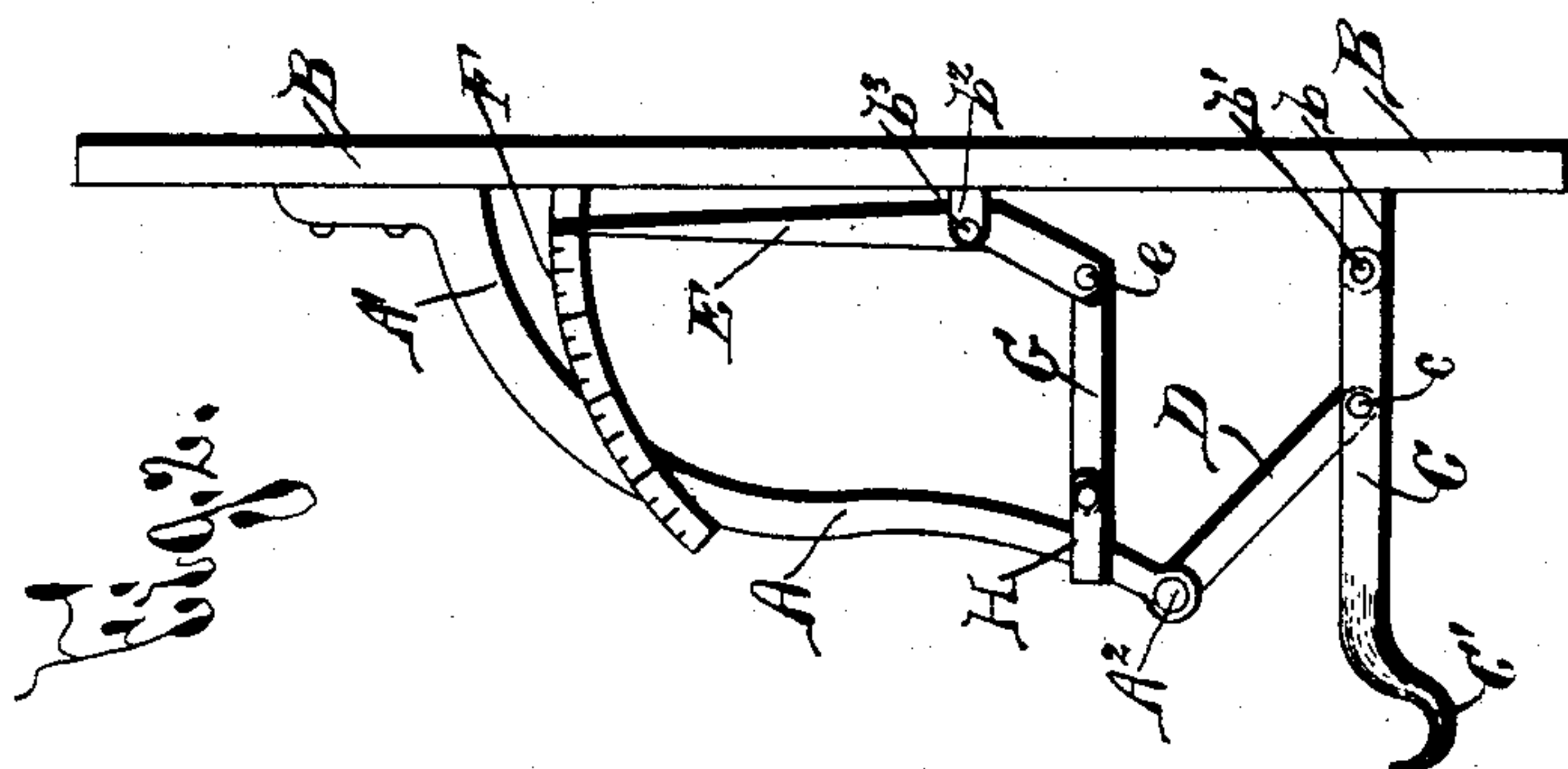
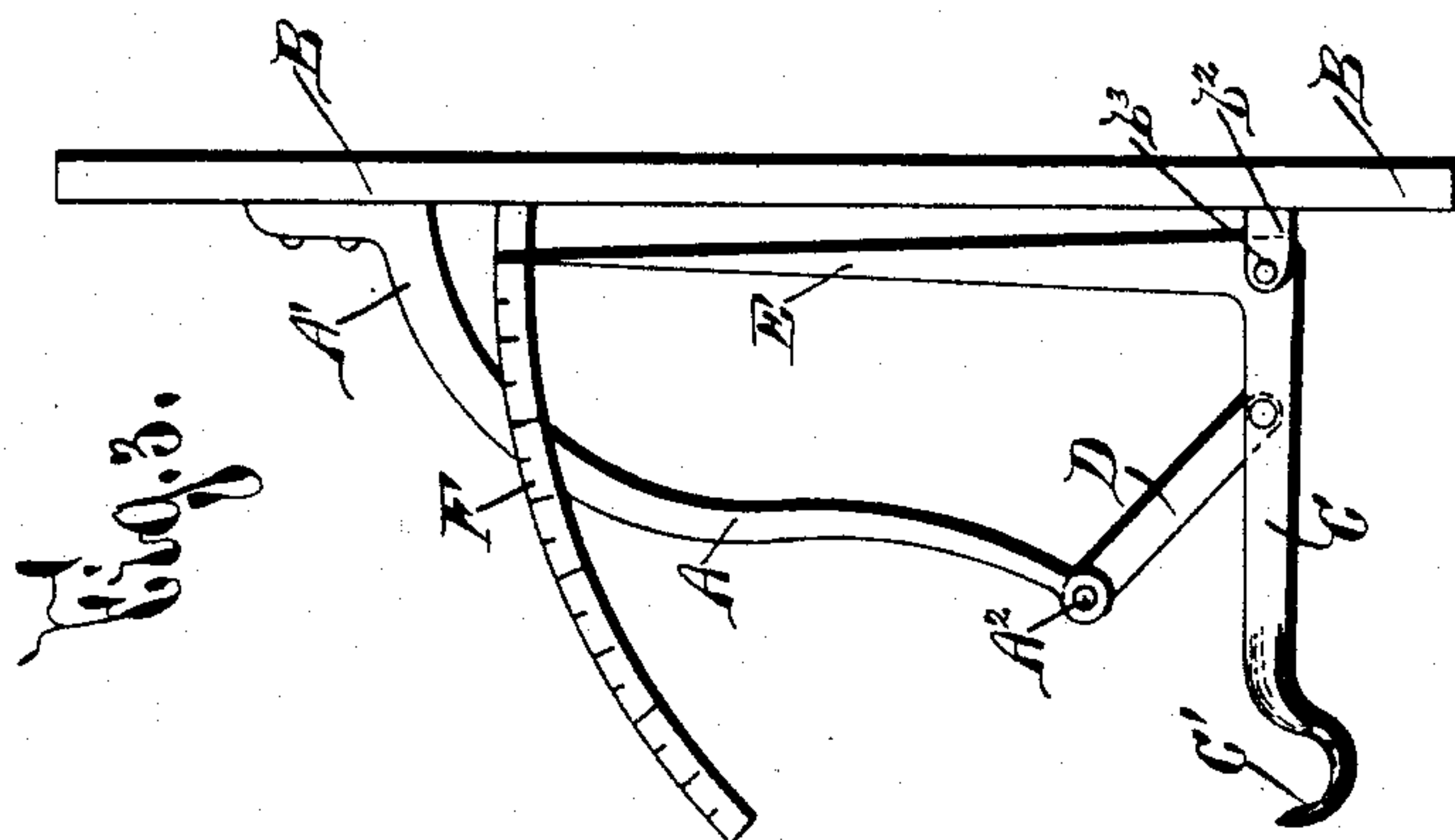


(No Model.)

E. F. BERGMAN.
SPRING SCALE.

No. 410,952.

Patented Sept. 10, 1889.



WITNESSES:

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EDWARD F. BERGMAN, OF FRANKFORT, ASSIGNOR OF ONE-HALF TO JOHN R SLACK, OF ILION, NEW YORK.

SPRING-SCALE.

SPECIFICATION forming part of Letters Patent No. 410,952, dated September 10, 1889.

Original application filed October 29, 1888, Serial No. 289,362. Divided and this application filed May 3, 1889. Serial No. 309,505. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. BERGMAN, of Frankfort, in the county of Herkimer, in the State of New York, have invented new and useful Improvements in Spring-Scales, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to spring-scales, and forms a divisional part of my application, Serial No. 289,362, filed October 29, 1888, and has for its object the production of a simple and effective spring-scale which can be easily and cheaply manufactured by reason of the peculiar and simple construction and arrangement of its parts, and which is pleasing in appearance, compact, effective, and practically indestructible in use; and to this end my invention consists, essentially, in a spring of peculiar form and construction, one point being rigidly retained or secured to a suitable backing for the spring adapted to be attached to a suitable support or side wall of a building, the other part of the spring being extended outwardly from its supported point and connected by a link to the weight-engaging device.

It also consists in a novel means for operating the indicator-finger by means of a link pivoted thereto and to a support secured upon the spring; and it furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing my invention, reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is an elevation of the preferable form of my invention, clearly illustrating the construction and arrangement thereof. Fig. 2 is a like elevation illustrating a slightly-modified construction of the spring-scale and the weight-engaging device; and Fig. 3 is also an elevation of my scale, illustrating a further modified construction thereof.

A represents the spring, which is of suitable material, having one extremity A' secured to a backing or support B and the other extremity A² bent outward and downward from

the point of support of the extremity A'. The backing B may be of any suitable material or construction, and may be secured to a support or the side wall of a room by any well-known means.

Provided upon the backing B is the projecting lug *b*, pivoted to which at *b'* is the weight-engaging device C, which preferably consists of a pivoted lever.

Hinged to the spring, and preferably to the free extremity A² thereof, and hinged at a leverage at the point *c* to the weight-engaging device C, is the link D.

Also provided upon the backing B are the lugs *b*², to which is pivoted at *b*³ the indicator-finger E, which is rocked over a suitable dial or scale F, which may be of any desirable form and construction.

Pivoted at *e* to the indicator-finger at a leverage with the point *b*² is the link G. The opposite extremity of said link is pivoted to a support H, mounted upon the spring.

It will be seen that when the weight is applied to the hook C' of the weight-engaging device the same will be depressed and the weight-engaging lever C will be rocked toward the backing B, thus tensioning the spring in the same direction. As the spring moves toward the backing, it will be seen that the indicator-finger will be forced away from the backing and will be rocked over the dial F, thus registering the weight applied to the hook C'.

By changing the relative ratio of the indicator-finger E and the weight-engaging device C it will be seen that the said scale may be so adjusted that although great weight may be applied to the hook C', but very little movement of the spring is occasioned, and consequently but little movement of the finger. However, if desired, by changing the relative ratio of the indicator-finger E and the weight-engaging device C the indicator-finger may have a movement equal to that of the weight-engaging device, or even greater or less, as desired.

This construction thus produces a scale which, by reason of the change allowed in constructing its parts, may be used for weighing either light or heavy objects by merely

changing the ratio of the parts without necessitating the use of a greatly-increased spring, this being a feature of great advantage.

It will also be observed that by means of the link G the motion conveyed to the indicator-finger is very easy and all cramping is prevented, thus insuring great wear of the parts.

The spring A is tensioned indirectly of its extension, and consequently there is but little liability of its becoming permanently set. Moreover, the spring-scale is so constructed that a great proportion of the weight is sustained by the weight-engaging device itself, requiring but a part thereof to be sustained by the spring, and this feature still further lengthens the life of the spring and adds to the desirability of the scale.

The scale illustrated in Fig. 2 is very nearly the same as that illustrated in Fig. 1; but in this figure the weight-engaging device does not support the weight to the extent of the construction illustrated in Fig. 1.

In Fig. 3 I have illustrated the weight-engaging device and the indicator-finger as formed integral with each other in the form of a bell-crank lever pivoted at the point b^3 to a lug or lugs b^2 , projecting from the backing B. This device, while not as desirable as that illustrated in Figs. 1 and 2, is very effective and is more cheaply constructed.

The operation of my invention will be readily perceived from the foregoing, and it will be understood that considerable change may be made in the detail construction and arrangement of the parts without departing from the spirit of my invention.

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

1. The combination of the backing B and a spring secured to said backing and bent outwardly therefrom with an indicator-finger, a weight-engaging device pivoted to a support mounted on the backing B, and a connection between said spring and weight-engaging device, substantially as and for the purpose specified.

2. The combination of the backing B and the spring A secured thereto and bent outwardly therefrom, a spring-scale F, an indicator-finger E, pivoted to the backing B, and a connection G between said spring and indicator-finger with a weight-engaging device pivoted to the backing and a connection between said spring and weight-engaging device, substantially as and for the purpose described.

3. The combination of the backing B, the spring A secured thereto and bent outwardly therefrom, the weight-engaging device pivotally supported upon the backing B, and a connection D between said spring and weight-engaging device with an indicator-finger E, pivoted to a support of the backing B, and a link G, pivoted to separate supports upon said spring and backing, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 13th day of April, 1889.

EDWARD F. BERGMAN.

Witnesses:

A. E. PARSONS,
CLARK H. NORTON.