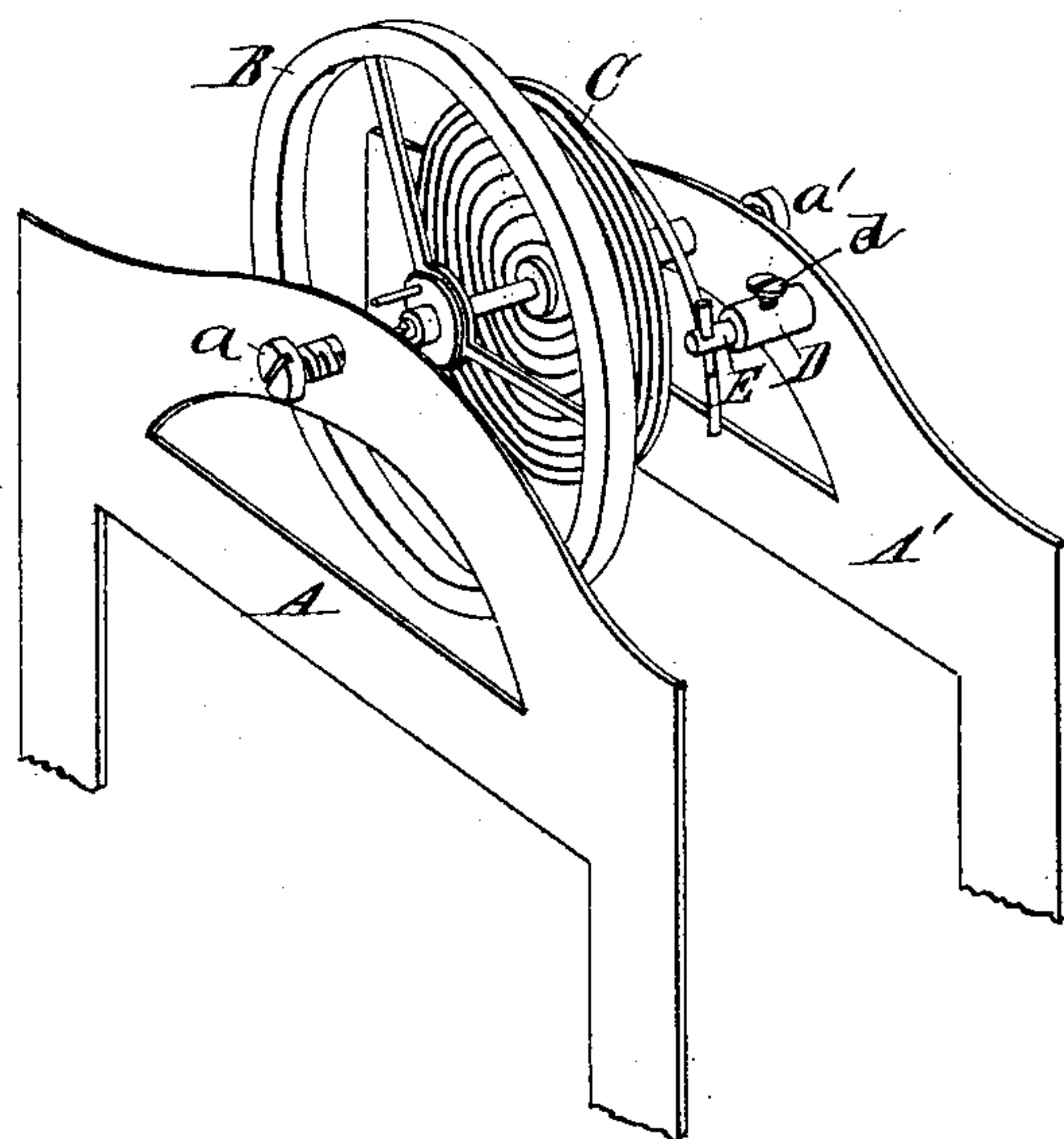
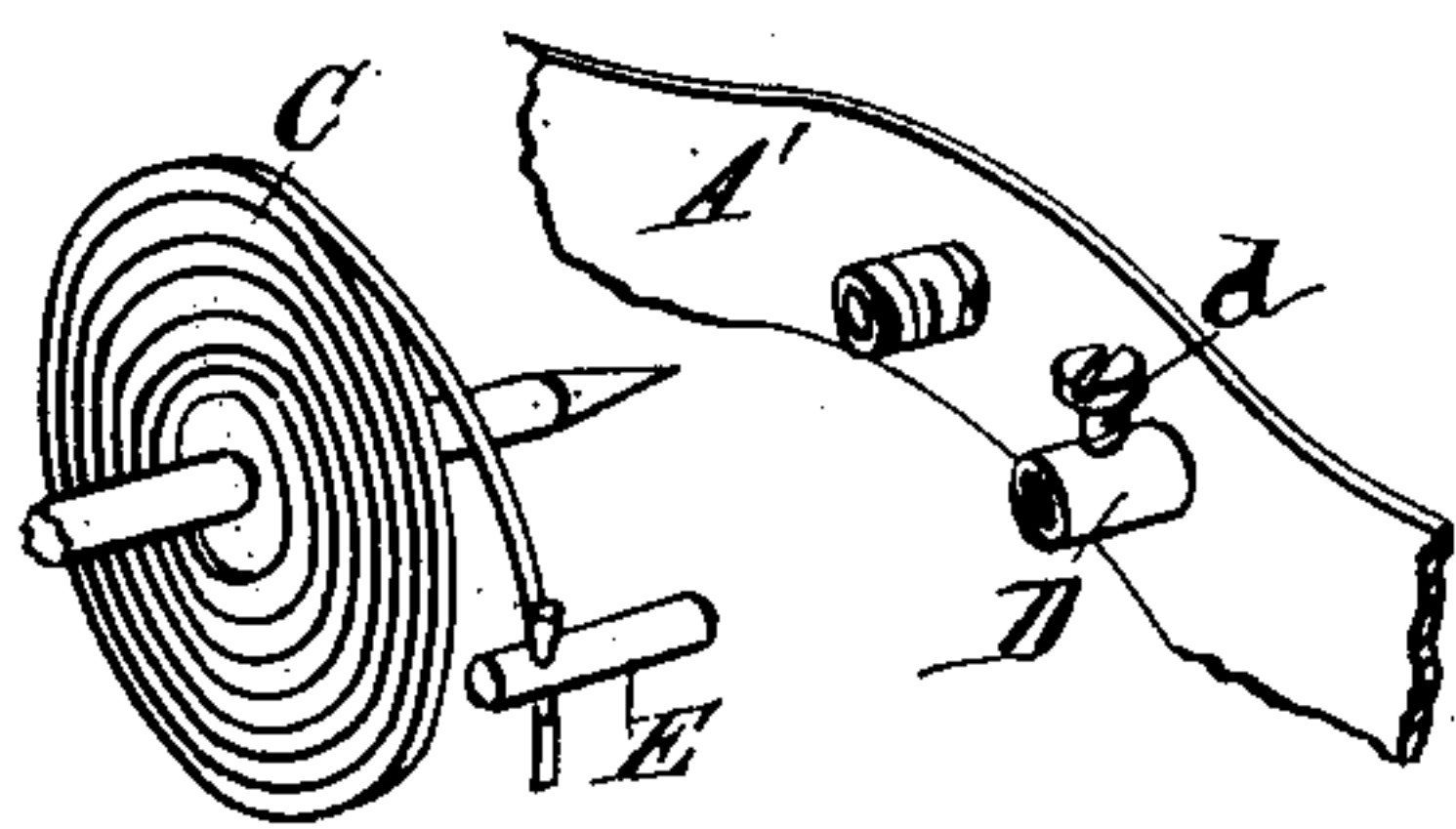


R. L. PEABODY.  
Hair-Spring Studs for Watches and Clocks.  
No. 224,793.                      Patented Feb. 24, 1880.

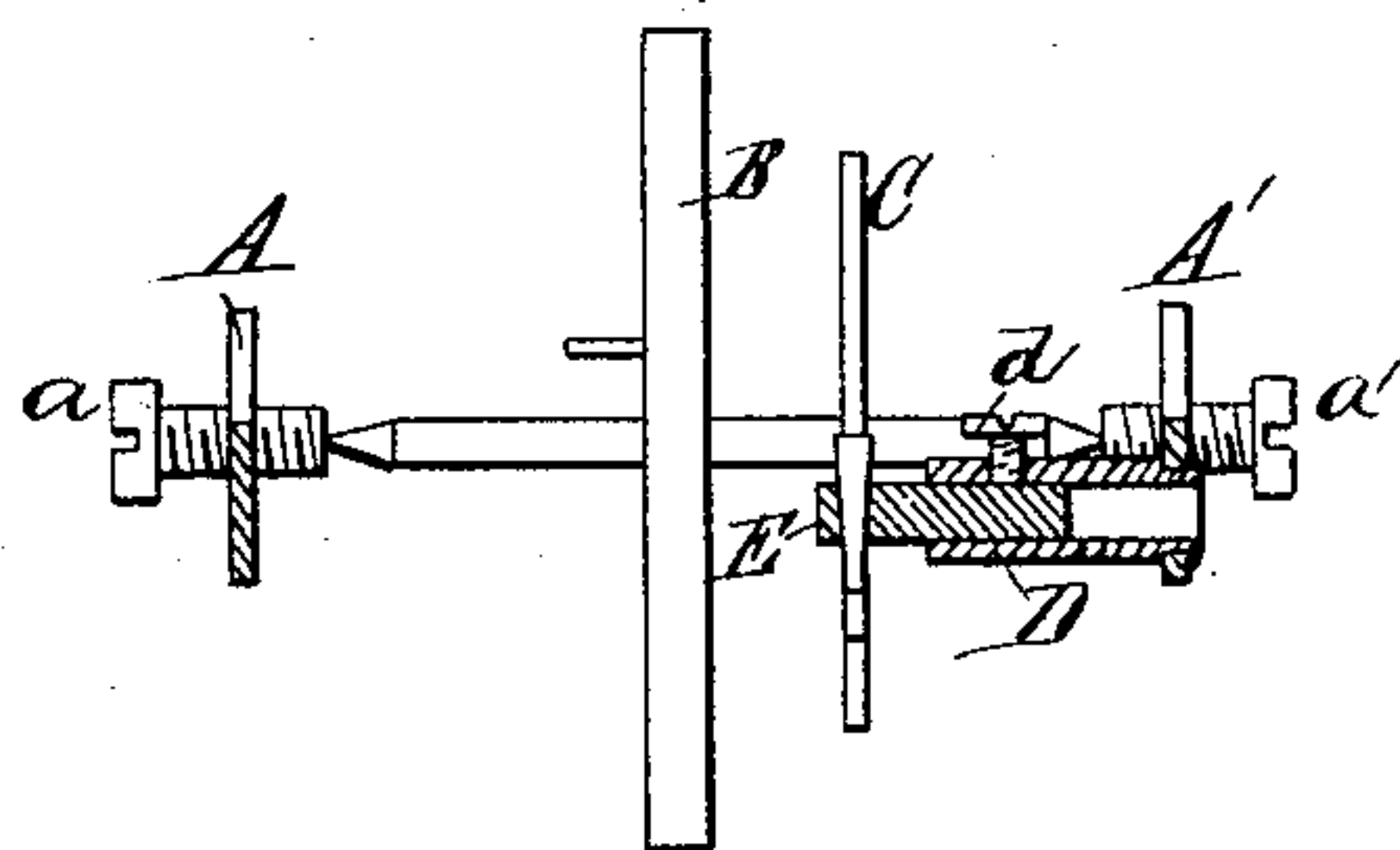
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

ROSWELL L. PEABODY, OF THOMASTON, CONNECTICUT.

## HAIR-SPRING STUD FOR WATCHES AND CLOCKS.

SPECIFICATION forming part of Letters Patent No. 224,793, dated February 24, 1880.

Application filed December 29, 1879.

*To all whom it may concern:*

Be it known that I, ROSWELL L. PEABODY, of Thomaston, county of Litchfield, and State of Connecticut, have invented certain new and useful Improvements in Clocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has special relation to that class of clocks in which the ordinary and well-known balance and balance-spring are employed, the object of the said invention being to provide a simple, durable, and efficient attachment or means whereby the balance and balance-spring with its stud may be readily disconnected or detached for purposes of cleaning, repairing, &c., and as readily and easily replaced in proper position for work, without the usual labor of readjusting the spring for length and tension, and without incurring the inaccuracy usually consequent upon such re-assembling of parts in clocks of this class as they have heretofore been constructed.

Heretofore and previous to my invention it has been customary to key the balance-spring into an arm rigidly connected with the clock-frame, from which, in order to release the spring, the key is simply withdrawn. Under such construction the returning of the spring to its normal position and keying it fast is not only a difficult and unhandy operation, but results in considerable inaccuracy, for the reason that it is practically impossible to properly and accurately locate the spring in its exact original position.

To render the accurate location of the spring automatic or dependent upon the tension of the spring itself, as well as to accomplish the other purposes and objects of the invention, it (the invention) consists, essentially, in the employment of a suitable form of socket, with a simple set-screw, or its equivalent, applied thereto, such socket being capable of receiving, holding, and permitting the adjustment of a removable stud rigidly or otherwise connected with the spring, all of which construction or improvement will be hereinafter first fully described, and then pointed out in the claims.

In the drawings, Figure 1 is a perspective view, illustrating my improvements applied in

connection with the balance of an ordinary clock, sufficient of the essential elements being shown to enable one to understand the invention, and the parts being represented as assembled for use. Fig. 2 is a similar view, showing the balance-spring and the spring-holding stud removed or withdrawn from their usual seats. Fig. 3 is a section and elevation upon a plane passing through the axis of the stud-holding socket.

Like letters of reference wherever they occur indicate corresponding parts in all the figures.

At A and A' are represented fragments of the clock-frame or other supports upon or in which the balance-wheel B is mounted, its shaft being journaled or stepped in the adjustable screws *a a'*, or otherwise made easily removable, as may be desired. C is the balance-spring, which, in accordance with my improvements, is provided with a simple stud, E, made fast to the spring by a small key, or in any suitable manner.

D is the socket intended for the reception of the stud E. It is preferably made fast to the clock-frame, and should be of such stability as to obviate any danger of disarrangement during adjustment of the works or during the running of the clock-train and should, afford an unyielding seat for the stud. It is provided with a simple form of set-screw, as at *d*, by use of which the stud is clamped or set when properly located.

When the parts are located and arranged for use, substantially as indicated in Fig. 1, in order to dismount the balance and spring it will only be necessary to loosen screw *d* and either *a* or *a'*, when they may be removed at pleasure, as will readily appear from an inspection of the figure.

The stud E being allowed to remain upon the spring, in order to reassemble the parts the balance-shaft is properly located and held by the bearings *a a'* and the stud slipped into the socket D, where, by reason of the tension of the spring, it is brought around to the exact point at which it was originally located, and this automatically and without the usual care and attention exacted from the workman. Being so automatically located, the stud is set by a simple turn of screw *d*, and if then the



regulator be applied, as before the disconnection of parts, the adjustment is precisely as formerly and the beat necessarily the same.

It has not been deemed necessary to illustrate any regulator, as this element is well known and may be of any approved form.

The stud E is preferably made cylindrical in form, as shown, in order to insure the easy and automatic adjustment of the spring in accordance with its tension, which could not result in all cases—as, for instance, in the event of damage by a bend or dent in the spring—were it otherwise formed, though, as the invention relates more particularly to the attached projecting socket, the stud might for some uses of the said socket be of any desirable form of cross-section.

As to the socket, I have illustrated the simplest form which I have been able to devise. As shown in the drawings, the solid piece is drilled through and through to form the seat for the stud, tapped for the reception of the set-screw, and rigidly secured to the frame by any preferred mechanical means, such as are usually employed under analogous circumstances. Being made and applied substantially as indicated, this socket or socket-piece is simple of construction, inexpensive to manufacture, easy to be located, and affords a firm unyielding seat for the spring-holding stud, not at all liable to disarrangement and not requiring any change in the arrangements of the various parts of the clock.

On account of the compactness insured, the socket is preferably located upon the inner side of the clock-frame; but it might be located upon the exterior, in which event the stud would be made to project through the end nearest the frame, the socket serving, as before, to form an elongated support for the stud, in which the latter may be readily adjusted.

Other immaterial modifications as to form and location might be made without departing from the principles of the invention, it being necessary that in all forms a sufficient bearing be provided for the stud, so that there will be no difficulty in the matter of retaining said stud in an unyielding manner, allowing

the same to be of sufficient length to correspond with the usual location of the balance-spring, which in ordinary clocks is considerably removed from the face of the frame.

When constructed and arranged substantially in accordance with the foregoing explanations, the improved attachment is found to admirably answer the several purposes and objects of the invention, as previously stated.

As before intimated, I am fully aware that the balance-springs of clocks have been secured to a rigid arm by use of a key, &c., and to these old forms I desire it understood that I make no claim. Neither do I make any claim to a simple stud alone secured to the end of a balance-spring, (removably or otherwise,) for such stud without my improved socket or an equivalent therefor would be of no avail for the purposes of my invention; but,

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

1. As an improvement in clocks, &c., the herein-described socket for the reception of the balance-spring stud, the same being provided with means for holding said stud in place, and adapted to be attached to the clock-frame, forming an unyielding elongated seat for the stud, substantially as and for the purposes set forth.

2. The combination of the cylindrical stud attached to the balance-spring and the socket projecting from the clock-frame, said socket being provided with means for clamping the stud in place, substantially as shown and described.

3. The combination of the balance-spring C, attached stud E, socket D, having set-screw *d*, and the supporting-frame, the whole being constructed and arranged to operate substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

R. L. PEABODY.

Witnesses:

WORTH OSGOOD,

CHARLES R. SEARLE.