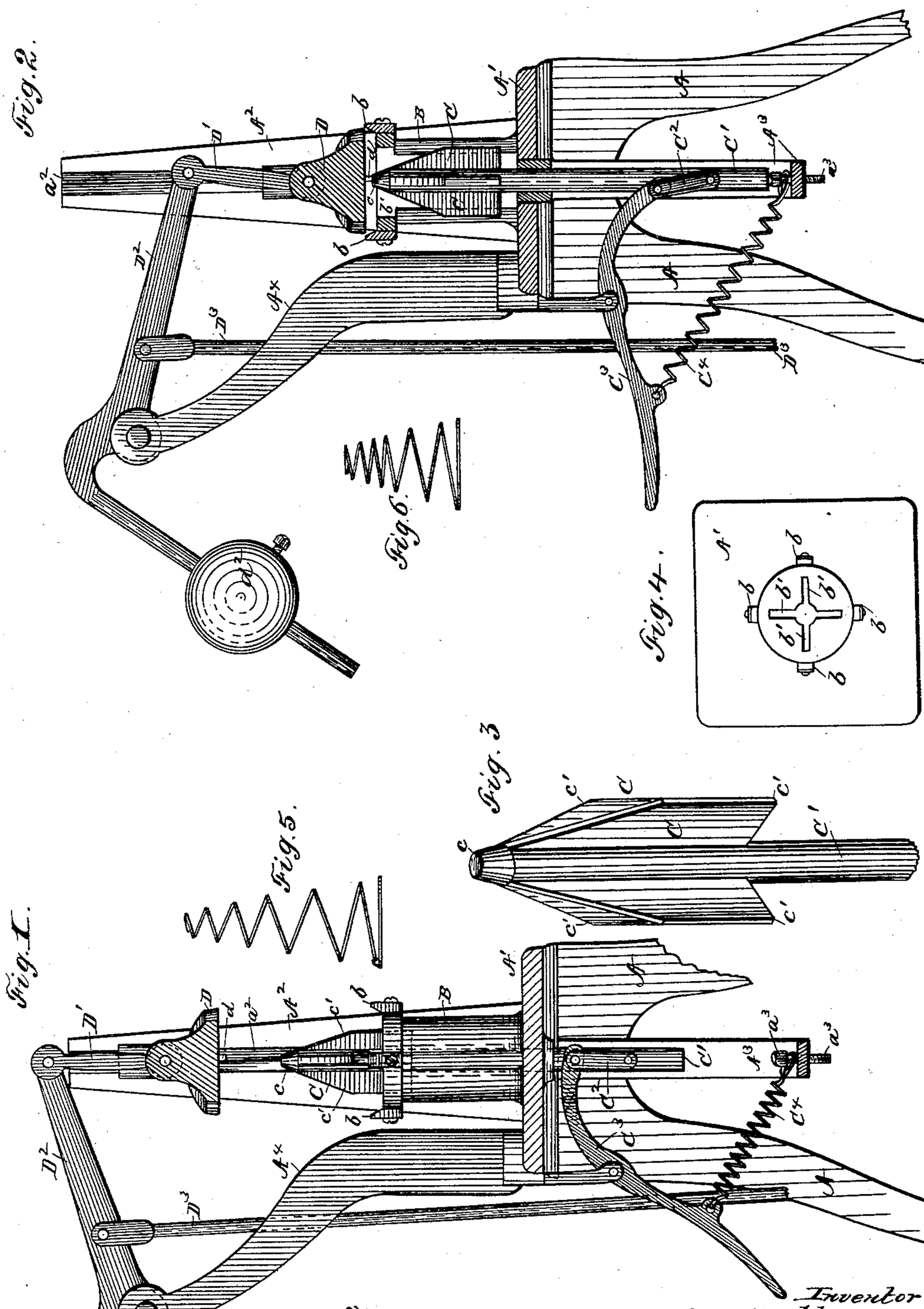
(No Model.)

A. O. WALKER.

MACHINE FOR SETTING SPIRAL SPRINGS.

No. 318,330. Patented May 19, 1885.



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UNITED STATES PATENT OFFICE.

ASA O. WALKER, OF ERIE, PENNSYLVANIA.

MACHINE FOR SETTING SPIRAL SPRINGS.

SPECIFICATION forming part of Letters Patent No. 318,330, dated May 19, 1885.

Application filed January 7, 1885. (No model.)

To all whom it may concern:

Be it known that I, ASA O. WALKER, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Spring-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention consists in providing a new and improved press for pressing coiled springs—such, for instance, as bed-springs and upholsterers' springs.

Springs of the class above named are generally constructed in the following manner: They are first formed by coiling the wire on a mandrel of proper shape. Then the loose end of the wire is bent around the last coil, so as to fasten it. The spring is then properly tempered, and then it is pressed.

The operation of pressing is generally performed by hand in the following manner: The operator stands the spring up on a bench or table, and with a hand-presser, which he grasps in both hands, he presses the spring down flat on the table, taking care that the coils go down evenly, so that when it recoils it will stand straight. Any variation from a perfectly perpendicular movement down which will throw the coils to one side, so they will lie eccentrically, will cause the spring to stand inclined when it recoils, which defect will have to be remedied by further manipulation of the spring; hence it is that the operation of pressing springs requires skill and a good deal of care.

The object of my invention is to provide a press which will compress the spring truly without the exercise of care or skill by the operator, and thus produce springs uniformly of proper shape and with greater rapidity.

My invention is illustrated in the accompanying drawings, as follows: Figures 1 and 2 are each side views with the frame in vertical section. In Fig. 1 the press is in position to receive a spring, and in Fig. 2 it is shown as when a spring is compressed. Fig. 5 shows a spring before it is pressed, and Fig. 6 after it has been pressed. Fig. 3 is a view of the guide or mandrel C. (Seen in Figs. 1 and 2.) Fig. 4 is a top or plan view of the stand B, onto which the spring is flattened by the presser D.

The device here shown is intended to be operated by a treadle, (not shown,) which connects with the rod D^3; but the means by which the press is operated is not material, as it can be operated by hand or by mechanical power. The essential features are the presser D, the stand B, and guide or mandrel C, and they may be mounted and operated in various ways, as may be desired.

The construction and operation are as follows: A A′ is a stand or table. A^2 are uprights, having thereon guides a^2 a^2, for guiding the vertically-reciprocating presser D. A^3 is a piece of frame-work, which supports a gage-screw, a^3, the use of which will be explained further on. A^4 is an arm-like part of the frame-work, which supports the lever D^2, which moves the presser. D^3 is a rod connecting the lever D^2 with the operating-treadle or other actuating device. d^2 is a counter-weight, which reacts the lever D^2. D′ is a link connecting the lever D^2 with the presser D. B is the press-stand, which is mounted on the table A A′. *b b b b* are fingers which stand up around the press-stand, and serve the same as a flange would to hold the spring from slipping sidewise on the stand. *b′ b′ b′ b′* are slots in the top of the stand for the passage of the mandrel. C is the mandrel, which has a point or head, *c*, wings *c′ c′ c′ c′*, and a stem, C′. C^3 is a lever, which is connected with the stem C′ by links C^2, and C^4 is a spring, which reacts the said lever C^3 and moves the mandrel C up. On the apex of a conical spring, such as is shown in Figs. 5 and 6, is a loop or eye, which is at one side of the center of the coil. On the face of the presser D is a pin, *d*, set at one side of the center, which is of the proper size to enter the loop in the apex of the spring.

In Fig. 1 the parts are shown in position to receive a spring. In placing a spring in the press the operator sets the base of the spring over the mandrel C and inserts the pin *d* in the loop in the apex of the spring. He then causes the presser D to descend, and as it does so it compresses the spring until the coils all lie upon the wings *c′* of the mandrel and the loop lies on the point *c*. As the presser continues to go down, it pushes the mandrel down

with it, and when it has reached its limit the spring lies in a flat coil between the presser and the face of the stand, and the mandrel is depressed below the face of the stand. This position of parts is shown in Fig. 2, (the spring not being shown.) The pin *d* should be no longer than the diameter of the wire forming the spring, and the mandrel should not be permitted to go down farther than to bring its point *c* even, or about even, with the face of the stand B. The screw a^3 is for the purpose of properly gaging the limit of downward movement of the mandrel. The downward movement of the presser should be quick, so as to give the loop of the spring, as it strikes the point *c* of the mandrel, a sharp blow. The face of the point *c* of the mandrel is parallel with the face of the presser D and the face of the stand B, and the action of the presser upon the loop as it lies on the point *c* is to bend it so it will be parallel with the base of the spring when the spring leaves the press. It will be seen that the mandrel is pointed, so that its wings fit within the spiral, and as the presser depresses it below the face of the stand the coils must lie uniformly upon the face of the stand; in other words, the mandrel so holds the spring that it cannot be bent sidewise while being pressed, and hence when it recoils it will stand with its axis at right angles to its base, and the loop at the apex will be parallel with the base, thus making a perfect-formed spring.

What I claim as new is—

1. In a spring-press, the combination, substantially as set forth, of a press-stand, a mandrel which fits within the coils of the spring and works through the face of the press-stand, and a presser which acts upon the spring and mandrel, substantially as shown.

2. In a spring-press, the combination, substantially as set forth, of a press-stand, a winged mandrel which fits within the coils of the spring and works through slots in the face of the said stand, and a presser which pushes the mandrel out of the spring and flattens the spring upon the face of the presser-stand.

3. In a spring-press, the combination of the press-stand B, having slots *b' b' b' b'*, the mandrel C, having wings *c' c' c' c'*, which move within said slots in the press-stand, and the presser D, with the pin *d* in its face, said parts operating substantially as and for the purpose mentioned.

4. In a spring-press, the combination of the press-stand B, with openings *b'* in its face, the mandrel C, with stem C', point *c*, and wings *c' c' c' c'*, the lever C^3, and spring C^4, for moving said mandrel, the gage screw a^3, for limiting the movement of said mandrel, the presser D, and the lever D^2, for moving said presser.

In testimony whereof I affix my signature in presence of two witnesses.

ASA O. WALKER.

Witnesses:
JNO. K. HALLOCK,
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