

(No Model.)

H. B. HICKS.

DEVICE FOR MANUFACTURING SADDLE SPRINGS OF BICYCLES.

No. 245,377.

Patented Aug. 9, 1881.

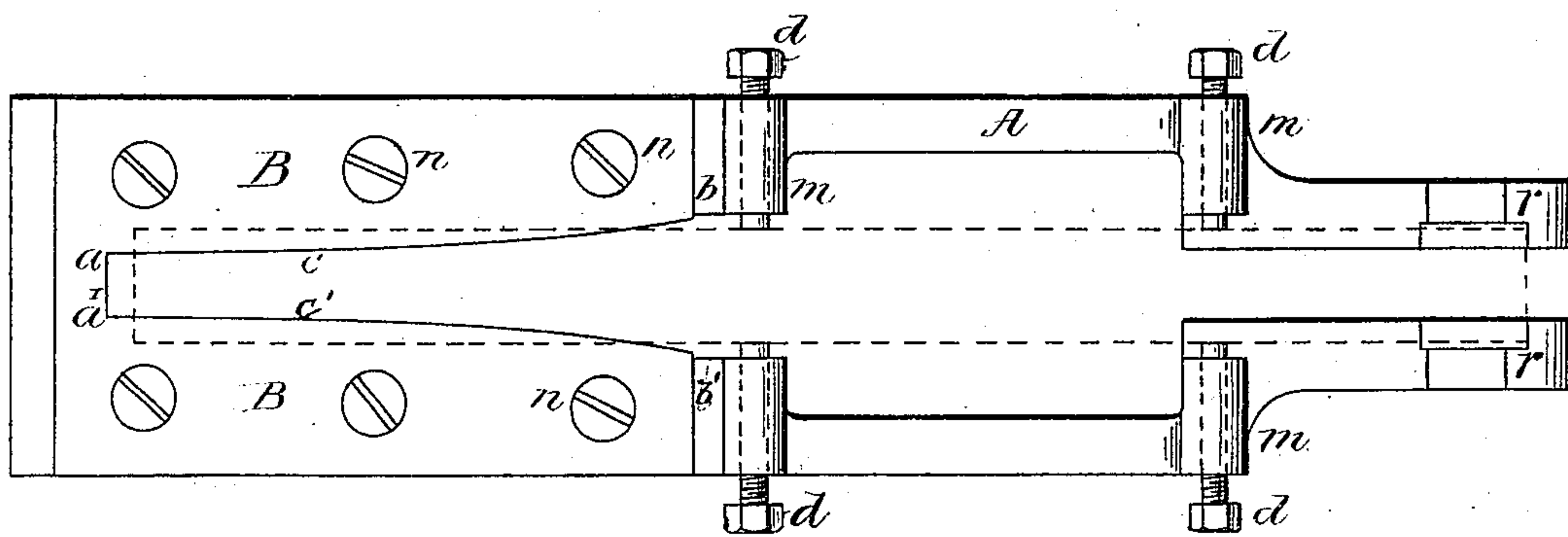


Fig. 1.

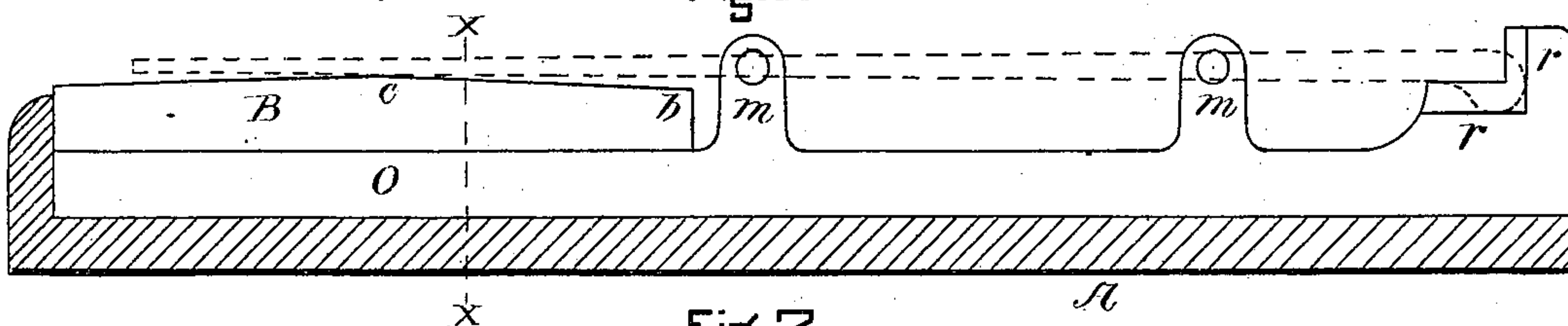


Fig. 2.



Fig. 3.

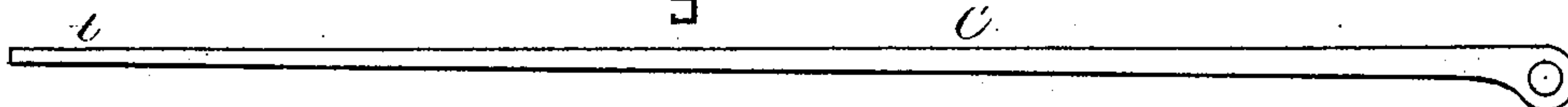


Fig. 4.

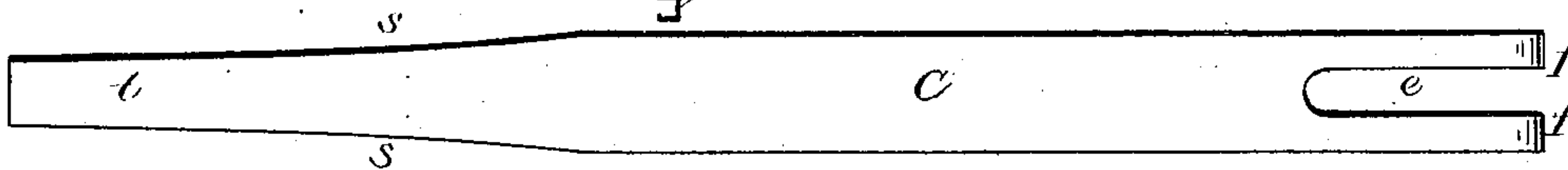


Fig. 5.

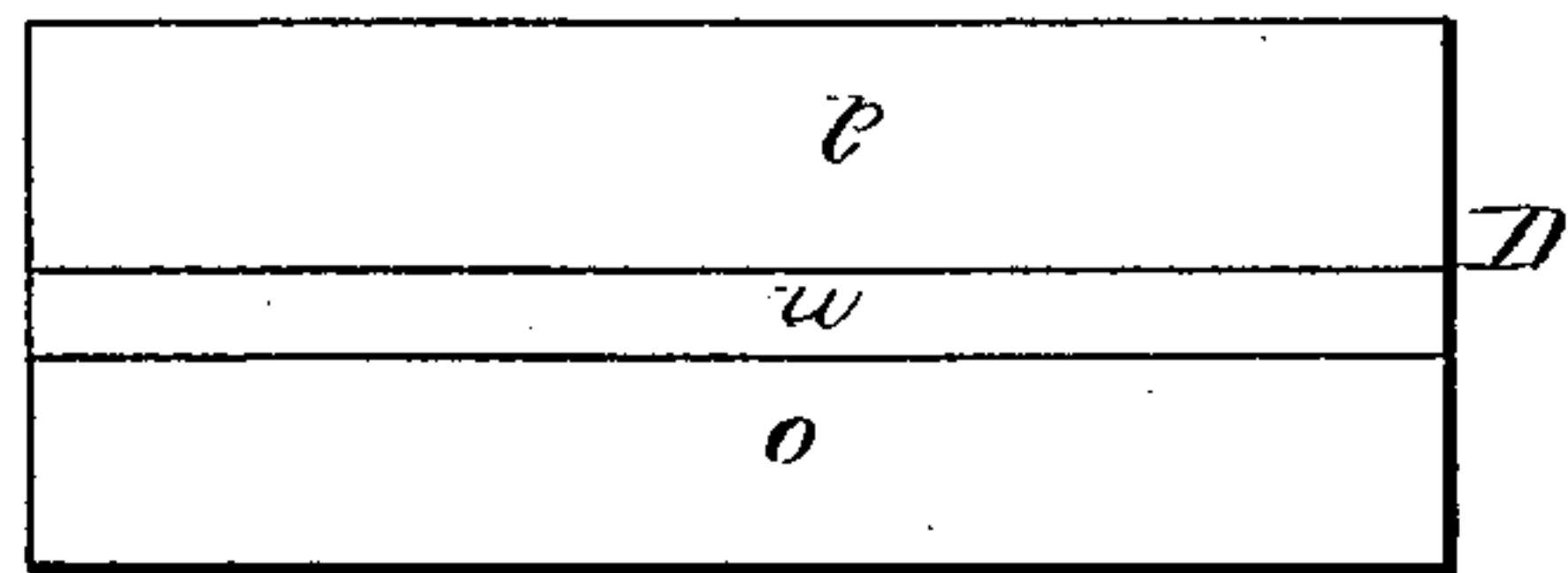
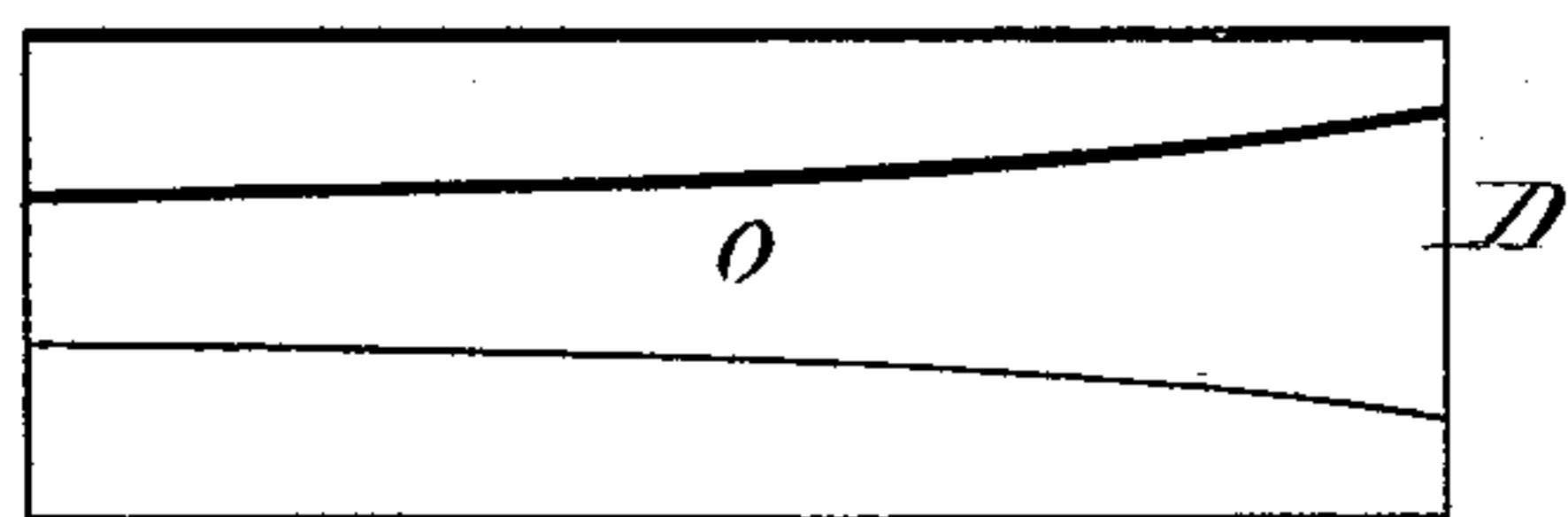


Fig. 6.

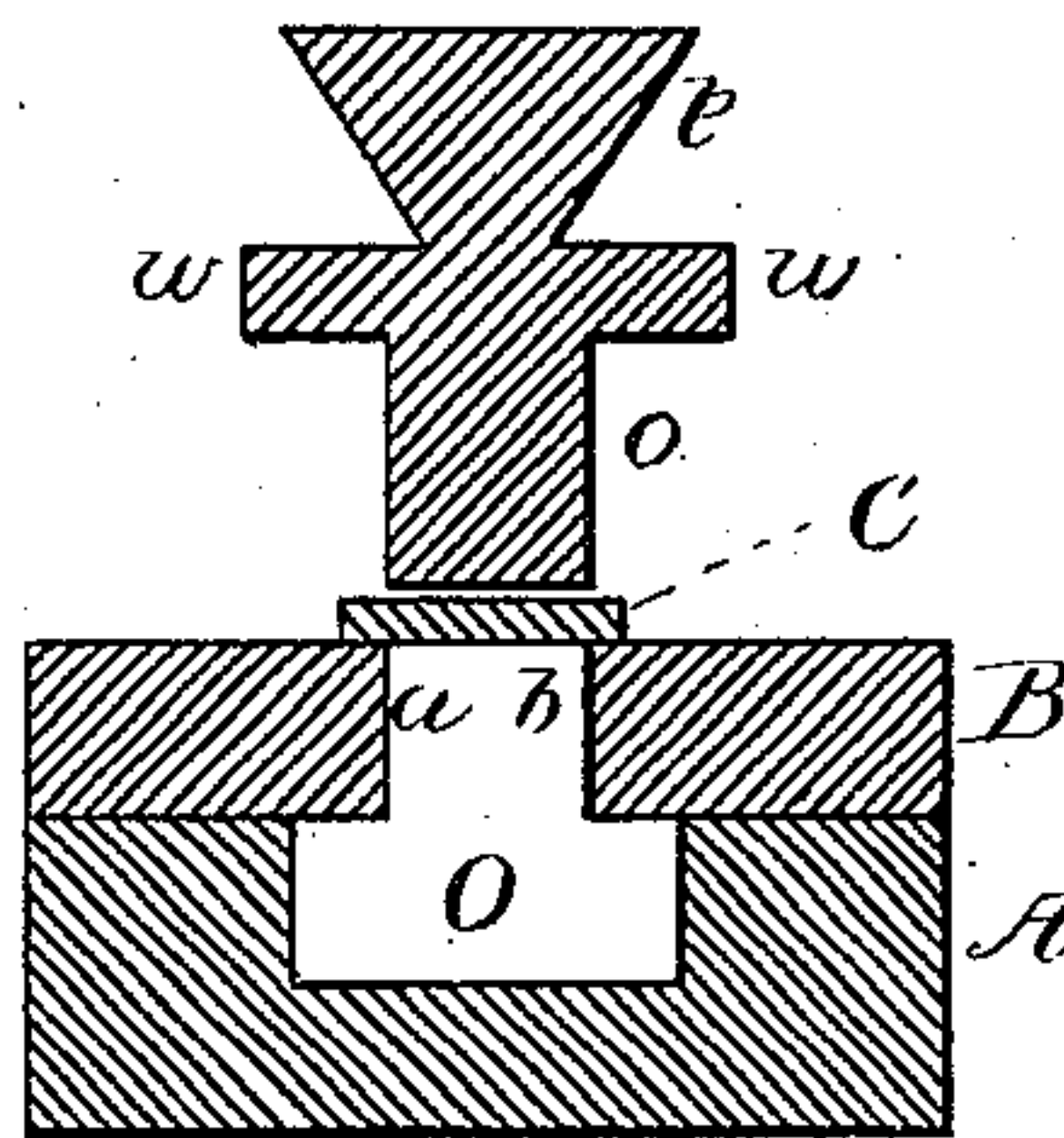


Fig. 7.

WITNESSES

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UNITED STATES PATENT OFFICE.

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DEVICE FOR MANUFACTURING SADDLE-SPRINGS OF BICYCLES.

SPECIFICATION forming part of Letters Patent No. 245,377, dated August 9, 1881.

Application filed March 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, HORACE B. HICKS, of the city of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Devices for Manufacturing Saddle-Springs of Bicycles, of which the following is a specification.

My improvements relate to that part of the bicycle known as the "saddle-spring," and a process and machinery by which it may be made more accurately, rapidly, and economically, and at the same time so as to secure a more regular form thereof at and near the rear end.

The class of springs to which my improvements relate is known in the trade as the "bolted front with sliding rear clip-spring." It is bolted through the front or wider end, or held on pivots to the neck or spindle at the head of the bicycle, and is attached movably at the rear end to the perch of the bicycle, and is formed by forging a piece of steel into a flattened form of considerable width—say one and a quarter to two inches; is divided at the front end and tapered toward the rear end, and when ready for use is curved vertically downward at the rear end. With this latter or vertical curve my present improvements have nothing to do. It is one requisite of such a spring that it shall be true and even—that is, that the quantity of metal on either side of the longitudinal middle line shall be the same, and its contour or curvature on either side shall be the same. Hitherto it has been difficult to obtain this truth and evenness by hand-forging, and it has required great skill of hand and eye to produce an approximate evenness of curvature by a process essentially expensive and slow.

The objects of my present improvements are therefore to obviate these difficulties, and to produce a spring with the requisite qualities above alluded to by machinery in large part automatic and capable of being worked by less skilled labor.

In the drawings, Figure 1 shows in top-plan view my improved truing-frame. Fig. 2 shows the same in a longitudinal section and elevation. Fig. 3 shows in plan a spring partially made that is forged into a straight flat piece

of suitable thickness and tapered in one direction, with a mortise, *e*, in the front end to admit the neck of the perch, and the two branches or lugs *f f* which take the bolt by which it is held, as above referred to. Fig. 4 shows the same in elevation. Fig. 5 shows the same after it has been operated upon by the machinery which I shall describe in top-plan view. Fig. 6 shows first in bottom plan and then in side elevation the part of my contrivance which I call the punch; and Fig. 7 shows in section, on the dotted line *x x* in Fig. 2, the punch and trimmer or shaper and spring as they are in position for operation.

A A is a frame, bearing at one end the stop-rest *r r*, for receiving and supporting the front end of the spring.

m m are lugs, through which pass threaded bolts *d d*, for adjusting the spring in position.

B B is a trimmer or shaper, consisting of one or more parts of a steel plate of suitable thickness, which may be attached to one end of the frame A A by means of screws *n n*, or otherwise, and at a distance from the stop-rest *r r*, and in a lateral position such that a middle line drawn between the curves on either side and extended to the middle of the rest *r* shall be substantially at right angles to the upright part of the stop *r* and between the lugs *m m*. This shaper B has cutting-edges *a b* and *a' b'*, each of which is curved laterally to correspond with the desired form to be given the side of the spring, and gives a shear cut vertically by virtue of being tapered either way from the points *c c'*, as shown in Fig. 2. This frame A A has beneath the blade B a cavity or hollow, O, into which the spring may drop, and from which it may be withdrawn.

D is a punch, consisting of a steel plate, *o*, of sufficient thickness to pass through the shaper B, and tapered longitudinally on either side to correspond with the lateral curves of the cutting-edges *a b* and *a' b'*, and it has also the shoulders *w w* and dovetailed tenon *p*, by which it may be handled and held in a drop-forge or power-hammer.

The operation of my contrivances is as follows: The spring C, being prepared in the form shown in Figs. 3 and 4, is placed in the adjust-

ing-frame A A in a position shown by the dotted lines running horizontally in Fig. 1, so that the end of the spring containing the mortise *e* and the lugs *f f* rests in and upon the stop-rest *r r*, and the end *t* rests upon the highest points *c c* of the cutting-edges of the trimmer B. It is then adjusted in position by means of the said bolts *d d*, so that its longer axis is parallel with and just above a line drawn equidistant between the cutting-edges *a b* and *a' b'*, and extended to the middle of the rest *r*, the whole being in position on the base of a drop-forge or otherwise, so that the trimmer B forms an anvil-die. The punch D is then brought down with a heavy blow upon the end *t* of the spring in such a way that the plate *o*, corresponding with the cutting-edges of the trimmer B, is forced into the cavity O, thereby removing a part of the spring on either side and cutting it to the outline required.

It is obvious that the bolts *d d*—one or more of them being properly set on one side—need to be but slightly changed, if at all, for successive springs, and while they are moved but

little on the opposite side and only sufficient for adjustment.

I claim as new and of my invention—

1. A truing-frame or adjusting-holder consisting of the frame A A, the lugs *m m*, screw-bolts *d d*, and stop-rest *r*, constructed and arranged for adjusting and holding a bicycle-spring or similar article to be operated upon by a trimming device, substantially as set forth.

2. A shaping device consisting of a trimmer, B, having curved and sheared cutting edges *a c b* and *a' c' b'*, and a punch, D, substantially as set forth.

3. The combination, in one truing-frame, of an adjusting-holder having substantially the parts A A, *r*, *m m*, and *d d*, and the trimmer B, with cutting-edges *a c b* and *a' c' b'*, constructed and adapted to operate with a punch, D, substantially as set forth.

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Witnesses:

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