

(Model.)

G. H. PERKINS.
Can-Seaming Machine.

No. 227,823.

Patented May 18, 1880.

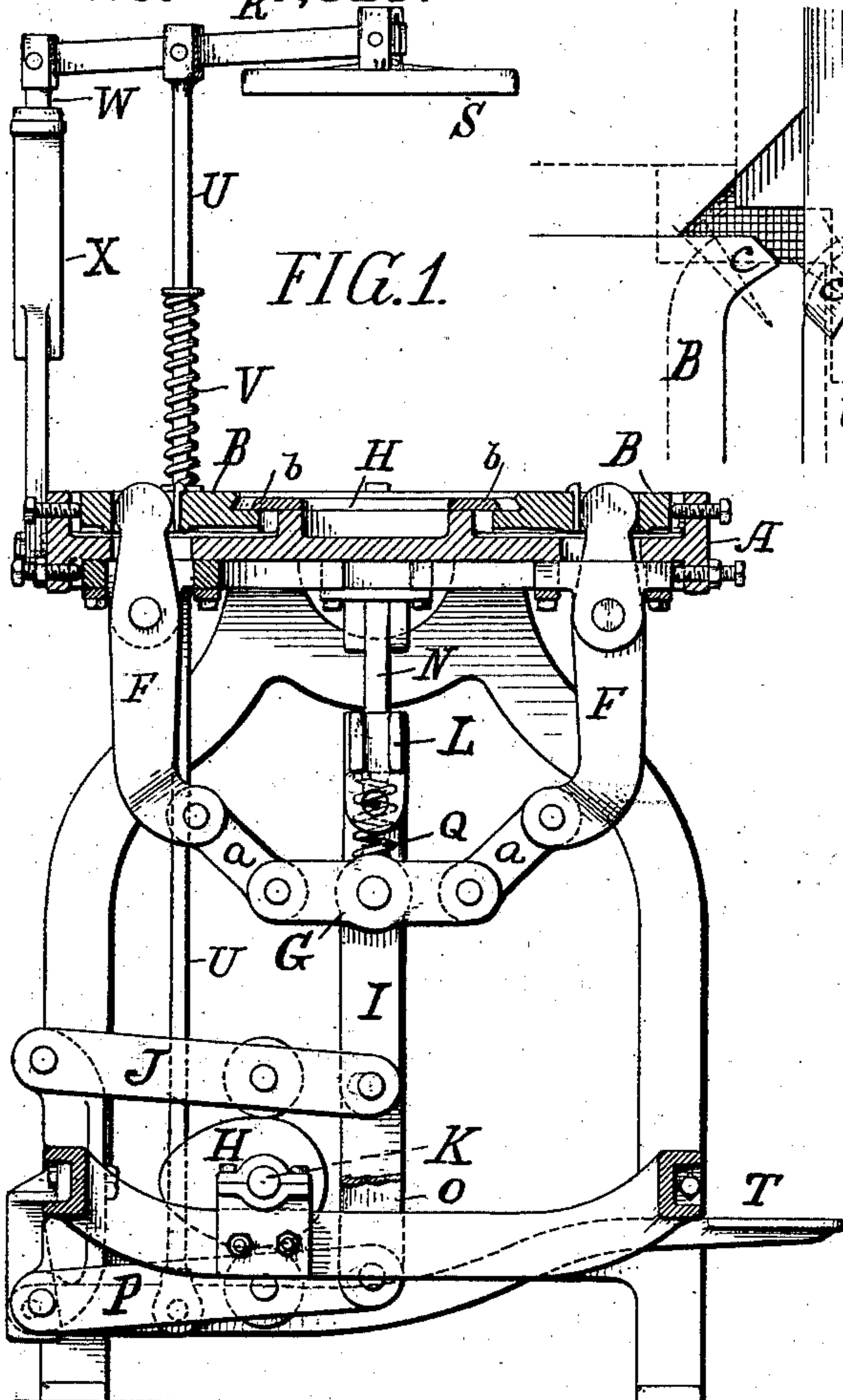


FIG. 1.

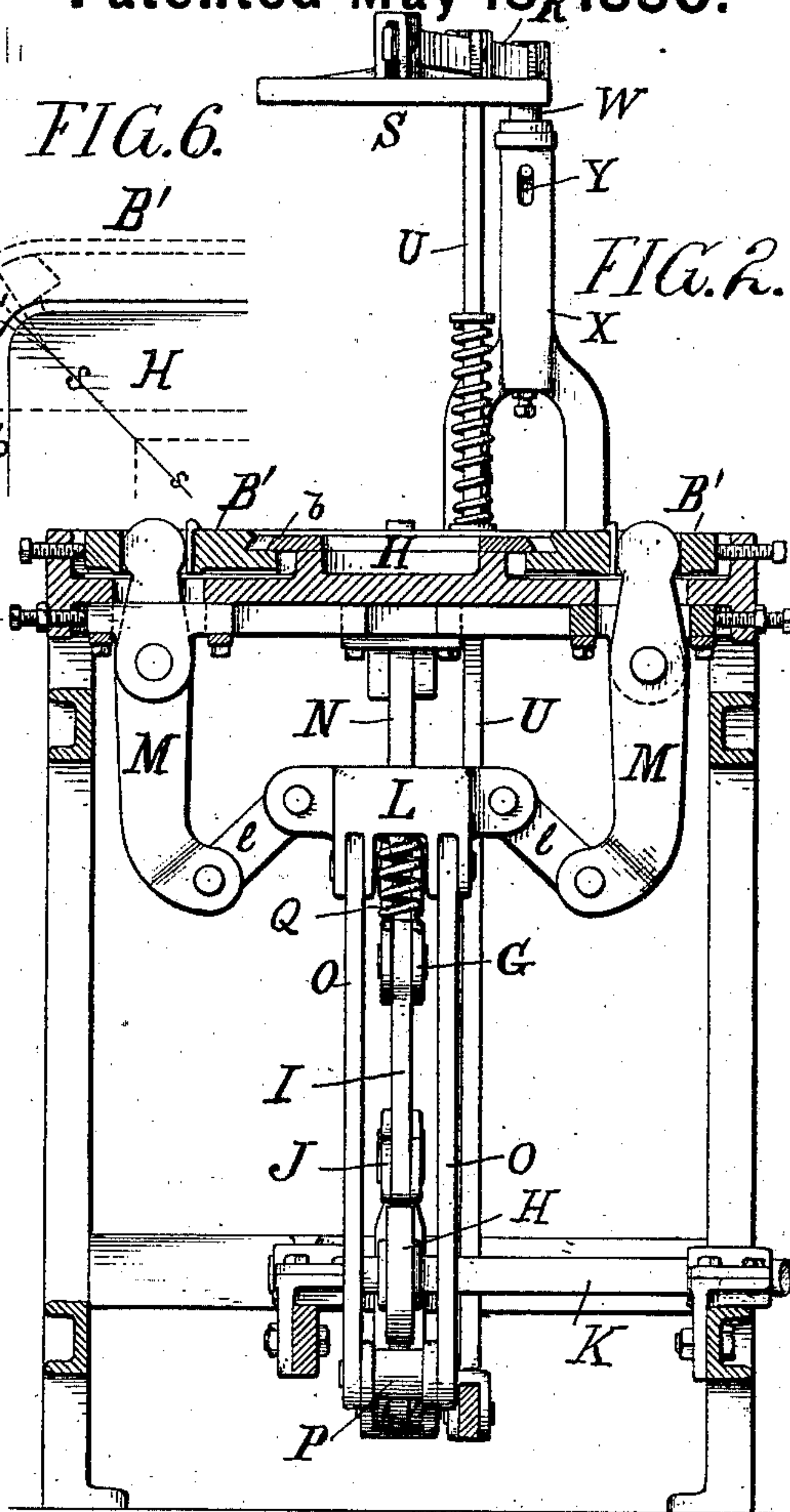


FIG. 2.

FIG. 6.

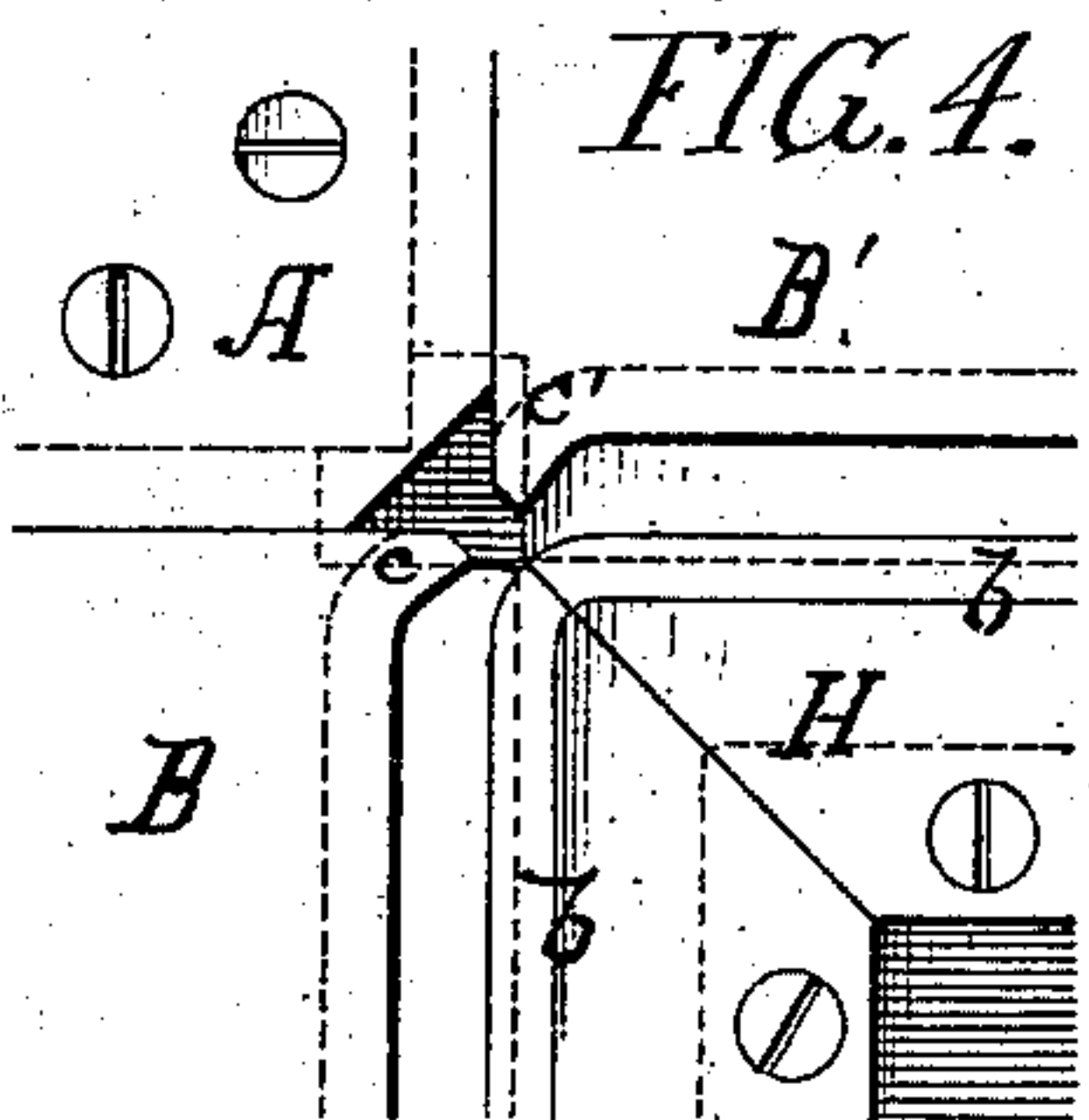


FIG. 4.

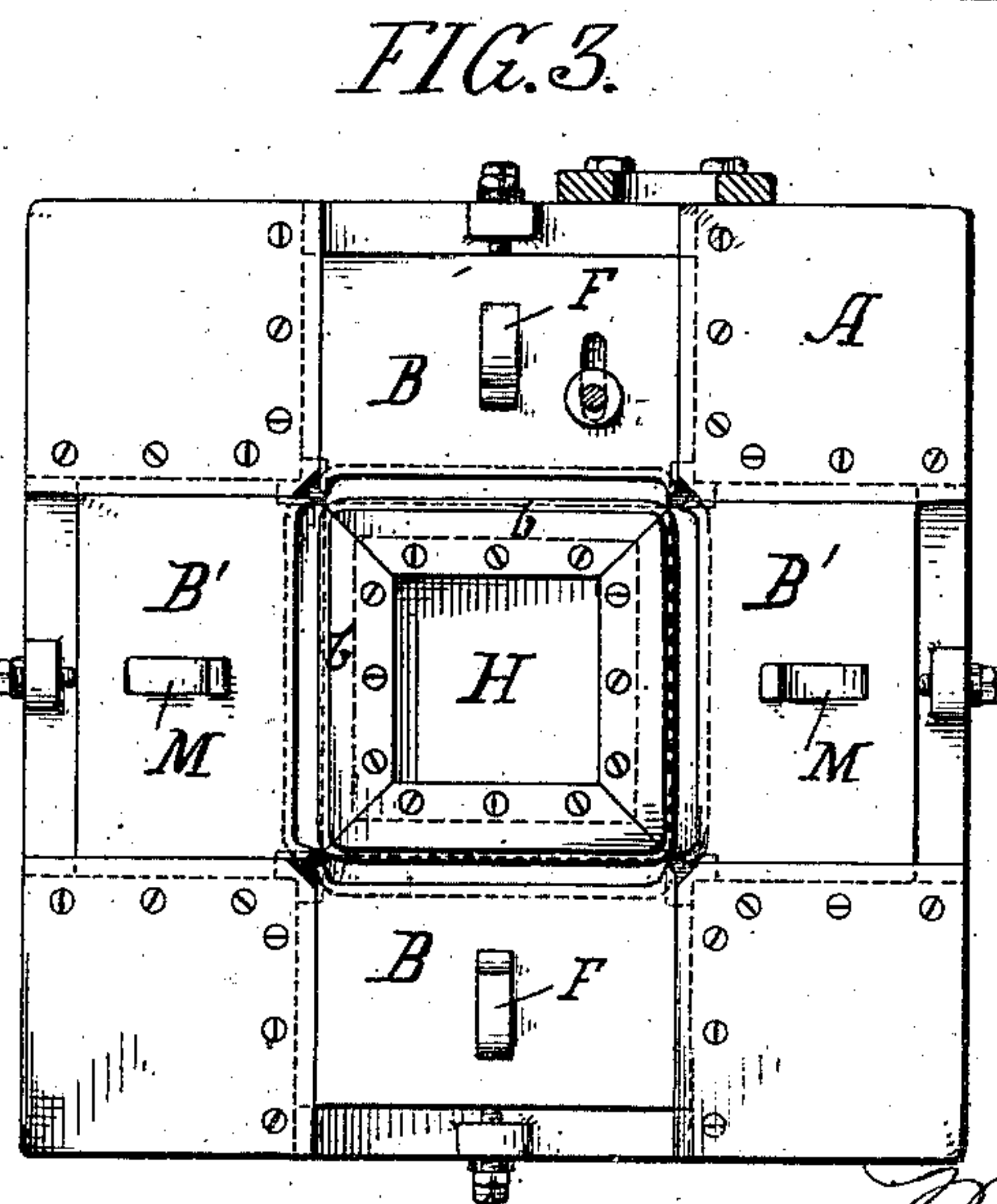


FIG. 3.

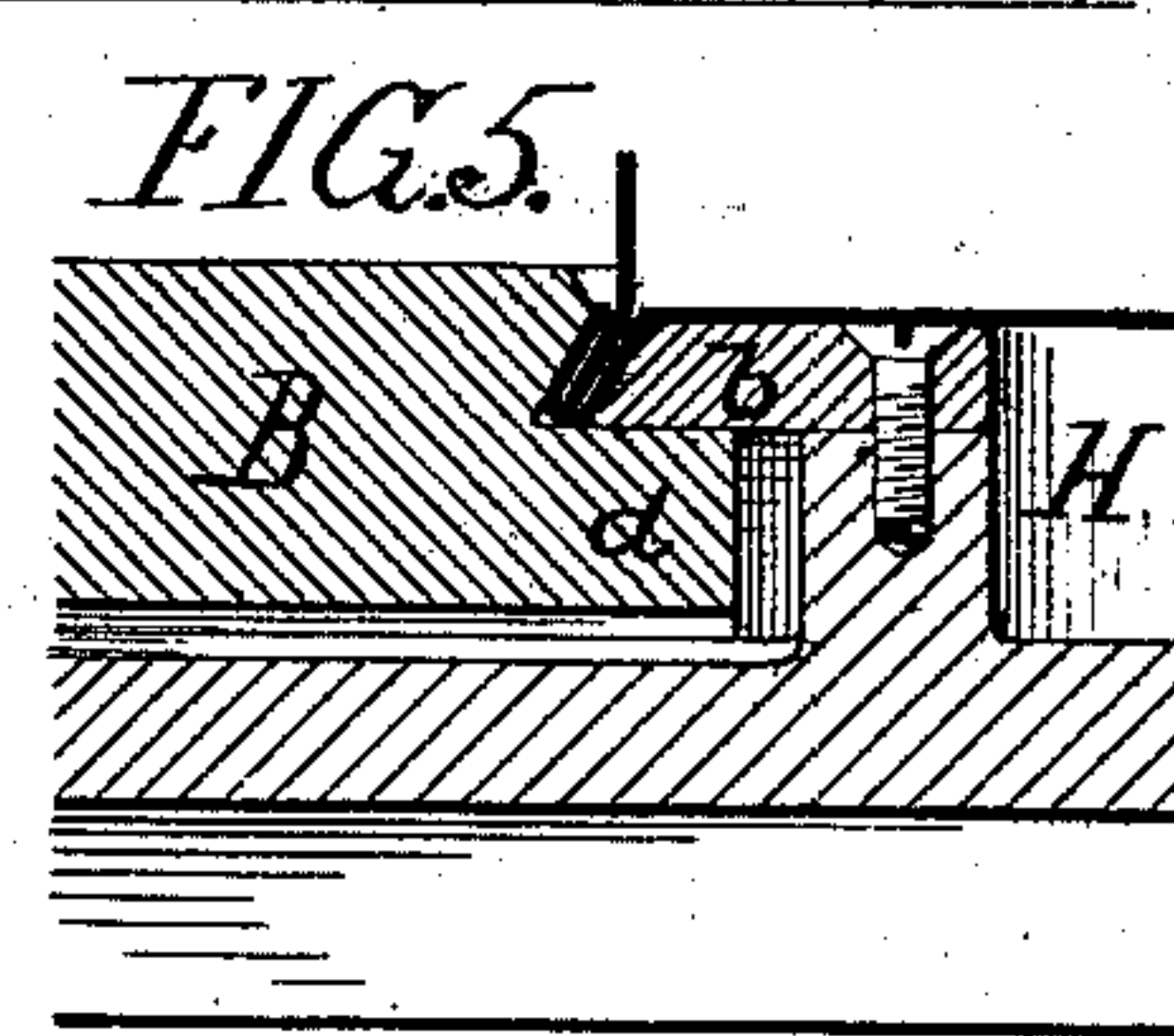


FIG. 5.

Attest.

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UNITED STATES PATENT OFFICE.

GEORGE H. PERKINS, OF PHILADELPHIA, PENNSYLVANIA.

CAN-SEAMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 227,823, dated May 18, 1880.

Application filed March 13, 1880. (Model.)

To all whom it may concern:

Be it known that I, GEORGE H. PERKINS, of Philadelphia, Pennsylvania, have invented a Machine for Closing the Seams of Sheet-Metal Cans, of which the following is a specification.

My invention relates to devices for closing the joints or the junction of the bottoms and tops with the bodies of, for instance, such cans as are commonly used for the transportation and storage of petroleum and other fluids; and the object thereof is to close the portions of the seams of the corners of the can without leaving upon them a fin, crease, or other uneven or partially-closed portion, while at the same time closing up the side portions of the seams.

To such end, in general terms, my invention consists in a seaming-machine in which the slides or seam-closing dies (of which there are four) are caused to strike in alternate opposite twos against the sides of the can, and are so further constructed by an extension of the corners of the dies that the portion of each die which encounters the corner of the seam to be closed overlaps that portion of the corner of the seam which has been or is to be overlapped and closed by the corresponding contiguous corner of the adjacent slide or die.

Of the drawings, Figure 1 is a side sectional elevation of a machine embodying my invention; Fig. 2, a front sectional elevation of the same; Fig. 3, a top-plan view of the table; Fig. 4, a partial top-plan view of two adjacent dies in the position which they occupy when retracted and before striking; Fig. 5, an enlarged sectional view of the underlap of the die as it exists at all portions save the extreme corner portions of the dies; Fig. 6, an enlarged top plan of the table in the region of two contiguous corners of two adjacent dies, designed to illustrate the construction and action of the dies in striking.

My invention may embody in the construction of its dies the underlap continuations of dies patented to me in and by Letters Patent No. 149,516, dated April 7, 1874.

For a clearer comprehension of my present improvement reference may be made to the Letters Patent aforesaid.

In my present improvement guides on a table, A, are adapted to receive sliding dies B

B B' B', which are designed to act in alternate opposite pairs on the joints of a can placed on the central quadrangular bed, H, of the table, which projects above the table-surface and is edged on its four sides with steel plates *b*, beveled at their outer edges and arranged to overhang that part of the table to which they are secured, as shown in Figs. 1, 2, and 5.

The dies, as to their striking-faces, excepting at the corners thereof, may be provided with underlapping continuations *d*, arranged to slide beneath the plates *b*, substantially as explained in my Letters Patent No. 149,516.

I operate the sliding dies alternately in opposite pairs by the alternate elevation and depression of two separate cross-heads, combined, for instance, with the following devices, operated in the following manner, although other analogous mechanisms may be employed.

Referring to Fig. 1, a slot in each of the front and back dies B B receives the short arm of a lever, F, of which there are two, hung to the table, as shown, the long arms of which two levers are connected by links *a* to a cross-head, G, to which a vertical reciprocating motion is imparted through an egg-shaped or other eccentric, H, on a driving-shaft, K, through the medium of a lever, J, and a rod, I, or through any other analogous appliances.

The starting and stopping of the driving-shaft is under the full control of the attendant through any suitable clutch and lever. (Not shown in drawings.)

When the shaft is started the eccentric H, through the lever J and link I, elevates the cross-head G, and thus, through the links *a* and levers F, simultaneously moves the sliding dies B B together inward toward the opposite sides of the can which respectively face them, whereby the seam of the can is simultaneously closed on two of its sides and all its corners simultaneously compressed by the curved projecting corners *c* of the dies up to and beyond a diagonal line (line *s s*, Fig. 6, for instance) bisecting the corners of the can.

Referring now to Fig. 2, L is a second cross-head, to which are connected, by means of links *l l*, the long ends of two levers, M, hung to the table and entering and playing closely in slots in the dies B' B', which are the side dies

of the table. The cross-head L is fitted about a fixed guide-rod, N, rigidly depending beneath the table and serving to steady the cross-head in its reciprocation.

5 O are rods connecting the cross-head L with a lever, P, pivoted in the frame in such line and range as to be played upon and depressed by the eccentric H, the egg-shaped form of which causes it at every revolution to depress
10 the lever P, and thereby, through the rods O, draw down the cross-head L, whereby, through the medium of the links l, the short arms of the levers M are deflected inward, so as to simultaneously move the side dies, B' B', inward
15 against the sides of the can which said dies B' respectively face. In consequence the seam is simultaneously closed on its two remaining sides, and all the corners again simultaneously compressed from an opposite direction up to
20 and beyond a diagonal line bisecting them by the curved projecting corners c of the dies B', whereby the entire seam is effectually closed, and the corners especially compacted and rendered smooth and even.

25 The two cross-heads G and L, as will be understood by consulting Figs. 1 and 2 of the drawings, are concentric, and between them is framed in a spiral spring, Q, which is compressed against the cross-head L as the head
30 G is elevated and compressed against the cross-head G as the head L is depressed, whence results that the action of the cross-heads and connections is steadied, strains lessened, and shocks avoided.

35 Above the table, on the outer end of an arm, R, is suspended a plate, S, which may be depressed by means of a treadle, T, through a rod, U, a spiral spring, V, tending to raise the rod-arm and plate after the treadle has been
40 released. The arm R is connected to a rod, W, contained within a socket, X, erected from the table, the socket containing a spring, Y, upon which the end of the rod bears.

In the operation of the machine the plate S
45 is depressed by means of the treadle onto the can, which has been placed with seams open upon its bed, whereby the can is held firmly upon the bed H, which, as before stated, is of quadrangular form and of a construction
50 hereinbefore recited.

As will be seen by consulting Figs. 4 and 6 of the drawings, the dies are each provided with projecting corners c and c', adapted to each embrace a corner seam of the can, while
55 their action of striking in alternate opposite

pairs is, with respect to the corner portions of the cans, such that the opposite pairs of dies, in striking, embrace each both corners of the can which face them, and that after a given pair of dies have been retracted the opposite
60 pair, as they strike, likewise embrace each both corners of the can, whereby the corner portions of the seams are each subjected to two compressions coming from opposite directions, with the result that the metal of the
65 overlapped corner portions of the seam is compressed upon itself, so to speak, in a manner effectual in obliterating any possible fin or roughened portions, and in making a very smooth and uniformly compacted corner seam. 70

The underlaps of the dies are cut away at the projecting corners to such extent as is necessary to permit the best action of the projecting corners.

My invention differs from former inventions
75 in that while the dies face the sides of the can, they are caused to strike in alternate opposite pairs, and not all four simultaneously, and are so formed, moreover, that each corner of the seam of the can is subjected to two overlap-
80 ping compressions coming from opposite directions.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, in a can-seaming machine in which each die faces parallel with one side of the can, of four sliding dies and means for causing the dies to strike alternately in opposite pairs, as and for the purposes set
90 forth.

2. In a seaming-machine of the class above recited, sliding dies and means for causing the dies to strike alternately in opposite pairs, all of the dies being provided with projecting
95 corners adapted to embrace the corner seams of the cans up to and beyond a diagonal line bisecting the corners, as shown and described, and for the purpose specified.

3. The combination, with dies having projecting corners c c', adapted to come up to and beyond a diagonal line bisecting the corners of the can, of underlaps d, as and for the purpose set forth.

In testimony whereof I have hereunto signed
105 my name this 12th day of February, A. D. 1880.

GEORGE H. PERKINS.

In presence of—

J. BONSALE TAYLOR,
C. B. TAYLOR.