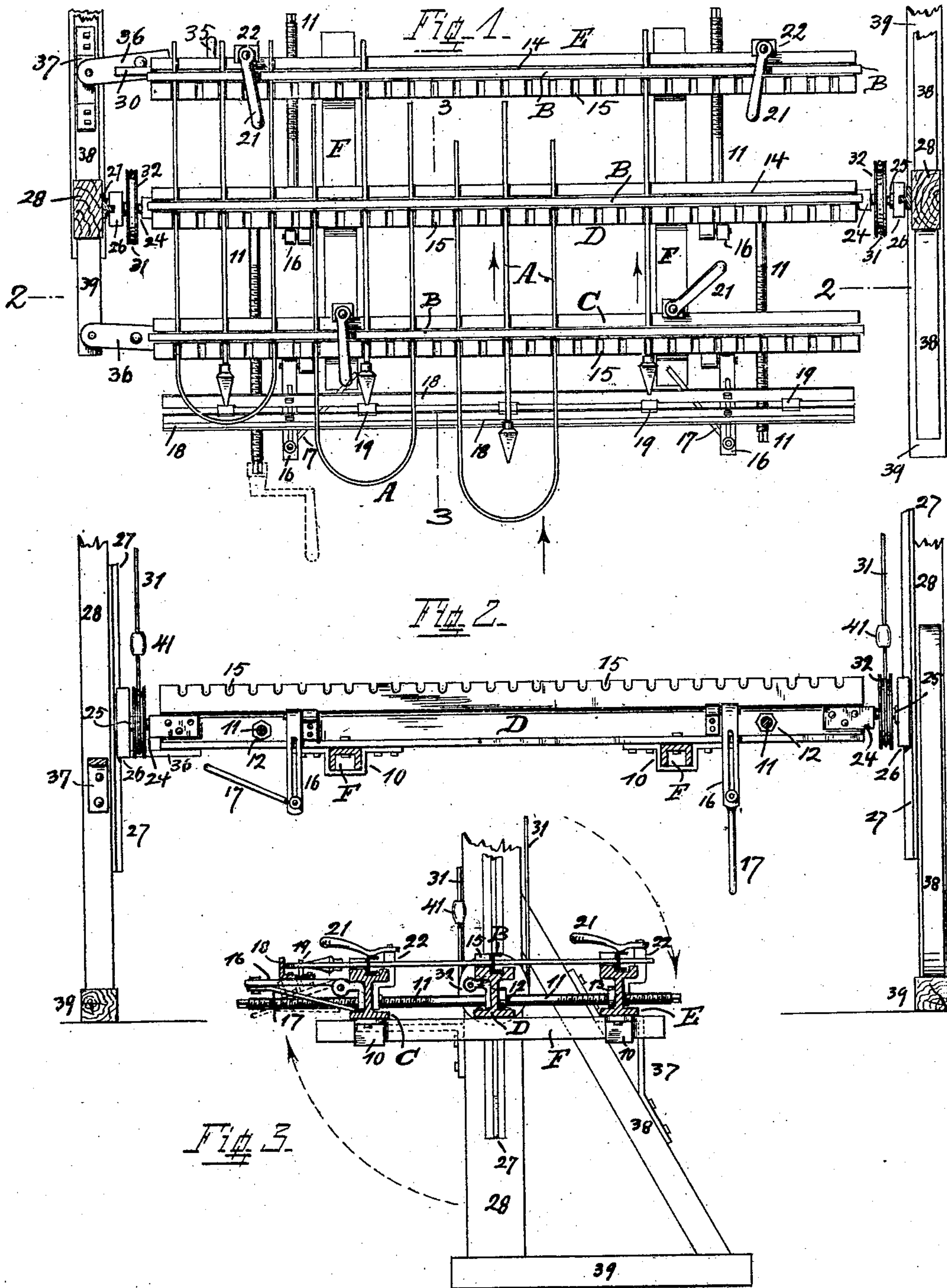


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FENCE ASSEMBLING APPARATUS.
APPLICATION FILED MAY 31, 1907.

929,045.

Patented July 27, 1909.

2 SHEETS—SHEET 1.



Attest
A. D. Archibald
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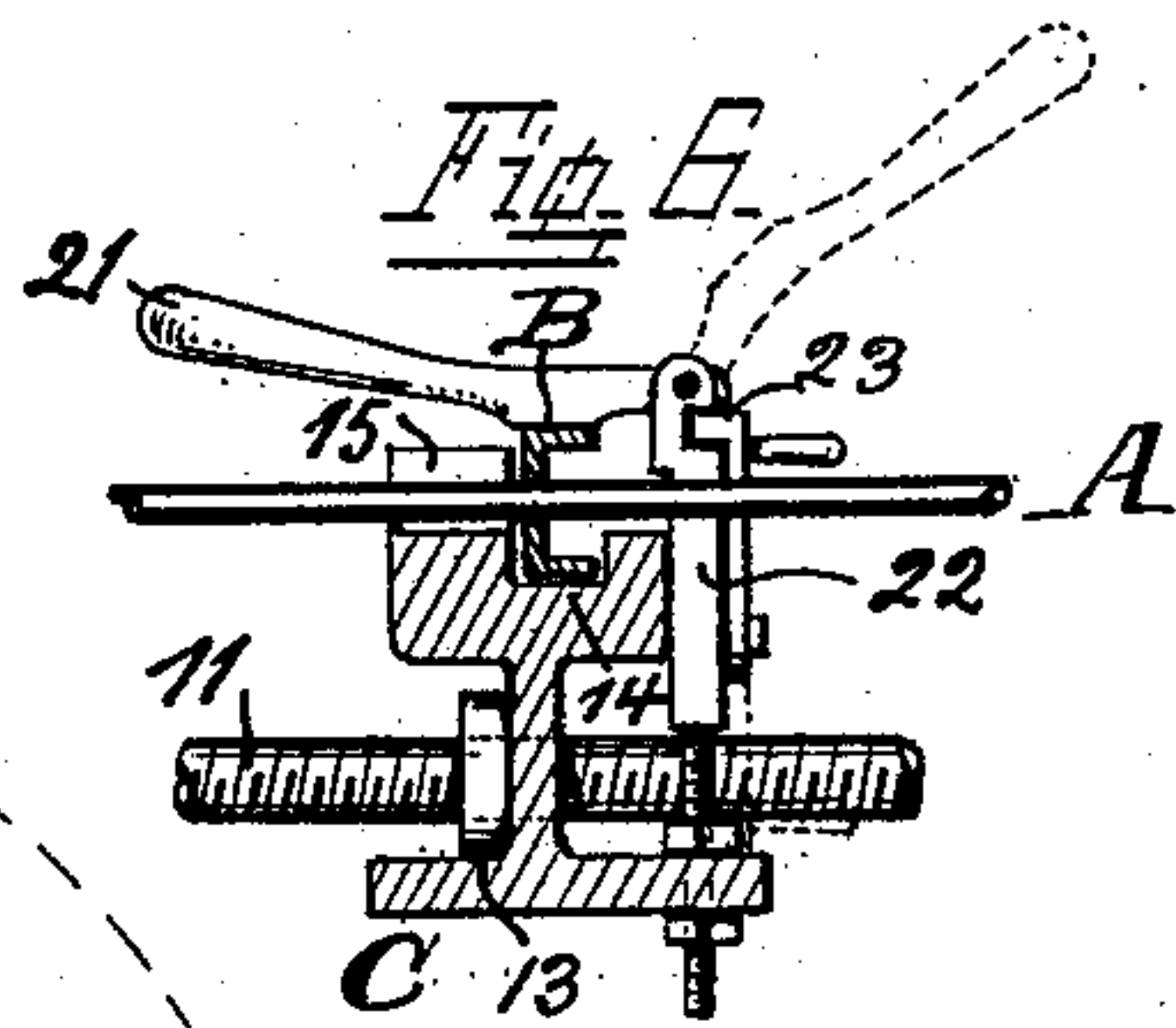
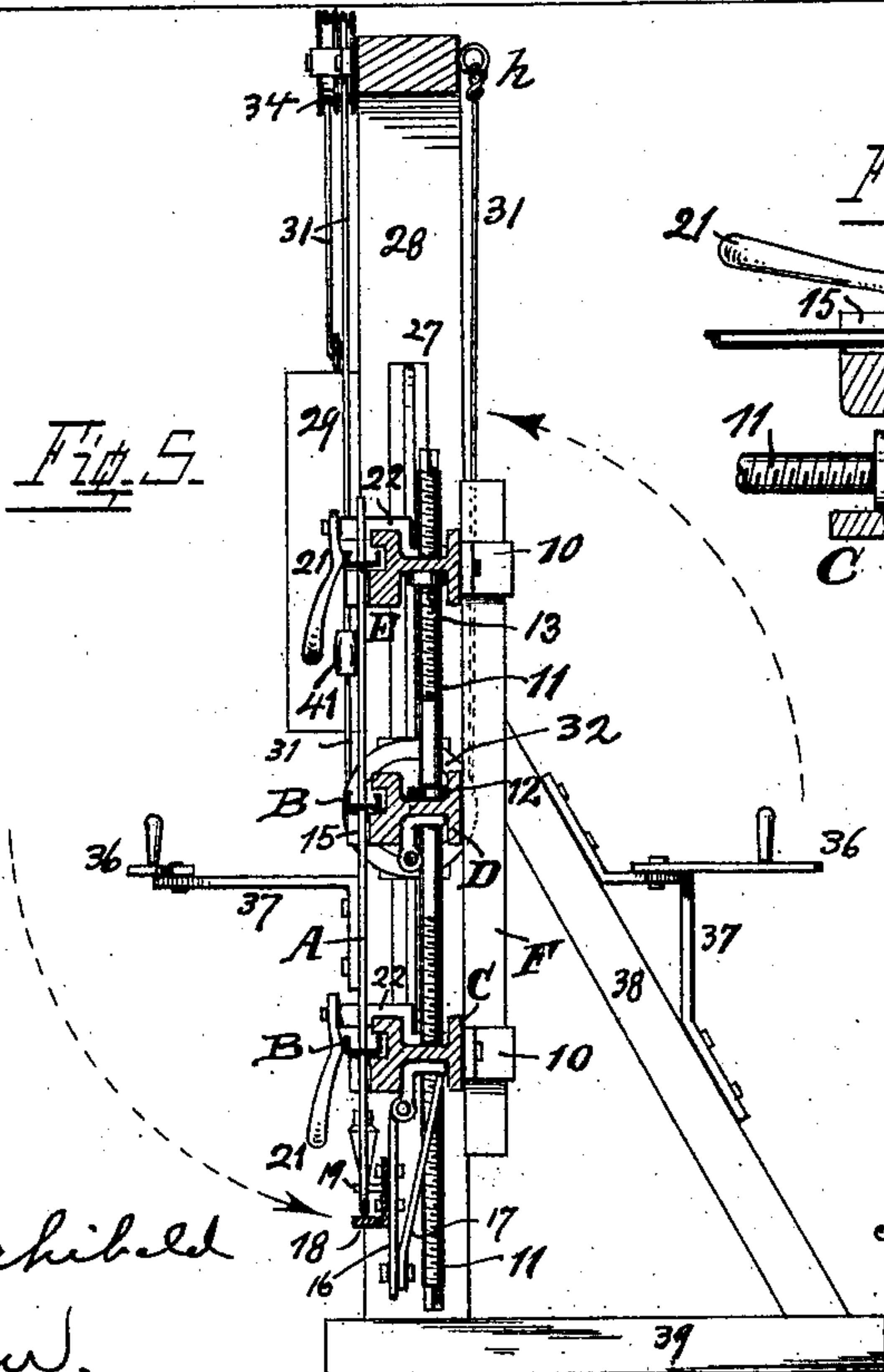
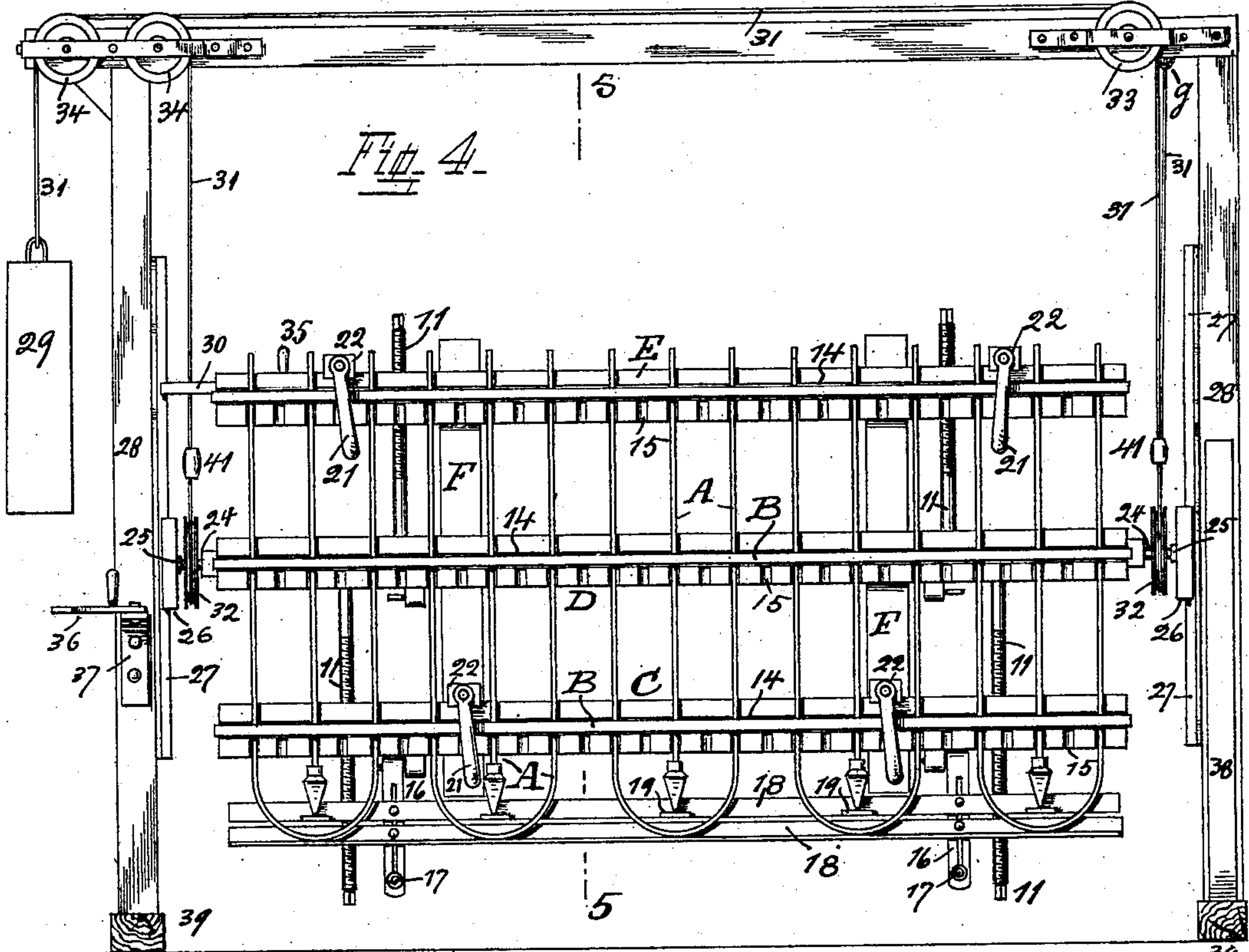
INVENTORS
Richard C. Stewart
Wallace A. Stewart
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UNITED STATES PATENT OFFICE.

RICHARD C. STEWART AND WALLACE A. STEWART, OF COVINGTON, KENTUCKY, ASSIGNORS
TO STEWART IRON WORKS COMPANY, OF COVINGTON, KENTUCKY, A CORPORATION OF
KENTUCKY.

FENCE-ASSEMBLING APPARATUS.

No. 929,045.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed May 31, 1907. Serial No. 376,588.

To all whom it may concern:

Be it known that we, RICHARD C. STEWART and WALLACE A. STEWART, citizens of the United States, and residing at Covington, Kenton county, State of Kentucky, have invented certain new and useful Improvements in Fence-Assembling Apparatus; and we do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying two sheets of drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to improvements in apparatuses used in the construction of iron-fences, of the kind which consists of upright parts or pickets which are supported and held in place by longitudinal members or rails. In the manufacture of such fences the pickets are placed into closely fitting-openings in the rails, the connection being generally completed by swaging or calking the metal around the opening where the two fence-members come together. Apparatus has been provided which serves for the purpose of assembling the fence-elements in proper position and properly spaced and holds them in such position until they are connected to each other, auxiliary means provided for the purpose being used at the time to support them until the swaged joint is formed.

Our invention relates to improvements in the construction of such apparatuses whereby necessary adjustments for various styles and sizes of fences may be had with great facility and with simplified means and whereby the work may be completed without requiring any auxiliary supporting means.

In the following specification and particularly pointed out in the claims at the end thereof, will be found a full description of our invention, together with its manner of use, parts and construction, which latter is also illustrated in the accompanying two sheets of drawings, in which:—

Figure 1, is a top-view of the apparatus showing it as it appears when used for the purpose of assembling and spacing the fence-elements. Fig. 2, is a longitudinal section of the apparatus taken on line 2—2 of Fig. 1. Fig. 3, is a vertical cross-section on line 3—3 of Fig. 1. Fig. 4, is a front-elevation of the apparatus showing it used for supporting the

assembled fence-members while they are connected. Fig. 5, is a vertical cross-section on line 5—5 of Fig. 4. Fig. 6, is an enlarged sectional detail view of one of the parts.

The fences in the construction of which this apparatus is used consist of upright members or pickets A, which are supported by rails B, the former occupying perforations in these latter. They are made up in panels or sections of suitable length, a customary pattern being shown in Fig. 4, the fence occupying however an inverted position at the time, and for obvious reasons it appears larger in proportion to the apparatus than what it is in reality. That is to say the sections are longer and contain more pickets. When a fence is to be erected, the required number of such sections as shown in Fig. 4, are joined end-wise, the connection being made at the ends of rails B.

The apparatus consists of a number, two or more, rails or bars which by reason of their function we call spacing bars, three being shown, designated respectively C, D, and E. They are supported on sills F, parallel to each other and form with them a compact frame upon which the work is done. This structure is properly termed an assembling frame. Adjustment is desirable for these bars and we use an arrangement whereby the center bar D, is permanently attached to the sills while the other two are mounted so as to be adjustable to suit different styles and sizes of fences. For such purpose the two outer bars have guides 10, whereby they are slidably mounted on the sills. For their adjustment a number of screws 11, are provided which at their ends are permanently mounted in center bar D, where they are held by collars 12, but remain free for rotation. They pass through threaded openings in the outer bars, these latter being reinforced thereat as shown at 13, so that when these screws are rotated by a suitable removable crank-handle (see dotted lines in Fig. 1) either or both of the bars may be moved either to or from the center-bar according to rotation. These spacing bars have each a longitudinal groove 14, and are higher on one side of these grooves. A number of spaced notches 15, are arranged in the higher part of these bars and at right angles to the grooves therein and communicate with them.

(See Fig. 6.) These bars are solid iron members preferably made of wrought-iron rolled to shape.

For assembling the fence-elements, the described assembling frame is adjusted to occupy a horizontal position as shown in Figs. 1, 2, and 3. In starting the work, fence-rails B, are first placed into grooves 14, and against the higher side thereof, after which the pickets A, are pushed into the perforations previously provided in the fence-rails. Notches 15, aline of course with each other in the three bars while the perforations in the fence-rails register also with them so that the pickets may be readily passed in. The upright fence-members, properly shaped and cut to right length, are first pushed in from one side of the apparatus, which we call the front-side, note arrows in Fig. 1, no particular regard being had toward alining their ends. Next brackets 16, hingedly attached to front-bar C, are raised up and held so by adjustment of braces 17, which rest against the flange of the front-bar. Stop or alining-bars 18, carried by these brackets, they being preferably of angle-iron, are adjusted thereon in proper position, the arrangement being such that their upright part is on a height with notches 15, and with the ends of the upright fence-members which rest therein. These latter are now pushed again in opposite direction and against these alining bars, which constitute stops and whereby the ends of the pickets are at once quickly and properly alined, the fence-section appearing then as shown in Fig. 4. Where the upright fence-members are all alike or of even height one such stop-bar 18, only would be used. Where two are used, as in the case illustrated, the upright part of the inner alining bar must be limited to spaced stops 19, to clear the intermediate pickets which extend beyond and are stopped by the outer bar. The so assembled fence-elements are now secured to the apparatus by suitable locking-means, which may be locking-handles 21, pivoted to posts 22, which are attached to the spacing-bars. They may thus be swung over the fence-rails B, thereby holding them down in the grooves which they occupy. The pickets are of course held by rails B, and by stop-bars 18. In Fig. 6, modified locking means are shown, the locking handle 21, instead of swinging over the fence-rails in a horizontal plane, is moved in a vertical plane. It is held in locking position by a latch 23, which is turned up under the end of the same and thereby holds it in locking-engagement. In this case the post upon which the locking-handle is pivoted is adjustably attached to the particular spacing-bar, so that the latter may be adjusted with reference to the width of the fence-rail. The assembling frame with the assembled fence-section is now adjusted from the horizontal

position shown in Figs. 1, 2, and 3, to an upright one as shown in Figs. 4, and 5, this latter position being also such that the underside of fence-rails B, is uppermost. The object of this particular position is to have access to this underside by a suitable tool (calking chisel), because it is here that the final connection, which is by calking or swaging, is accomplished. The rails during this operation rest against the higher side of groove 14, and on the high notched part of the bars, the metal around these notches and between them serving as an anvil which firmly sustains the rails against the hammer-blows and thus renders auxiliary supporting means unnecessary. After this work has been done, the locking-handles 21, are swung clear of rails B, and the completed fence-section, being now a compact structure, is removed as an entirety, it appearing then as shown in Fig. 4. The frame is now returned to a horizontal position as shown in Figs. 1, 2 and 3, stop-bars 18, are lowered below the assembling plane by dropping brackets 16, which is done by disengaging their braces 17, as shown in Fig. 3, in dotted lines, and another fence-section is assembled for swaging.

If a two-rail fence is to be constructed, no fence-rail B, is placed in the groove of center spacing-bar D. A sufficient number of picket-notches, closely spaced, is provided in these spacing-bars, so as to permit various arrangements and combinations. In all cases they serve for correctly spacing the fence-elements and for their quick assembling and alining, after which they act as anvils while the joints are formed. Such notches, differently spaced might be provided in both sides of the spacing-bars, thus providing for additional fence-patterns. For lower fences, bars C, and E, are moved toward each other. Provision is also made for alining shorter pickets, if such are used in any particular design and for which purpose brackets 16, are also provided on center bar D, to receive additional stop-bars 18, (see Figs. 1, and 2). These brackets may be slipped off their hinges when not needed, see Figs. 3, 4, and 5.

In large establishments, or where large quantities of fence are made after a fixed pattern and size, these assembling frames may be accordingly arranged as to adjustment, and no extra notches, to provide for other patterns, are required in the spacing or anvil bars.

As will be seen no auxiliary means are required when the apparatus is in the swaging position shown in Fig. 5, to support the fence-rails and to act as a support or anvil to be placed under them while the swaging is done from above by means of suitable tools which may be a calking chisel and hammer. This is because the fence-rails are supported practically all around the pickets by the

higher side of grooves 14, in bars C, D, and E, and which higher side thus serves as anvil during the swaging action. The interruption caused by the presence of notches 15 is too limited to interfere in any way with this function.

The assembling frame is supported pivotally to permit its change from the assembling to the calking position and back again, the points of support being as near its center as possible. For such purpose we provide trunnion-journals 24, at opposite ends of center bar D, which are fitted to bearings, in which the frame may turn when adjusted from one position to the other, and as shown in Figs. 3, and 5. It is also desirable to have the apparatus vertically adjustable, particularly when in position as shown in Fig. 5, and to bring the fence-rails to proper height for most convenient application of the tool while the joints between them and the pickets are formed. For such purpose the apparatus is suspended by a cable 31, and held in any particular vertical position by a counter-weight 29, acting on this cable. This latter engages two pulleys 32, one provided on each journal and for which they constitute the bearings. One end of the cable is attached at *g*, then passes around one pulley 32, up over a guide-pulley 33, over to two guide-pulleys 34, down to counter-weight 29, back up and over the same to pulleys 34, which have double grooves, down and around the pulley on the other journal and up to the frame where the other end attaches at *h*, (see Fig. 5). As will be observed the cable forms three loops, one on which the counter-weight hangs and one on each side of the apparatus, the latter hanging in these, being supported by pulleys 32, which form the bearings for the trunnion-journals. By reason of this arrangement movement on any part of the cable affects all loops equally and the frame always moves evenly on both sides up or down. For the purpose of guiding the apparatus during this vertical adjustment, journals 24, are extended beyond pulleys 32, and reach into shoes 26, as shown at 25. The shoes are fitted to slide on vertical guides 27, provided on frame-standards 28. The guide-pulleys may be attached to a ceiling or to a cross-beam which connects the frame-standards. There is also a lock to hold the apparatus against swinging on its pivots. It consists substantially of a locking-bar 30, mounted with a sliding adjustment on the rear-bar E, and is provided with a notch in its end adapted to engage one of guides 27, when the apparatus is in the upright position shown in Figs. 4, and 5. A handle 35 is provided for its manipulation.

To hold the apparatus steady when used in the horizontal position for assembling, there are two stops 36, adjustably supported on brackets 37, which are adapted to be

swung under the outside bars C, and E, when the frame is in horizontal position as shown in Figs. 1, 2, and 3. One of these brackets 37, is attached to one of the frame-props 38, used to brace the standards, the other being attached to this latter directly, the prop being omitted at that particular side. The other standard may have two props. These parts rest upon floor-sills 39, but this arrangement is immaterial and depends altogether on special conditions. Where suitable, a wall may take the place of one or both standards.

41, are knobs attached to the cable to manipulate the same for adjusting the height of the apparatus, hanging in the loops of it.

Having described our invention, we claim as new:

1. In a fence-assembling apparatus, an assembling frame adapted to receive fence-rails and pickets in properly spaced positions for final connection, stop-bars whereby the pickets are alined end-wise and against which they rest when to be connected to the rails, hingedly connected brackets to which these stop-bars are adjustably connected and braces under these brackets, also adjustably connected and whereby the brackets with the stop-bars may be adjusted so that these latter are either each opposite the ends of the pickets or below them.

2. In a fence-assembling apparatus, an assembling frame adapted to receive fence-rails and pickets in properly spaced positions for final connection, posts adjustably secured to this frame, locking handles pivotally attached to their upper ends and in a manner that they may be swung either to or from the frame, and locking-latches attached to the posts and adapted to engage the locking-handles to hold them in locking position against the fence-rails.

3. In a fence-assembling apparatus, an assembling frame adapted to receive fence-rails and pickets in properly spaced positions for final connection, trunnion-journals on opposite ends of this frame on which this latter may be adjusted from the assembling to the swaging position, a roller on each trunnion-journal, a cable arranged to form loops one for each of these rollers, in which the frame hangs and on which it is vertically adjustable in its adjusted position on the trunnions, a compensating counter-weight which acts on this cable so as to support the frame in its adjusted positions, and means provided on this latter against which the ends of the assembled pickets rest while the swaged joints are formed.

4. In a fence-assembling apparatus, an assembling frame adapted to receive fence-rails and pickets in properly spaced positions for final connection, trunnion-journals on opposite ends of this frame on which this latter may be adjusted from its horizontal, assem-

bling position to the vertical, swaging position, adjustable stops to hold the frame in the assembling position, a roller on each trunnion-journal, a cable arranged in loops 5 which engage these rollers and on which the frame is vertically adjustable while in swaging position, means to guide the frame in this vertical adjustment, a lock to hold the frame against rotation on its trunnions while 10 in this position but permitting it to move vertically, a compensating counter-weight on the cable whereby the frame is sustained during its vertical adjustment and while in swaging position and means provided on the 15 frame against which the ends of the assembled pickets rest while the swaged joints are formed.

5. In a fence-assembling apparatus, an assembling frame adapted to receive fence-rails and pickets in properly spaced positions 20 for final connection, trunnion-journals on opposite ends of this frame on which this latter may be adjusted from the assembling to the swaging position, a roller on each 25 trunnion-journal, a cable having its ends fixedly attached and arranged between its ends to form three loops, two of which receive the rollers on the trunnions mentioned, and support the apparatus, a compensating 30 counter-weight which is supported by the other loop, grooved guide-rollers whereby the cable is supported in a manner to produce these loops, and means provided on the frame against which the ends of the pickets rest 35 when in position for swaging.

6. In a fence-assembling apparatus, a frame supported to be adjustable to assembling and swaging positions, and provided

with assembling bars which have longitudinal grooves adapted to receive fence-rails, 40 one side of these grooves being higher and when the frame is in swaging position serving as an anvil-support while the fence pickets are swaged to the rails.

7. In a fence-assembling apparatus, an assembling frame adapted to receive fence-rails and pickets for assembling and joining 45 by swaging, said frame being adjustably supported to permit change from assembling to swaging positions, and provided with anvil-bars which have longitudinal grooves adapted to receive the fence-rails, part of these 50 bars on one side of the grooves being higher and constituting the anvil-support on which the fence-rails rest while in position for forming the swaged joints, there being also transverse notches in this anvil-part to clear the 55 pickets.

8. In a fence-assembling apparatus adapted to receive fence-rails and pickets for forming a fence-section, an integral anvil-bar 60 which constitutes part of an adjustable assembling-frame and has a longitudinal groove adapted to receive fence-rails, it being higher on one side of this groove to support the fence-rails in the swaging position, 65 this high part being also provided with transverse notches to clear the fence-pickets.

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses. 70

RICHARD C. STEWART.
WALLACE A. STEWART.

Witnesses:

C. SPENGEL,
T. LE BEAN.