

(No Model.)

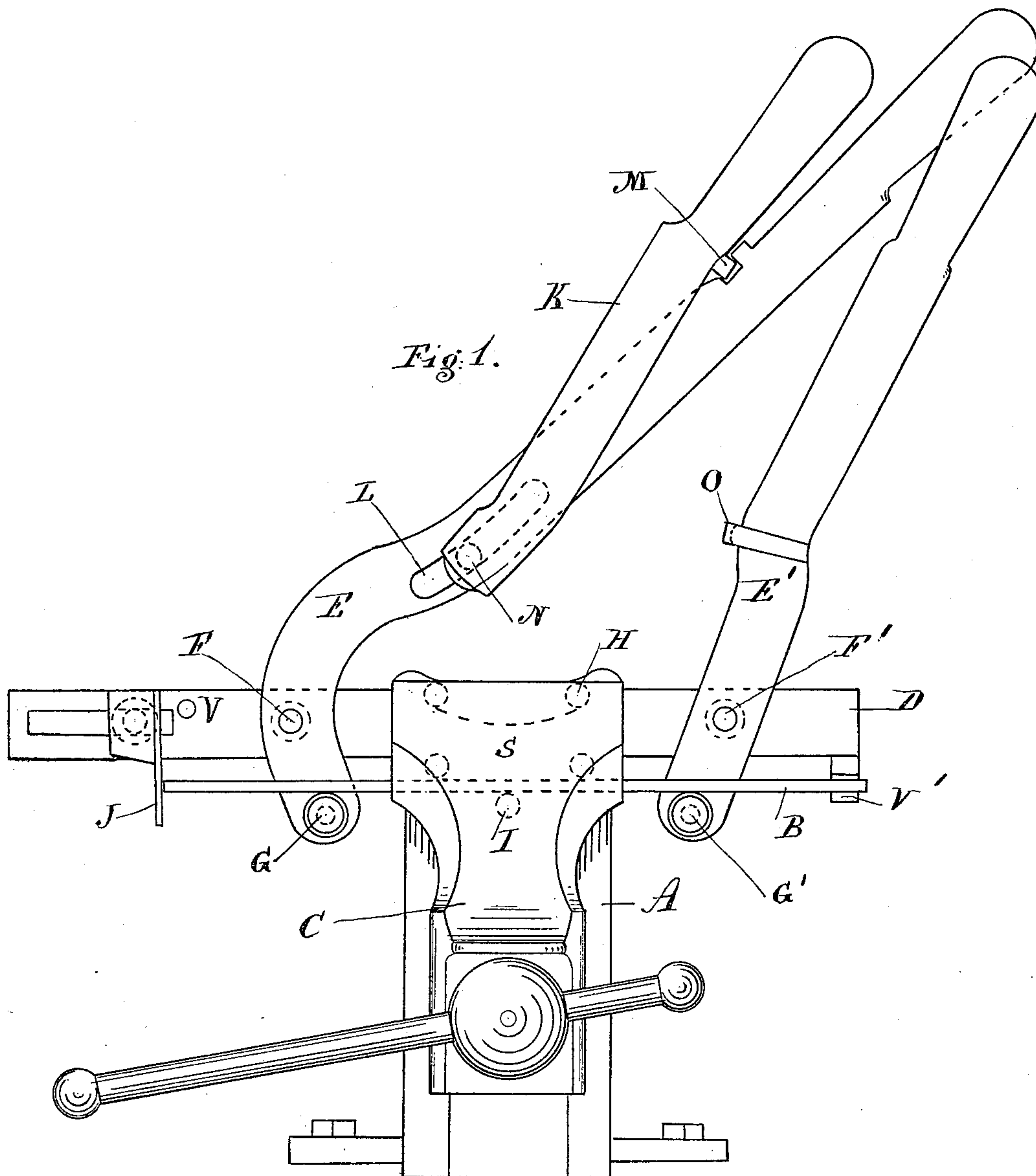
7 Sheets—Sheet 1.

W. E. BROCK.

MACHINERY FOR MAKING WIRE COUPLINGS.

No. 364,985.

Patented June 14, 1887.



Witnesses.

John Wertheimer
Benjamin L. Wertheimer

Inventor.

William E. Brock

(No Model.)

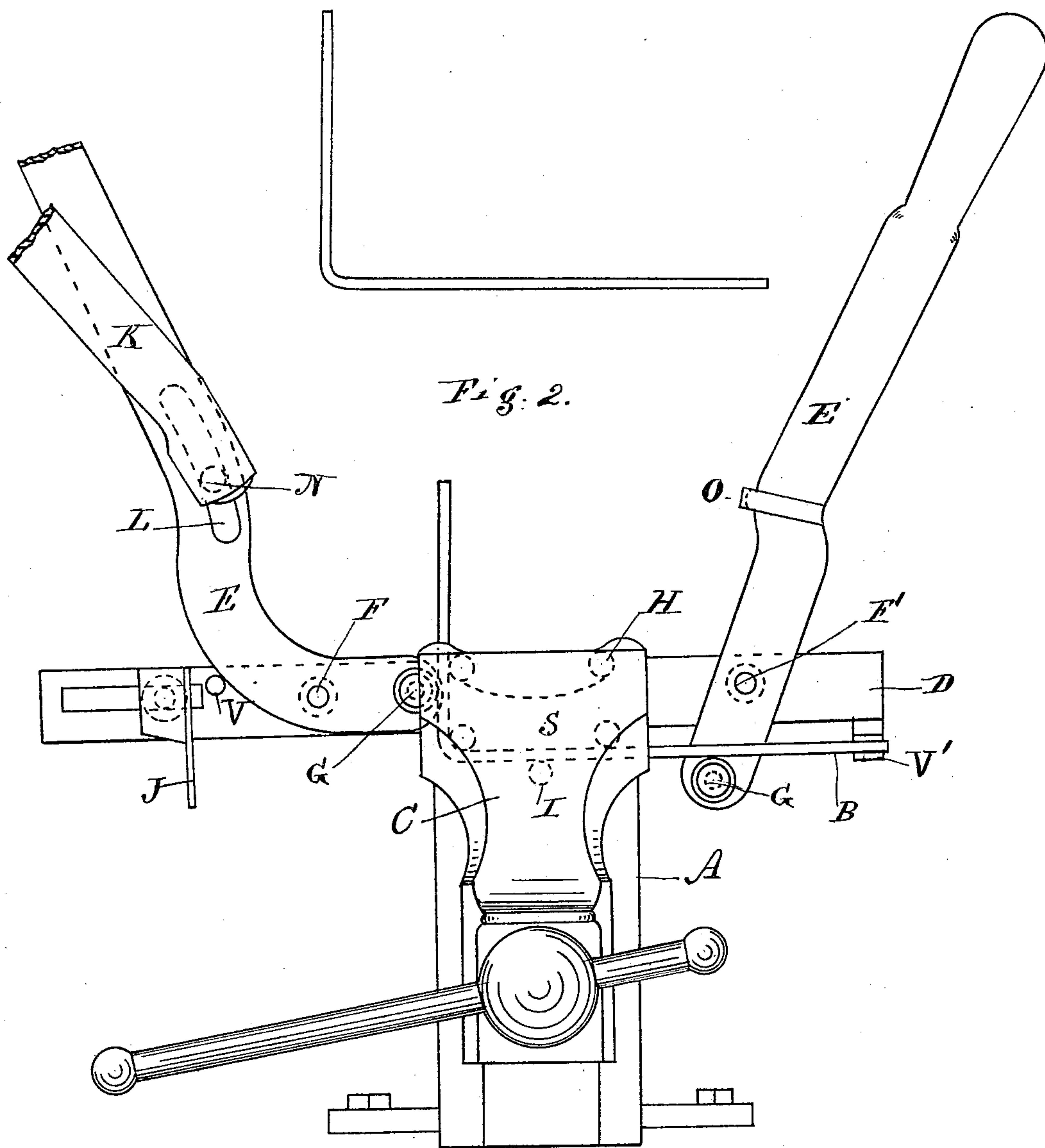
7 Sheets—Sheet 2.

W. E. BROCK.

MACHINERY FOR MAKING WIRE COUPLINGS.

No. 364,985.

Patented June 14, 1887.



Witnesses.
J. W. Wertheimer.
Benjamin L. Wertheimer.

Inventor.
William E. Brock

(No Model.)

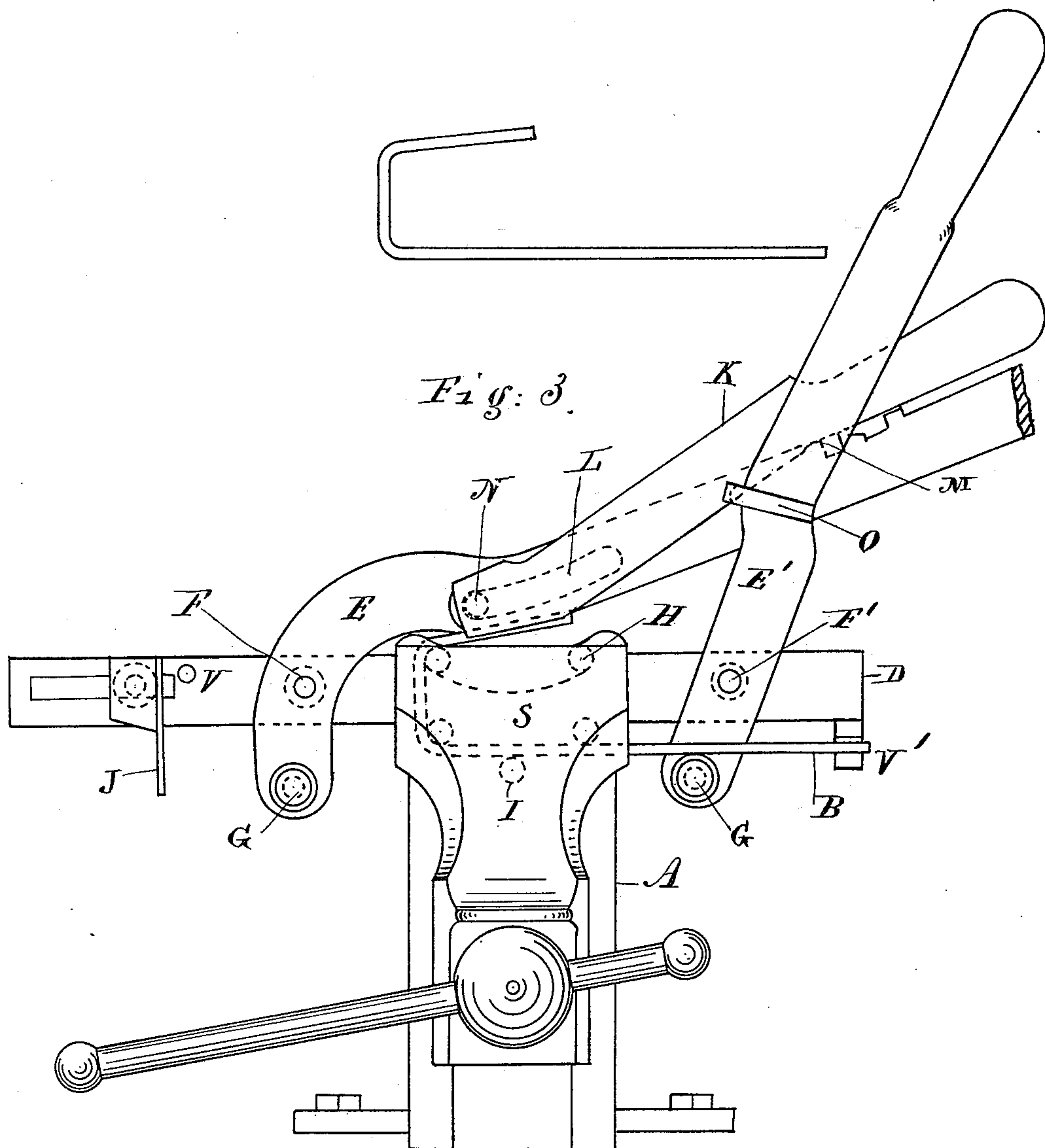
7 Sheets—Sheet 3.

W. E. BROCK.

MACHINERY FOR MAKING WIRE COUPLINGS.

No. 364,985.

Patented June 14, 1887.



Witnesses.
fourthentimer
Benjamin L. Wertheimer.

Inventor.

William E. Brock

(No Model.)

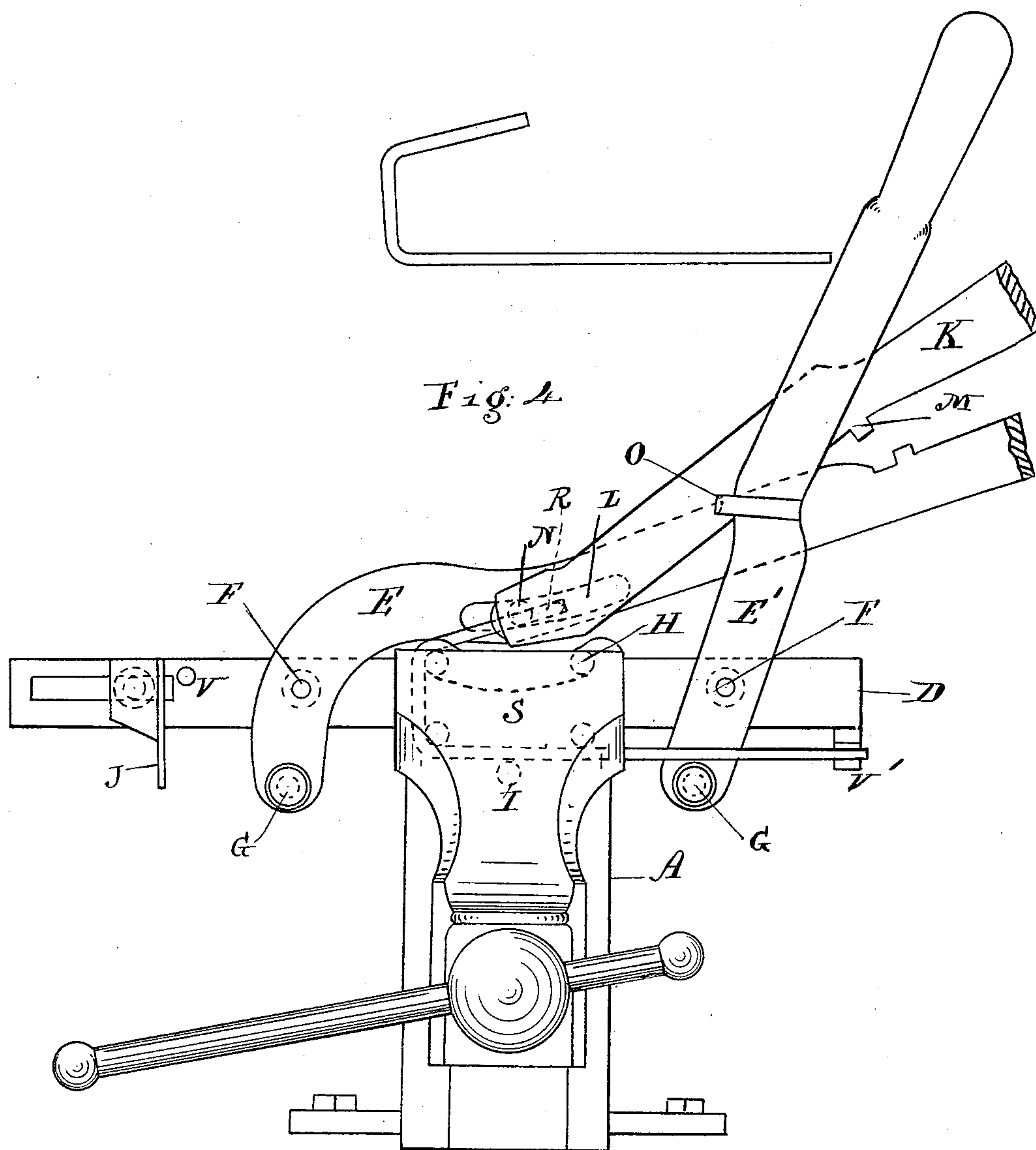
7 Sheets—Sheet 4.

W. E. BROCK.

MACHINERY FOR MAKING WIRE COUPLINGS.

No. 364,985.

Patented June 14, 1887.



Witnesses.
J. W. Verthimer
Benjamin L. Verthimer.

Inventor.
William E. Brock

(No Model.)

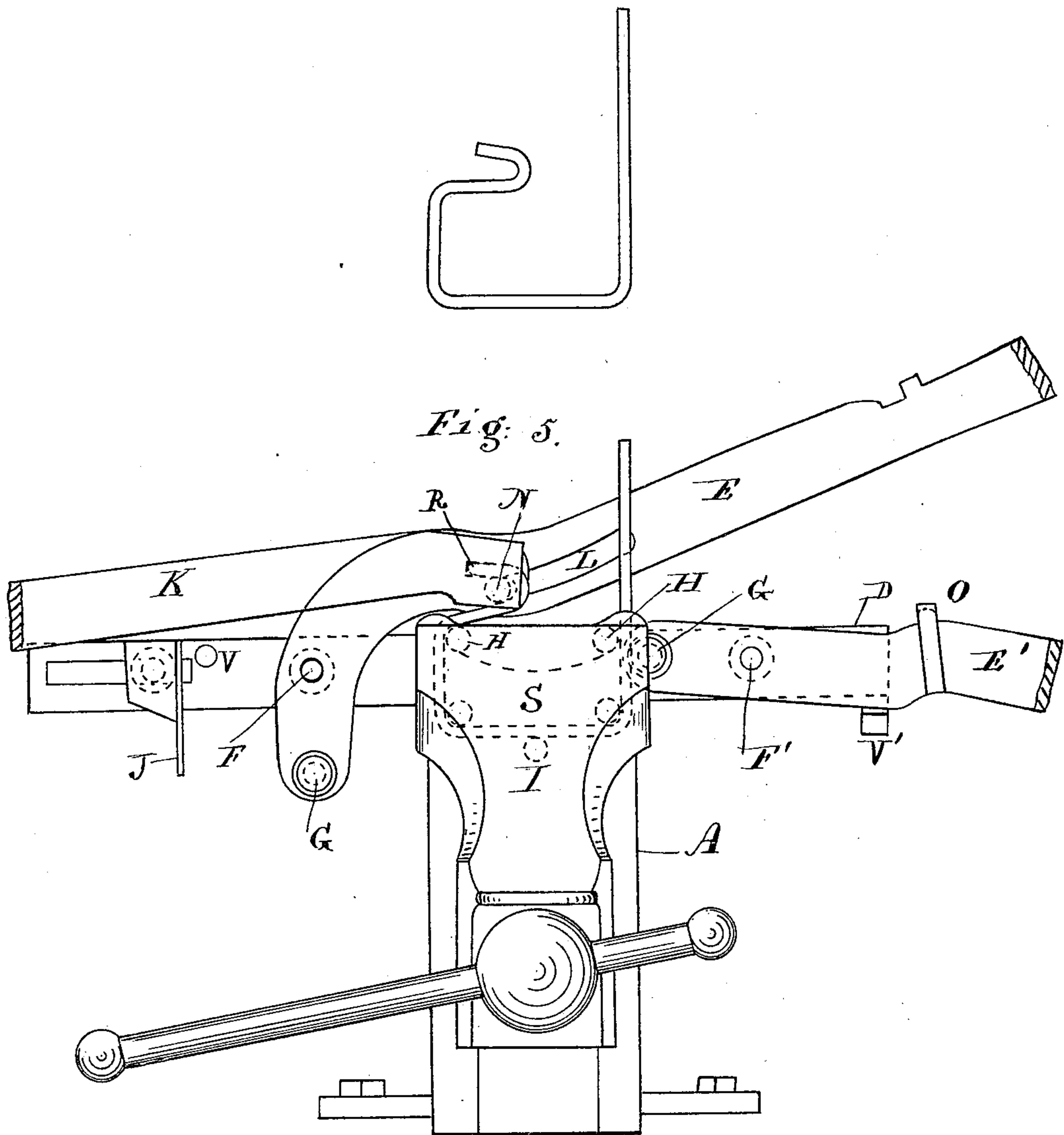
7 Sheets—Sheet 5.

W. E. BROCK.

MACHINERY FOR MAKING WIRE COUPLINGS.

No. 364,985.

Patented June 14, 1887.



Witnesses.
J. W. Wertheimer
Benjamin L. Wertheimer.

Inventor.
William E. Brock.

(No Model.)

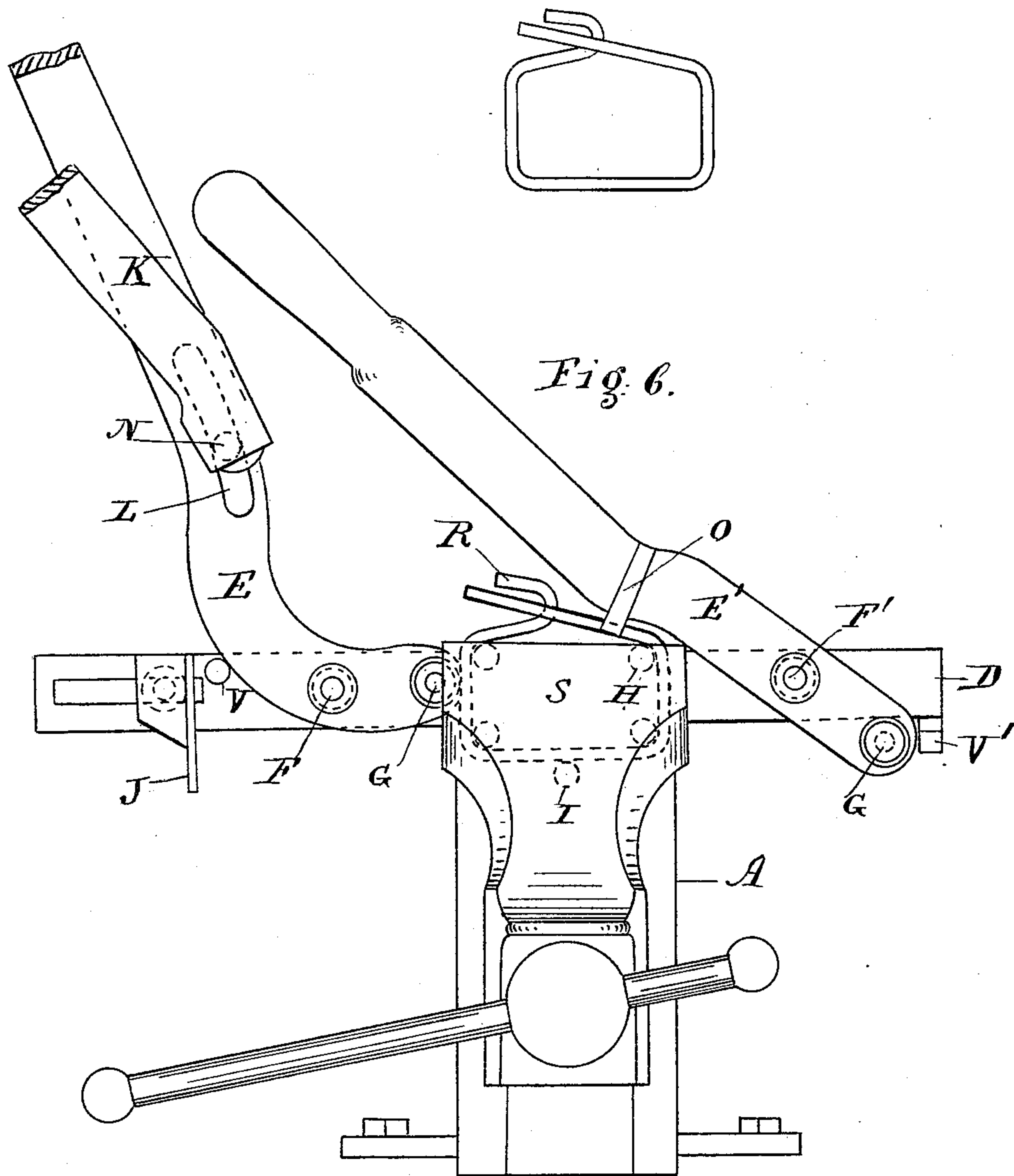
7 Sheets—Sheet 6.

W. E. BROCK.

MACHINERY FOR MAKING WIRE COUPLINGS.

No. 364,985.

Patented June 14, 1887.



Witnesses.
J. W. Wertheimer
Benjamin L. Wertheimer.

Inventor.
William E. Brock

W. E. BROCK.

MACHINERY FOR MAKING WIRE COUPLINGS.

No. 364,985.

Patented June 14, 1887.

Fig. 9.

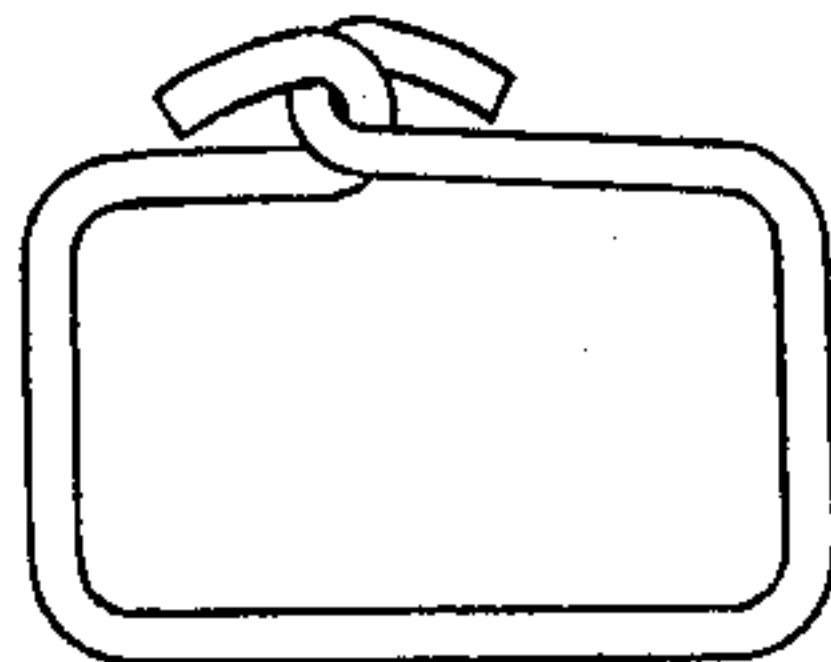


Fig. 8.

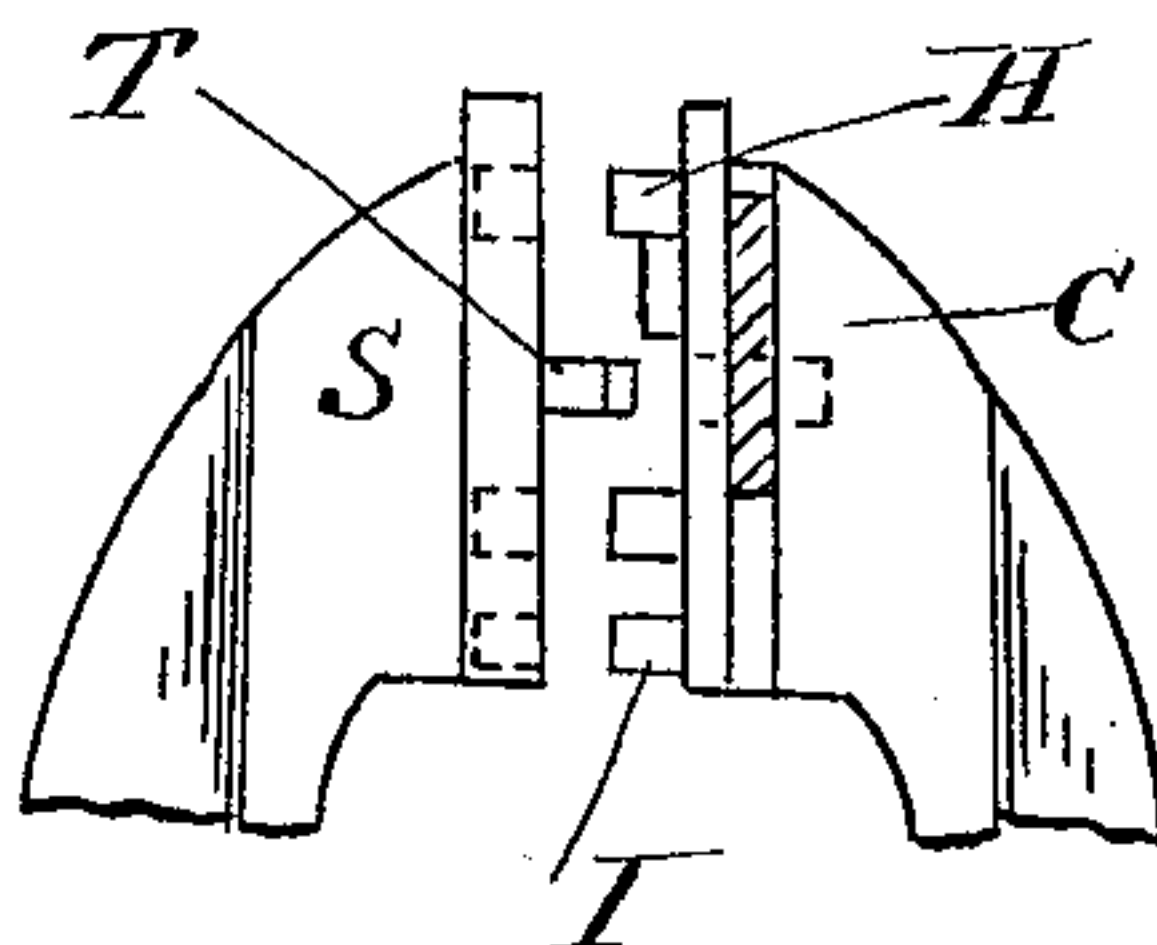
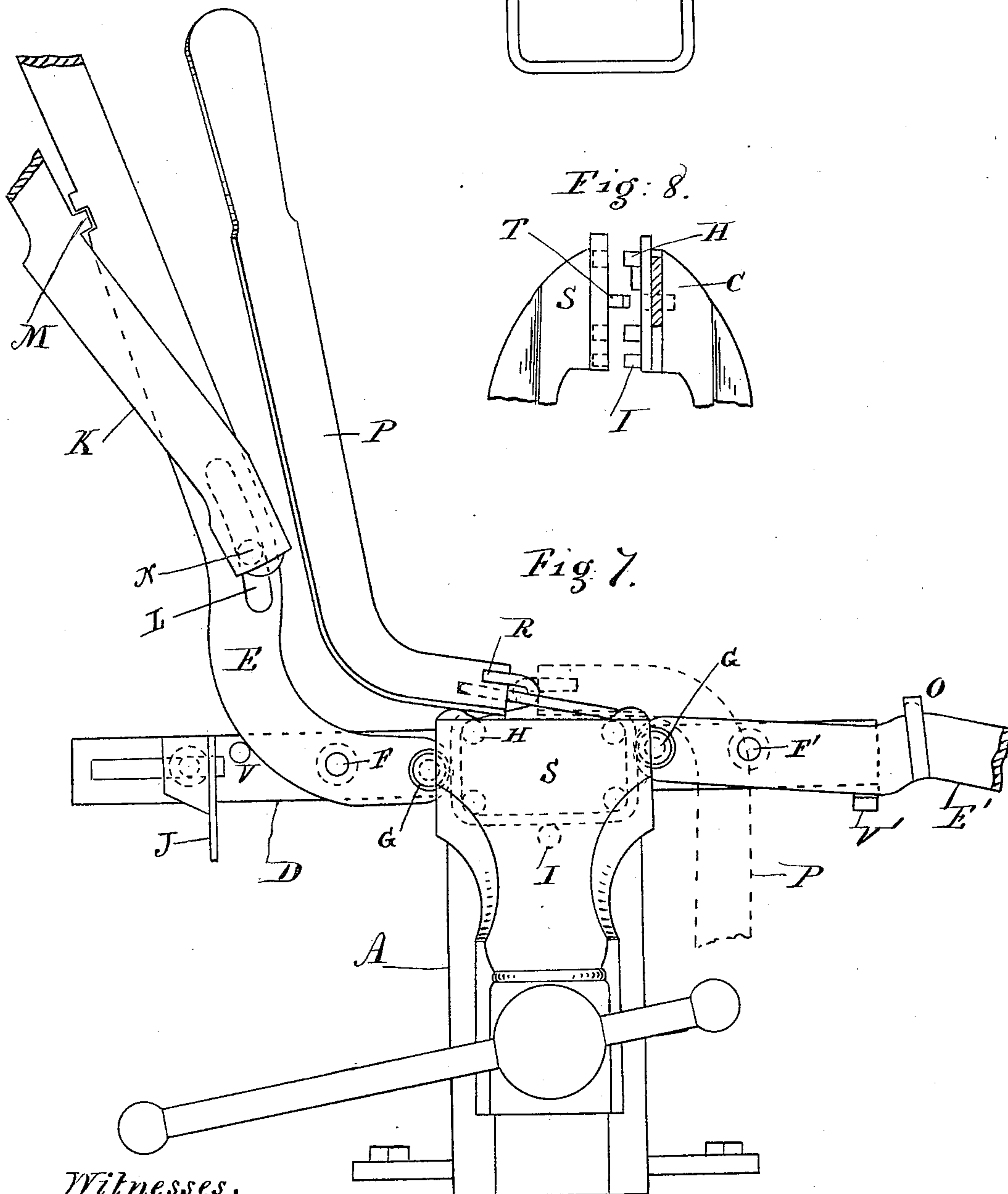


Fig. 7.



Witnesses.
J. W. Werthimer
Benjamin L. Werthimer.

Inventor.

William E. Brock

UNITED STATES PATENT OFFICE.

WILLIAM E. BROCK, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO THE
BROCK FLEXIBLE FENCE COMPANY, OF NEW YORK.

MACHINERY FOR MAKING WIRE COUPLINGS.

SPECIFICATION forming part of Letters Patent No. 364,985, dated June 14, 1887.

Application filed June 25, 1886. Serial No. 206,204. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. BROCK, of Plainfield, county of Union, in the State of New Jersey, have invented new and useful
5 Improvements in Machinery for Making Wire Couplings, of which the following is a full, clear, and exact description.

This invention relates to improvements in mechanism for bending and forming wire into
10 couplings or links; and it consists in a clamping device for holding the wire, and certain combinations of levers for shaping and connecting the ends of the wire to complete the couplings, as will be hereinafter described and
15 claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which—

Figures 1, 2, 3, 4, 5, 6, and 7 represent front
20 elevations, respectively, of this mechanism in the various positions to form a coupling, commencing with Fig. 1 with a straight piece of wire, and progressing through the different stages to the completion of a coupling in Fig.
25 7. Fig. 8 represents an end elevation of the jaws of an ordinary parallel vise, which may be employed as clamping mechanism to hold the wire while being formed into a coupling, and upon which the mechanism to form the
30 coupling is mounted. Fig. 9 represents a coupling complete, detached.

In the various illustrations from Figs. 1 to 7, inclusive, a view of a coupling is represented detached from the machine, in order
35 to show more clearly the various stages in forming the coupling and the various positions of the mechanism in the operations.

In illustrating my invention I have employed an ordinary parallel vise, A, upon
40 which is mounted the mechanism to form a complete coupling from a straight piece of wire, as shown in Figs. 1 to 7, and which may be described as follows:

To the fixed or stationary jaw C, Fig. 8, of
45 an ordinary parallel vise or other suitable clamping mechanism is firmly secured a horizontal bar, D, upon which bar are pivoted at F F' two levers, E E', with projecting lower ends, which are provided, respectively, with
50 friction-rollers G, by which the two ends of a straight piece of wire are to be bent upward

in forming a coupling. Projecting from the inner face of the fixed or stationary jaw C of the vise or clamp are four studs, H, around which the wire is to be bent to form a coupling, and which govern the shape of the coupling. A fifth stud, I, is placed centrally between the lowermost studs H, which serves to support the straight piece of wire against these lowermost studs; and to hold it in position to be bent by the action of the friction-rollers G, as shown in Fig. 1.

In order that the straight piece of wire may be introduced properly and quickly into the machine, so that its two ends may be bent to connect, and thus complete the coupling, as shown in Fig. 7, an adjustable stop, J, is secured to the fixed bar D, against which the end of the wire is placed, as also represented in Fig. 1.

The wire B for a coupling having been introduced into the machine between the two lowermost studs H, and above the supporting-stud I, and resting upon the friction-rollers G of the levers E E', respectively, and firmly clamped between the two jaws of the vise, the first movement toward shaping a coupling is made by turning the lever E outward and downward until its edge rests upon a stop, V, which governs the length of its movement in that direction, as shown in Fig. 2; thus bending a section of the wire upward and around the lower left-hand corner stud to form one end of the coupling, the lever E' remaining in position, as shown.

The next operation is to reverse the movement of the lever E, by which the wire is bent horizontally and around the upper left-hand corner stud H, which completes one end of the coupling, as represented in Fig. 3. To bend the wire around this upper left-hand corner stud horizontally by reversing the movement of the lever E, a lever, K, is pivoted thereto, and is movable longitudinally through a slot, L, and is retained in position to the side of the lever E by a projection, M, which takes into a corresponding notch formed in the edge of the lever E, as represented, so that when the movement of this lever E is reversed the edge of the lower end of the lever K will turn the end of the wire downward, as shown in Fig. 3. One end of the coupling having been

thus formed around the upper and lower left-hand studs H, the next operation is to form a hook or loop, R, on the end of the wire, as shown in Fig. 5.

5 The lower end of the lever K is provided with a recess to receive sufficient of the end of the wire from which to form this loop, and by withdrawing the projection M on the side of the lever K from the notch in the edge of the lever E the lower end of the lever K, guided
10 by the pivot N in the slot L, may be drawn upward, so that the end of the wire may pass into the recess in the end of the lever K the required distance to form the loop, and then
15 by retaining the lever E in position, and turning the lever K on its pivot N outward, the portion of the end of the wire therein will be formed into a hook or loop, as shown in Fig. 5, at which stage of the operation the lever K
20 is withdrawn from the end of the loop R, and, together with the lever E, is turned outward to the position shown in Fig. 6, the edge of the lever E resting upon the stop V, extending from the bar D.

25 The next operation is to form the opposite end of the coupling by turning the lever E' outward and downward, the friction-roller G, secured thereto, bending the wire upward and around the right-hand lower stud H, as also
30 shown in Fig. 5. The movement of the lever E' is then reversed, and the end of a projecting stud, O, secured thereto, is brought in contact with the wire at the proper point from the end, by which it is bent downward to com-
35 plete the contour of the coupling, as represented in Fig. 6.

The outline of the coupling having been properly formed by being bent around the four studs H, as shown in the several figures, an
40 independent and separate lever, P, having a recess in its bent end, is placed over the straight end of the wire, and by being turned horizontally a section of this straight end is bent around the loop R, which completes the coup-
45 ling, as represented in dotted lines, Fig. 7, the completed coupling being also represented detached from the machine in Fig. 9.

In order that the wire may be clamped between the jaws of the vise, or other suitable
50 clamping mechanism, and firmly held in position therein, to be bent into a coupling, recesses are formed in the movable jaw S, to receive the ends of the studs H, so that the jaw S may have the required movement back and
55 forth to admit the wire and to clamp it, as represented in Fig. 8.

To withdraw the completed coupling from the studs H, a hook, T, is secured to and projects from the inner face of the movable jaw
60 S, and enters a corresponding recess to receive it formed in the face of the fixed jaw C, when

the wire is clamped between the two jaws to be bent into a coupling. In bending the wire one side of the coupling passes directly over this hook T, so that when the movable jaw S
65 is withdrawn the hook T draws the completed coupling off of the studs H, leaving the machine in readiness to receive a straight piece of wire, from which to form the next succeeding coupling, the independent lever P having
70 been removed from the end of the loop and the other pivoted lever, E, returned to the position shown in Fig. 1.

Any other clamping device may be employed instead of the ordinary parallel vise, which I have shown as a convenient method
75 of illustrating my invention.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—
80

1. A machine for making wire couplings, constructed, arranged, and operating substantially as herein described, consisting of a suitable clamp for holding the wire, a form around which the wire is to be bent, and the pivoted
85 levers E E', to first bend the wire upward to form the ends of a coupling, and having reverse movements by which the two ends of the wire are bent inward and toward each other, so as to form the remaining side and to be united
90 to complete the coupling, as set forth.

2. The fixed or stationary jaw C, from which project studs H, around which the coupling is to be formed, in combination with the movable jaw S and system of levers, constructed, ar-
95 ranged, and operating substantially as herein shown and described.

3. In combination with the clamping-jaws C S, for clamping and holding the wire, and studs H, around which the coupling is formed, the extracting-hook T, by which the completed
100 coupling is withdrawn from the studs H, substantially as herein set forth and shown.

4. In combination with the clamping device for holding the wire and the levers E E',
105 for partially bending the wire to form a coupling, the lever K, mounted upon and pivoted to lever E, so as to slide longitudinally in the side of said lever, substantially as and for the purpose herein set forth.
110

5. In combination with the clamping mechanism for holding the wire and the system of levers E, E', and K, for partially forming a wire coupling, the independent lever P, for com-
115 pleting the coupling by uniting its ends, substantially in the manner herein set forth and described.

WILLIAM E. BROCK.

Witnesses:

LOUIS WERTHEIMER,
BENJAMIN L. WERTHEIMER.