

(No Model.)

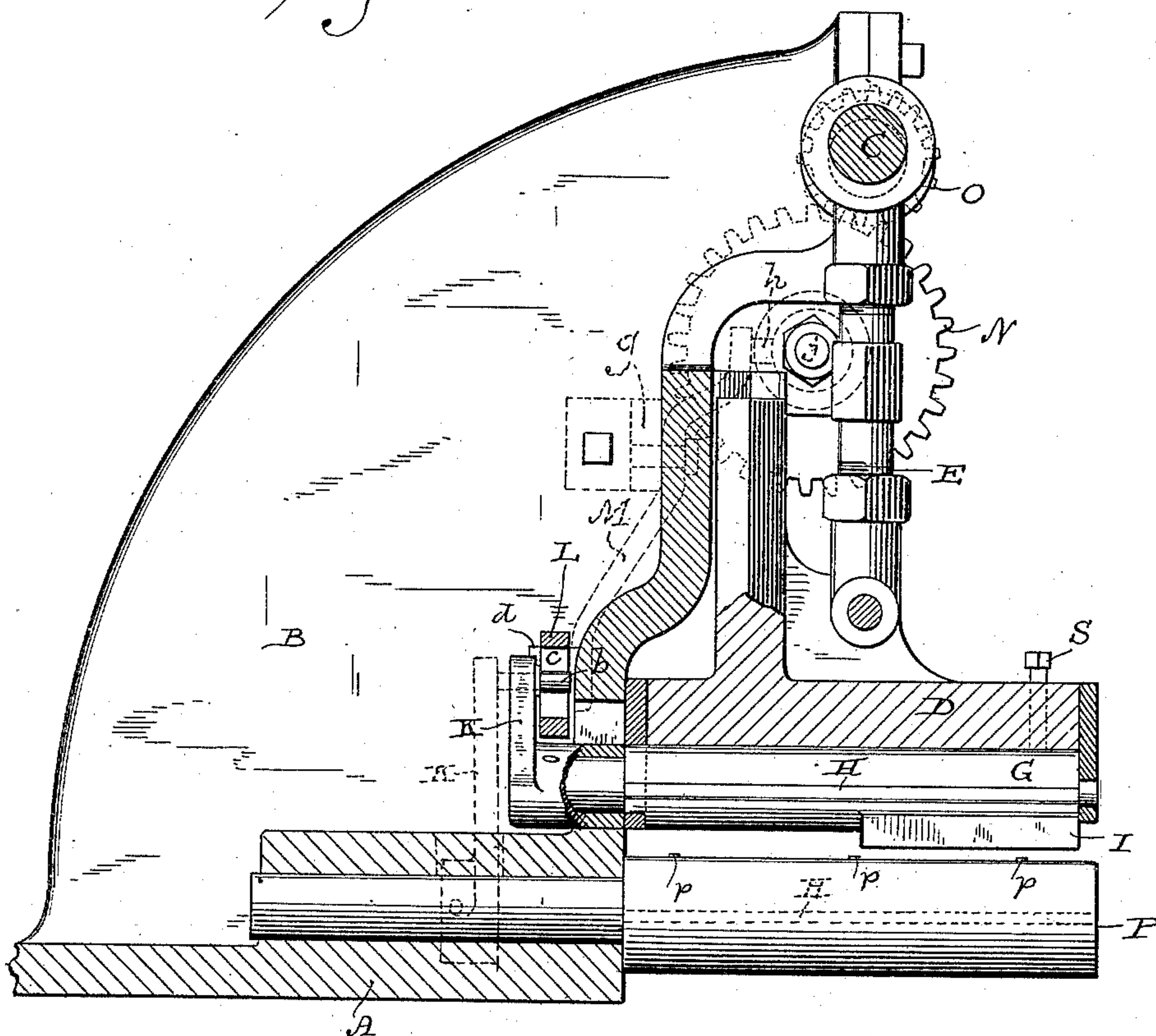
2 Sheets—Sheet 1.

F. A. WALSH.  
DIE SEAMING MACHINE.

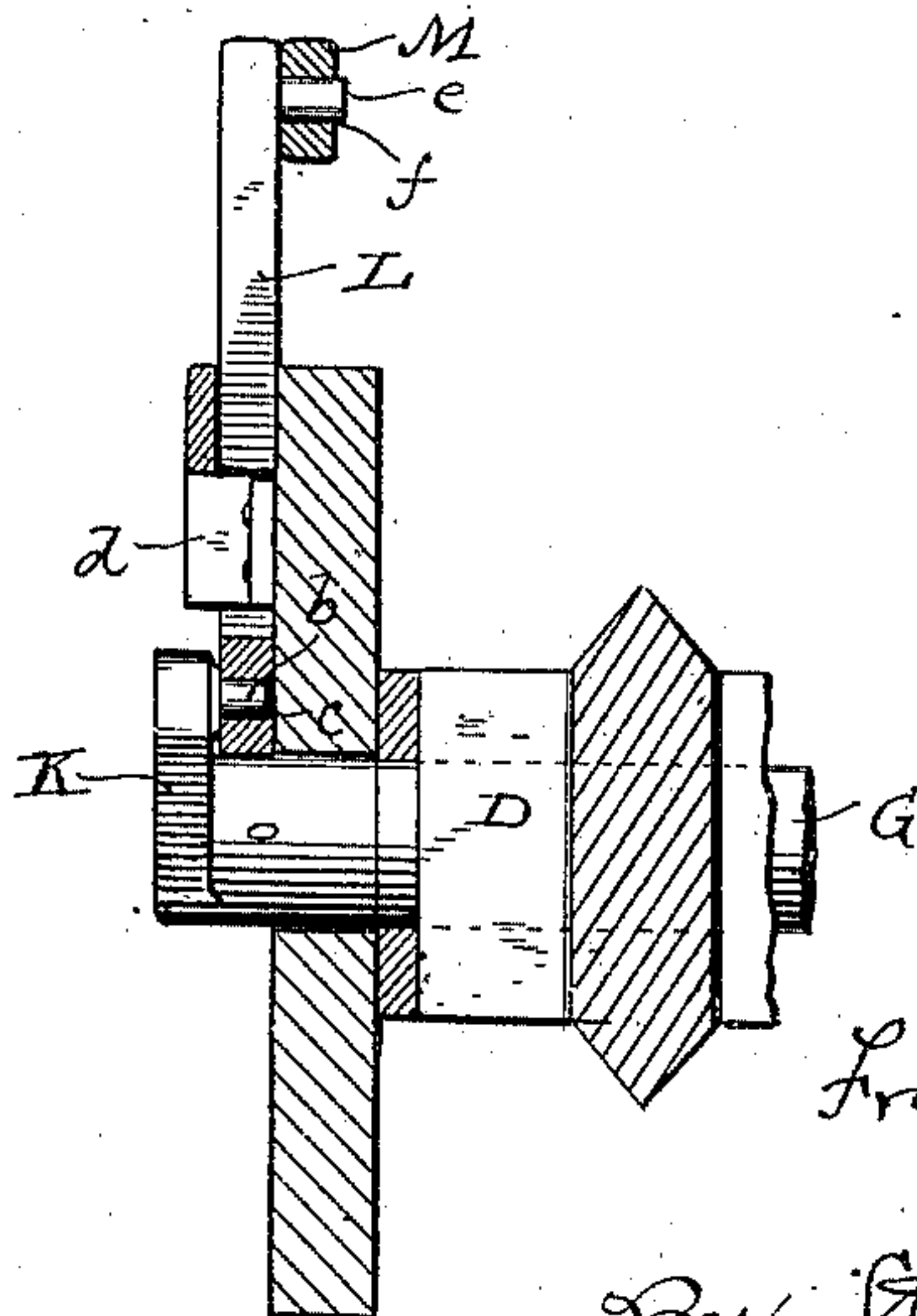
No. 445,739.

Patented Feb. 3, 1891.

*Fig. 1*



*Fig. 2.*



Witnesses  
Geo. W. Young.  
N. E. Oliphant

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(No Model.)

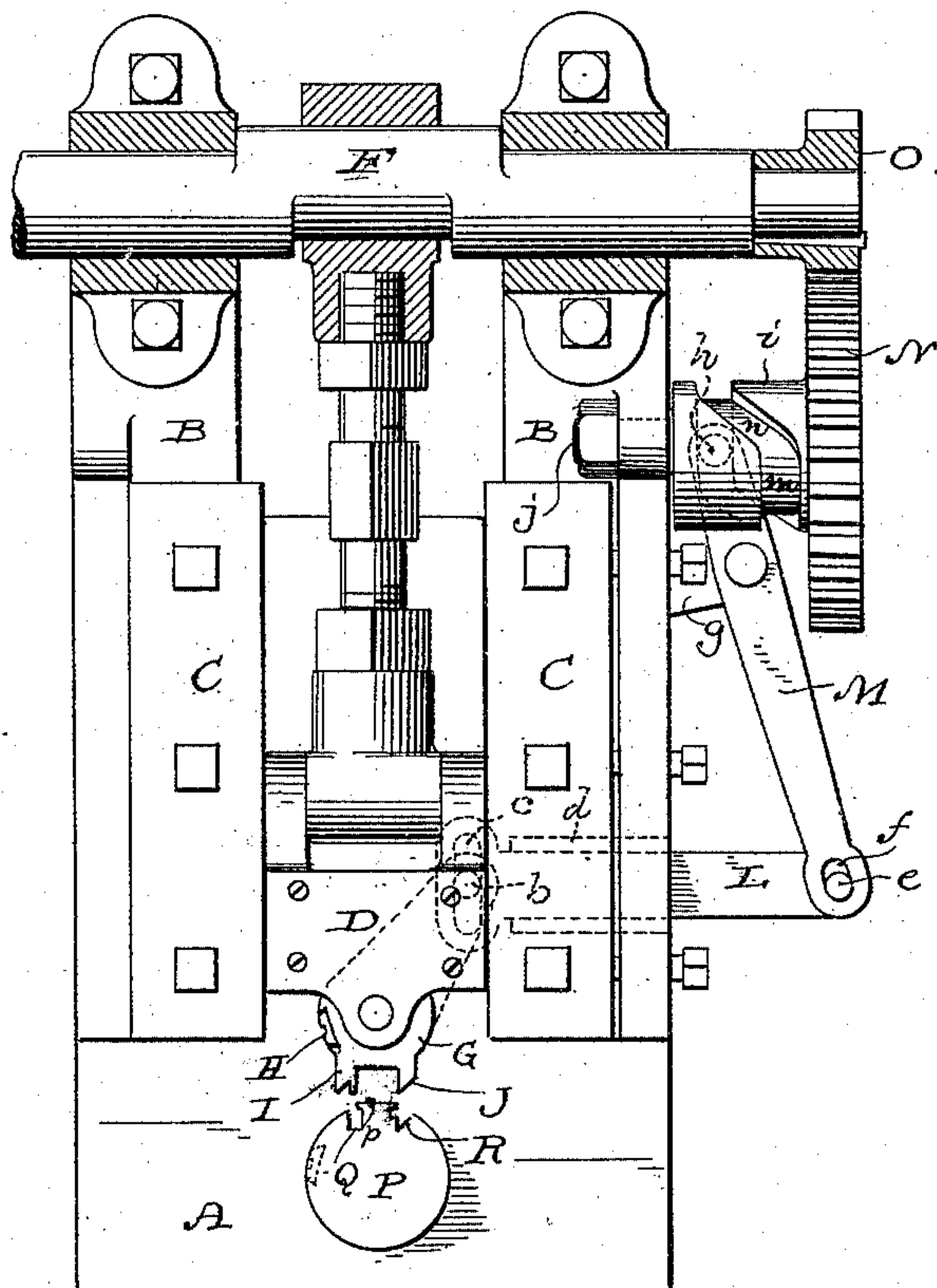
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*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

FRANCIS A. WALSH, OF MILWAUKEE, WISCONSIN.

## DIE-SEAMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 445,739, dated February 3, 1891.

Original application filed April 23, 1889, Serial No. 308,317. Divided and this application filed December 2, 1889. Serial No. 332,267. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS A. WALSH, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Die-Seaming Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to die-seaming machines, being a division of my application, No. 308,317, filed April 23, 1889; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents a side elevation of my machine, partly in section; Fig. 2, a horizontal section of a portion of the machine; and Fig. 3, a front elevation, partly in section.

Referring by letter to the drawings, A represents the base, and B B two standards that constitute the frame of my machine. The standards are provided with adjustable guides C for a slide D, the latter being connected by an adjustable hanger E with a crank-shaft F, that has its bearings in said standards.

Journaled to the slide D is a cylindrical plunger G, having an impact surface or anvil H (the latter being preferably removable) and dies I J upon its periphery. Fast on one end of the plunger is an arm K, that is provided with a lug b for engagement with a slot c in the inner end of the bar L, this bar being arranged in a guide d upon the machine-frame, and provided at its outer end with a lug e, that engages with a slot f in a lever M, pivotally connected to an ear g of said machine-frame, as best illustrated in Fig. 1.

The slot c in the bar L is parallel to the movement of the slide D, and that end of the lever M farthest from said bar is provided with a projection h, (shown in dotted lines, Figs. 1 and 3,) that engages a cam-groove in the hub i of a gear-wheel N, the latter being revolved upon a stud j on the machine-frame. The gear-wheel meshes with a pinion O on the crank-shaft F, and is so timed as to make one revolution while said crank-shaft is making two. The cam-groove in the hub i of said gear-wheel is formed with a plane m on each

side of its axis, the two planes being joined by inclines n, so timed that at each downward stroke of the crank-shaft F one of the planes will bear upon the projection h on the lever M, and at each upward stroke of said crank-shaft one of the inclines will bear upon said projection, the purpose of this operation being hereinafter described.

Secured to the base A of the machine below the plunger G is a horn P, provided with dies Q R in register with the dies I J on said plunger, and the horn may be also provided with gage-pins p, as shown in Figs. 1 and 3.

In the operation of the machine the lug b on the arm K will move in the slot c in the bar L, while the slide D moves down to engage the dies I J on the plunger G with the dies Q R in the horn P, the projection h on the lever M being in one of the planes m of the cam-groove in the hub i of the gear-wheel N until said male and female dies are disengaged by the upward movement of said slide. At this time one of the inclines n of the cam-groove bears against the projection on lever M and the latter is moved on its pivot to actuate the sliding bar L, whereby motion is communicated to the arm K to rock the plunger G and bring the anvil H into register with the plain portion of the horn P between the dies. The next downward movement of the slide impacts the anvil against the horn, and while the return movement of said slide is taking place the plunger G is rocked back to its normal position by means of the cam-and-lever mechanism above described. The male and female dies are shaped to flange the opposing edges of a sheet-metal blank, and these flanged edges being interlocked by the operator of the machine they will be laid down by the action of the anvil H to complete a seam.

It may be found desirable at times to use the machine for only one class of the work above described, and therefore I have provided the slide D with a set-screw S for locking the plunger G against rotation, it being understood that when said plunger is thus locked the lever mechanism connecting it with the cam-groove in the gear-wheel hub i is disconnected.

I may find it desirable to place the anvil H



on the horn P and connect the latter with the cam-actuated lever mechanism above described, this construction being shown by dotted lines in Fig. 1. When the machine is thus organized, the plunger is stationary in a rotary direction, and the rotary movement above described in connection with said plunger is transferred to the horn, the result being the same in either case, it being understood that in this organization of said machine the dies are practically in the reverse of what is shown in the drawings.

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

1. In a die-seaming machine, a reciprocating rotary adjustable plunger provided with dies, and a horn provided with dies corresponding to those on the plunger, substantially as set forth.

2. In a die-seaming machine, a reciprocating rotary adjustable plunger provided with dies, suitable means for locking the plunger in its adjusted position, and a horn provided with dies corresponding to those on said plunger, substantially as set forth.

3. In a die-seaming machine, a reciprocating slide, a plunger journaled to the slide, dies on the plunger, a lever mechanism for imparting a rotary adjustment to the plunger, and a horn provided with dies corresponding to those on said plunger, substantially as set forth.

4. In a die-seaming machine, a reciprocating slide, a plunger journaled to the slide, dies and arms on the plunger, a sliding bar provided with a slot parallel to the movement of said slide, a lug on the plunger-arm arranged to engage said slot, a pivoted lever connected to the sliding bar, a cam arranged to actuate the lever, and a horn provided with dies corresponding to those on said plunger, substantially as described.

5. In a die-seaming machine, a crank-shaft provided with a pinion, a slide connected to the crank-shaft, a plunger journaled to the slide, dies on the plunger, a gear-wheel arranged to mesh with the crank-shaft pinion, a cam-and-lever mechanism connecting the gear-wheel and plunger, and a horn provided

with dies corresponding to those on said plunger, substantially as set forth.

6. In a die-seaming machine, a rotary adjustable device provided with a pair of approximately parallel folding-dies, another pair of folding-dies in direct opposition to those on the rotary adjustable device, and suitable mechanism for reciprocating one pair of said dies, whereby two edges of a sheet-metal blank may be separately folded at one operation of the machine, substantially as set forth.

7. In a die-seaming machine, a rotary adjustable device carrying an anvil and dies, a stationary surface for the impact of the anvil, and dies in the stationary surface corresponding to those on said rotary adjustable device, substantially as set forth.

8. In a die-seaming machine, a drive-shaft, a plunger provided with dies, a stationary surface provided with dies in opposition to those on the plunger, and a timed mechanism connecting the shaft and plunger to shift the latter at each rotation of said shaft, and thereby bring the dies on said plunger in and out of their working position, substantially as set forth.

9. In a die-seaming machine, a pair of single edge-folding dies, a seam-closing surface on a line parallel to the dies, another pair of single edge-folding dies and a seam-closing surface in direct opposition to the dies and seam-closing surface first named, and suitable mechanism for reciprocating one set of dies and a seam-closing surface, whereby two edges of a sheet-metal blank may be separately folded at one operation of the machine and the seam formed by a subsequent union of the folds closed by a second operation of said machine, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

FRANCIS A. WALSH.

Witnesses:

N. E. OLIPHANT,  
WM. KLUG.