

No. 630,450.

Patented Aug. 8, 1899.

T. CORSCADEN, Dec'd.

A. J. CORSCADEN, Administratrix.

DIE FOR FINISHING PULLEY SPOKE BLANKS.

(Application filed Oct. 3, 1898.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1

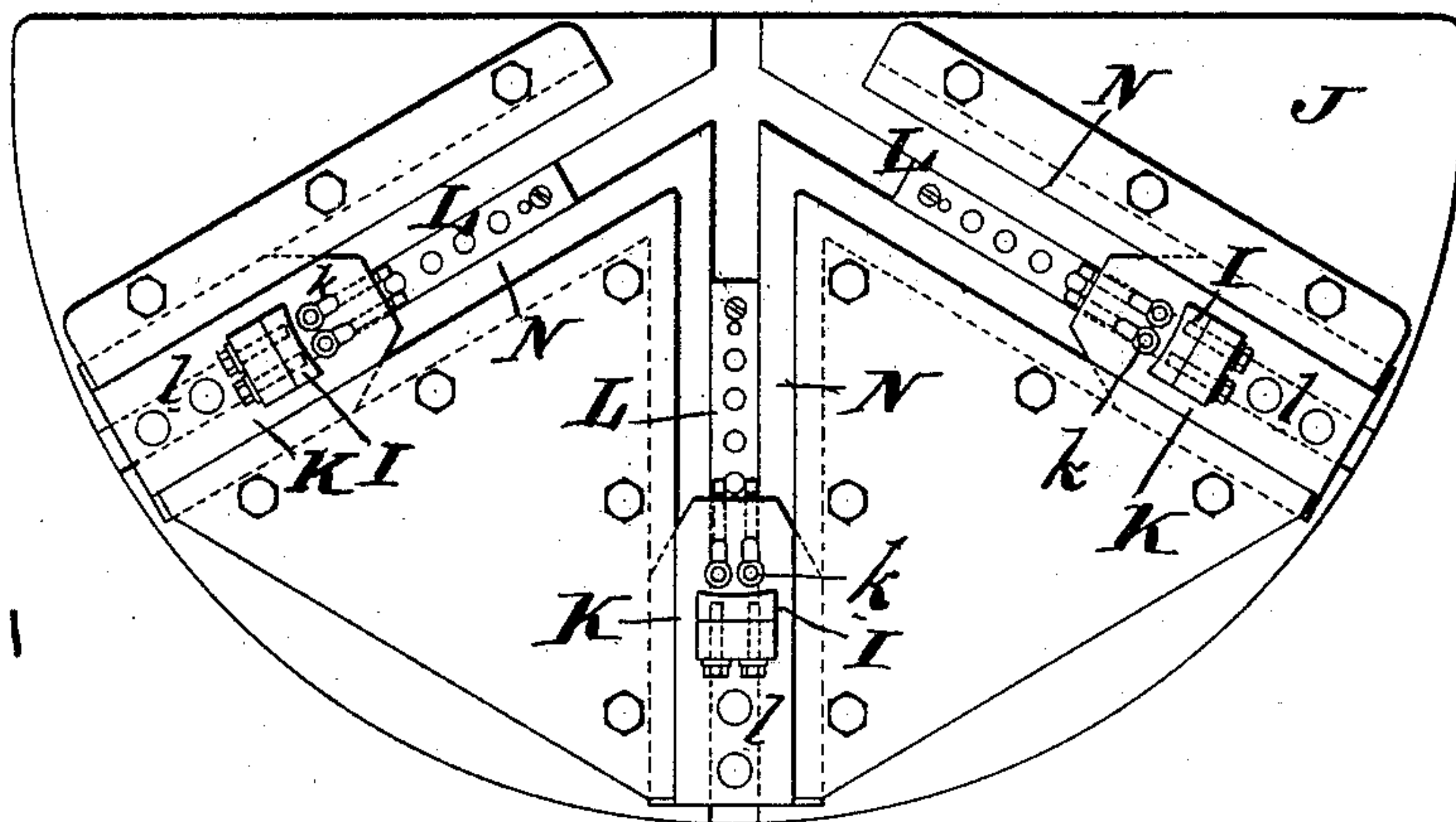
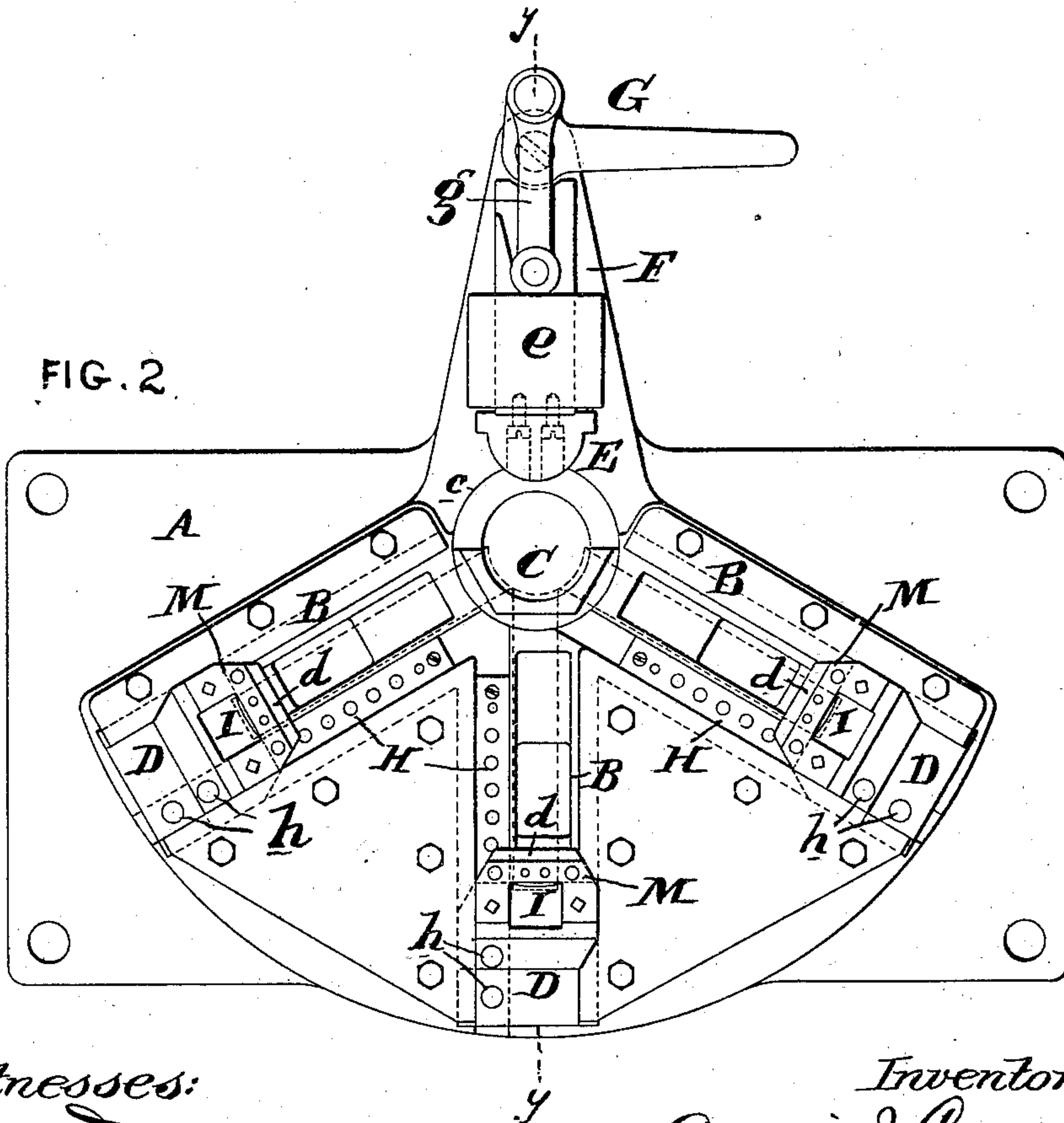


FIG. 2



Witnesses:
Henry Denny
R. M. Kelly

Inventor:
Adeline J. Corscaden
Adminx of Thos Corscaden
Dec'd
By her attorney *[Signature]*

No. 630,450.

Patented Aug. 8, 1899.

T. CORSCADEN, Dec'd.

A. J. CORSCADEN, Administratrix.

DIE FOR FINISHING PULLEY SPOKE BLANKS.

(Application filed Oct. 3, 1898.)

(No Model.)

2 Sheets—Sheet 2.

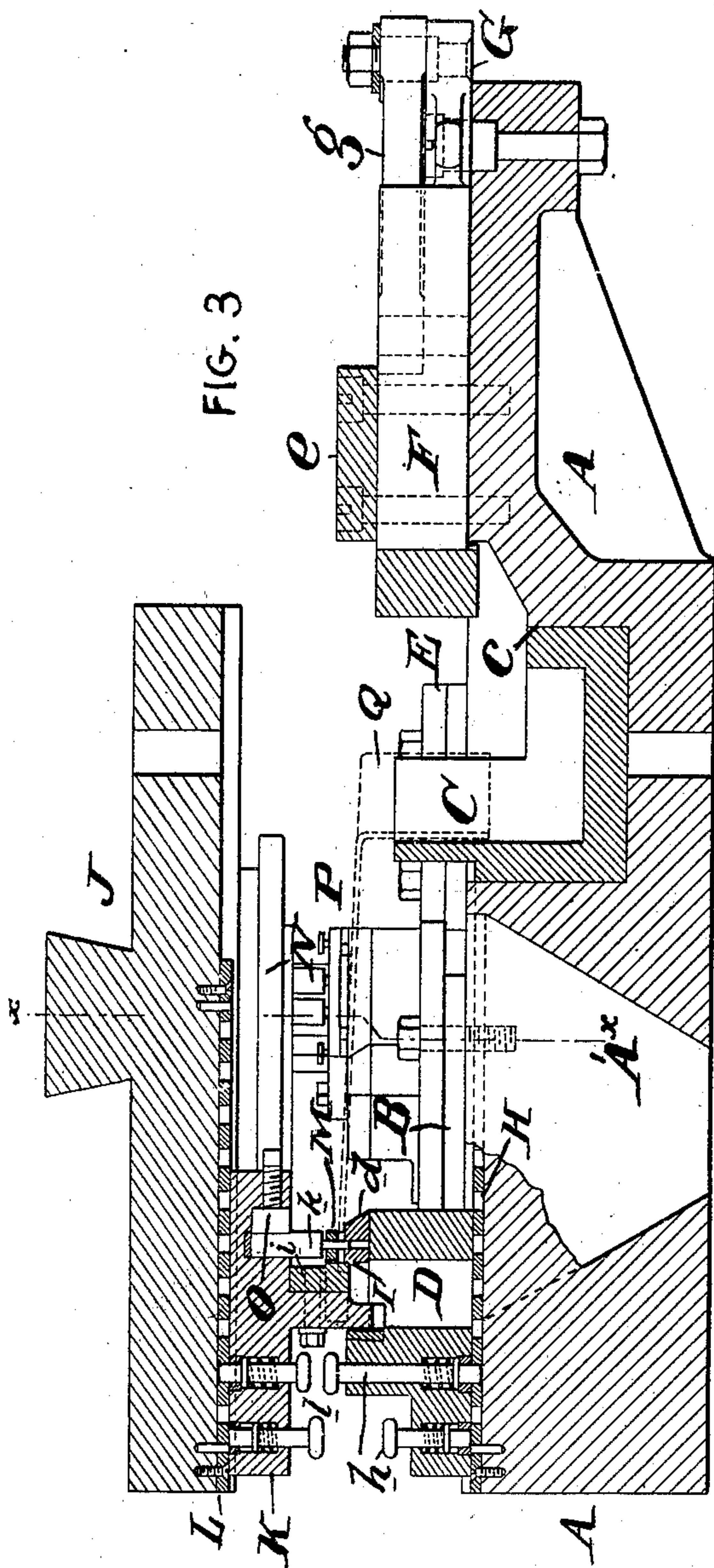


FIG. 3

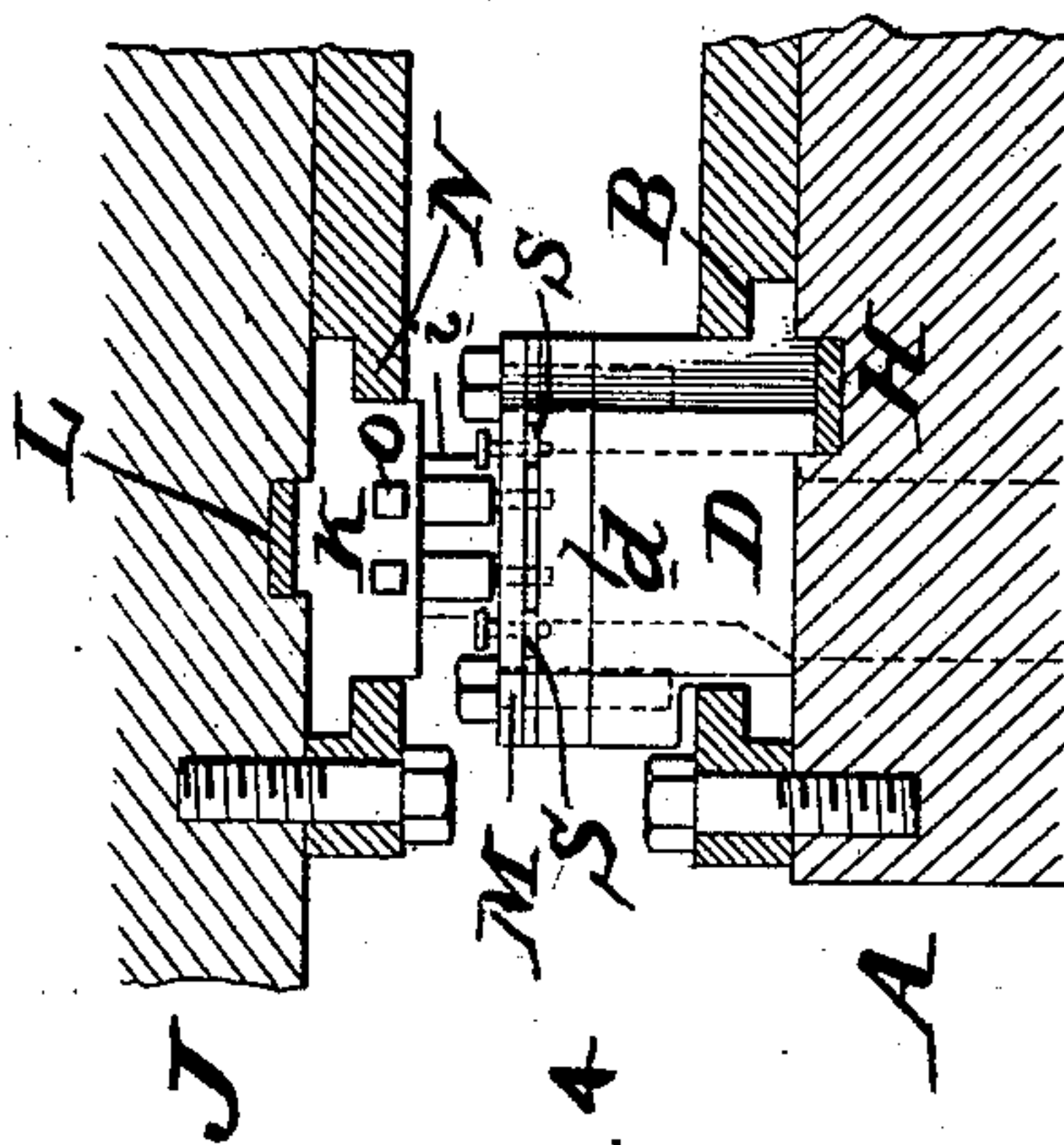


FIG. 4

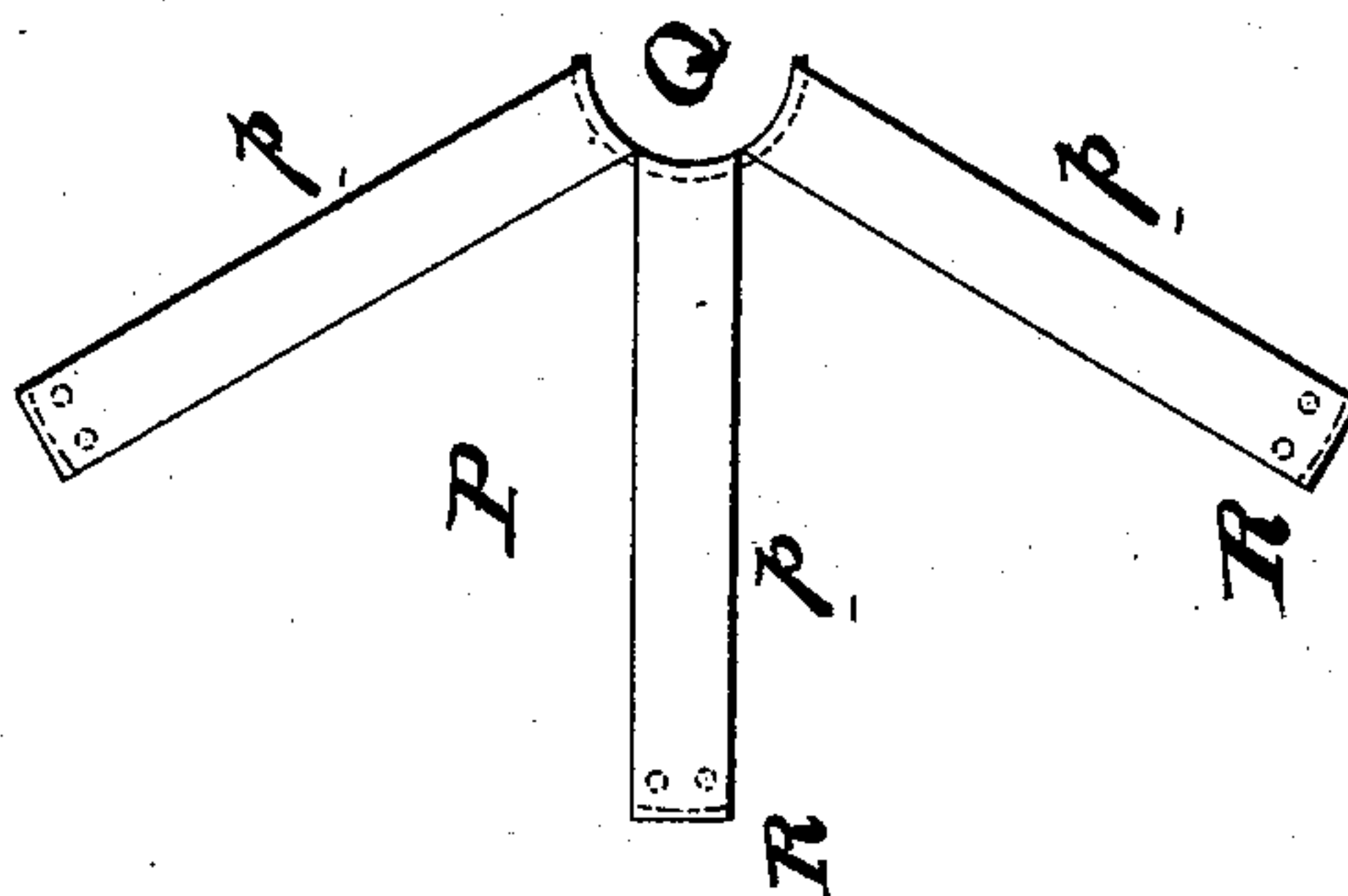


FIG. 5

Witnesses:
Henry Dwyer
R. M. Kelly.

Inventor:
Adeline J. Corscaden
Adminx of Thos. Corscaden
Dec'd
By her atty *[Signature]*

UNITED STATES PATENT OFFICE.

ADELINE J. CORSCADEN, OF PHILADELPHIA, PENNSYLVANIA, ADMINISTRATRIX OF THOMAS CORSCADEN, DECEASED.

DIE FOR FINISHING PULLEY-SPOKE BLANKS.

SPECIFICATION forming part of Letters Patent No. 630,450, dated August 8, 1899.

Application filed October 3, 1898. Serial No. 692,459. (No model.)

To all whom it may concern:

Be it known that THOMAS CORSCADEN, deceased, late of Philadelphia, Pennsylvania, did invent an Improvement in Dies for Finishing Pulley-Spoke Blanks, of which the following is a specification.

This invention has reference to dies for finishing pulley-spoke blanks; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of the invention is to provide suitable devices for punching and shearing (either or both) the outer ends of spoke-arms when formed of sheet metal and preferably constituting a single blank. In the manufacture of sheet-metal pulleys—such, for example, as illustrated in patents to Corscaden, No. 595,559, dated December 14, 1897, and No. 575,106, dated January 12, 1897—the spokes or arms are formed of sheet metal and united into an integral structure adjacent to the center of radiation by a hub or curved portion. It is essential in the manufacture of these pulleys that the ends of the arms shall be uniform and shall be punched with rivet or bolt holes adjacent to said ends, so that the assembling of the several parts making up the complete article may be speedily and efficiently accomplished.

The improvements embodied in this application are specially designed for shearing and punching the ends of the spoke-arms, and thereby securing the above results.

In carrying out this invention there is provided a set of dies, in which one part thereof, preferably the lower, is furnished with one or more die-plates, preferably adjustable, and a suitable clamping device for holding the spoke-arm in position. Where several punching-die plates are employed, the adjustment thereof is made in radial lines from the clamping devices, and said latter is arranged to act upon the hub portion of the blank. The other portion of the dies is provided with corresponding guide or guides in which are adjustably secured suitable punches, adapted

to operate in connection with the punch-plates of the lower die.

It is further preferred that the two parts of these dies shall be provided, respectively, with the blades of a suitable shear, which blades or cutters are preferably slightly curved and adapted to shear the extreme outer ends of the spoke-arms, so that the said arms from the hub portion are absolutely of the same length, not only in the same blank, but in any series of blanks treated in the same dies. From this it is seen that any spoke-blank of a given size will fit any rim of the same corresponding size of pulley and insure an absolutely true pulley being the result.

This invention will be better understood by reference to the accompanying drawings, in which—

Figure 1 is an inverted plan view of the upper die. Fig. 2 is a plan view of the lower die. Fig. 3 is a sectional elevation on line *y y* of Fig. 2 and taken through both dies when properly arranged one above the other. Fig. 4 is a transverse section on line *x x* of Fig. 3, and Fig. 5 is a plan view of the spoke-blank.

A is a base-plate of the lower die and is provided with a central stationary semicircular clamping-jaw C, having an internal curvature corresponding to the curvature of the hub portion Q of the blank, Fig. 5. This jaw is made removable from the body-plate A and is fitted thereon in a recess or socket *c*, so that other sizes of jaws may be substituted to suit different diameters of hubs.

E is a removable clamping-jaw connected to a reciprocating bar F, guided in suitable guides *e* and adapted to be moved to or from the stationary jaw C. The jaw E corresponds to the curvature of the jaw C, allowing for the thickness of the metal of the hub portion, and said jaw E is provided with two lateral shoulders (clearly shown in Fig. 2) to receive the edges of the blank and force the curved hub portion evenly into the jaw C. The movable jaw and its bar F are reciprocated by a hand-lever G and link *g*. The proportion of these parts is such that when the lever G is thrown through one hundred and eighty

degrees the jaw E clamps the blank and becomes locked.

The base-plate A is furthermore provided with radial guides B B B, arranged at sixty degrees apart; but the invention is not confined to any particular number or angular arrangements of these guides. In each of these guides is arranged an adjustable block D, which is movable to or from the clamping-jaw C and may be locked in any one of numerous positions by means of the spring-actuated plugs *h*, operating in connection with the fixed perforated plate H, secured to the frame A. By employing two of these plugs a greater possible adjustment is secured with a limited number of holes in the perforated plate. The invention is not confined, however, to any special method of adjustment for the blocks D. The upper portions of these blocks are provided with a punch-plate *d*, which is also provided with a rectangular or substantially rectangular aperture and the edge of which adjacent to the punch-holes to receive the punches constitutes one blade of a shear I. The block D has a vertical aperture through it, which permits the piece of metal sheared from the arms to fall down and escape through an aperture A' in the base plate or frame A. As shown in the drawings, the punch-plate *d* has provision for receiving two punches to enable two holes to be punched in the end of each arm; but this is not essential, as a single hole might be employed if so desired. It will be understood that each of the blocks D corresponding to the several guides B is independently adjustable and may be adjusted to suit the radial length of the spokes, so that the one set of dies will answer for a number of spokes of different diameters of pulleys.

Referring now to the upper die, we have the base plate or frame J provided with radial guides N N N corresponding to the radial guides B of the lower die structure. In each of these guides N a block K is adjustably secured and may be held in adjusted position by spring-actuated locking-plugs *l* and a perforated plate L corresponding to the similar parts *h* H on the lower die structure. The block K is further provided with sockets which receive the punches *k*, the same being clamped in position by the set-screws O and are adapted to operate in conjunction with the holes in the punch-plate *d*, as clearly shown in Figs. 3 and 4. Secured to the block K, immediately to the rear of the punches, is the shear-blade *i*, constituting the upper blade of the shear I. The cutting edges of the shear I are made curved, as indicated in Figs. 1 and 2, to correspond to the peripheral curve at the outer ends of the rim, though this is not essential. The block K is further provided with a downwardly-extending portion, which moves within the opening of the die-plate *d* and holds the shear-blade *i* up to its lower member, as indicated in Fig. 3.

The blank P to be operated upon is indicated in Fig. 5 and constitutes the hub portion Q and the radial arms *p*. When this spoke-blank is inserted between the dies, it takes the position indicated in dotted lines at P in Fig. 3 and is perforated and sheared at the ends of the arms, as indicated by dotted lines at R in Fig. 3. A stripper-plate M is attached to the die-plate *d*, so as to strip the ends of the arms from the punches *k* when the latter are receding. The lateral spaces between the stripper M and the die-plate *d* may be provided with guide-plugs S S, held in place by suitable pins, as indicated in Fig. 4, and between which the spoke-arms are guided. These plugs S S may be changed to suit different widths of spoke-arms.

The invention is not confined to the specific details of construction, as these parts may be greatly modified without departing from the principles of the invention, and hence they may be modified or changed so long as the characteristic features of the die structures are not eliminated. It is also evident that, broadly considered, the invention is not confined to the employment of two or more radially-disposed guides and punching and shearing devices, as a single set of said devices may be employed if so desired. It is furthermore to be understood that while it is preferred to simultaneously punch and shear the ends of the arms either of said operations may be omitted and the corresponding portion eliminated from the die structure, as here shown, without departing from the generic features of the invention.

What is claimed as new, and desired to be secured by Letters Patent, is—

1. The combination of two frames each independent of the other and also relatively movable to and from each other, a suitable clamping device arranged wholly upon one of said frames, and two or more sets of punching devices having their elements secured partly upon each of the frames and arranged radially about the clamping devices.

2. The combination of two frames, each independent of the other and also relatively movable to and from each other, a suitable clamping device arranged upon one of said frames, two or more sets of punching devices having their elements secured respectively upon both frames and arranged radially about the clamping devices, and means for adjusting said punching devices radially to or from the clamping devices.

3. The combination of two frames relatively movable to and from each other, a suitable clamping device arranged upon one of said frames, and two or more sets of shearing devices having their elements secured respectively upon both frames and arranged radially about the clamping devices.

4. The combination of two frames relatively movable to and from each other, a suitable clamping device arranged upon one of said

frames, two or more sets of shearing devices having their elements secured respectively upon both frames and arranged radially about the clamping devices, and means for adjusting said shearing devices radially to or from the clamping devices.

5. The combination of two frames relatively movable to and from each other, a suitable clamping device arranged upon one of said frames, two or more sets of punching devices and two or more sets of shearing devices having their elements respectively secured upon both frames and arranged radially about the clamping devices.

6. The combination of two frames relatively movable to and from each other, a suitable clamping device arranged upon one of said frames, two or more sets of punching devices and two or more sets of shearing devices having their elements respectively secured upon both frames and arranged radially about the clamping devices, and means for adjusting said punching and shearing devices radially to or from the clamping devices.

7. The combination of two frames relatively movable to or from each other, to or more diverging guides arranged respectively upon each of said frames, adjustable blocks arranged upon each of said guides, punching-plates secured or carried by the blocks corresponding to the sets of guides on one of the frames, and punches carried by and secured to the blocks corresponding to the guides of the other frame.

8. The combination of two frames relatively movable to or from each other, two or more diverging guides arranged respectively upon each of said frames, adjustable blocks arranged upon each of said guides, punch-plates secured to or carried by the blocks corresponding to the sets of guides on one of the frames, punches carried by and secured to the blocks corresponding to the guides of the other frame, and locking devices for locking the several blocks in adjusted position within their respective guides.

9. The combination of two frames relatively movable to or from each other, two or more diverging guides arranged respectively upon each of said frames, adjustable blocks arranged upon each of said guides, shear-plates secured to or carried by the blocks corresponding to the sets of guides on one of the frames, and a second set of shear-plates carried by and secured to the blocks corresponding to the guides of the other frame.

10. The combination of two frames relatively movable to or from each other, two or more diverging guides arranged respectively upon each of said frames, adjustable blocks arranged upon each of said guides, shear-plates secured to or carried by the blocks corresponding to the sets of guides on one of the frames, a second set of shear-plates carried by and secured to the blocks corresponding to the guides of the other frame, and locking

devices for locking the several blocks in adjusted position upon their respective guides.

11. The combination of two frames relatively movable to or from each other, two or more diverging guides arranged respectively upon each of said frames, adjustable blocks arranged upon each of said guides, punch-plates secured to or carried by the blocks corresponding to the sets of guides on one of the frames, punches carried by and secured to the blocks corresponding to the guides of the other frame, and suitable guides for holding the blanks to be punched in position laterally between the punches and punch-plates.

12. The combination of two frames relatively movable to or from each other, punching devices part of which is secured to one frame and part to the other frame, and a clamp carried wholly by one of said frames and consisting of two jaws having their clamping-surfaces arranged substantially parallel to the direction of movement of the punch and laterally arranged relatively to the punching devices.

13. The combination of two frames relatively movable to or from each other, a clamp carried by one of said frames, punching devices part of which is secured to one frame and part to the other frame and laterally arranged relatively to the clamp, and means for adjusting the punching devices to or from the clamp.

14. The combination of two frames relatively movable to or from each other, a clamp carried by one of said frames, and shearing devices part of which is secured to one frame and part to the other frame and laterally arranged relatively to the clamp, so as to be located wholly to one side of and considerably removed from it.

15. The combination of two frames relatively movable to or from each other, a clamp carried by one of said frames, shearing devices part of which is secured to one frame and part to the other frame and laterally arranged relatively to the clamp, and means for adjusting the several shearing devices to or from the clamp.

16. The combination of two frames relatively movable to or from each other, a clamp carried by one of said frames, punching and shearing devices parts of which are secured to one frame and parts to the other frame and laterally arranged relatively to the clamp, and means for adjusting the several punching and shearing devices to or from the clamp.

17. The combination of two frames relatively movable to or from each other, a semicircular clamping-jaw secured to one of said frames, a semicircular movable jaw movable to or from the fixed jaw adapted to clamp a semicircular piece of sheet metal thereon, and a series of sets of punching devices carried by the two frames and radially disposed about the fixed clamping-jaw.

18. The combination of two frames rela-

4
tively movable to or from each other, a semi-
circular clamping-jaw secured to one of said
frames, a semicircular movable jaw movable
to or from the fixed jaw adapted to clamp a
5 semicircular piece of sheet metal thereon, and
a series of sets of shearing devices carried by
the two frames and radially disposed about
the fixed clamping-jaw.

In testimony of which invention I heretunto
set my hand.

ADELINE J. CORSCADEN,
Administratrix of the estate of Thomas Cors-
caden, deceased.

Witnesses:

HENRY SMALLY,
JERE. J. CROWLEY.