

No. 651,820.

Patented June 19, 1900.

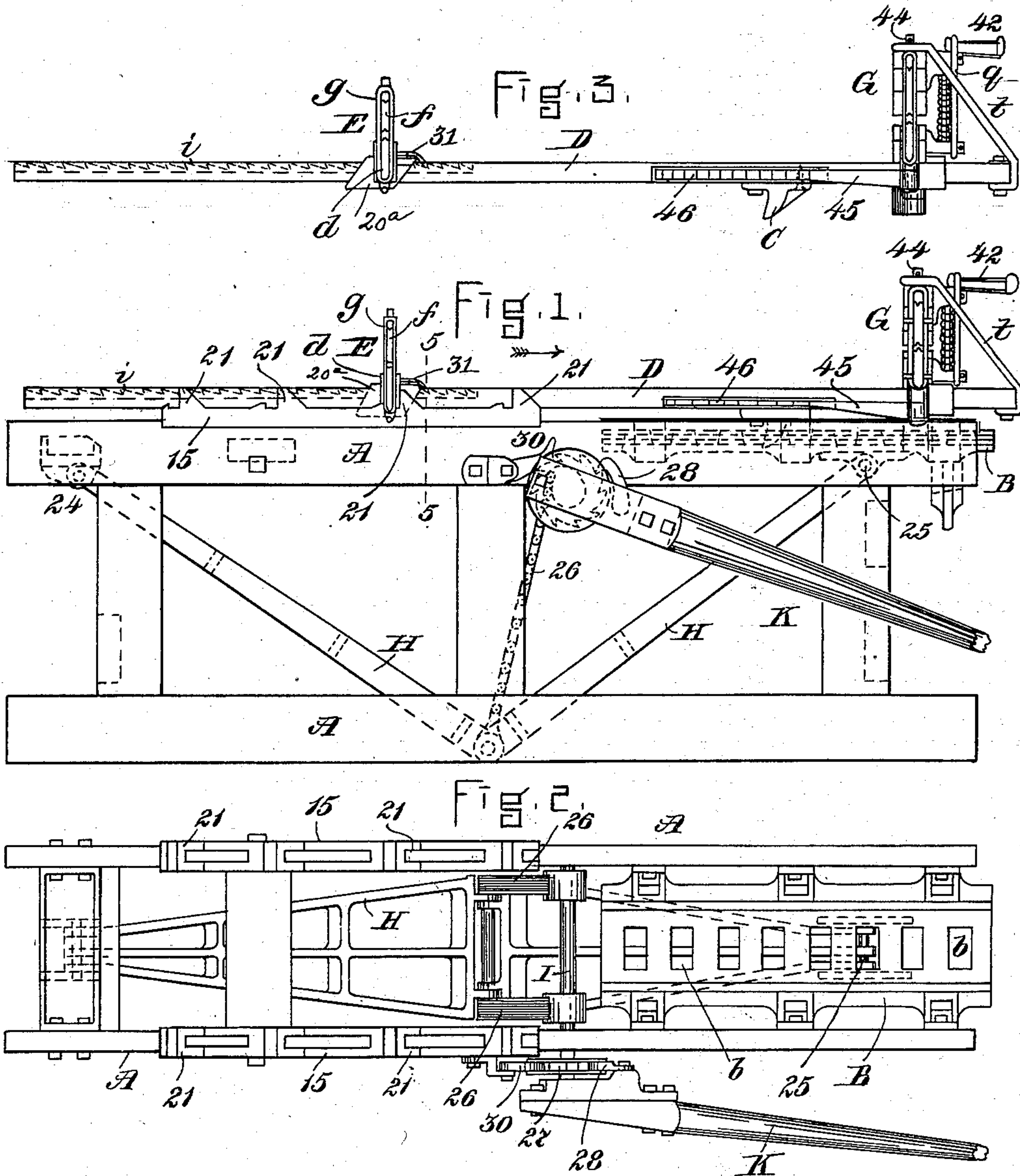
J. BROOKS.

LEATHER STRETCHING MACHINE.

(Application filed Feb. 24, 1900.)

(No Model.)

5 Sheets—Sheet 1.



WITNESSES:

*G. Henry Marsh.*  
*Lillian A. Basford.*

INVENTOR.

*John Brooks,*  
BY *J. E. Schenck*  
ATTORNEY.

**No. 651,820.**

**Patented June 19, 1900.**

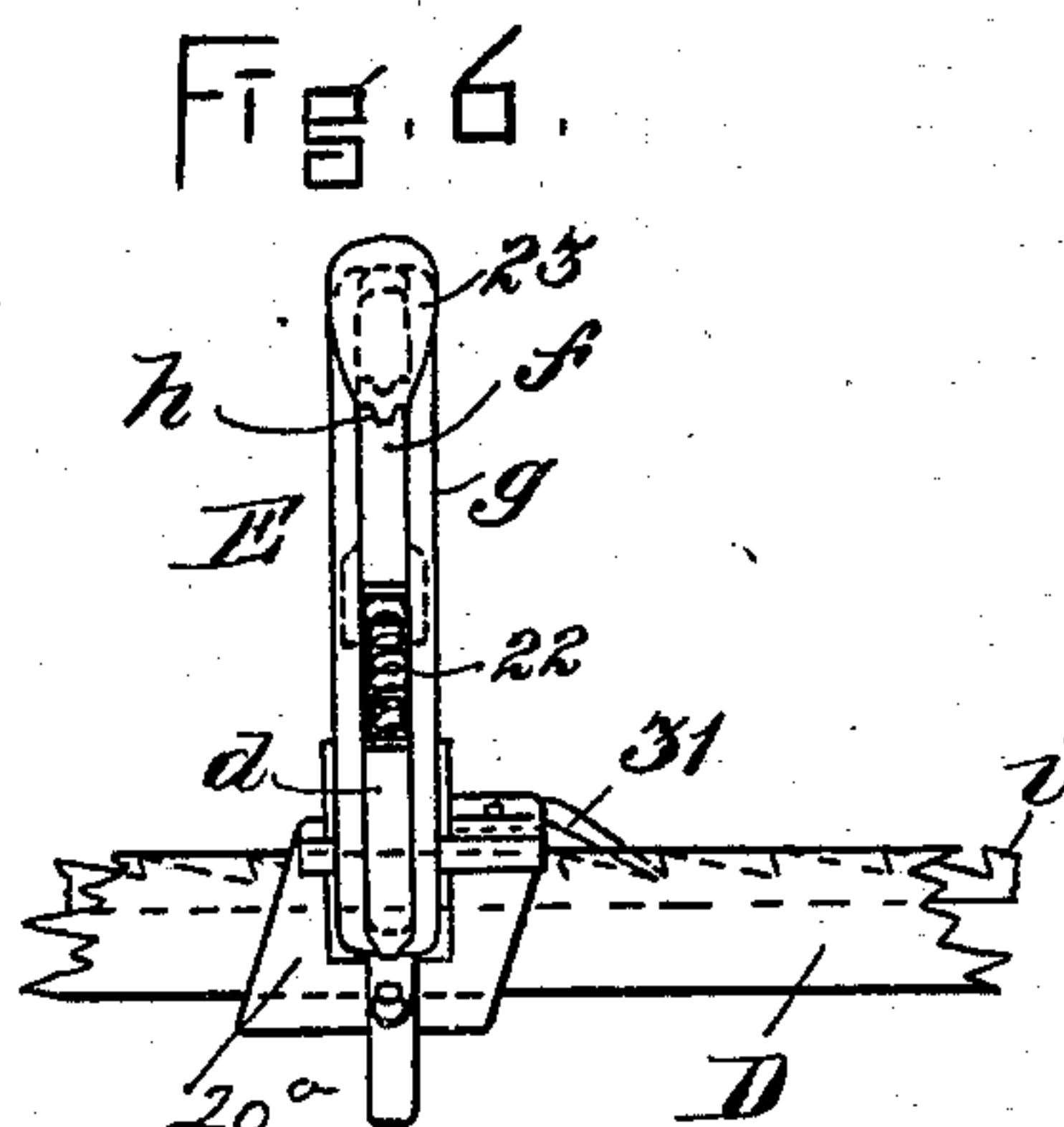
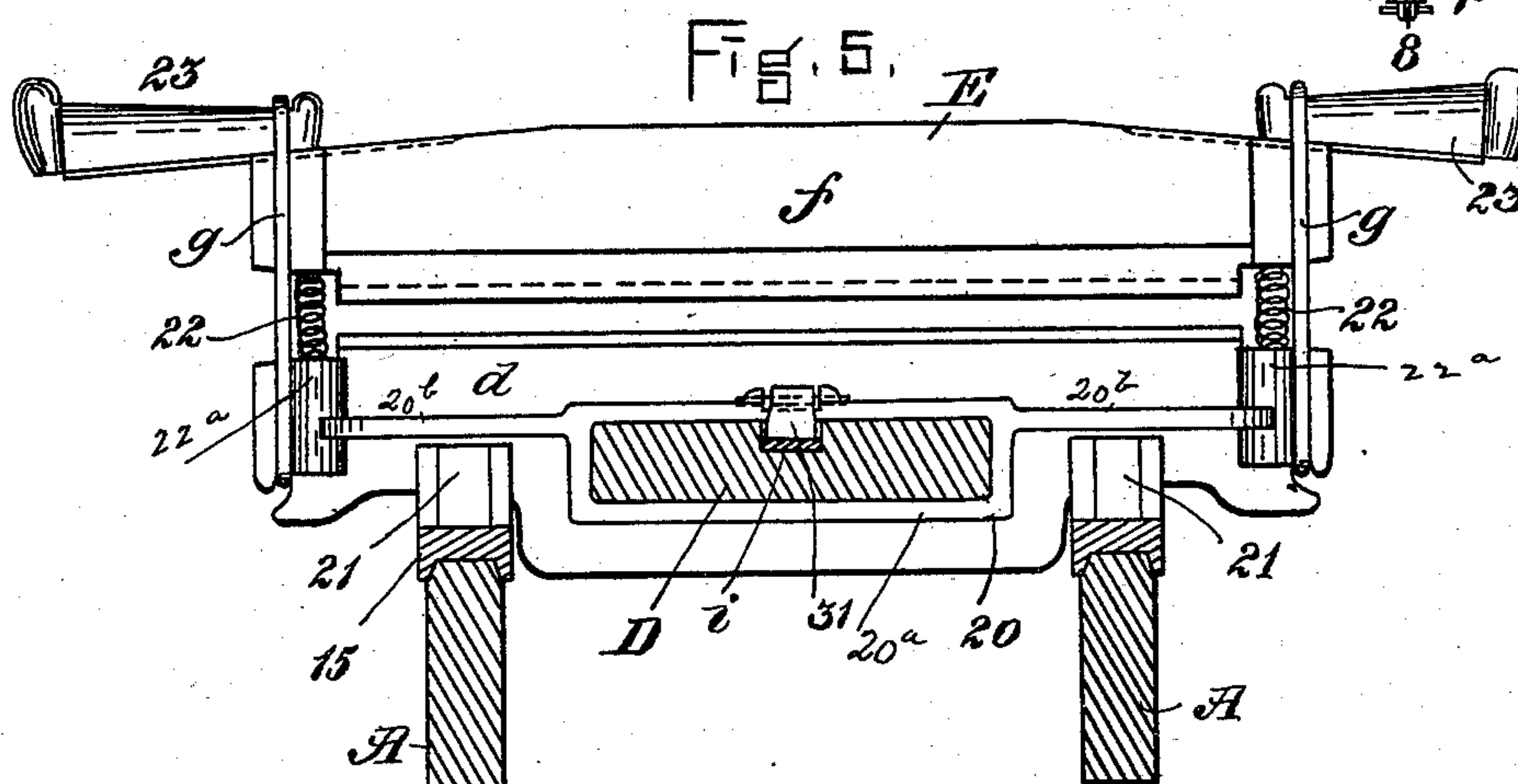
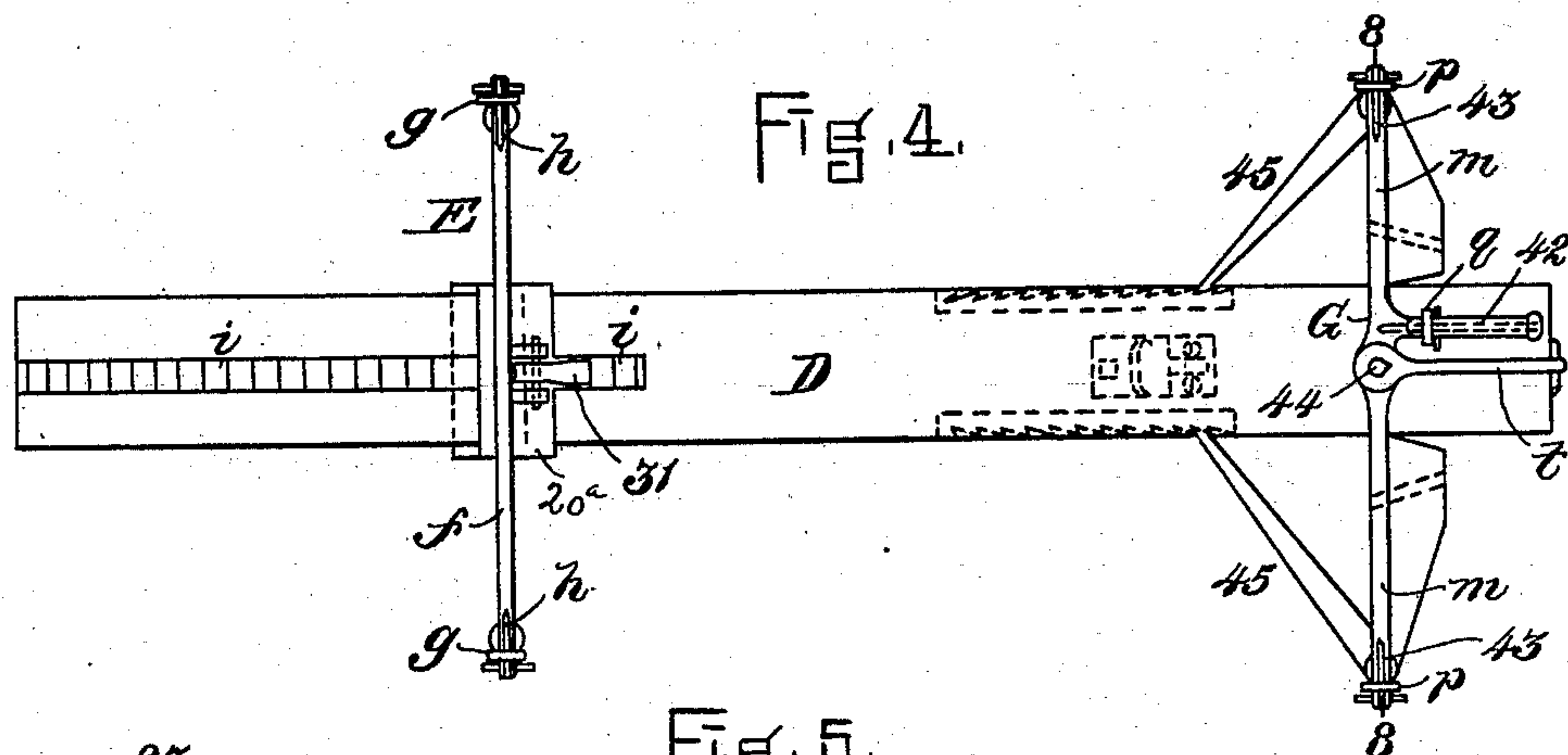
**J. BROOKS.**

## LEATHER STRETCHING MACHINE.

(Application filed Feb. 24, 1900.)

(No Model.)

**5 Sheets—Sheet 2.**



**WITNESSES:**

Lillian V. Basford.

*INVENTOR.*

*John Brooks,*

BY *H. Eschmacker*  
ATTORNEY.



No. 651,820.

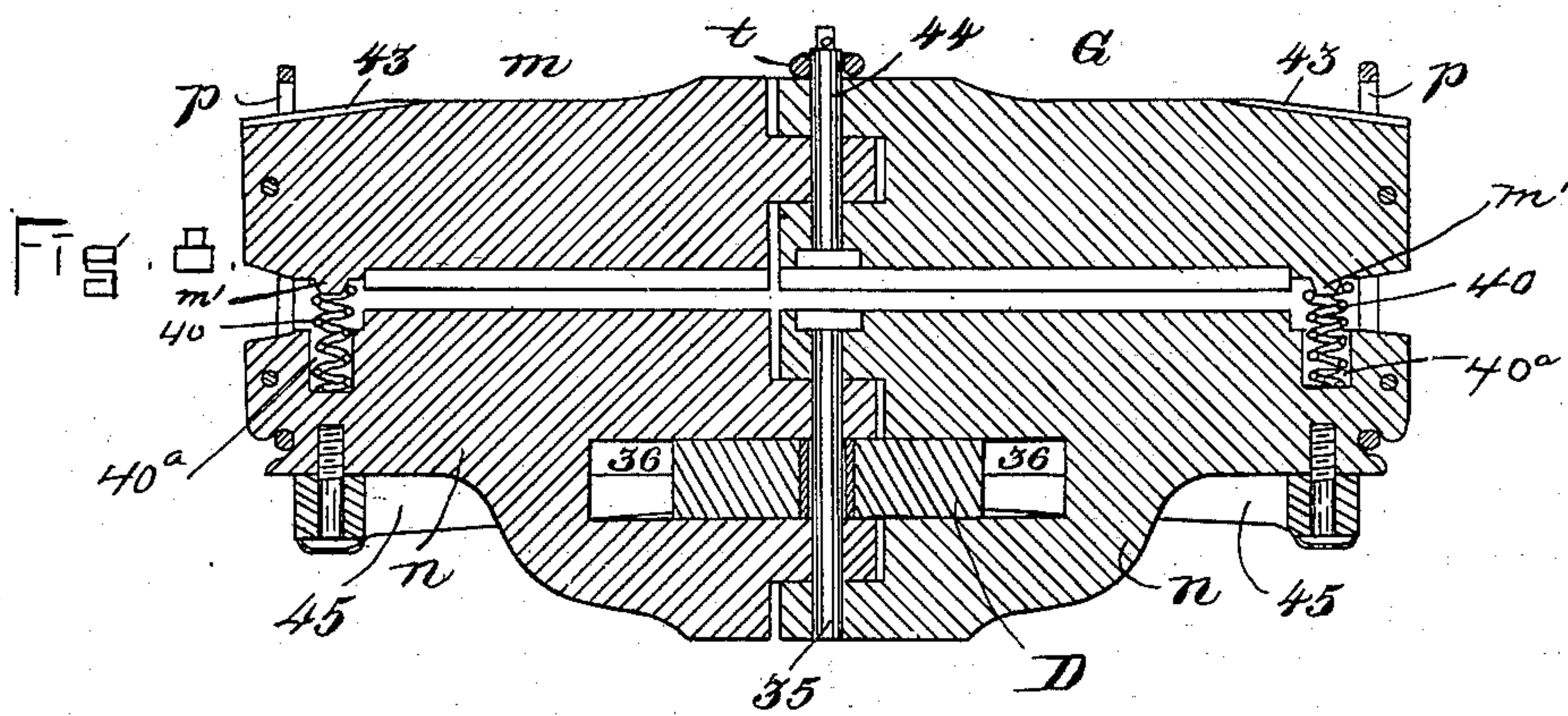
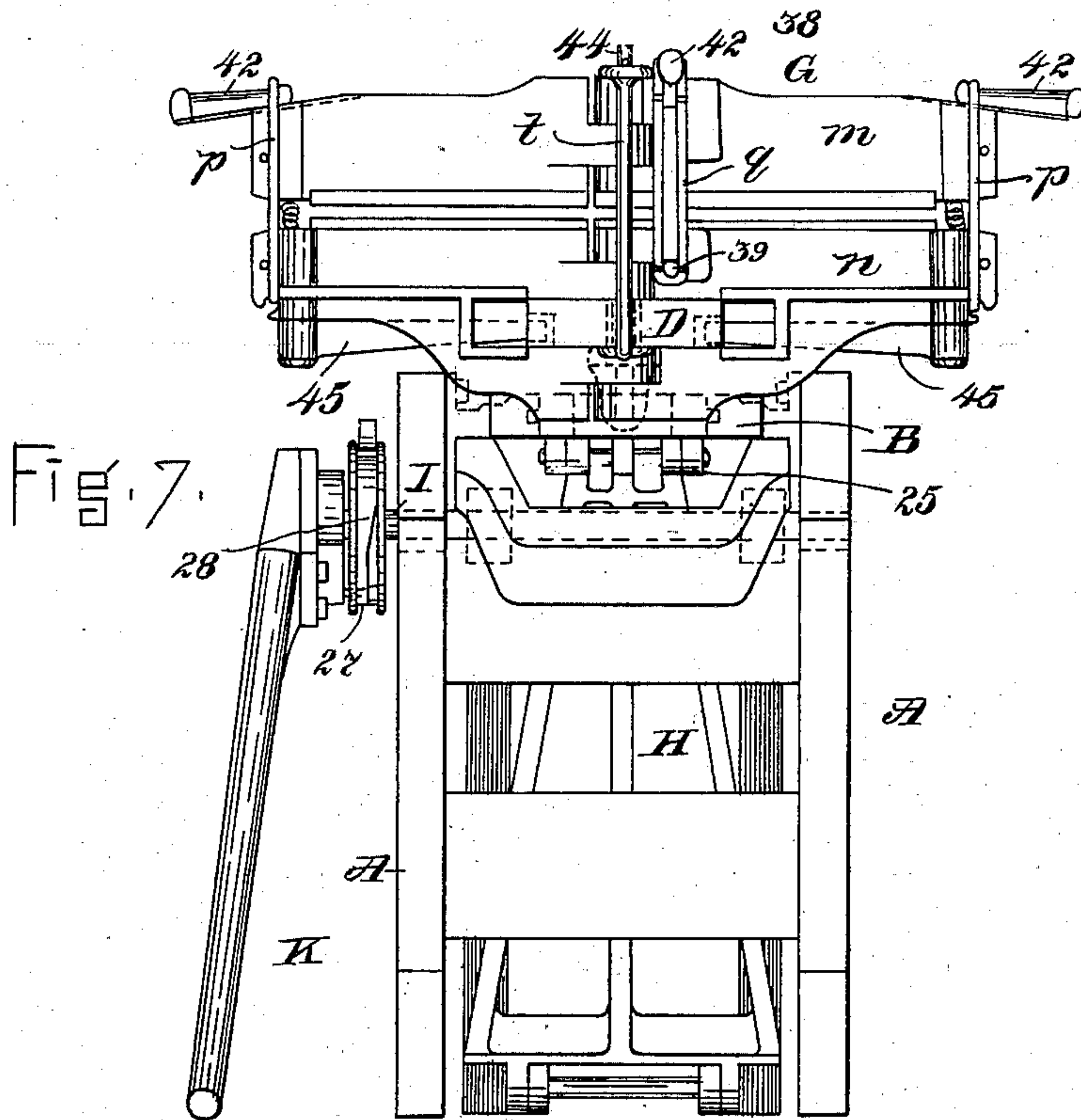
Patented June 19, 1900.

J. BROOKS.  
LEATHER STRETCHING MACHINE.

(Application filed Feb. 24, 1900.)

(No Model.)

5 Sheets—Sheet 3.



WITNESSES:  
*J. Henry Marsh.*  
*Lillian J. Basford.*

INVENTOR.  
*John Brooks,*  
BY *J. C. Ketchumacher*  
ATTORNEY.

**No. 651,820.**

**Patented June 19, 1900.**

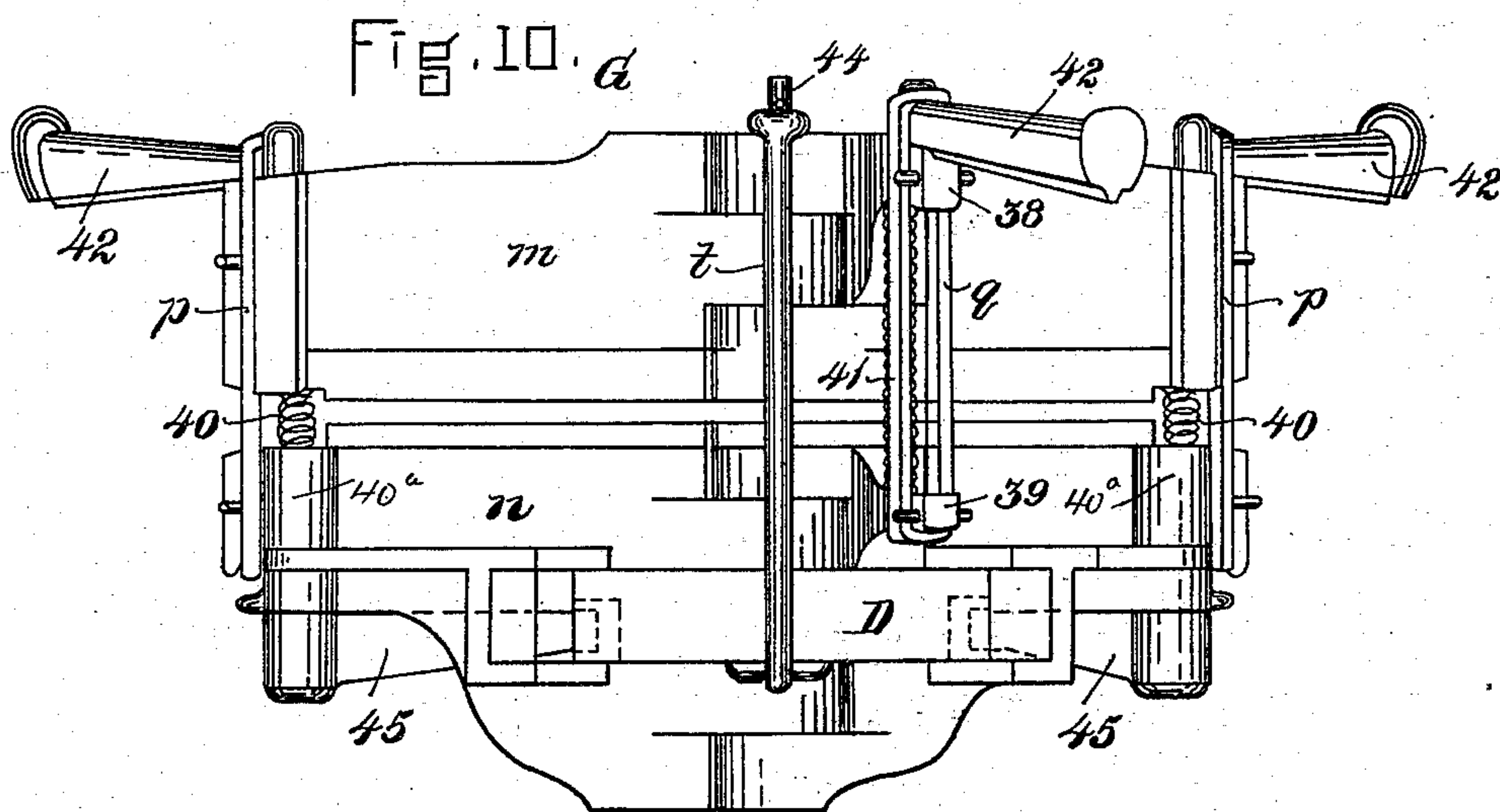
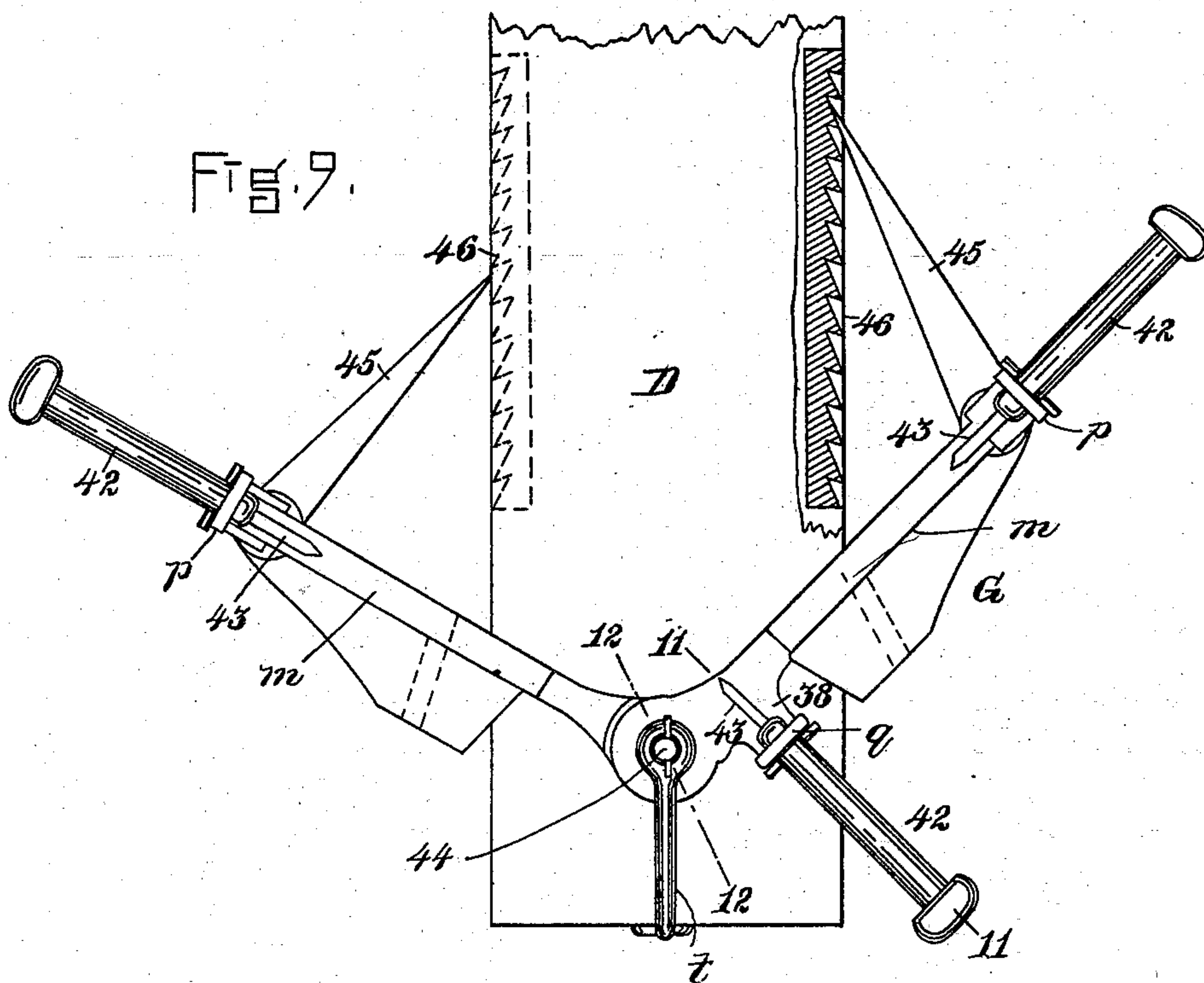
**J. BROOKS.**

## LEATHER STRETCHING MACHINE.

(Application filed Feb. 24, 1900.)

(No Model.)

**5 Sheets—Sheet 4.**



*WITNESSES:*

WITNESSES:  
 J. Henry Marsh.  
 Lillian V. Barford.

*INVENTOR.*

John Brooks,  
BY *J. E. Schenck*  
ATTORNEY.



No. 651,820.

Patented June 19, 1900.

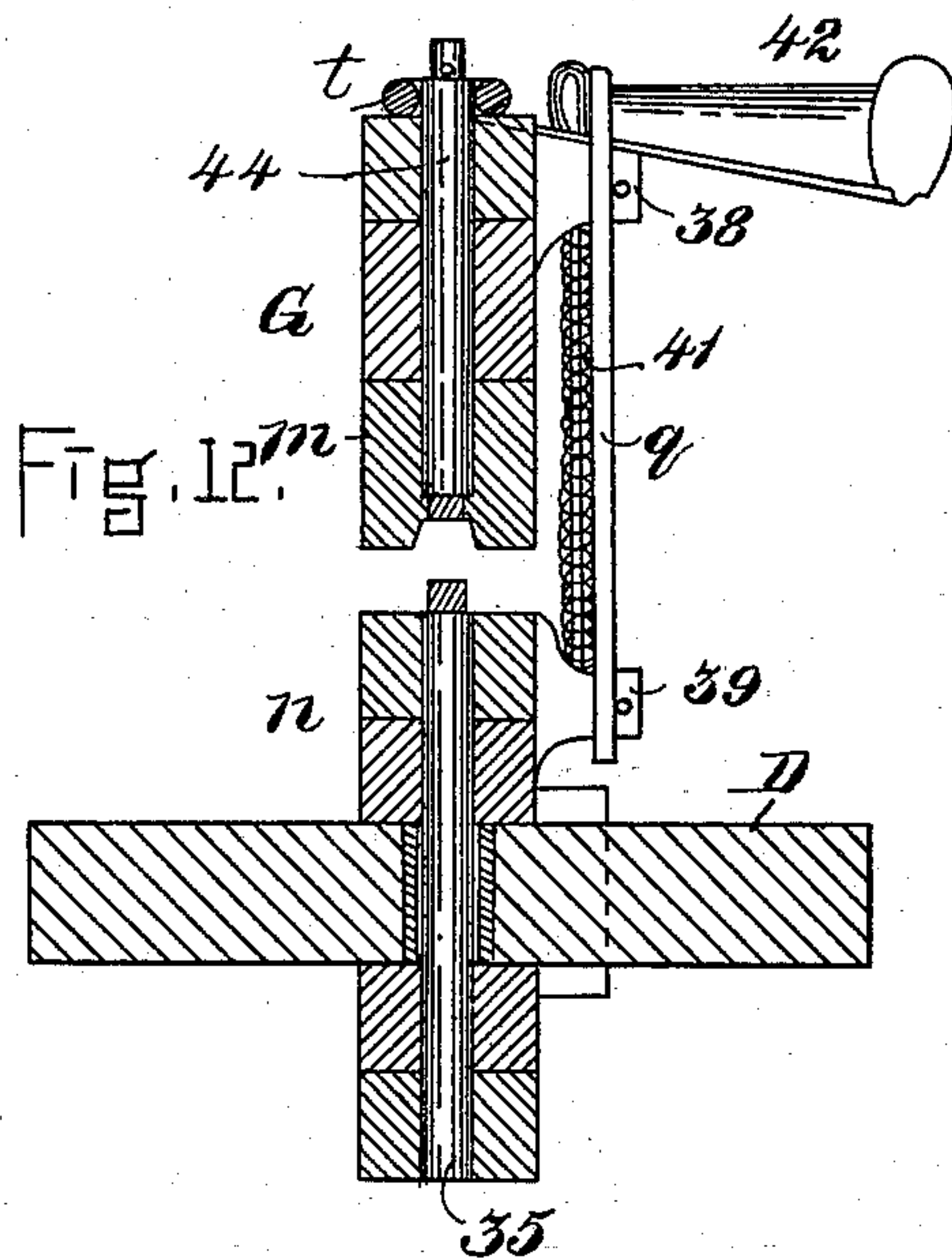
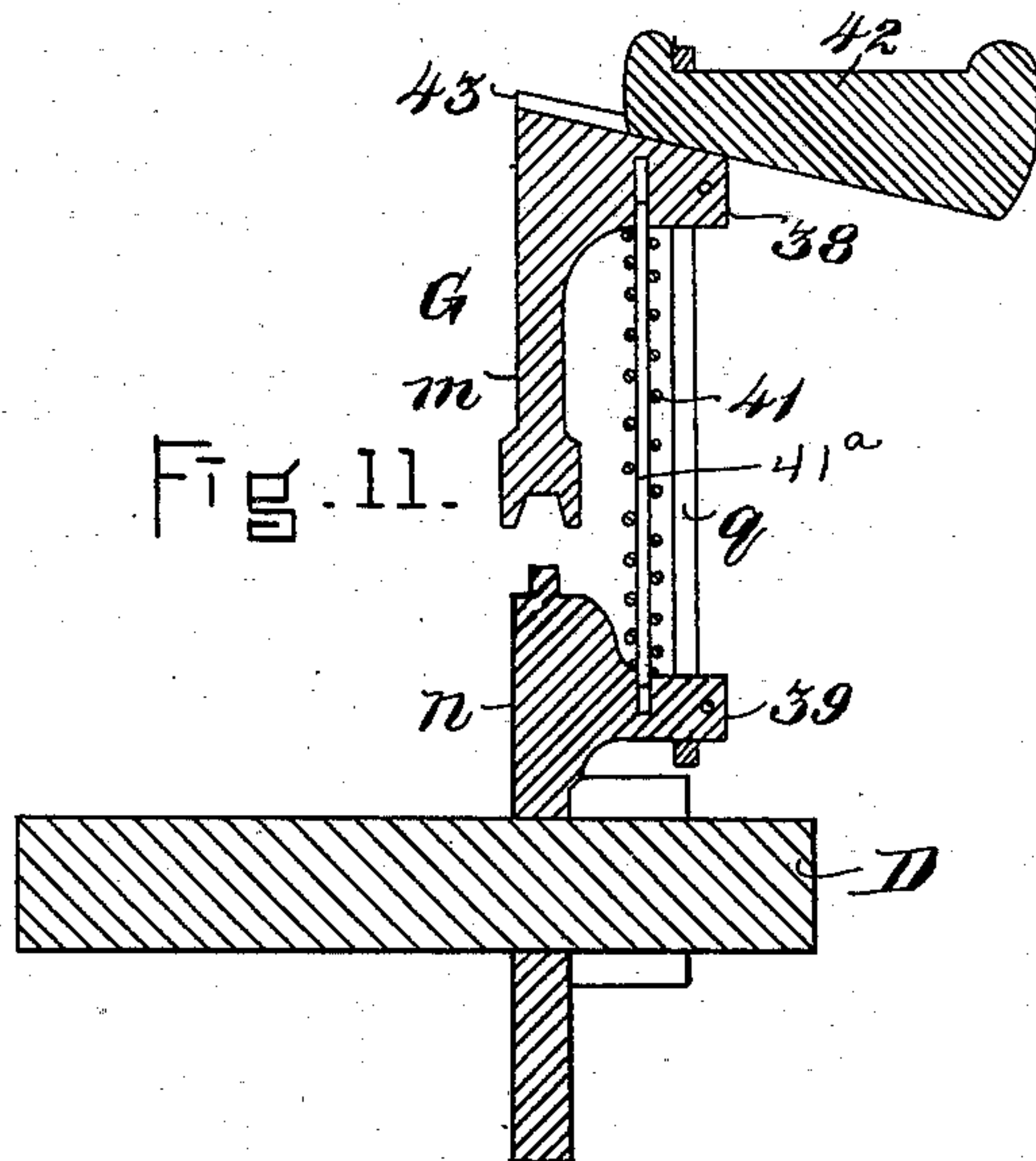
J. BROOKS.

LEATHER STRETCHING MACHINE.

(Application filed Feb. 24, 1900.)

(No Model.)

5 Sheets—Sheet 5.



WITNESSES:

*R. Henry Nash.*  
*Lillian O. Basford.*

INVENTOR.

*John Brooks,*  
BY *R. E. Tschernacher*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

JOHN BROOKS, OF CONCORD, NEW HAMPSHIRE.

## LEATHER-STRETCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 651,820, dated June 19, 1900.

Application filed February 24, 1900. Serial No. 6,404. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BROOKS, a citizen of the United States, residing at Concord, in the county of Merrimac and State of New Hampshire, have invented certain Improvements in Machines for Stretching Leather for Belting, of which the following is a specification.

In the manufacture of leather belting the hide is first cut into strips of the required width, which are then stretched longitudinally in a suitable machine provided with two pairs of straight jaws which are clamped upon the opposite ends of the strip and then forced apart by suitable mechanism to stretch the same. The "shoulder" end of the strip is generally straight in the direction of its width, enabling the jaws to grip it close to its edge without waste, while the "butt-end" is of angular shape, and consequently the other pair of jaws in gripping this uneven end of the strip across its full width, as is necessary, leave an uneven piece of leather in the rear of the line of contact with said jaws, which piece was marred by the jaws, and as it could not be stretched was consequently wasted. To avoid this waste of leather and enable the strip to be gripped close along the edge of its uneven end without regard to its angular shape, which varies in different pieces, is the object of my invention, which consists in jointing the jaws which hold the uneven end of the strip so that they may be adjusted at any desired angle to each other to conform approximately to the shape of the end of the strip, which can thus be gripped close to its edge, as required to avoid unnecessary waste, the jaws being provided with suitable means whereby they are held in their adjusted positions against the strain to which they are subjected in the operation of stretching the leather.

In the accompanying drawings, Figure 1 is a side elevation of a leather-stretching frame or machine having my improved stretcher-plank with its leather-holding jaws in place thereon. Fig. 2 is a plan of the stretcher-frame with the stretcher-plank removed. Fig. 3 is a side elevation of the stretcher-plank and its leather-holding jaws. Fig. 4 is a plan of the same. Fig. 5 is an enlarged transverse vertical section on the line 5 5 of Fig. 1 looking

toward the rear jaws. Fig. 6 is an end elevation of the rear leather-holding jaws shown in Fig. 5. Fig. 7 is an elevation of the front end of the machine shown in Fig. 1. Fig. 8 is an enlarged vertical section on the line 8 8 of Fig. 4. Fig. 9 is an enlarged plan of a portion of the stretcher-planks, showing the front jointed leather-holding jaws arranged at an angle to correspond with the shape of the uneven or angular end of the strip of leather to be stretched. Fig. 10 is an elevation of the front jaws with the parts in the position shown in Fig. 9. Fig. 11 is an enlarged section on the line 11 11 of Fig. 9. Fig. 12 is an enlarged section on the line 12 12 of Fig. 9.

In the said drawings, A represents a leather-stretching frame such as is usually employed in the operation of stretching strips of leather to be made into belting. This frame A is provided on its top, on the right-hand side of the center, with a heavy cast-iron plate or table B, which slides horizontally in suitable guide-ways in said frame and is provided along its center with a series of rectangular apertures *b* for the reception of a hook *c*, Fig. 3, projecting from the under side of the removable stretcher-plank D, upon which is placed the wet strip of leather to be stretched. On this plank D are mounted the rear leather-holding jaws E, the lower member or base *d* of which is provided with an oblong horizontal opening 20, Fig. 5, for the reception of the plank D, which is free to slide therethrough when said jaws E are held stationary by the lower member *d* abutting against the vertical faces of projections 21, rising from castings 15, secured to the upper side pieces of the stretcher-frame A, as shown in Fig. 1. The opening 20 is surrounded at both ends by a tubular boxing or flange 20<sup>a</sup>, which holds the jaw E from rocking on the plank D, while permitting a sliding movement of the plank, and 20<sup>b</sup> represents strengthening-ribs extending from the ends of the boxing 20<sup>a</sup> to the outer ends of jaw member *d*. The upper member *f* of the jaws E is held in place in line with the lower member *d* by links *g g*, which embrace the ends of the jaws, the upper jaw being forced down against the resistance of springs 22 to grip the straight end of the leather strip close to its edge by means of wedges 23, which are driven in between the links *g g* and the top



of the member *f*, the latter having guide-grooves *h* to receive tenons on the under sides of the wedges. The springs 22 are mounted at their lower ends in sockets 22<sup>a</sup>, formed in the ends of the lower member *d*, and the upper member rests on these springs. The exact manner of mounting these springs is that shown in Fig. 8 for the springs 40.

To the front end of the stretcher-plank D are firmly secured a pair of jointed leather-holding jaws G, which are made adjustable, as hereinafter more fully described, to adapt them to grip the angular or uneven end of the leather strip to be stretched, said strip when held between the jaws E and G being stretched by the movement of the plank D to the right through the opening 20 of the lower member *d* of the jaws E, which movement is produced by a corresponding movement of the sliding table B, with which the said plank is connected through the medium of the hook *c*, which is in engagement with one of the apertures *b* of the said sliding table. The table B is actuated by a toggle H, one arm of which is pivoted to the frame A at 24, Fig. 1, while the other end is pivoted to the sliding table B at 25, said toggle being operated by chains 26, which are connected with the horizontal shaft I, having its bearings in the frame A and provided at one end with a ratchet-wheel 27, which is engaged by a hook-shaped pawl 28 on a hand-lever K, pivoted on the end of the shaft I outside the framework, a retaining-pawl 30, engaging the ratchet-wheel 27, serving to prevent the backward movement of the table B as it is advanced by the lever. As the plank D slides through the aperture 20 of the rear jaws E in the direction of the arrow, Fig. 1, during the operation of stretching the leather it is held from returning by a pawl 31, which is pivoted to the lower member or base *d* of the rear jaws E and engages a longitudinal ratchet-bar *i*, extending along the center of the plank, as shown in Fig. 4, the strip of leather being thus securely held while being stretched between the front and rear jaws and enabling the plank, with the strip of stretched leather thereon, to be lifted off the stretcher-frame A after the toggle H has been released and set away to remain until the strip has become dry. Other stretcher-planks may then be successively placed on the stretcher-frame A and operated to stretch other strips in the same manner as above described.

The construction of the front jointed jaws G and the mechanism for holding the same in position when adjusted and to which my invention particularly relates will now be described.

The upper and lower members *m n* of the front jaws G are each composed of two parts, having interlocking knuckles at their inner ends connected together by a vertical pin to form a hinged joint, as shown particularly in Figs. 7, 8, 9, and 10, the connecting-pin 35 of the lower jaw *n* passing through the stretcher-

plank D, to which said jaw is thus securely fastened. The plank D passes through a horizontal aperture 36, Fig. 8, formed one-half in each of the two portions of the lower jaw *n*, said aperture 36 being of greater length than the width of the plank to permit of the movement of the two portions of the jaw on their pivot-pin, as shown in Fig. 9. The upper member *m* is held in line with the lower member *n* by links *p p*, embracing the ends of said members, and a link *q*, embracing lugs 38 39, projecting from said jaws near the hinged joint, as shown in Figs. 9, 10, and 11, the upper member being forced down against the resistance of springs 40 41 to cause the jaws to grip the leather by means of wedges 42, driven in between the links and the top of the member *m*, the latter having guide-grooves 43 to receive tenons on the under sides of the wedges. The springs 40 are seated in sockets 40<sup>a</sup>, formed in the ends of the lower jaw members *n n*, and the upper jaw members *m m* have depending projections *m' m'*, which enter the upper ends of said springs, as shown in Fig. 8, and so, also, with regard to the springs 22 of the jaw E. The middle spring 41 of the jaw G is mounted on a rod 41<sup>a</sup>, seated at its ends in sockets formed in the adjacent sides of the two lugs 38 39, as shown in Fig. 11. These springs 40 41, rod 41<sup>a</sup>, links *p q*, wedges 42, and brace *t* serve also to connect the upper and lower members of the jaw G together. The jaw members *m n* and *f d* are provided on their adjacent faces with the usual tongues and grooves to cause them to firmly bite and hold the skins. The stretching strain at the jaw G is received on the pivot-pin 35 and the upper member of the jaw is braced against said strain by the brace *t*, which engages the upper end of the upper pin 44, as will now be described.

*t* is an angle-brace having an eye at its upper end fitting over the upper end of the connecting-pin 44 of the upper jaw member *m*, said brace extending down under the front end of the plank D, to which it is firmly bolted, whereby the jaw *m* is held securely at the joint and enabled to resist the strain to which it is subjected.

To the outer end of each of the two parts of the lower jaw member *m* is pivoted a pawl arm or brace 45, the free pointed end of which is adapted to engage a ratchet-bar 46, secured to the edge of the stretcher-plank D, as shown in Figs. 1, 3, 4, and 9, thereby enabling the jointed jaws to maintain their position when adjusted to resist the strain to which they are subjected in the operation of stretching the strip of leather. By thus jointing the jaws G it will be obvious that they can be adjusted at any required angle to each other to enable them to grip the uneven or angular end of a strip of leather close to its edge, the pawl arms or braces 45 engaging the proper teeth of the ratchet-bars 46 to hold them in their adjusted positions while the leather is being stretched, a material saving being thus ef-



fectcd, as the only portion of the leather remaining unstretched and of no use is that actually gripped by the jaws. If it should be desired to stretch a strip of leather having both  
 5 of its ends straight, the jointed jaws can be set to form a straight line, as shown in Fig. 4, the jaws being thus adapted to grip a straight or an angular end, as may be required.

It will be seen that as the members of the  
 10 jaw G are pivoted together at their inner ends the working faces of the jaw are continuous and grasp the skin at the middle of the jaw as well as therebeyond.

What I claim as my invention, and desire  
 15 to secure by Letters Patent, is—

1. In a leather-stretching machine, a pair of gripping-jaws, the upper and lower members of which are in two parts, each separately hinged together at their inner ends to  
 20 form continuous sectional clamping-surfaces, and allow the hide to enter without cutting it, and means for holding said jaws in their adjusted positions.

2. The combination with the machine-  
 25 frame, the longitudinally-movable stretching plank or frame, and means for operating said plank or frame, of a rear pair of normally-stationary gripping-jaws through which said plank or frame slides and removable there-  
 30 with from the machine-frame, a pair of sectional hinged gripping-jaws mounted on the forward end of the plank, and means for adjusting the jaws.

3. The combination with the machine-  
 35 frame, the longitudinally-movable stretching plank or frame, and means for operating said plank or frame, of a rear pair of normally-stationary gripping-jaws through which said plank or frame slides and removable there-  
 40 with from the machine-frame; a forward pair of gripping-jaws formed of upper and lower sectional members hinged together at their inner ends and there secured to the plank or frame at the middle thereof, and means for  
 45 holding the outer ends of the jaw-sections in their adjusted positions.

4. The combination with the machine-

frame, a longitudinally-movable stretching plank or frame, and means for operating said  
 50 plank or frame, of a normally-stationary pair of rear gripping-jaws through which said plank or frame slides, and removable there-  
 with, a pawl-and-ratchet connection between  
 55 said jaws and plank, a forward pair of gripping-jaws formed of sections hinged together at their inner ends and there secured to the stretching plank or frame, pawls mounted on the outer ends of the said sections, and racks on the plank engaged by said pawl.

5. In a leather-stretching machine, the com-  
 60 bination with the stretcher-plank, of a pair of leather-gripping jaws, the upper and lower members of which are each composed of two parts hinged together, whereby they may be  
 65 adjusted at an angle to each other to conform to the angular shape of the end of a strip of leather to be gripped thereby, means for closing said jaws upon the leather, a brace extending from the top of the upper jaw mem-  
 70 ber at the joint to the stretcher-plank, and pawl arms or braces pivoted to the two portions of the lower jaw member and adapted to engage teeth at the edges of the plank and thereby hold the jaws in their adjusted posi-  
 75 tions against the strain produced in stretching the leather, substantially as described.

6. In a leather-stretching machine, the com-  
 bination with a pair of leather-gripping jaws, the upper and lower members of which are  
 80 each composed of two parts hinged together to adapt them to be adjusted at an angle to each other, said jaws being provided at the ends with connecting links and wedges for closing said ends, of lugs projecting from the  
 85 upper and lower members near the hinge joint, a link embracing said lugs, and a wedge coöperating with said link for closing said jaws at the joint, substantially as described.

Witness my hand this 19th day of February, A. D. 1900.

JOHN BROOKS.

In presence of—

J. F. HARRIMAN,  
 EDMUND S. COOK.