

(No Model.)

2 Sheets—Sheet 1.

G. SEARS.

COMBINED PUNCHING, SHEARING, AND TIRE UPSETTING MACHINE.

No. 540,275.

Patented June 4, 1895.

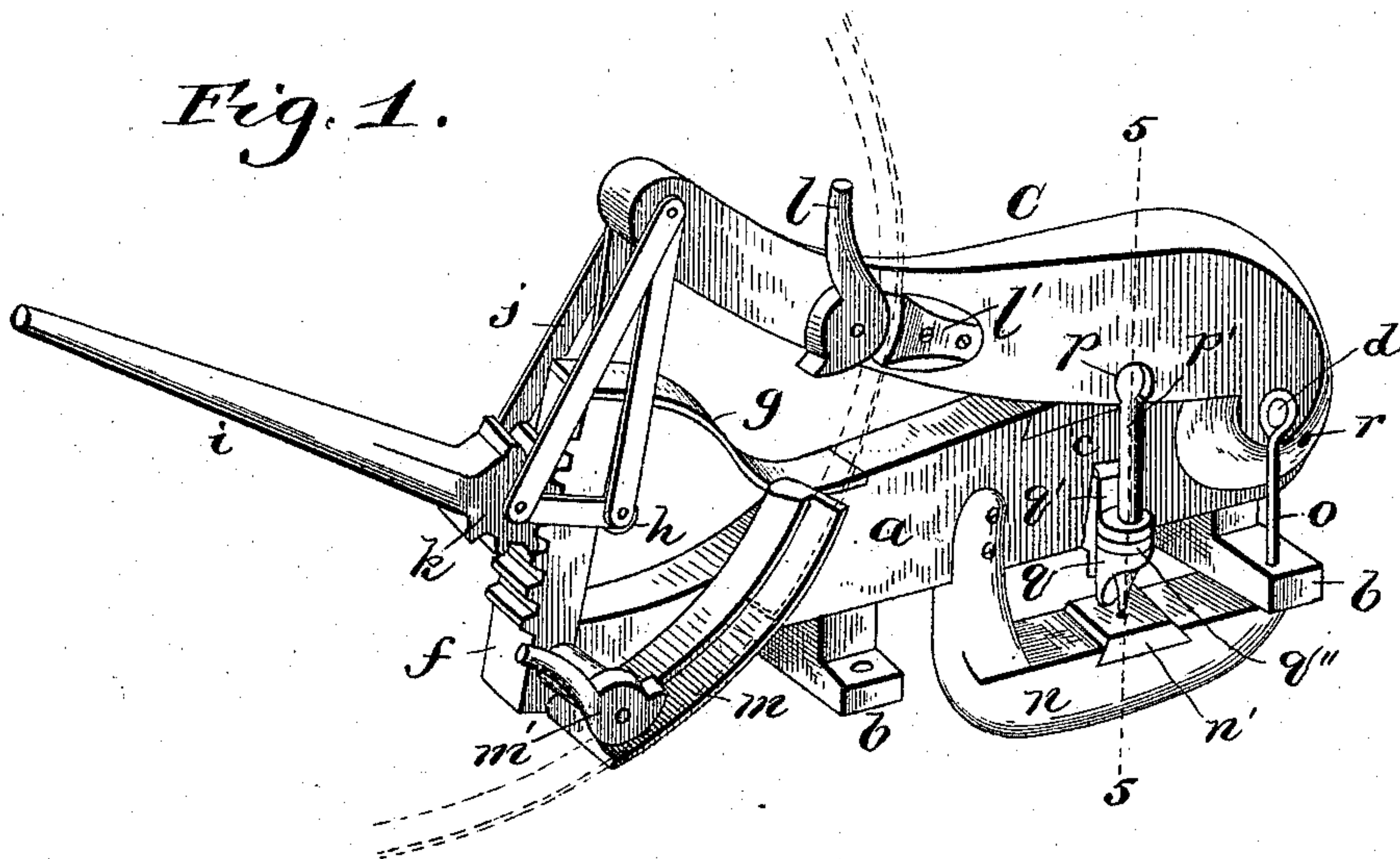


Fig. 2.

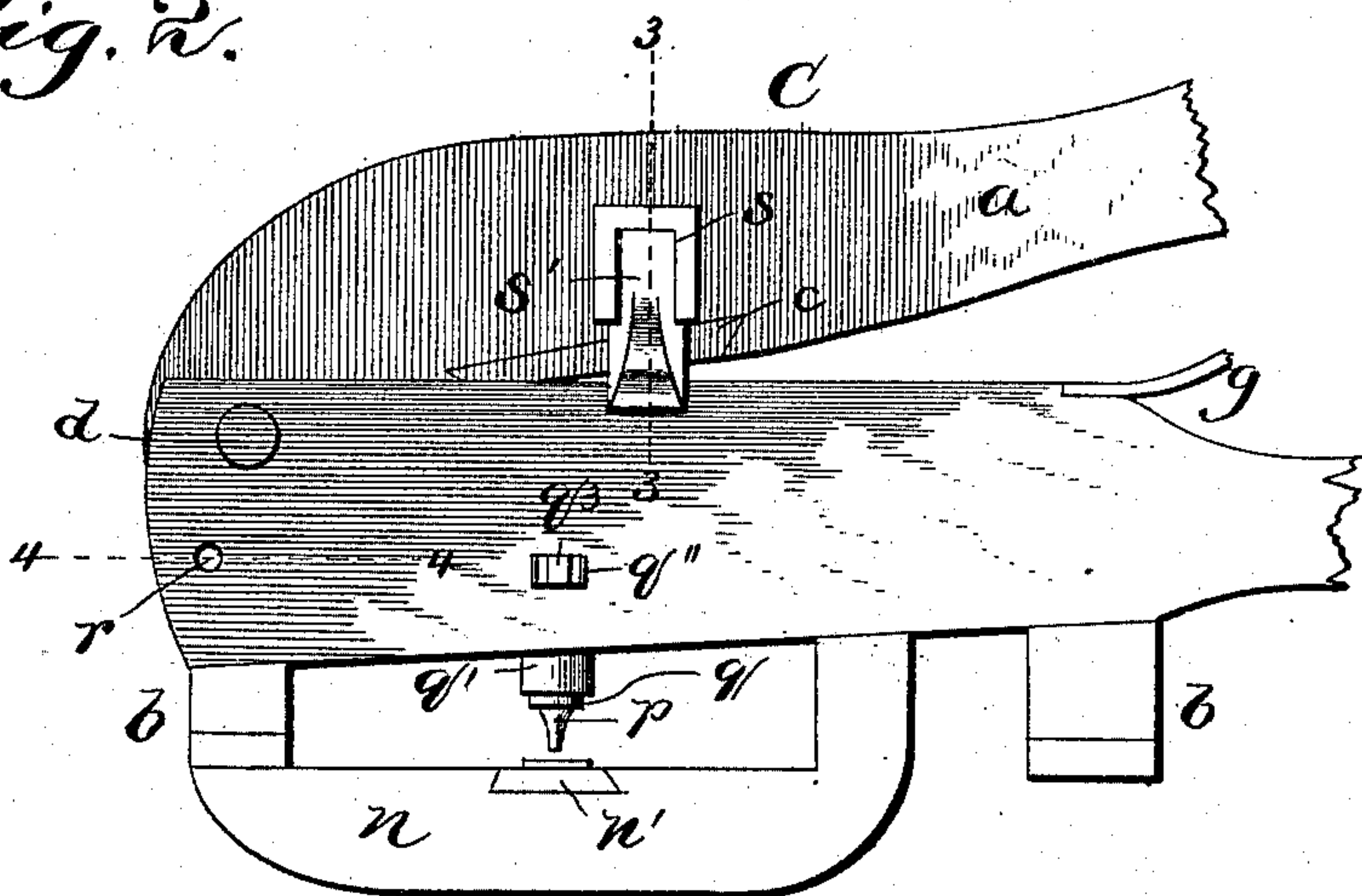
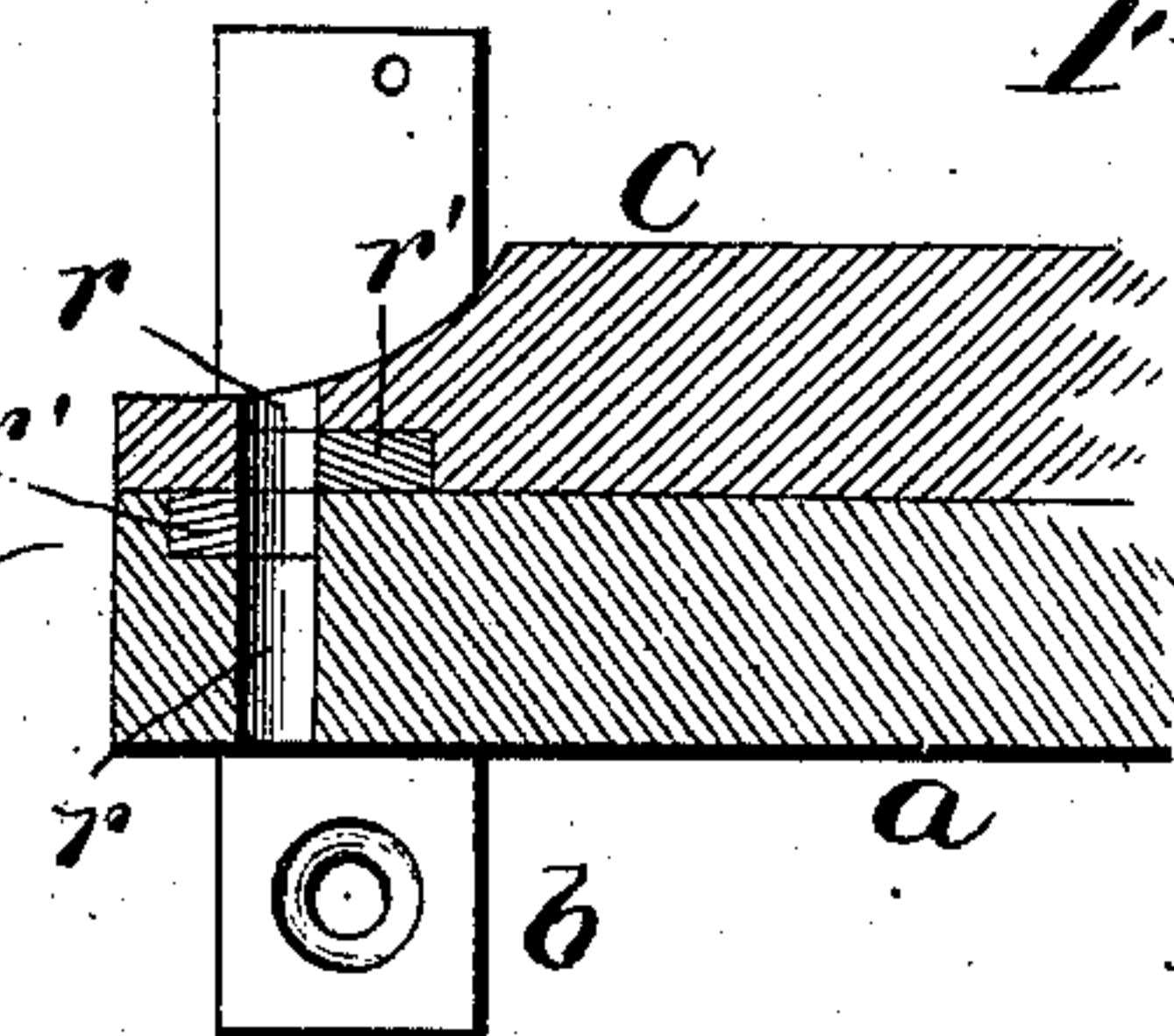


Fig. 4.

Witnesses:

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Fig. 3.

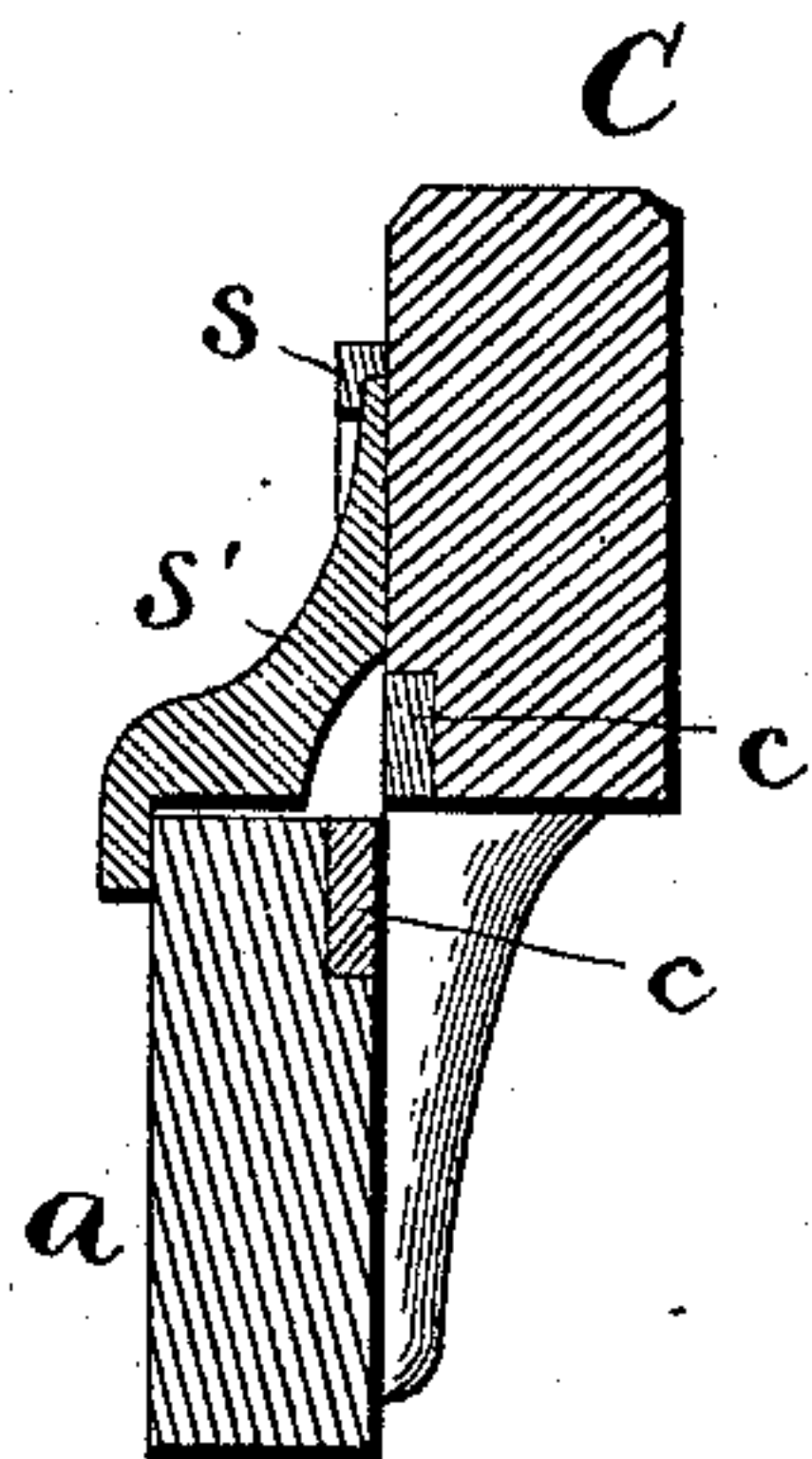


Fig. 7.

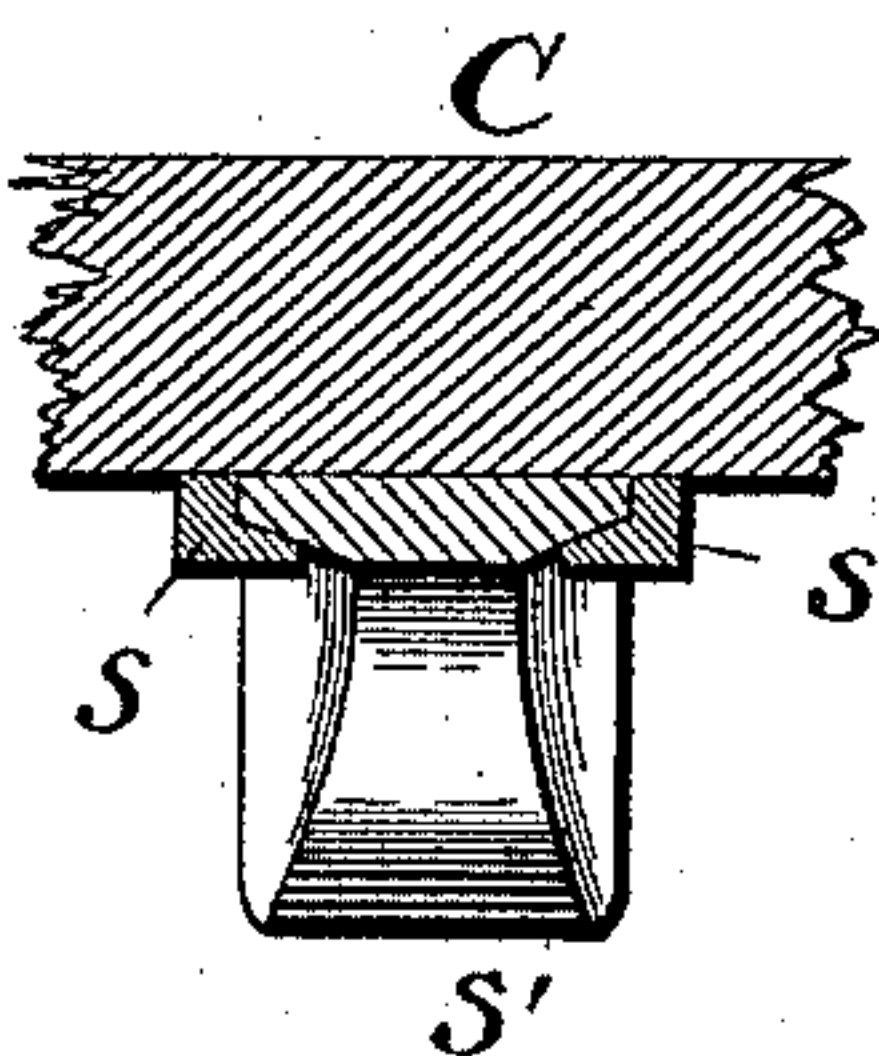


Fig. 5.

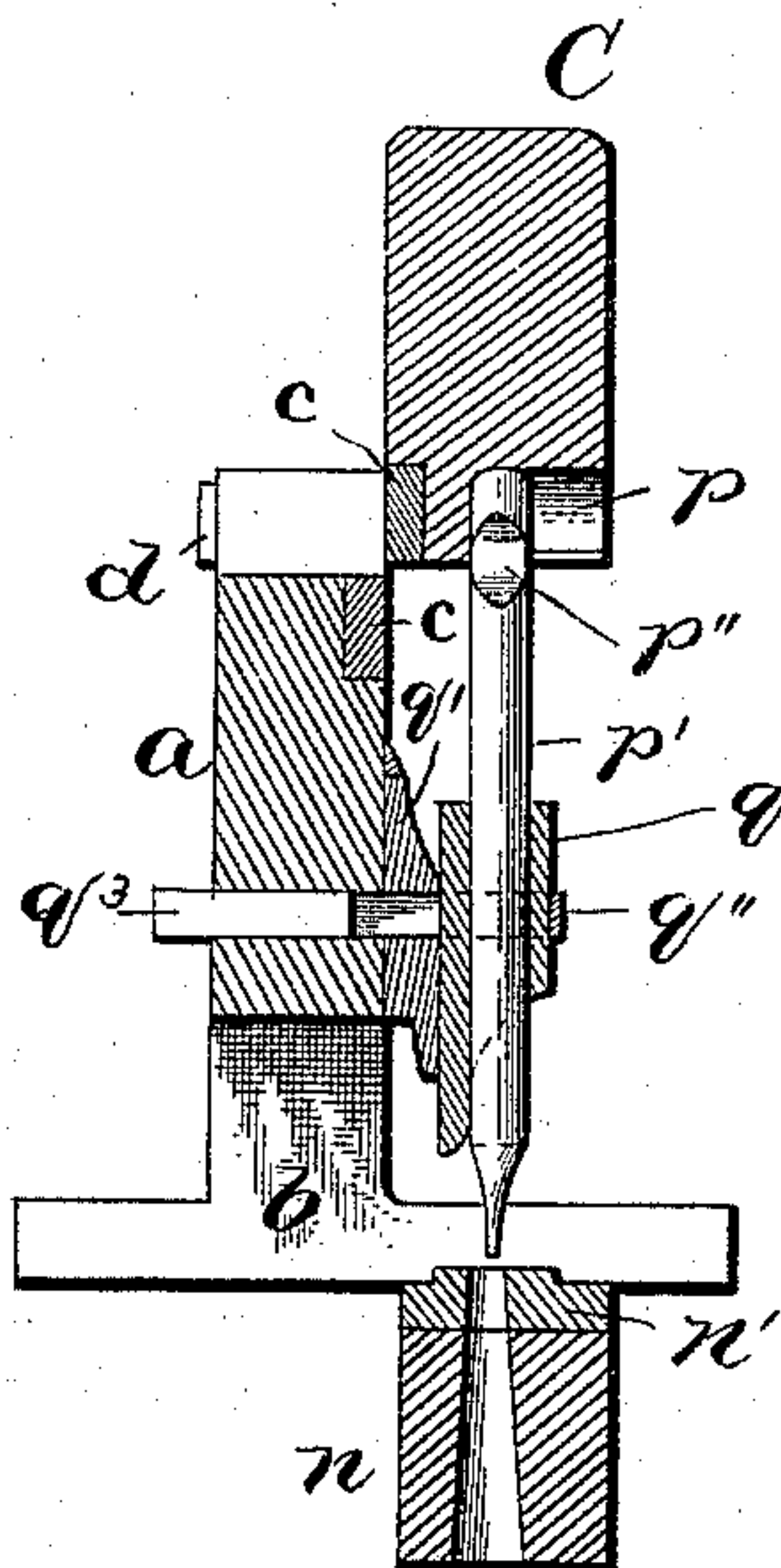


Fig. 8.

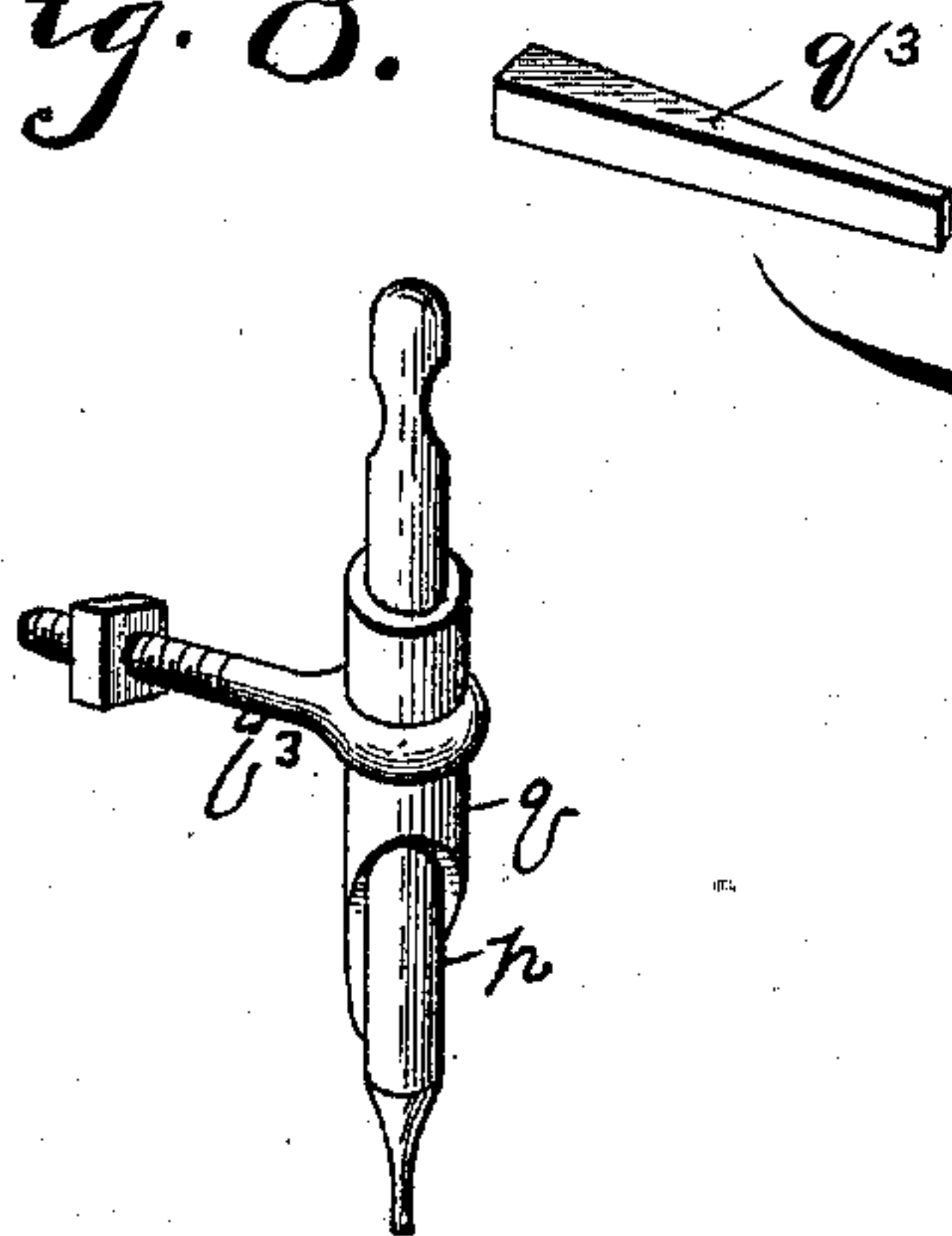
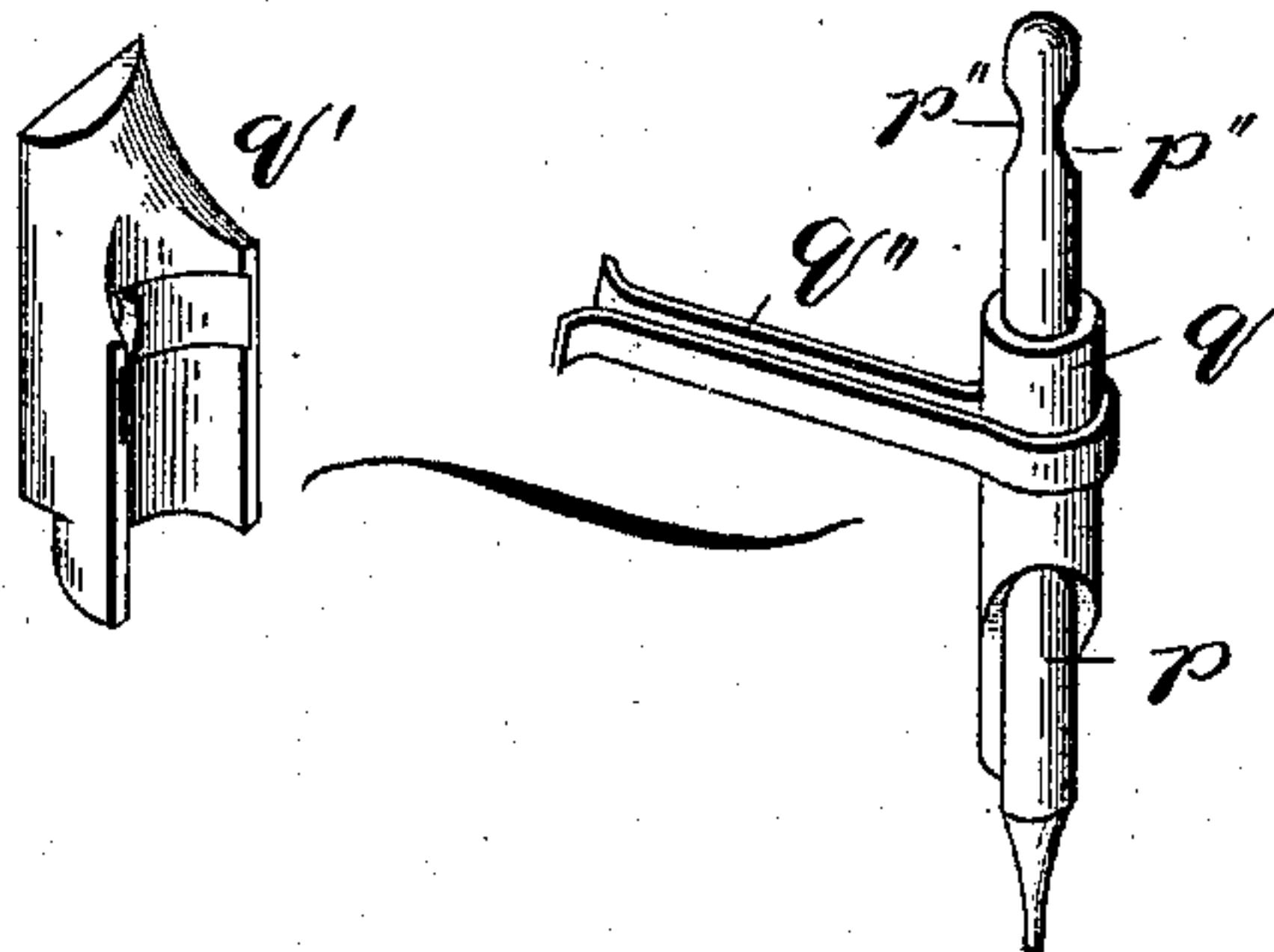


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE SEARS, OF ONSLOW, IOWA.

COMBINED PUNCHING, SHEARING, AND TIRE-UPSETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 540,275, dated June 4, 1895.

Application filed November 9, 1894. Serial No. 528,335. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SEARS, a citizen of the United States of America, residing at Onslow, in the county of Jones and State of Iowa, have invented certain new and useful Improvements in a Combined Punching, Shearing, and Tire-Upsetting Machine, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in metal working tools, and more particularly to improvements in power shears and attachments.

The object of the invention is to provide certain improvements in details of construction and arrangements of parts in the power shears described and claimed in Letters Patent No. 522,622, whereby a highly efficient and most strong, durable and economical machine is provided.

The invention consists in certain novel features of construction and in combinations and arrangements of parts more fully and particularly pointed out and described hereinafter.

Referring to the accompanying drawings, Figure 1 is a perspective view of the improved power-shears, showing the metal punch attached and in operative position, also showing in dotted lines a tire in the tire-shrinkers. Fig. 2 is a detail view of portions of the opposite sides of the jaws of the shears, showing the shoe-sharpener. Fig. 3 is a sectional view on the lines 3 3, Fig. 2, showing the removable sharpener and the socket therefor. Fig. 4 is a sectional view on the line 4 4, Fig. 2, showing the rod-cutter and dies. Fig. 5 is a sectional view on the line 5 5, Fig. 1, showing the punch and manner of securing the same. Fig. 6 is a detail perspective of a punch and the holding means thereof detached. Fig. 7 is a cross-section showing the sharpener of Fig. 3. Fig. 8 is a detail showing a different way of securing tube *q*.

In the drawings, *a*, is the lower stationary jaw of the shears having the securing feet, *b*, or other suitable means for rigidly securing the strong elongated metal blocks on a suitable support at one end or the edge thereof.

C, is the corresponding movable jaw at one end pivoted, or fulcrumed, to one end of the

stationary jaw by the strong horizontal pivot, *d*, passing through the overlapping ends of these jaws, so that the movable jaw can swing vertically to longitudinally overlap the stationary jaw. At their adjacent inner edges these jaws have the removable cutting or shearing blades *c, c*, for cutting the metal when the upper jaw is properly operated.

f, is a rack bar rigidly secured at its lower end to the outer end of the lower jaw and extending upwardly and inclined inwardly at a suitable angle.

g, is a strong brace from the upper end of this bar extending inwardly and downwardly to the lower jaw.

j, is a double triangular metal frame, at its apex secured to the free end of the movable jaw and depending on both sides of the rack bar and brace.

h, is a roller bearing against the inner side of the rack bar and mounted on a rod connecting the sides of the frame.

i, is the main operating lever having a toothed segment *k*, meshing with the rack bar and fulcrumed between the front ends of the sides of the triangular frame *y'*. When the lever is thrown downwardly, the segment meshing with the rack, draws the upper jaws downwardly with great power to perform the cut, and when the lever is swung up the upper jaw is thrown upwardly; the roller arranged below the brace *g* limits the upward movement. By this peculiar arrangement of the inclined rack bar secured to the lower jaw with the brace, great strength and material advantages are attained.

A tire shrinker is permanently attached to the jaws near their outer ends, so as to in no way interfere with the operation of the jaws as shears. This shrinker comprises the vertically swinging cam lever *l*, pivoted on the side of the upper jaw to move into and out of clamping relation with the rigid block or jaw *l'*, on said upper jaw; and the elongated rigid curved segment *m*, secured to the side of the lower jaw and provided with the clamping cam lever *m'*. It is evident that when the tire is clamped and rigidly held by these two clamping devices of the respective machine jaws and the upper jaw is drawn down the tire shrinker is operated to perform its functions in a well known manner.

n , is a strong and rigid block or foot or bracket, depending from the lower jaw and strongly secured thereto, and arranged beneath the outer side thereof and directly beneath the upper jaw. o , is a vertical support or rod at its upper end embracing the outer end of the pivot pin of the machine jaws and at its lower end secured in said bracket, to assist in supporting said pin and prevent bending or twisting thereof. The upper face of the bracket has a transverse undercut tapered way to receive a tapered block, n' , with beveled edges and a central steel die, having a central opening. Various dies of different sizes can thus be fitted in said way as desired. The under edge of the upper jaw above said die has a transverse slot p , with a reduced bottom opening, and the punch p' , has its upper end recessed on opposite sides to form the head p'' which can be slid transversely into said slot and fit therein, with its reduced sides arranged in said bottom opening. The punch can thus be removed laterally from the upper jaw at will and variously sized punches can be employed.

The holding and guiding means for the punch consist of the tube q , loosely embracing the lower portion of the punch and capable of a slight rocking movement to accommodate the varying angles of the punch as the upper jaw swings, and fitted in a block, q' . A perforation passes through this block and registers with a perforation through the lower jaw transversely. A metal strap q'' , embraces the guiding tube with its ends passed through the block perforation and into the jaw, and a wedge or pin q^3 is inserted in the opposite end of the jaw perforation so as to tightly clamp the strap and hold the parts, and yet permit quick release of the guiding tube when it is desired to remove the punch. The spring of the metal of the strap q'' permits the necessary rock to the guiding tube. The rear ends of the jaws beyond the pivot are provided with transverse holes r , arranged to register when the upper jaw is raised. At the

inner flat faces of the jaws cutting dies r' , are inserted at the ends of said holes. These holes are to receive rods or the like which can be neatly and easily cut by the dies when the upper jaw is drawn down. The upper jaw is preferably cut away as shown at its rear end to facilitate this object.

The opposite side of the upper jaw from the drill is provided with a vertical dovetailed tapered socket s , to detachably receive the tapered beveled vertical shank or block of the horse shoe calk sharpening die s' . This die extends horizontally to fit the upper edge of the lower jaw with the downwardly extending point at the outer face of the lower jaw. When this sharpening die is placed in position it is operated by the downward movement of the upper jaw the shoe having been previously placed on the upper edge of the lower jaw so that said end or point acts on the calk.

It is evident that various changes might be made in the forms, constructions and arrangements of the parts described without departing from the spirit and scope of my invention. Hence I do not limit myself to what is here shown.

What I claim is—

The powershears comprising the rigid lower jaw, the movable upper jaw pivoted thereto and having operating means, the rigid bracket n , depending from the lower jaw and having a die seat, a punch removably carried by the upper jaw above said die seat, a tube q , loosely embracing the lower portion of the punch, a perforated block q' , therefor, and a strap surrounding said tube and passing through said block and the lower jaw and detachably secured.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE SEARS.

Witnesses:

BERNARD CONNELL,
HARRY D. HALL.