

**No. 641,791.**

**Patented Jan. 23, 1900.**

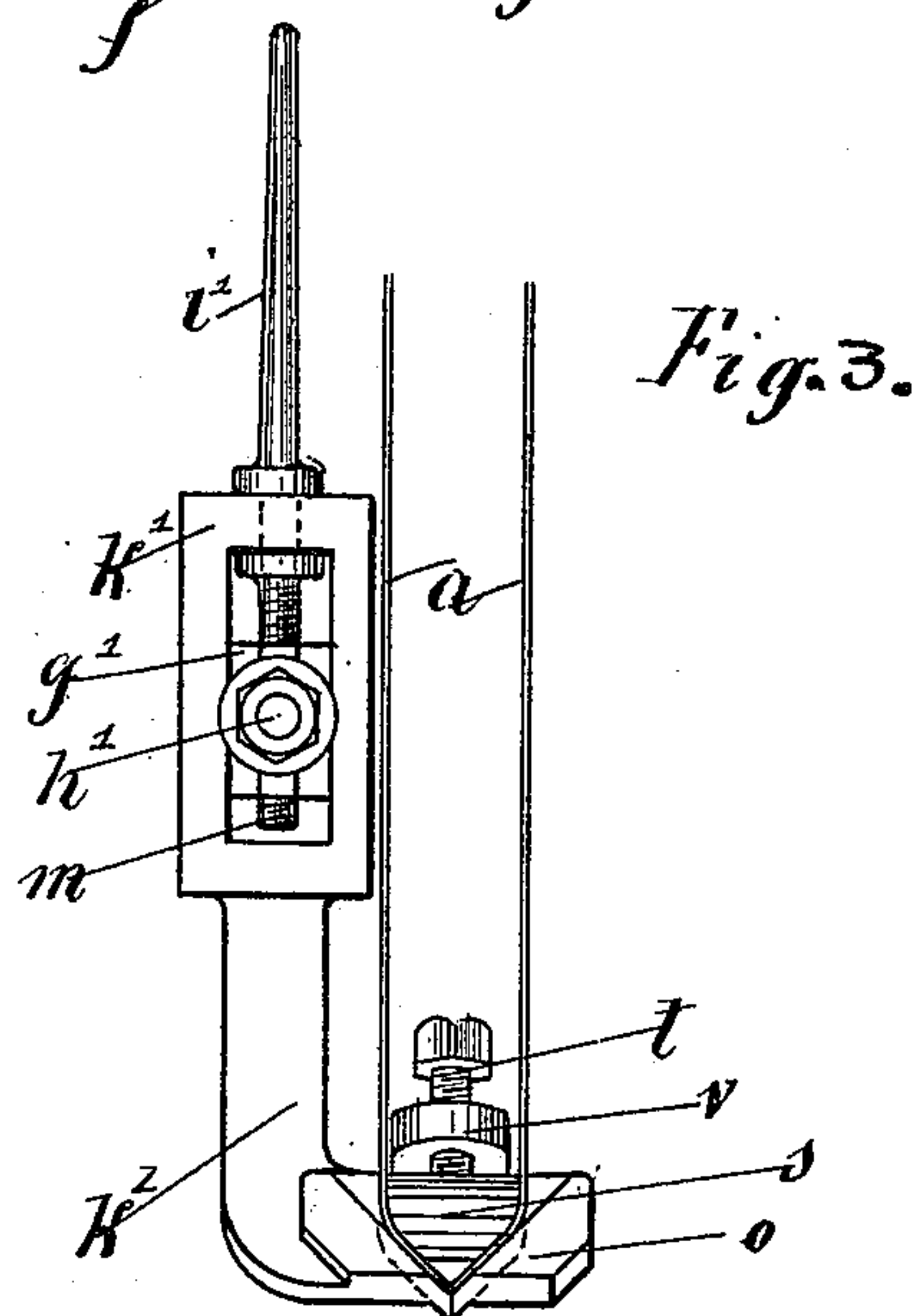
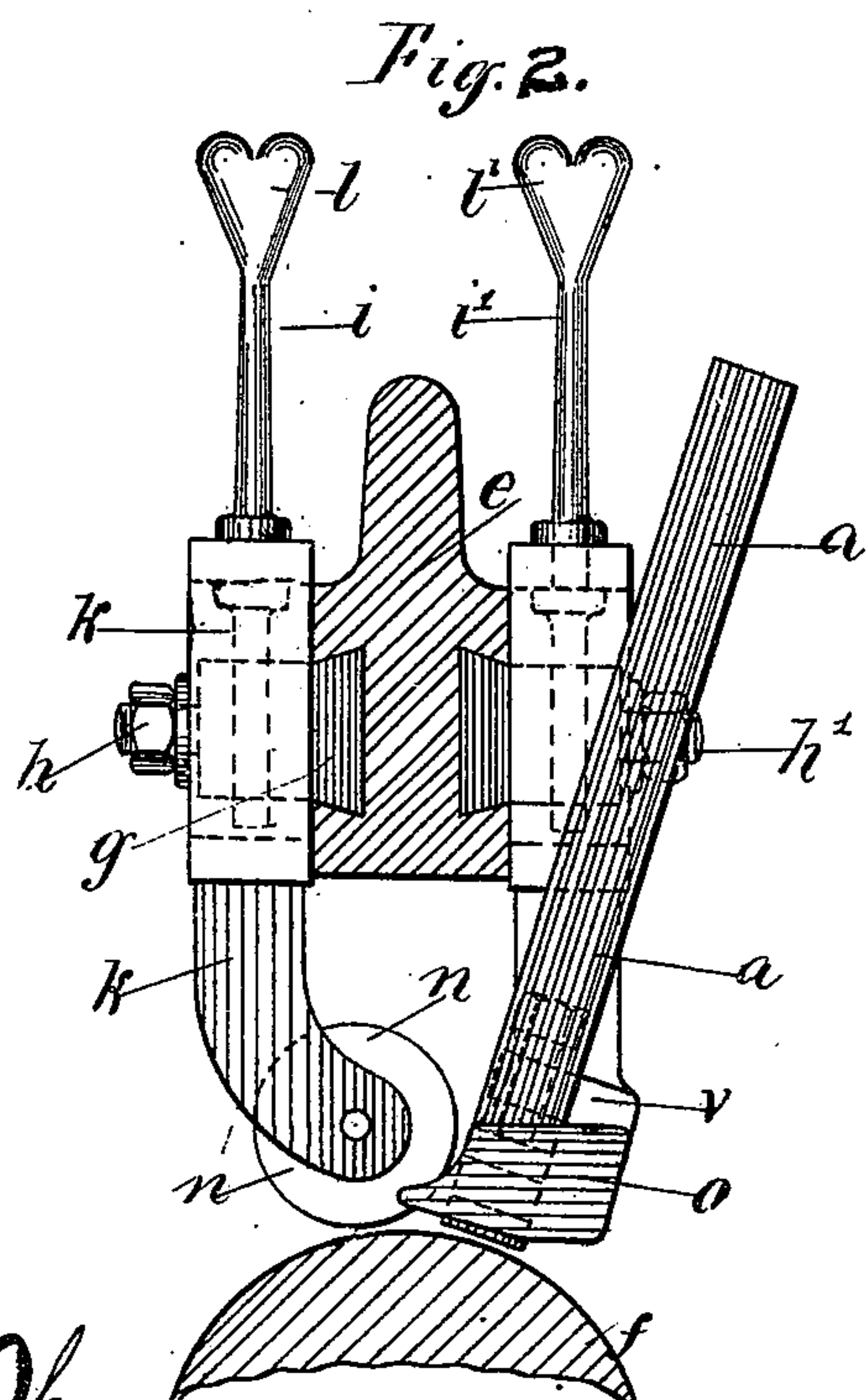
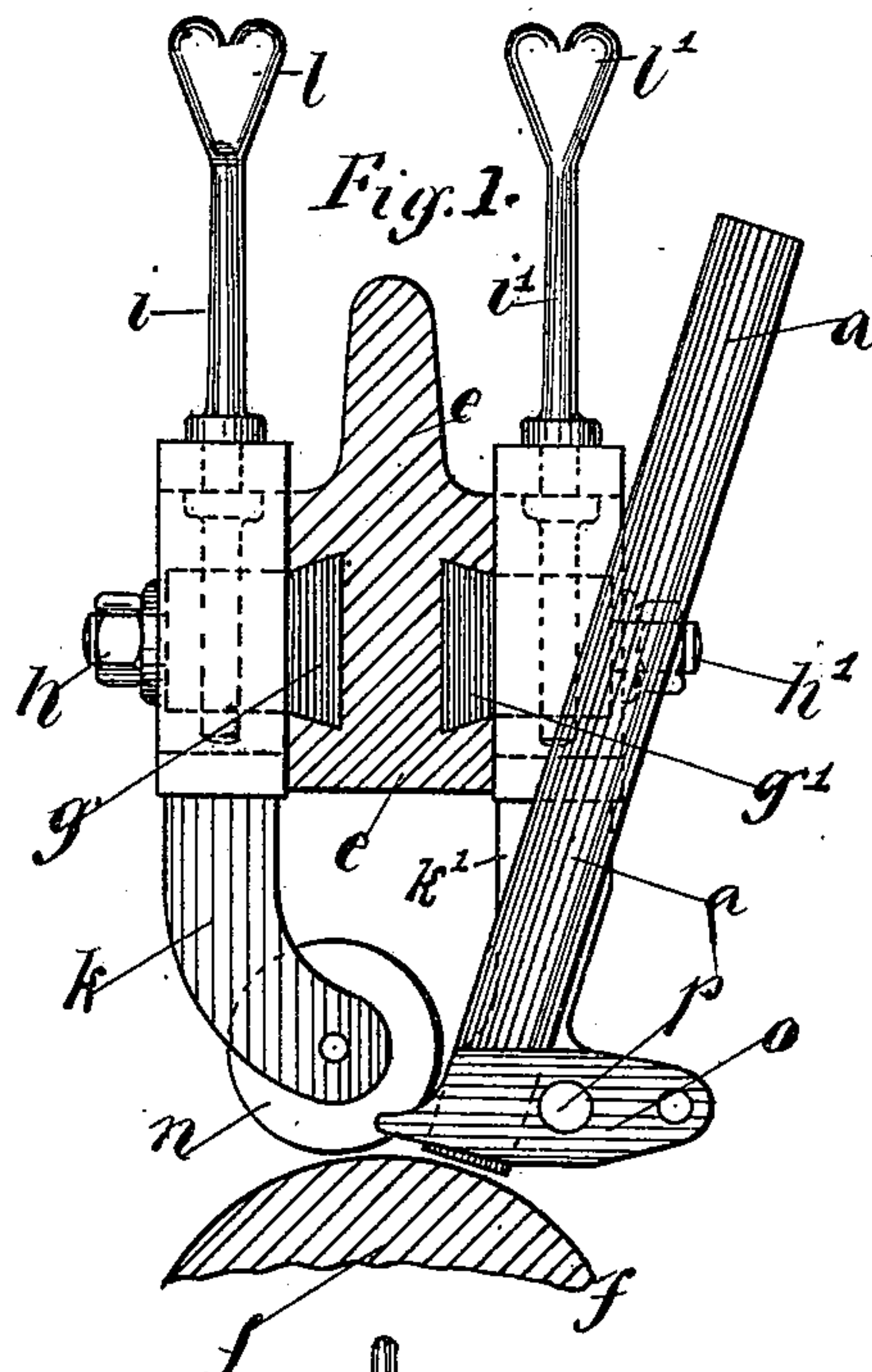
**L. NICOLAI.**

**CARDBOARD CUTTING AND GROOVING DEVICE.**

(Application filed Aug. 30, 1894.)

(No Model.)

**2 Sheets—Sheet 1.**



Witnesses:  
Jno. E. Parker  
J. Henderson

Inventor:  
Ludwig Nicolai,  
By his Attorney,  
J. Homer Pettit -

No. 641,791.

Patented Jan. 23, 1900.

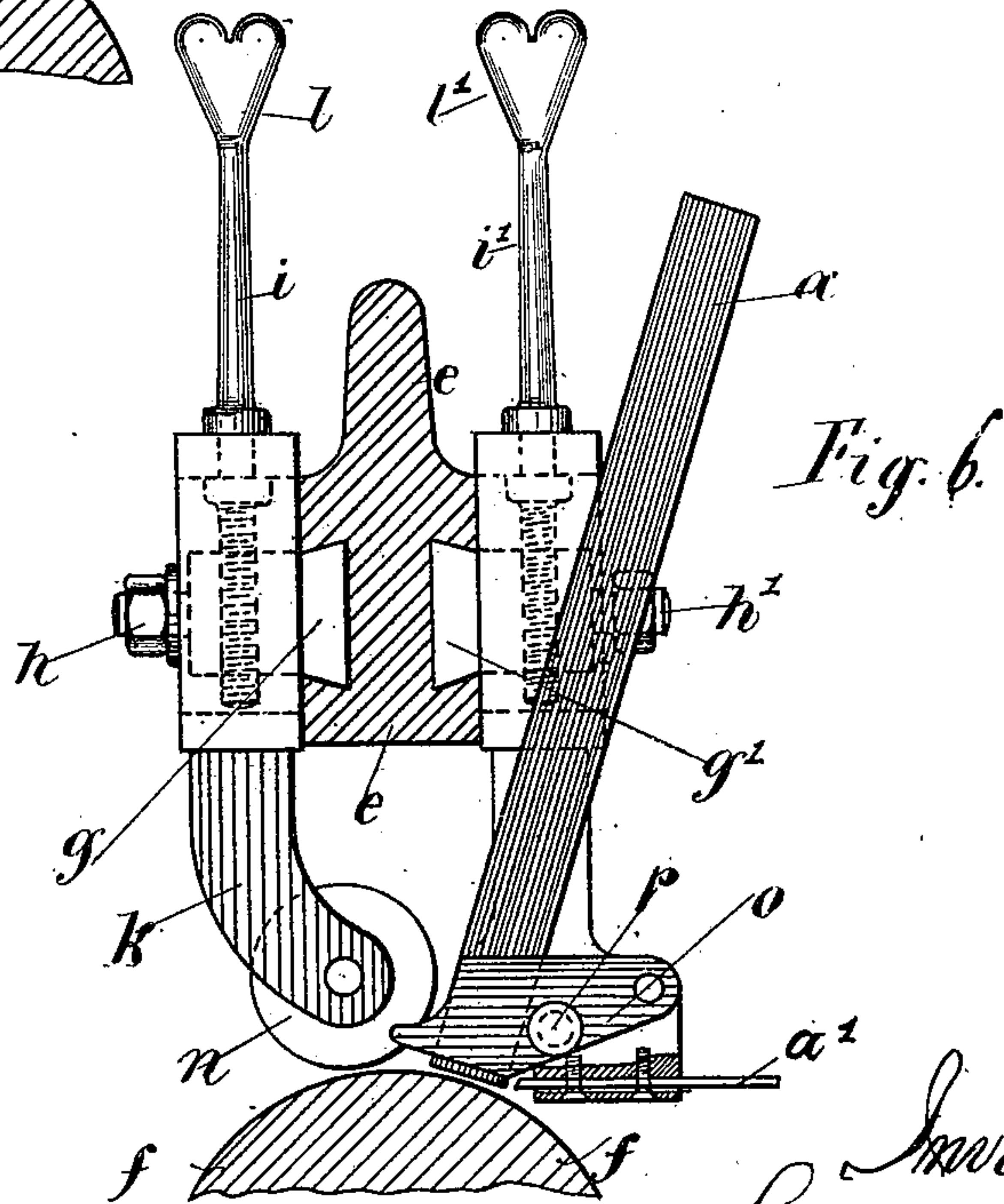
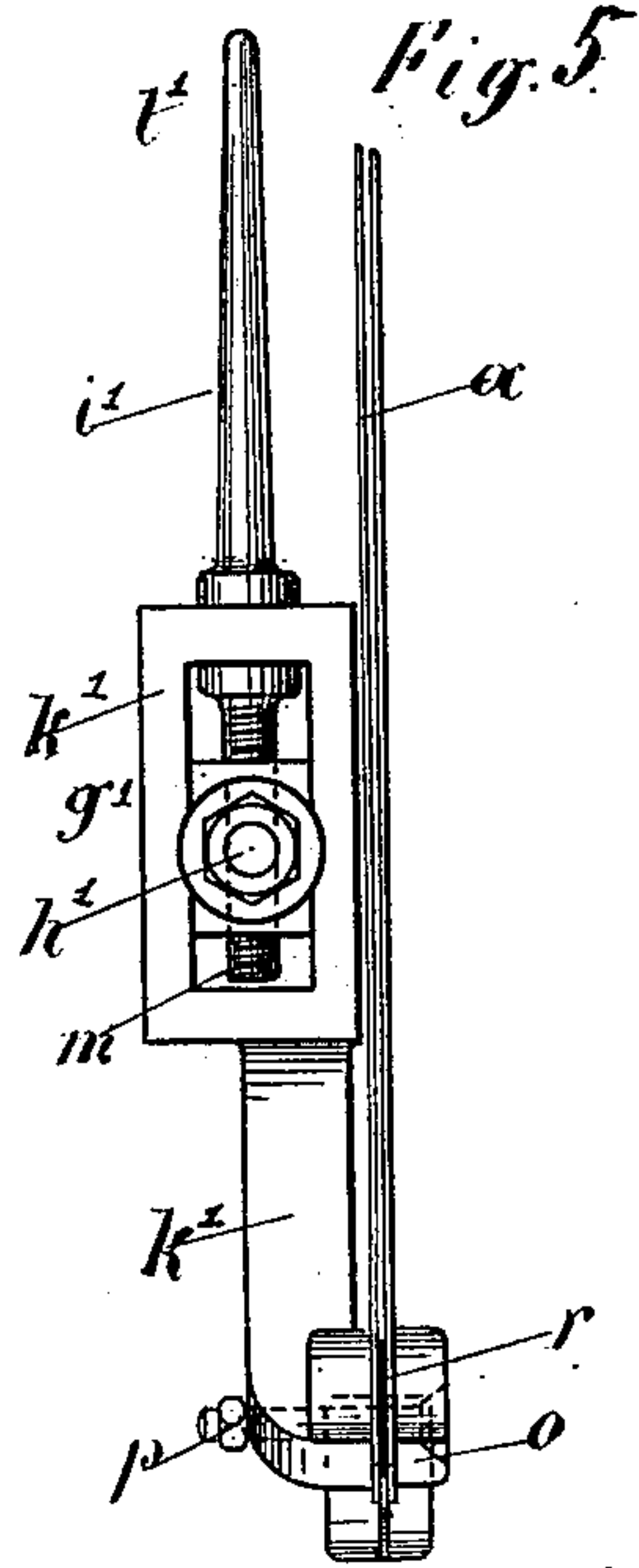
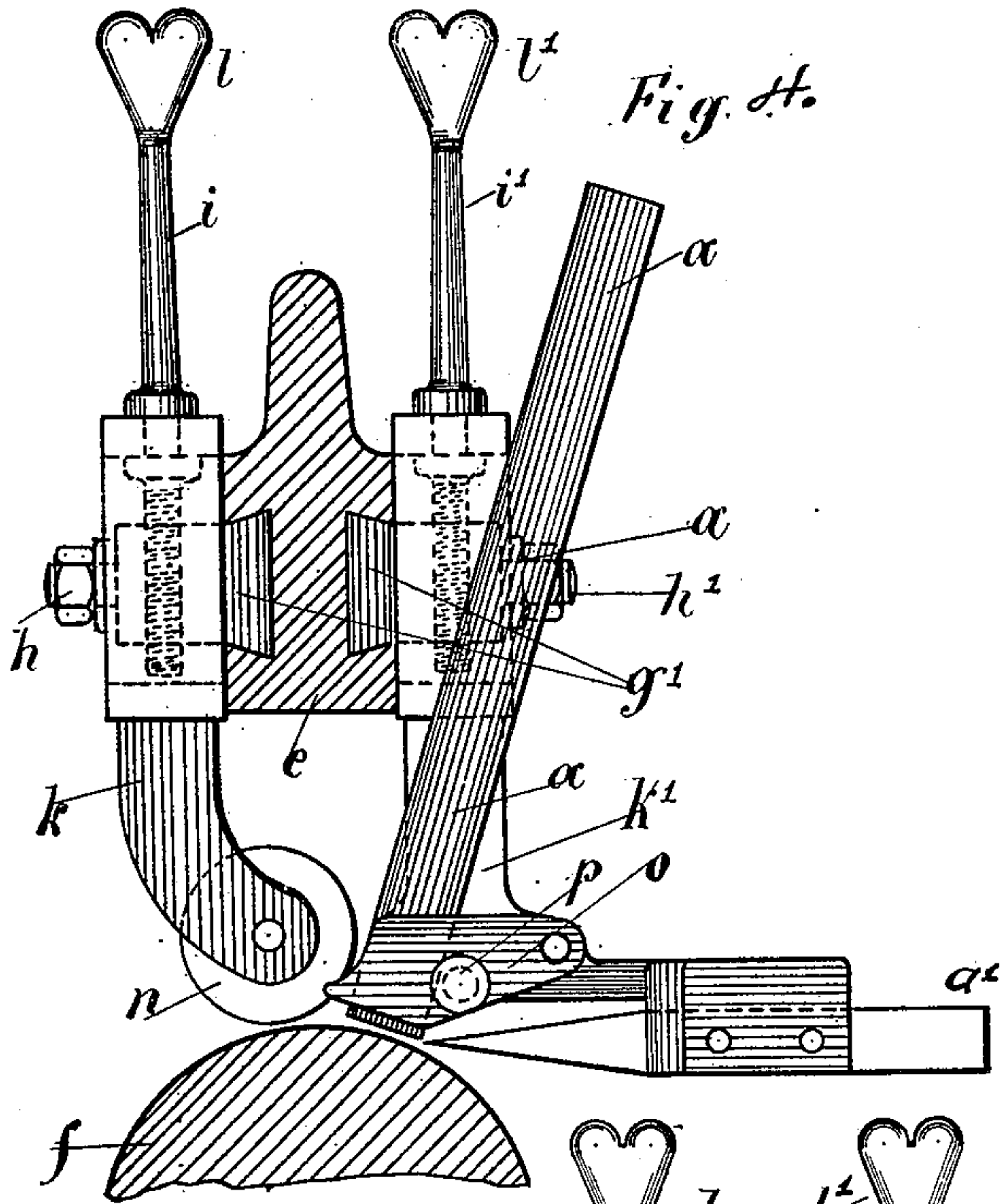
L. NICOLAI.

CARDBOARD CUTTING AND GROOVING DEVICE.

(Application filed Aug. 30, 1894.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:  
J. E. Parker  
J. Henderson

Inventor:  
Ludwig Nicolai;  
By his Attorney,  
J. H. Pell.



# UNITED STATES PATENT OFFICE.

LUDWIG NICOLAI, OF DRESDEN, GERMANY.

## CARDBOARD CUTTING AND GROOVING DEVICE.

SPECIFICATION forming part of Letters Patent No. 641,791, dated January 23, 1900.

Application filed August 30, 1894. Serial No. 521,718. (No model.)

*To all whom it may concern:*

Be it known that I, LUDWIG NICOLAI, a subject of the King of Saxony, residing in the city of Dresden, Germany, have invented certain  
5 Improvements in Apparatus for Cutting, Slitting, and Grooving Cardboard and other Materials, of which the following is a specification.

The object of my invention is to provide a  
10 tool for cutting, slitting, or grooving cardboard or other material, the cutter of the tool being made of a thin narrow strip of sheet-steel of any desired length.

One of the advantages of this cutter is that  
15 it is at all times kept sharp, as by the operation of the tool the cutter is automatically sharpened and has only to be adjusted from time to time to compensate for the wearing away of the cutting edge. The thin resilient  
20 and elastic steel strip may be used in various ways, as illustrated in the accompanying drawings, in which—

Figure 1 illustrates the tool for machine use, the cutting-blade being secured to a  
25 holder or clamp adjustably held on a cross-bar of the machine-frame, and also shows rolls for feeding the material being acted upon to the knife. Fig. 2 is a sectional elevation of a similar machine, in which two cutting-  
30 blades are secured in a holder in such manner that the cutting ends form an angle and the edges thereof are brought closely together for the purpose of cutting a V-shaped or angular groove in the material. Fig. 3 is an  
35 elevation of a portion of machine shown in Fig. 2, illustrating more clearly the construction of clamp for holding the knife in position. Figs. 4 and 5 are views similar to Figs.  
40 2 and 3, showing the employment of two cutting-blades arranged parallel to each other for their entire length for the purpose of cutting a right-angled groove or channel in the cardboard, leather, or other material. Fig.  
45 6 illustrates a slight modification of the machine shown in Fig. 4, an additional adjustable blade being employed for the purpose of removing the material between the cutting edges of the two blades.

In the drawings, *a* designates the cutting-  
50 blade, formed of a thin narrow strip of elastic steel of the same thickness throughout its entire length and clamped near one end, which

forms the cutting edge, between two clamping-cheeks *o* in the manner hereinafter described. The cutting edge is formed on the  
55 lower end of the thin steel strip, and the latter may be adjusted or reset between the clamping-cheeks whenever it becomes necessary through wear or abrading of the cutting edge  
60 until only a short piece of the steel strip remains. The application of a cutting-blade of this character to a machine is illustrated in Fig. 1, in which *e* represents one of the cross-  
65 bars of the frame of the machine, and *f* a feed-roller mounted in the frame and acting in connection with a roller *n* to feed the paste-board, leather, or other material to the cutting-knife. This roller *n* is preferably mounted  
70 in bearings on a bracket *k*, secured by a screw *h* to a block *g*, adjustable in a horizontal line in dovetailed guideways provided on the side of the cross-bar *e*, and the vertical position of the roller *n* being determined by  
75 an adjusting-screw *i*, having handles or wings *l*, by which it may be turned to adjust the distance between the peripheries of the rollers  
80 *f* and *n* to accommodate sheets of varying thickness. The cutting-blade *a* is confined near its cutting edge between two clamping-  
85 cheeks *o*, secured together by a screw *p*, the cheeks being carried by a bracket *k'*, adjustably secured to a block *g'* by a screw *h'*, the vertical position of the bracket being determined by an adjusting-screw *i'*, having wings  
90 *l'*. With a machine of this character the cardboard, leather, or other material to be acted upon may be fed between the feeding-rollers and by them carried under the knife, which  
95 will act to cut or indent the same, and as the knife wears away its adjustment may be accomplished by loosening the screw *p* and forcing the strip nearer to the roll *f* and then  
100 tightening the clamping-cheeks.

The tool shown in Figs. 2 and 3 is employed for grooving or channeling, and the ends of  
95 the two steel strips or blades *a a* are so disposed to each other as to form an angle. The lower end of the holder or bracket *k'* is provided with a forked extension forming the  
100 clamp-cheeks for the blades, and a wedge *s* is employed to press the lower ends of the blades between the clamp-cheeks to bring the lower end of the steel blades to the desired angular position, the wedge-shaped block *s*



being held in position by a screw *t* passing through a threaded orifice on a lug *v*, projecting from the bracket *k'*.

In the structure shown in Figs. 4, 5, and 6 the two cutting-blades *a* are arranged parallel to each other throughout their entire length and clamped between two cheeks *o* by a screw *p*, the two blades being separated by a plate *r*, of a thickness corresponding to the width of the groove to be produced. As the material between the cuts produced by these blades must be removed to form a channel or groove, another device for this purpose must be provided, which may consist of a knife *a'*, arranged in the rear of the blades *a* and held in an extension of the holder or bracket *k*. This knife *a'* may be wedge-shaped, as shown in Fig. 4, or in the form of a thin blade, as illustrated in Fig. 6.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

In combination, a continuous cutting-knife formed of a thin, narrow strip of sheet-steel of uniform thickness throughout its length, clamping-jaws *o*, between which the knife is held, a clamping-screw *p*, a bracket *k'*, carrying the clamping-jaws, a guided block *g'*, a frame carrying said block, an adjusting-screw *i'*, connecting the bracket *k'*, to the block, a feed-roller *f*, and a vertically-adjustable roller *n*, coacting with the roller *f*, to feed the material to be acted upon to the knife, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

LUDWIG NICOLAI.

Witnesses:

REN. SCHMIDT,

HERNANDO DE SOTO.