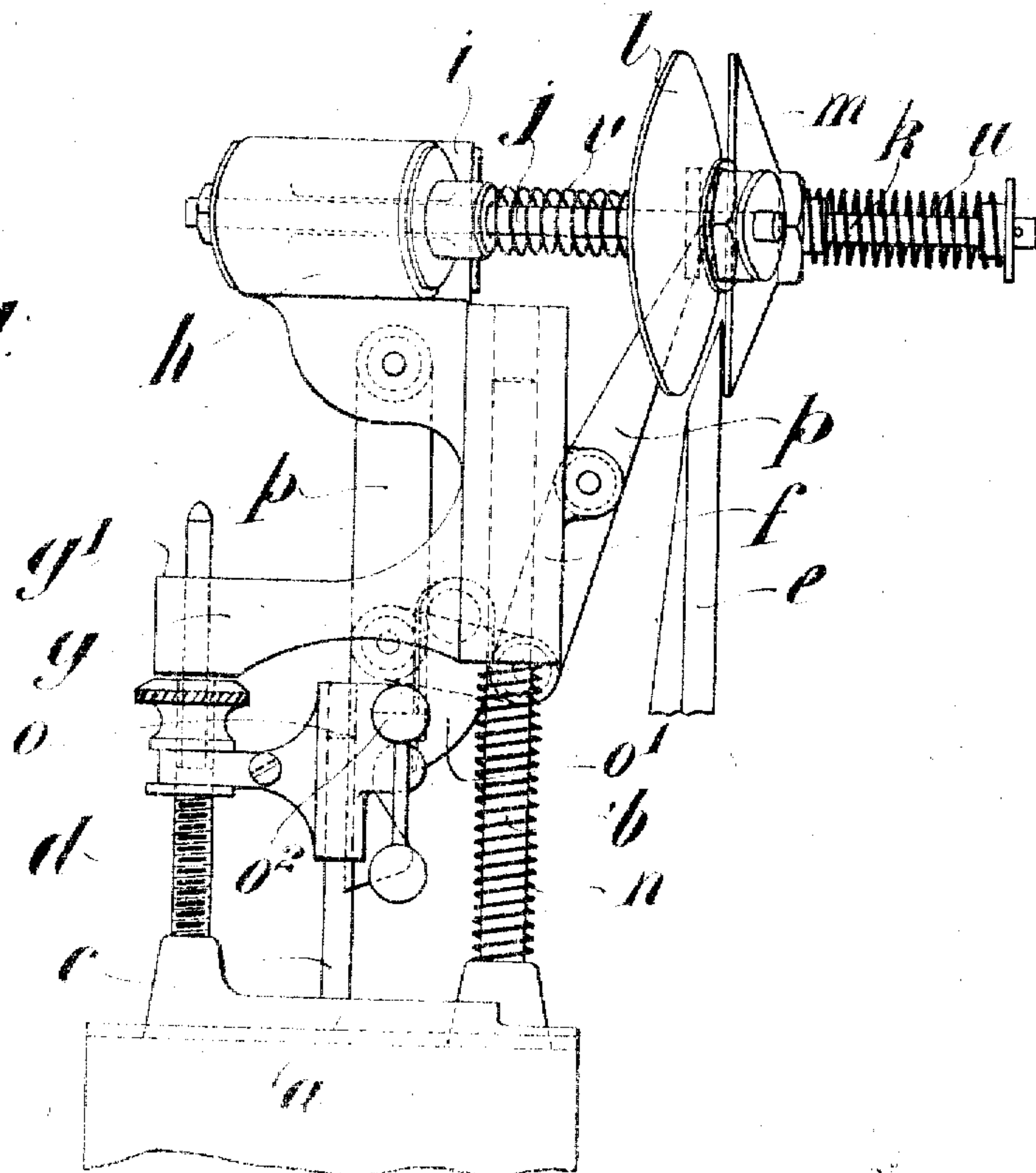
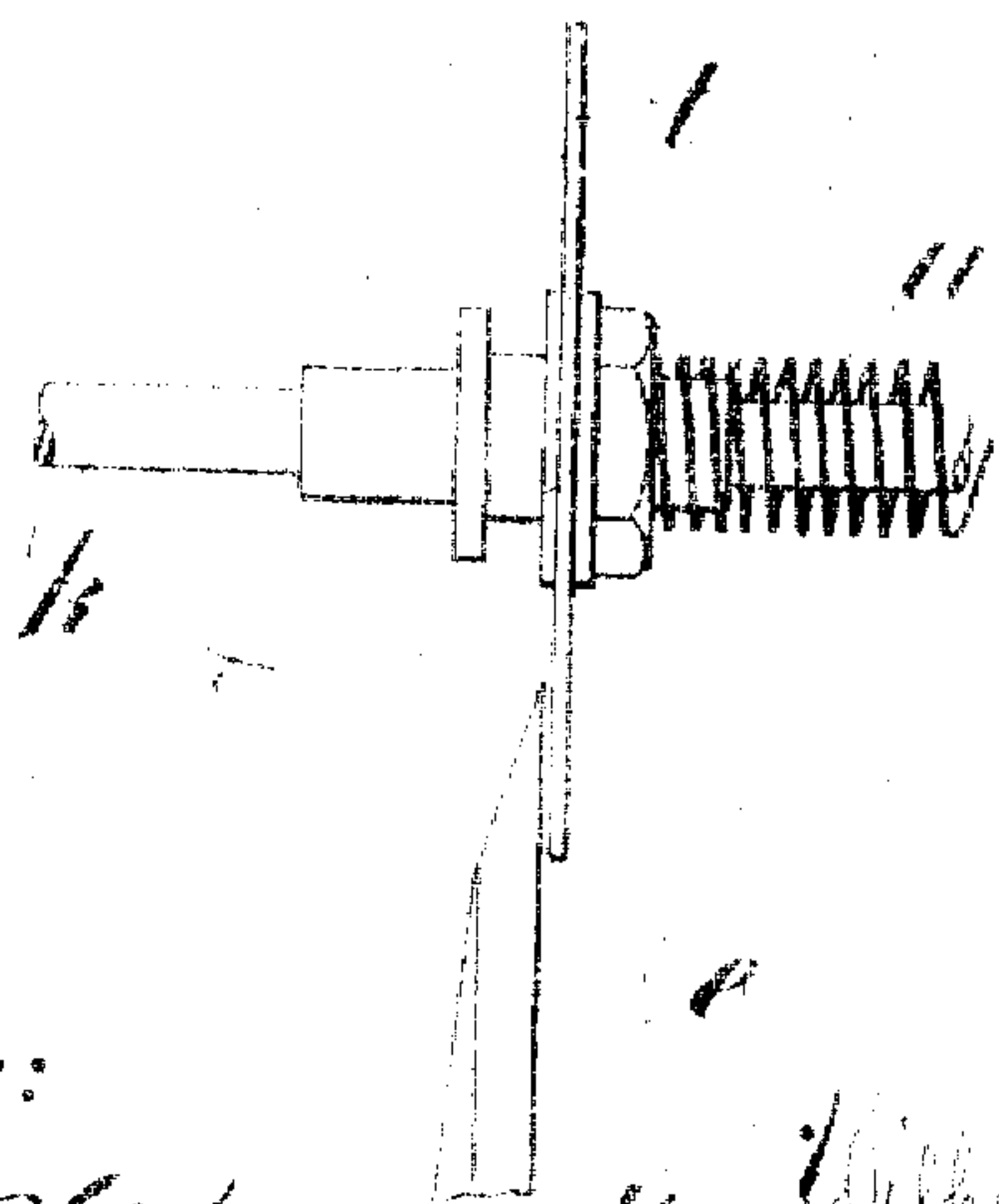


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 DEVICE FOR SHARPENING THE ROTARY CIRCULAR KNIVES OF MEAT SLICING MACHINES.  
 APPLICATION FILED JUNE 19, 1907.  
 916,229. Patented Mar. 23, 1909.  
 2 SHEETS—SHEET 1.

*Fig. 1*



*Fig. 2*



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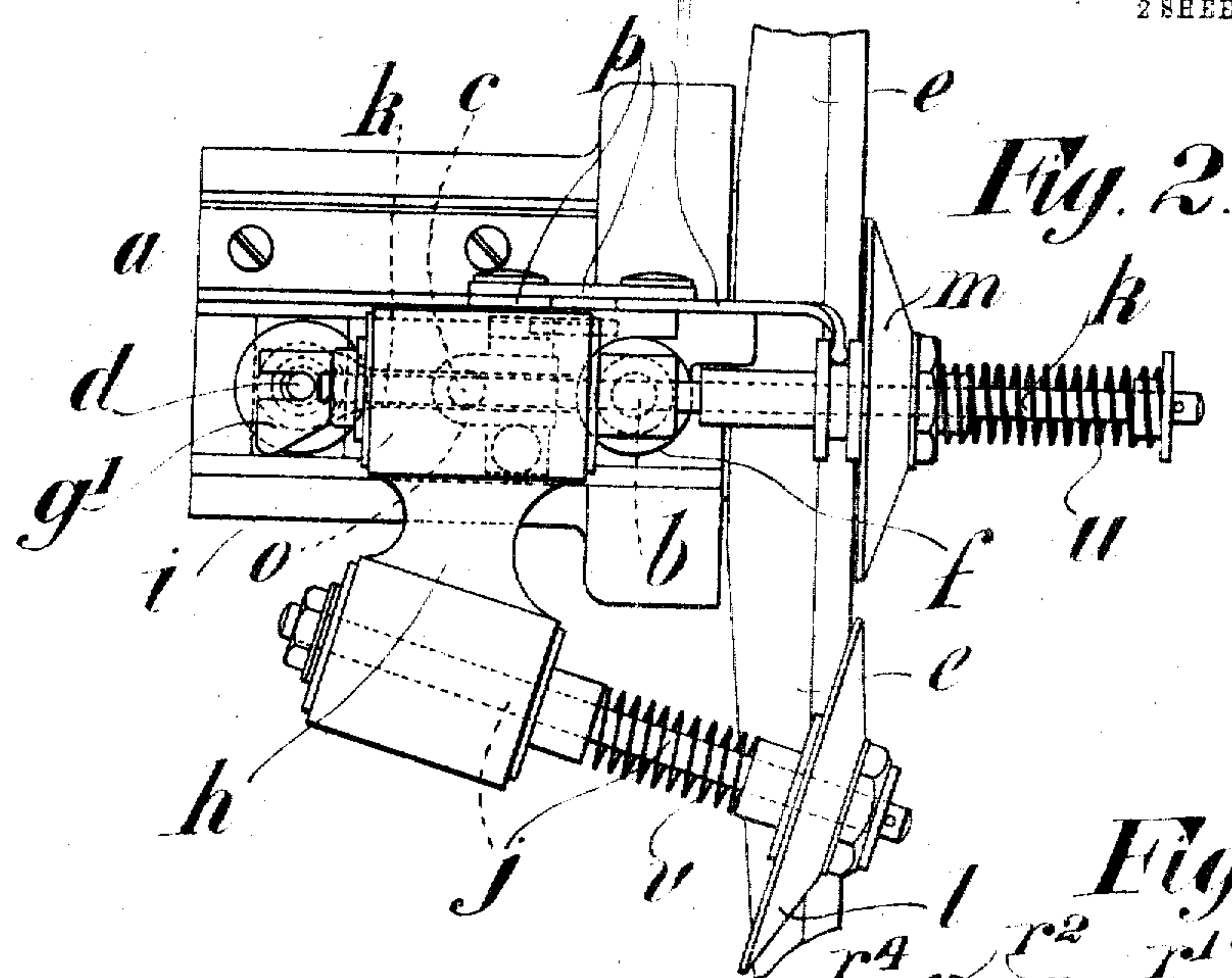


Fig. 2.

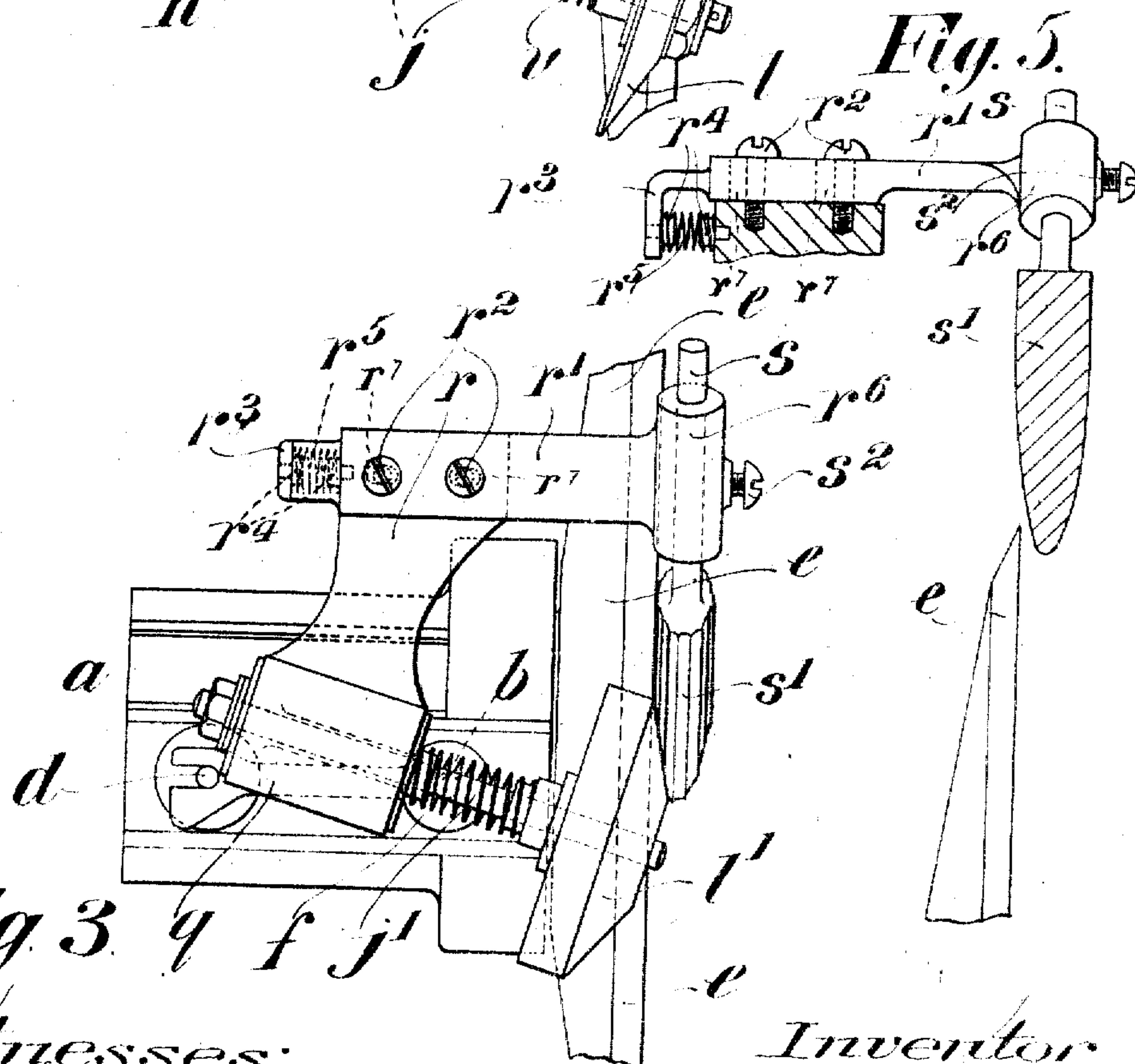


Fig. 3.

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# UNITED STATES PATENT OFFICE.

WILHELMUS ADRIANUS VAN BERKEL, OF ROTTERDAM, NETHERLANDS.

## DEVICE FOR SHARPENING THE ROTARY CIRCULAR KNIVES OF MEAT-SLICING MACHINES.

No. 916,229.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed June 19, 1907. Serial No. 879,716.

*To all whom it may concern:*

Be it known that I, WILHELMUS ADRIANUS VAN BERKEL, residing at 54 Boezemsingel, Rotterdam, Netherlands in the Kingdom of the Netherlands, a subject of the Queen of the Netherlands, have invented certain new and useful Improvements in Devices for Sharpening the Rotary Circular Knives of Meat-Slicing Machines, of which the following is a specification.

This invention relates to devices for sharpening the rotary circular knives of meat slicing machines, being a development of the prior invention Serial No. 271,513.

Under the present invention, instead of using only one sharpening disk and providing it with means whereby it may be applied to either the inner or outer edge of the rotary circular knife, as in the said prior invention, I make the apparatus with two separate sharpening devices one for each edge of the knife thereby obviating the necessity for changing the position of the apparatus according as it may be desired to sharpen the face or the back of the knife. The sharpening disk for the outer or back edge of the knife is preferably a rough emery or other stone and the sharpener for the face or inner edge of the knife may be either a very fine stone, a steel disk or a sharpening steel, preferably of somewhat oval form. I may say that the face of the knife does not require to be sharpened so often as the back. The sharpeners are each fitted with elastic means such as a spring, whereby they are held in contact with the knife edge. The device or apparatus itself is slidably fitted on a vertical pin on which it is raised out of engagement with the knife edge by means of a spiral spring, being held, when in operation, by means of a catch arrangement as under my said prior invention.

In order that the invention may be clearly understood I have hereunto appended explanatory drawings, whereon:—

Figure 1 is a side view of a sharpening device, having two sharpening disks or wheels. Fig. 2 is a plan view of the same. Fig. 3 is a plan view of the device having a sharpening disk for the outer edge of the knife and a steel sharpener for the inner edge of the knife. Fig. 4 is a view showing a steel disk

adapted for sharpening the inner edge of the knife. Fig. 5 is a side view showing the steel of Fig. 3.

In carrying out my present invention the device or apparatus is preferably made with a base plate *a* provided with three upright pins *b*, *c*, and *d*, the pin *b*, which is arranged next to the rotary knife *e*, having the support for the sharpeners, slidably fitted thereon. The pins *c* and *d* carry the elevating and retaining mechanism.

The support for the sharpeners may consist of a socket *f* provided with three arms *g*, *h*, *i*, the arm *g* having a forked end *g'* which engages with the pin *d*. Carried in ball bearings in the two arms *h*, *i*, are the spindles *j*, *k*, of the emery wheels *l*, *m*.

The sharpeners and their support are raised and held out of engagement with the knife, by means of a spiral spring *n* coiled around the upright pin *b* and they are retained in engagement with the knife edge and are adjusted to the wear thereof by means of the stop mechanism *o* which is similar to that described in the specification of the prior invention aforesaid, except that in the present arrangement only one catch is required, the sharpener support being, therefore, provided with only one depending tongue *o'* and one end only of the bolt *o* projects outward beyond the face of the stop mechanism. While being lowered into engagement with the inner edge of the knife the sharpening disk *m* is displaced upon its spindle *k* by means of the mechanism *p* described in the specification of the said prior invention.

The disk *m* which may be a fine stone is always used for grinding the face of the knife and is pressed against the face by the spring *u* on the spindle. The disk *l*, which may be a coarse emery wheel, is always used for grinding the back of the knife and is pressed thereagainst by the spring *v*. As the knife rotates the grinding disks rotate with it. If desired instead of using a grinding disk *m* I may employ a steel disk *t* as shown at Fig. 4.

In the arrangement shown at Fig. 3, the socket of the sharpener support has two arms *g*, *r*, the arm *g*, having as before, a bearing carrying the spindle *j'* of the emery stone *l'* which is pressed against the outer edge of the knife by means of a spring and the second



arm  $r$  has adjustably secured on its upper side a flat bar  $r^1$  which is made with slots through which the securing pins  $r^2$  pass. The inner end of this bar  $r^1$  is made with a downward projection  $r^3$ , the end of the projection and the side of the arm  $r$  being each provided with a pin  $r^4$  between which is fitted a spring  $r^5$  and by means of this spring the bar  $r^1$  is normally drawn inward. As will be readily seen from Fig. 5, the spring  $r^5$  bears at one end against the fixed part of the pedestal and at the other end against the hook  $r^3$  of the bar  $r^1$  so as to always pull the sharpener inward toward the face of the knife. As shown by dotted lines in Figs. 3 and 5, the screws  $r^2$  work in slots  $r^7$  in the bar  $r^1$ . The outer end of this bar is made with a socket  $r^6$  within which the shank  $s$  of the ribbed or fluted steel sharpener  $s^1$ , is secured by means of a pinching screw  $s^2$ , the sharpener being held against the edge of the knife by the action of the spring  $r^5$ .

Having now fully described my invention what I claim and desire to secure by Letters Patent is:—

1. A device for sharpening the rotary circular knives of meat slicing machines, comprising, in combination, a sharpener for acting upon the back edge of the knife, a sharpener for acting upon the front edge of the knife, a support carrying both sharpeners, said sharpeners being operable independently of each other and operated by the knife when in engagement therewith, one of said sharpeners being arranged with its acting face substantially parallel with the face of the knife, means for moving said sharpeners into and out of engagement with the knife and means for elevating and retaining said support out of operative position.

2. A device for sharpening the rotary circular knives of meat slicing machines, comprising, in combination, a rotary sharpener set at an angle for sharpening the back edge of a knife, a non-rotatable sharpener whose plane is parallel with the face of the knife and out of parallelism with the rotary sharpener for sharpening the front edge of the knife, a support carrying both sharpeners, and means for elevating and retaining said support out of operative position.

3. A device for sharpening the rotary circular knives of meat slicing machines, comprising, in combination, a rotary sharpener set at an angle for sharpening the back edge of a knife, a non-rotatable sharpener whose plane is parallel with the face of the knife and out of parallelism with the rotary sharpener for sharpening the front edge of the knife, a support carrying both sharpeners, means for elevating and retaining said support out of operative position, and means yieldingly retaining said sharpeners in operative position relatively to the knife.

4. A device for sharpening the rotary cir-

cular knives of meat slicing machines comprising, in combination, a support, a rotary sharpener carried by the support, an arm projecting from the support at an angle, a bracket on the arm, a second non-rotating sharpener thereon the acting faces of said sharpeners being out of parallelism with each other, and means for holding the sharpeners respectively into contact with the back and front edge of the knife.

5. A device for sharpening the rotary circular knives of meat slicing machines comprising, in combination, a support, a rotary sharpener carried by the support, an arm projecting from the support at an angle, a bracket on the arm, means for adjusting the bracket on the arm, a second non-rotating sharpener thereon the acting faces of said sharpeners being out of parallelism with each other, and means for holding the sharpeners respectively into contact with the back and front edge of the knife.

6. A device for sharpening the rotary circular knives of meat slicing machines, comprising, in combination, a support, a rotary sharpener carried by the support, an arm projecting from the support at an angle, a flattened bracket adjustably secured to the arm, a spring acting on the bracket, a second sharpener on the bracket, and means for holding the sharpeners respectively into contact with the back and front edge of the knife.

7. A device for sharpening the rotary circular knives of meat slicing machines comprising, in combination, a support, a rotary sharpener carried by the support, an arm projecting from the support at an angle, a bracket on the arm, a ribbed steel sharpener thereon, means for adjusting the bracket on the arm and means for holding the steel sharpener against the edge of the knife.

8. A device for sharpening the rotary circular knives of meat slicing machines comprising, in combination, a support, a rotary sharpener carried by the support, a spring acting on said sharpener, an arm projecting from the support at an angle, a bracket on the arm, a ribbed steel sharpener of oval shape fitted in the bracket, means for adjusting the bracket longitudinally on the arm and a spring acting on the bracket.

9. A device for sharpening the rotary circular knives of meat slicing machines comprising, in combination, a support, a spindle therein, a grinding disk mounted on the spindle, a spring bearing against said disk, an arm projecting from the support, a flat bracket having a socket at its end and adjustably secured to the arm, a ribbed steel fitted in said socket, and held in place by a screw, a tail piece at the end of the bracket and a spring located between said tail piece and the support.

10. A device for sharpening the rotary cir-

cular knives of meat slicing machines, comprising in combination, a support, a rotary sharpener and a non-rotary sharpener disposed at an angle to each other with their  
5 acting faces out of parallelism with each other, means for holding the sharpeners respectively into contact with the back and front edges of the knife, and yielding means for raising and holding said sharpeners and

their support out of engagement with the 10 knife.

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

WILHELMUS ADRIANUS VAN BERKEL.

Witnesses:

FREDERIKUS A. H. STAM,  
JACOBUS J. SCHOENMAKER.