

(No Model.)

L. BROWN.  
KNIFE SHARPENER.

No. 584,457.

Patented June 15, 1897.

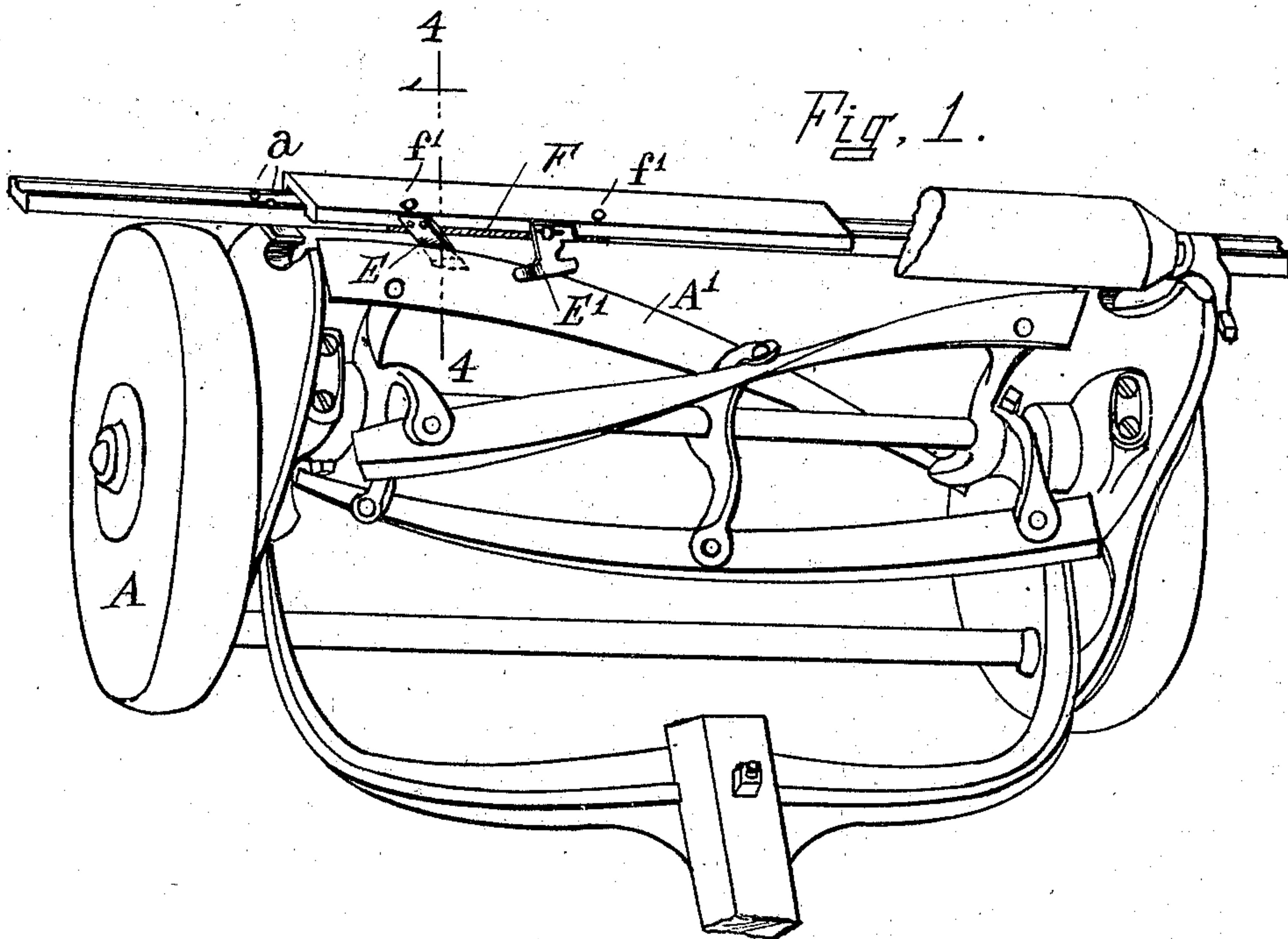


Fig. 2.

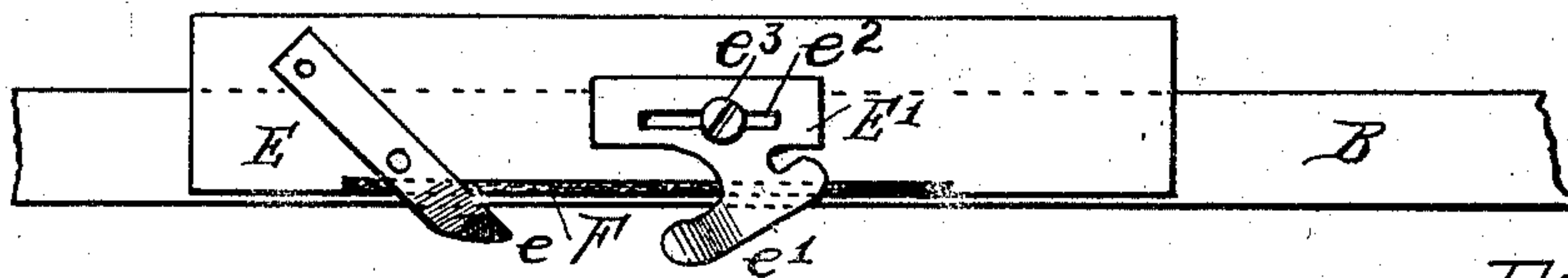


Fig. 3.

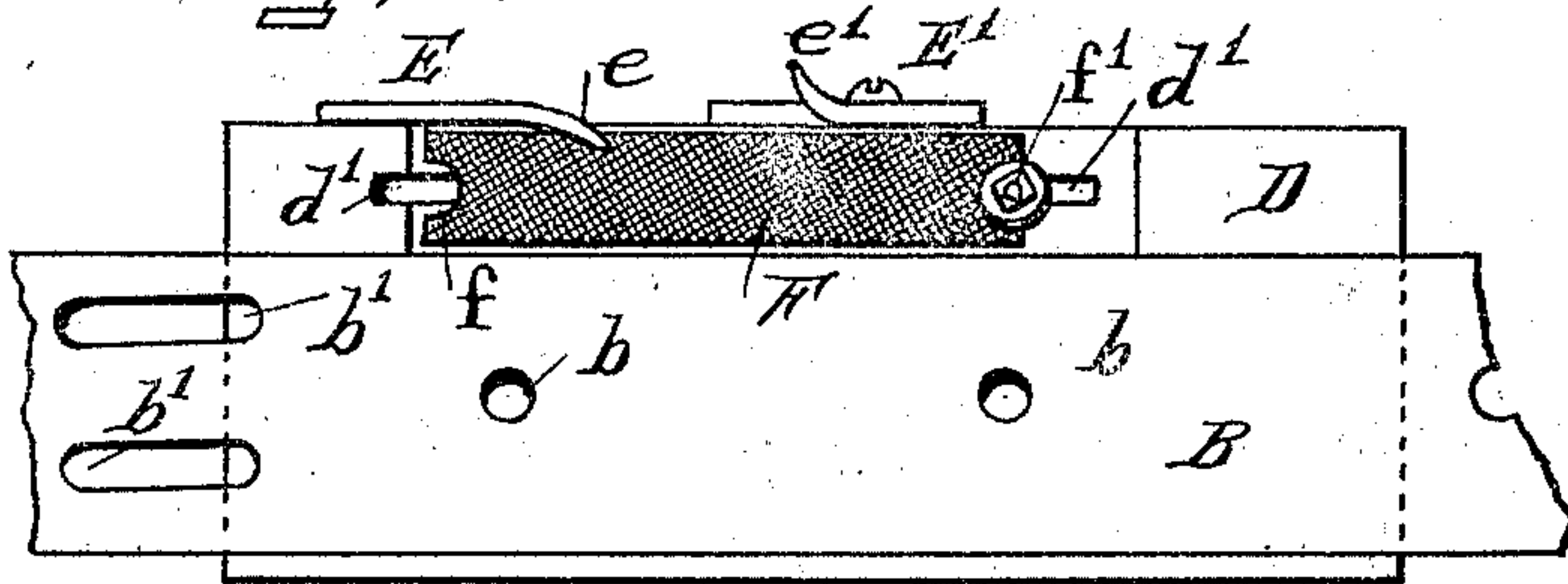
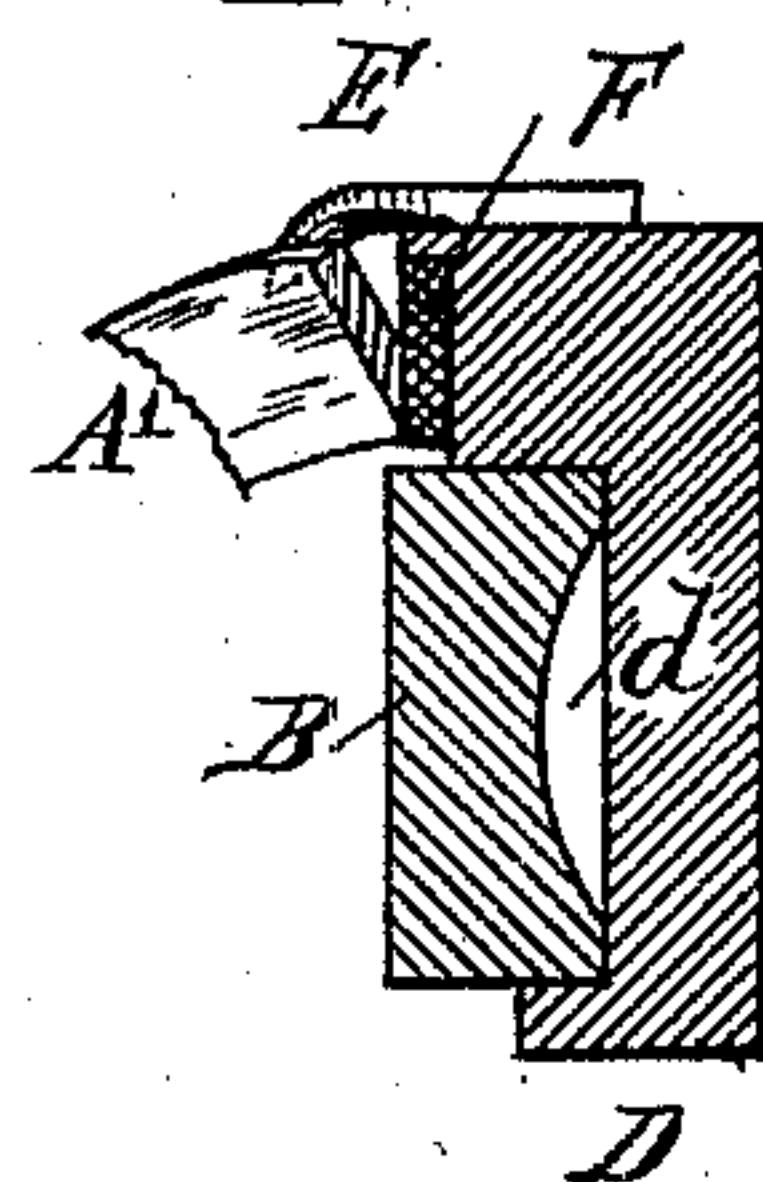


Fig. 4.



Witnesses.  
H. H. Deutsch.  
Fred. L. Weis.

Inventor.  
LEON BROWN.  
by Atty N. DuBois.



# UNITED STATES PATENT OFFICE.

LEON BROWN, OF SWEETWATER, ILLINOIS, ASSIGNOR OF ONE-HALF TO  
ARTHUR J. ALKIRE, OF SAME PLACE.

## KNIFE-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 584,457, dated June 15, 1897.

Application filed September 26, 1896. Serial No. 607,108. (No model.)

### *To all whom it may concern:*

Be it known that I, LEON BROWN, a citizen of the United States, residing at Sweetwater, in the county of Menard and State of Illinois, have invented a certain new and useful Knife-Sharpener, of which the following is such a full, clear, and exact description as will enable those skilled in the art to which it appertains to make and use my said invention.

My invention relates to knife-sharpeners of that class which are employed to sharpen and true the edges of rotatable knives such as are used on lawn-mowers, and the purposes of my invention are to provide simple and effective means for connecting the sharpening device with the machine having the knives to be sharpened, to provide means adapted to oscillate the rotatable blades which are being sharpened, so that the abrading-surface of the sharpener shall come in contact with the knife uniformly along the entire length of the edge of the knife, so that the entire edge may be trued and sharpened alike and to provide an abrading or sharpening surface adjustable in such manner that when one part of said surface becomes worn by use the abrader may be shifted so as to present a new part of the abrader in contact with the edge of the knife.

I herein illustrate and describe my invention as applied to a lawn-mower, but it may be applied with equal advantage to other machines employing rotatable spiral knives substantially like those shown in the drawings.

My invention consists in certain novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made, and hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a perspective view showing the knife-sharpener in position on a lawn-mower. Fig. 2 is a front elevation, on an enlarged scale, of the knife-sharpener detached from the lawn-mower. Fig. 3 is a bottom plan, on an enlarged scale, of the knife-sharpener detached from the lawn-mower. Fig. 4 is an enlarged vertical section through the knife-sharpener and through one of the knives of the lawn-mower on the line 4 of Fig. 1 and shows one

of the cams on the knife-sharpener in engagement with the knife.

Similar letters of reference designate like parts in all of the views.

The lawn-mower A, which is shown in an inverted position, may be of any usual and well-known form having rotatable knives A', and is illustrated only for the purpose of showing the connection of the knife-sharpener therewith.

The knife-sharpener proper consists, essentially, of a guide-plate attachable to the frame of the lawn-mower, a slide moving on said guide-plate and provided with means adapted to oscillate the knives which are to be sharpened, and an abrading-plate carried by said slide and adapted to sharpen and true the edges of said knives, as hereinafter more fully set forth. The guide-plate B in its preferable form is concave on its upper side, as shown in cross-section in Fig. 4, and is of such length that the slide may slide longitudinally on the guide to such extent as to permit the cams on the slide to oscillate the knives A' sufficiently for the abrader to come in contact with the cutting edges of the knives along the entire length of the knives. By making the upper surface of the guide-plate concave, as shown, I am enabled to reduce to the minimum the bearing-surfaces on which the slide D moves. The concavity in the plate serves also to facilitate the removal of dirt or other obstructions which might if not removed impede or interfere with the accuracy of the movement of the slide. In the guide-plate are holes b or slots b', adapted to receive bolts a, connecting the plate with the frame of the lawn-mower.

In attaching the knife-sharpener to a lawn-mower the cutter or blade against which the knives cut is removed, and the same bolts which served to secure the cutter-bar to the lawn-mower frame may be used to secure the guide-plate to the lawn-mower frame, or other bolts or clamps, or other suitable connections may be used without departing from the spirit of my invention, it being only essential that the guide-plate shall be secured to the frame in such manner that the parts may cooperate, as hereinafter set forth.



The slide D has a longitudinal channel  $d$ , in which the plate B fits loosely, so that the slide may slide freely on the plate. It also has slots  $d'$ , through which the bolts  $f'$  pass, connecting the abrader F with the slide in such manner that the bolts may slide in the slots, so as to permit longitudinal adjustment of the abrader on the slide. In practice I have found the form of slide which I have illustrated to be easily constructed and effective in operation; but it is obvious that slides of different forms may be used without departing from my invention.

On the front of the slide D is a fixed cam-plate E, having at its lower end an integral curved and tapering cam  $e$ . An adjustable cam-plate E' has at its lower end an integral cam  $e'$  and is also connected with the front of the slide D in any suitable manner, so that the plate E' may be adjusted relative to the plate E in order to permit knives of different sizes to pass between the cams on the plates. As a preferable means for the adjustment of the plate E', I provide a slot  $e^2$  in the plate and a screw  $e^3$ , passing through the slot and screwing into the slide D. On the under side of the slide D is an adjustable abrader F. This abrader may be of any suitable and convenient form and may be either a file, a hardened-steel scraper, a whetstone, an emery-stick, or other abradant adapted to file, scrape, or whet the edges of the knives A'. The abrader is made adjustable in order that when any part of its surface becomes worn the abrader may be shifted so as to bring another part of the surface of the abrader into service. In the ends of the abrader are notches  $f$ , which receive bolts  $f'$ , by which the abrader is connected with the slide D, as hereinbefore set forth. When the knife-sharpener is in position on the lawn-mower and the slide is at rest, one of the knives A' lies between the cams  $e$  and  $e'$  and the under surface of the abrader is in contact with the edge of the knife. If then a reciprocating movement be given to the slide D, it is obvious that the cams  $e$  and  $e'$  will alternately engage with the knife A' in such manner as to impart oscillatory motion to the knife and cause the edge of the knife to rub on the abrader, so as to true and sharpen the edge

of the knife. It will be seen that when one knife is sharpened the slide may be removed, so as to release the sharpened knife from between the cams, and another knife may be brought into position between the cams and the slide reciprocated to cause the abrader to sharpen that knife, and so on in succession until all of the knives are sharpened.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a knife-sharpener, the combination of a guide-plate, means for supporting said guide-plate in proximity to the blade to be sharpened, a slide slidable on said guide-plate, an abrader adjustably connected with said slide, a fixed cam-plate on said slide and a movable cam-plate on said slide adjustable relative to said fixed cam-plate, as set forth.

2. In a knife-sharpener, an abrader having notches in its ends, a slide having longitudinal slots, and connecting-bolts fitting in the notches in said abrader and adjustable in the slots in said slide; in combination with a guide-plate, means for supporting said guide-plate in proximity to the blade to be sharpened, and projecting cams on said slide between which the blade to be sharpened passes, as set forth.

3. In a knife-sharpener for lawn-mowers, a guide-plate concave on its upper side and having slots registering with the holes in the lawn-mower frame which accommodate the bolts by means of which the cutter-bar is secured to the lawn-mower frame; in combination with bolts fitting in the slots in said guide-plate and connecting said guide-plate with the main frame of the lawn-mower, a channeled slide slidable on said guide-plate, an abrader adjustable on said slide and projecting cam-plates on said slide between which the blade to be sharpened passes, as set forth.

In witness whereof I have hereunto subscribed my name, in the presence of two witnesses, at Sweetwater, Menard county, Illinois, this 22d day of May, 1896.

LEON BROWN.

Witnesses:

LEWIS ALKIRE,  
EDWARD ALKIRE.