

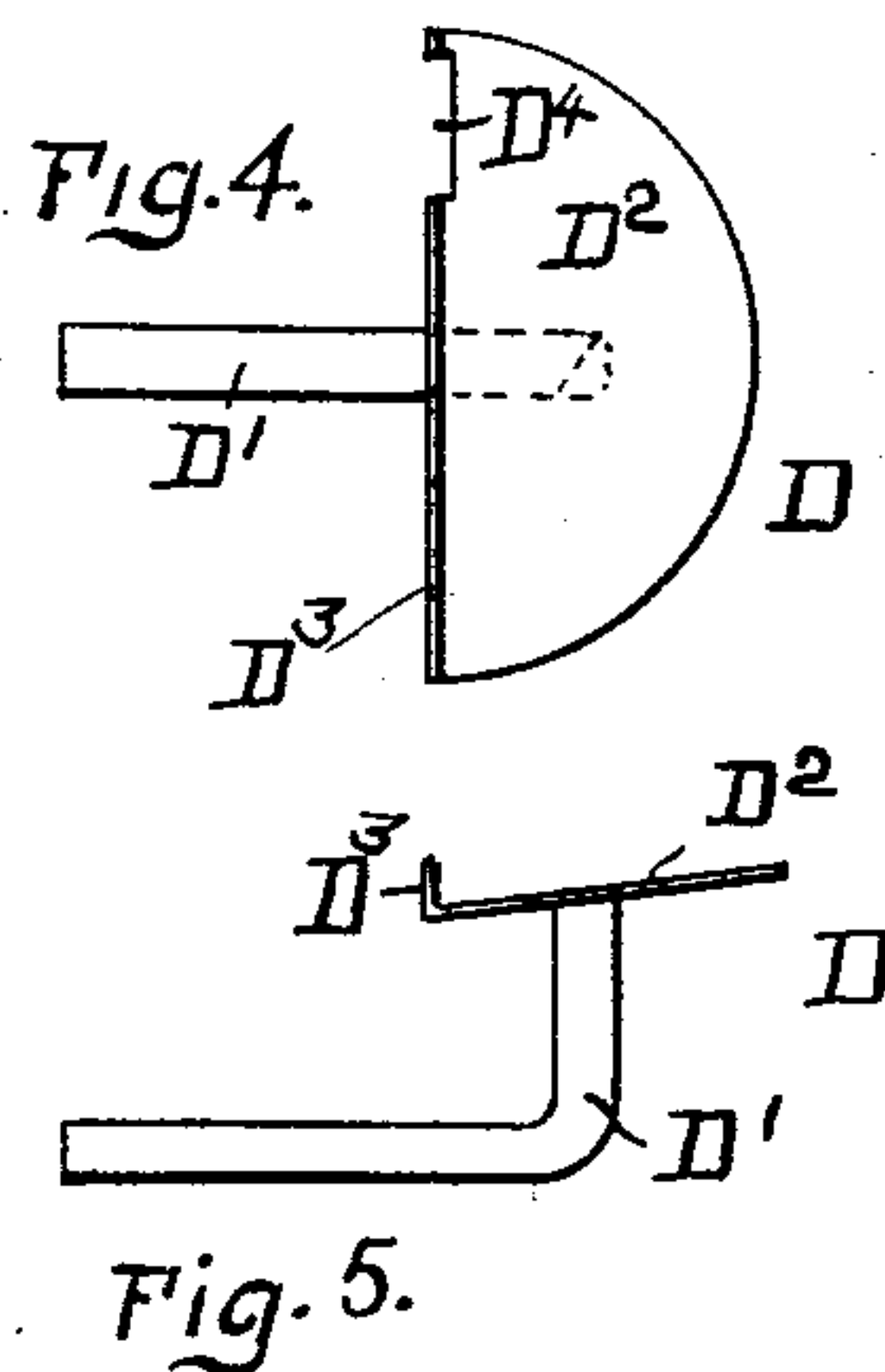
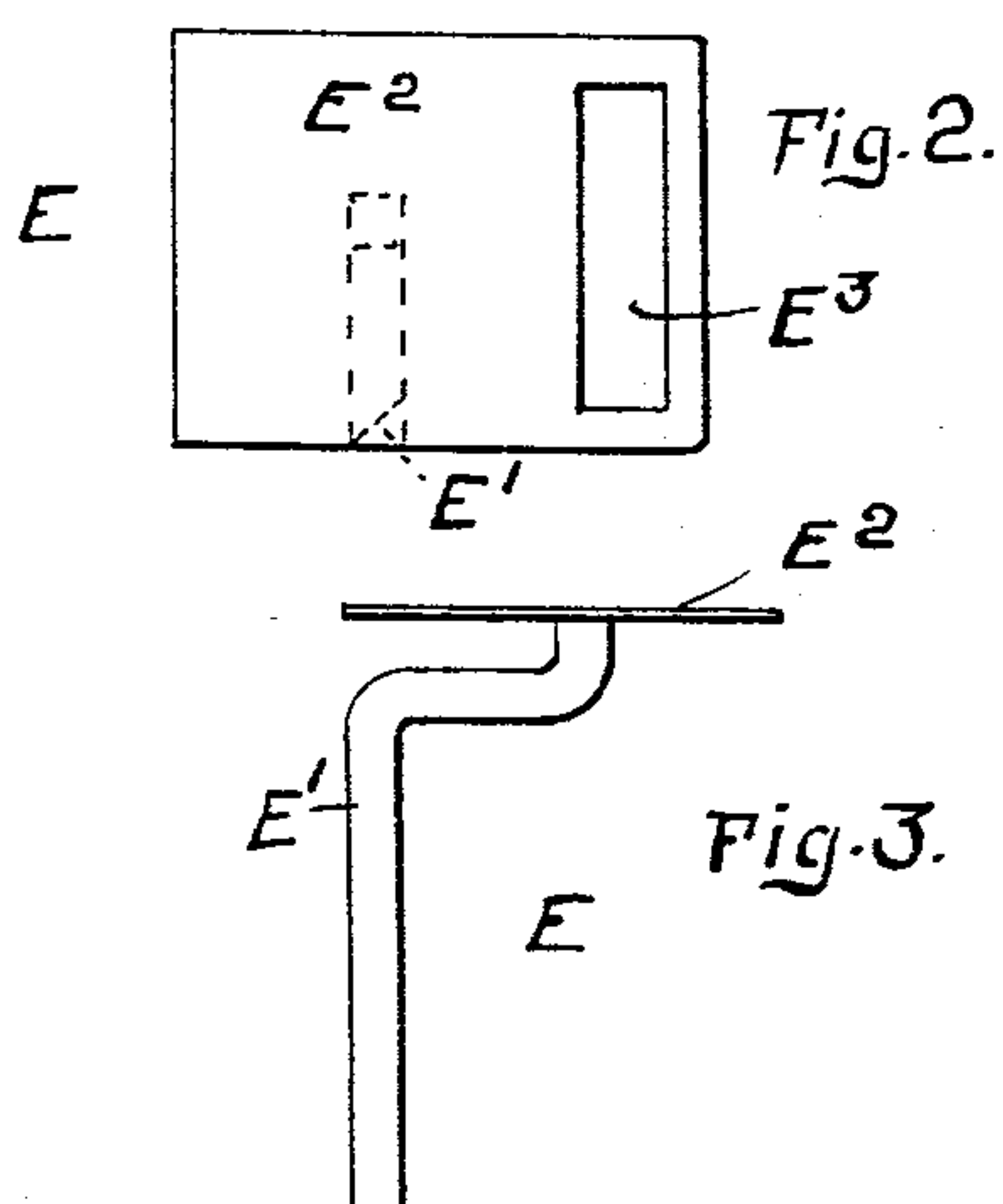
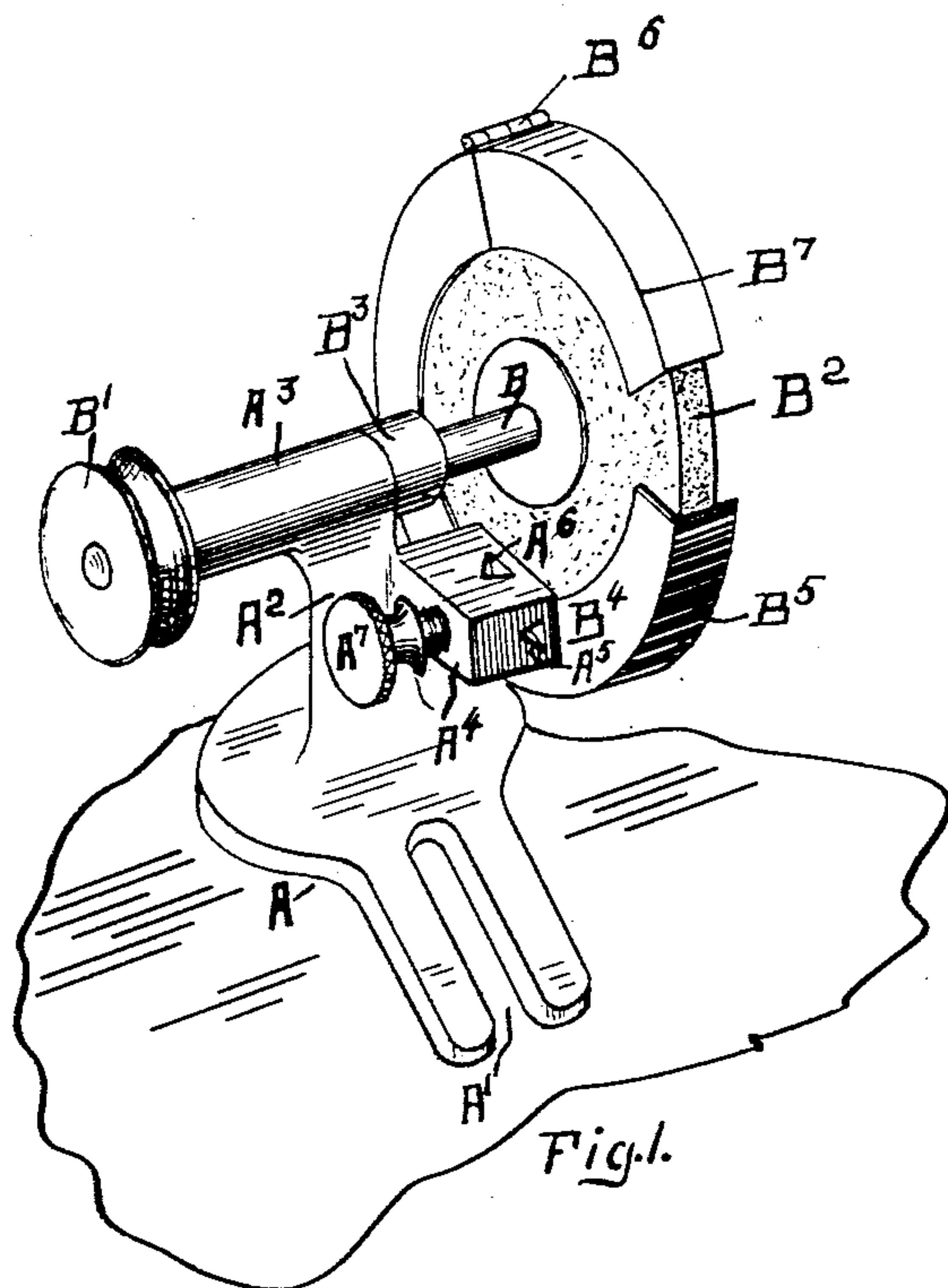
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T. B. STEPHENSON.
COMPOUND GRINDING ATTACHMENT.

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NO MODEL.



WITNESSES:

Mary A. Kermay
A. E. Ellis.

INVENTOR

Thomas B. Stephenson.
By J. Hart Anderson
and Wm. F. Frendrensic.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS B. STEPHENSON, OF BRISTOL, CONNECTICUT.

COMPOUND GRINDING ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 751,815, dated February 9, 1904.

Application filed May 20, 1903. Serial No. 157,967. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. STEPHENSON, a citizen of the United States, residing at Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Compound Grinding Attachments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to grinding mechanism, and more particularly to a device for sharpening knives, scissors, and other articles adapted to be used as an attachment to sewing-machines. Heretofore many attachments for sewing-machines and the like have been devised for this purpose; but in none of them have means been provided for adjusting the depth of cut which the wheel or other grinding device may make in the article to be sharpened.

The object of the present invention is to provide a grinding device with attachments adapted to serve both as rests and as gages for determining the amount of material which shall be ground from the article operated upon.

Further objects of the present invention will appear in connection with the following description of my improvement.

To the above ends the present invention consists in the devices and combinations of devices to be hereinafter described, and particularly pointed out in the claims.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved attachment, both gages being removed. Fig. 2 is a plan view of the knife-gage and rest. Fig. 3 is a side elevation of the same looking toward the right hand of Fig. 2. Fig. 4 is a plan view of my improved scissor gage and rest. Fig. 5 is a side elevation of the same.

Similar reference characters will be used to denote corresponding parts throughout the specification and drawings.

A bracket A, provided with an open-ended slot A', is adapted to rest on the table of a sewing-machine, being adjustably secured thereto by means of a thumb-nut or other device pass-

ing through the slot A' and screwing onto the table. The base plate or bracket is provided with a standard A², having a horizontal bearing A³ at its upper end. This bearing serves to support a shaft B, having at one end a grooved pulley B' and at its other end a grinding-wheel B², of emery or other suitable substance. The shaft is held against longitudinal displacement in its bearing by means of the pulley B' and a collar B³.

The grinding-wheel is preferably provided with a guard or hood, which, as shown, consists of a plate B⁴, adjacent the inner face of the grinding-wheel, and a flange B⁵, extending from the plate across the periphery of the wheel. This hood or guard extends as far around the periphery of the wheel as the rests or gages, to be hereinafter described, will permit.

Hinged to the guard proper at B⁶ is an additional guard-section B⁷. When this hood or guard B⁷ is in its normal position, only a very small surface of the grinding-wheel is exposed, being of a peripheral length sufficient to contact with the edge of the scissor-blade.

When the knife-grinding rest or guard is put in place, the hood B⁷ is swung out of position, leaving a larger peripheral surface exposed.

Projecting from the standard A² is a boss A⁴, extending adjacent the grinding-wheel. This boss is provided with two openings A⁵ and A⁶, angular in cross-section and extending substantially at right angles to each other. These openings A⁵ and A⁶ are adapted to receive the stems of the rests or gages, these stems being held in position by means of a thumb-screw A⁷, threaded into the boss A⁴ and passing through both openings A⁵ and A⁶ at the intersection thereof. This thumb-screw serves, therefore, to engage the stem of an attachment located in either of said openings. In the drawings there are illustrated two of these rests or gages D and E, the gage D being adapted to position scissor-blades and the gage E serving the same purpose in connection with knife-blades or other similar edged tools. The gage D consists, preferably, of an elbow-shaped stem D', one arm of this stem fitting the opening A⁵ in the boss A⁴, while

the other arm supports at its upper end a plate D^2 , arranged at an acute angle to said arm. The relations of the boss and wheel are such that when the gage is in position the plate D^2 thereof will form a slight angle with the radius extending from the center of the grinding-wheel to a point on the periphery adjacent the edge of the plate. This angle determines the angle at which the edge of the scissor-blade is ground.

The plate D^2 is provided with an upwardly-projecting flange D^3 along the edge facing the grinding-wheel. This flange serves to support the edge of the scissor-blade, while at the same time one face of the blade is supported on the plate D^2 . A portion of this flange and also a small portion of the plate D^2 is cut away, as at D^4 , the length of this opening being slightly in excess of the width of the grinding-wheel in order that when the scissor-blade is positioned for grinding the wheel may play through this opening and engage the edge of the plate. The depth to which this opening is cut into the plate determines the depth to which the wheel will grind.

In the operation of this device the base plate or bracket is adjusted so that the pulley B' engages the driving-belt of the machine. Upon moving this driving-belt the pulley B' , and therefore the grinding-wheel, will be rotated, and, assuming the gage D to have been properly adjusted and locked by means of the thumb-screw A^7 , a scissor-blade or a like device may be rapidly and accurately ground by simply resting the blade upon the plate D^2 and pressing the edge against the flange D^3 , at the same time moving the blade slowly along the flange and across the face of the grinding-wheel.

The knife-grinding attachment E consists of a stem E' , supporting at its upper end a flat plate E^2 , having an elongated slot E^3 cut thereon. The relation of the parts is such that when the gage or rest is in position with its stem engaging the opening B^6 the plate E^2 extends over the periphery of the grinding-wheel, and when the gage is properly adjusted the wheel will extend slightly through the slot or opening E^3 .

When the gage E is in use, the hood B^7 is swung back out of the way.

The gage E may be so adjusted as to allow a considerable portion of the grinding-wheel to project through the slot, or the adjustment may be such that the highest point on this wheel is substantially flush with the upper

surface of the plate, thus permitting rough grinding or polishing to be effected.

When the gage E is used to grind knives or similar articles, the gage is adjusted and locked in position by means of a thumb-screw A^7 , so as to leave the grinding-wheel projecting through the slot the desired amount, and the blade to be operated upon is pressed upon the surface of the plate and moved across the opening therein until the proper degree of sharpness has been obtained.

In my improved device as illustrated the stem of the scissor-supporting gage extends horizontally, while the stem of the knife-supporting gage is arranged vertically. This is a preferred construction, as it permits the blades which are operated upon to lie horizontally.

It will now be seen that the present invention provides means in which knife and scissor blades may be supported upon horizontal tables while being ground, this being the most convenient way for manipulating such instruments during the grinding process. It will be further seen that the improved forms of gages permit rapid and delicate adjustments to be made for the purpose of grinding away considerable material, if desired, or else for the purpose of causing the grinding-wheel to come barely into contact with the tool, whereby a very sharp and even edge may be obtained.

Having described my invention, I claim as new and desire to protect by Letters Patent of the United States—

1. A grinding mechanism having in combination, a grinding-wheel, a gage for positioning and supporting edged tools, said gage being provided with means for preventing the wheel from cutting too deeply during the grinding operation and means for adjusting the gage in order to diminish the depth of cut below the maximum, substantially as described.

2. A gage for supporting and positioning knives or similar edged tools during the process of grinding, consisting of a stem and plate carried thereby, said plate having a slot through which a grinding-wheel is adapted to project, substantially as described.

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

THOMAS B. STEPHENSON.

Witnesses:

MABEL B. ADAMS,
ROGER S. NEWELL.