

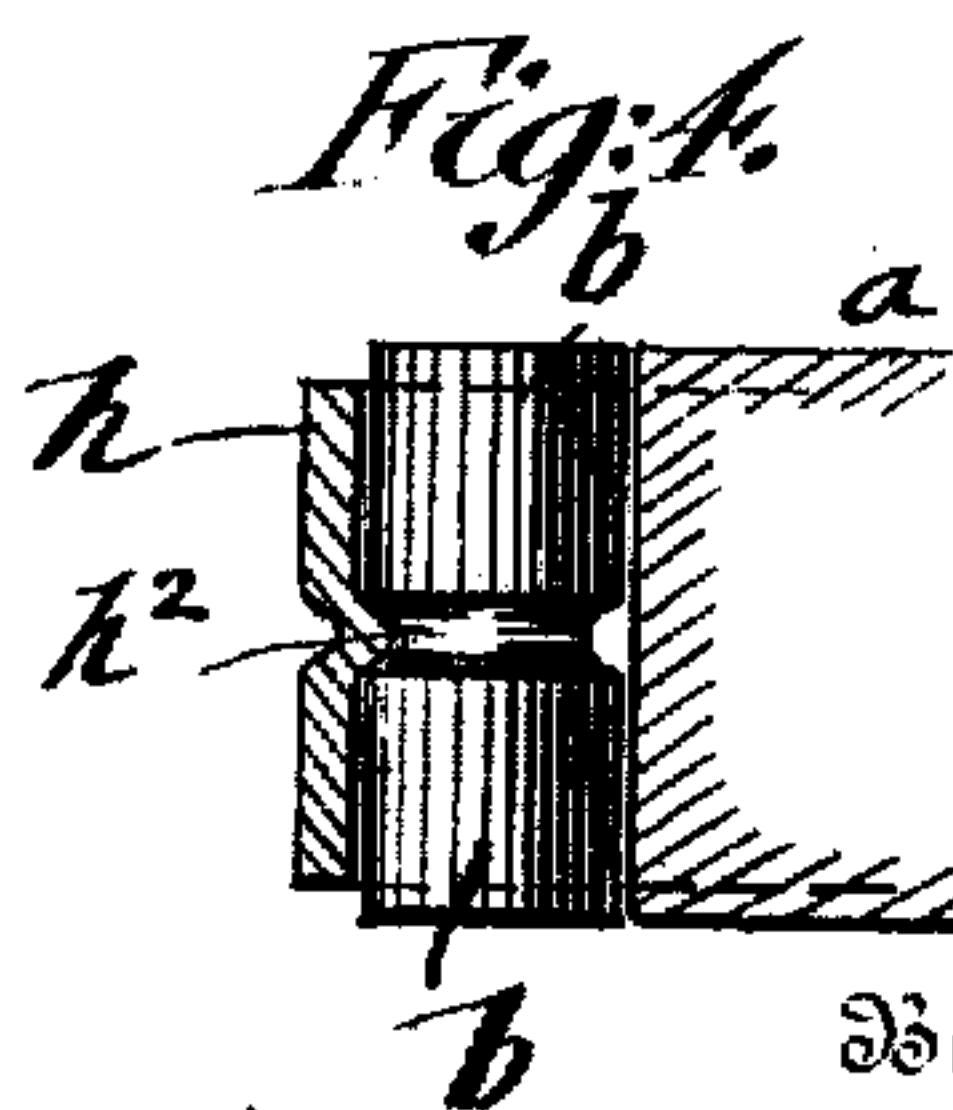
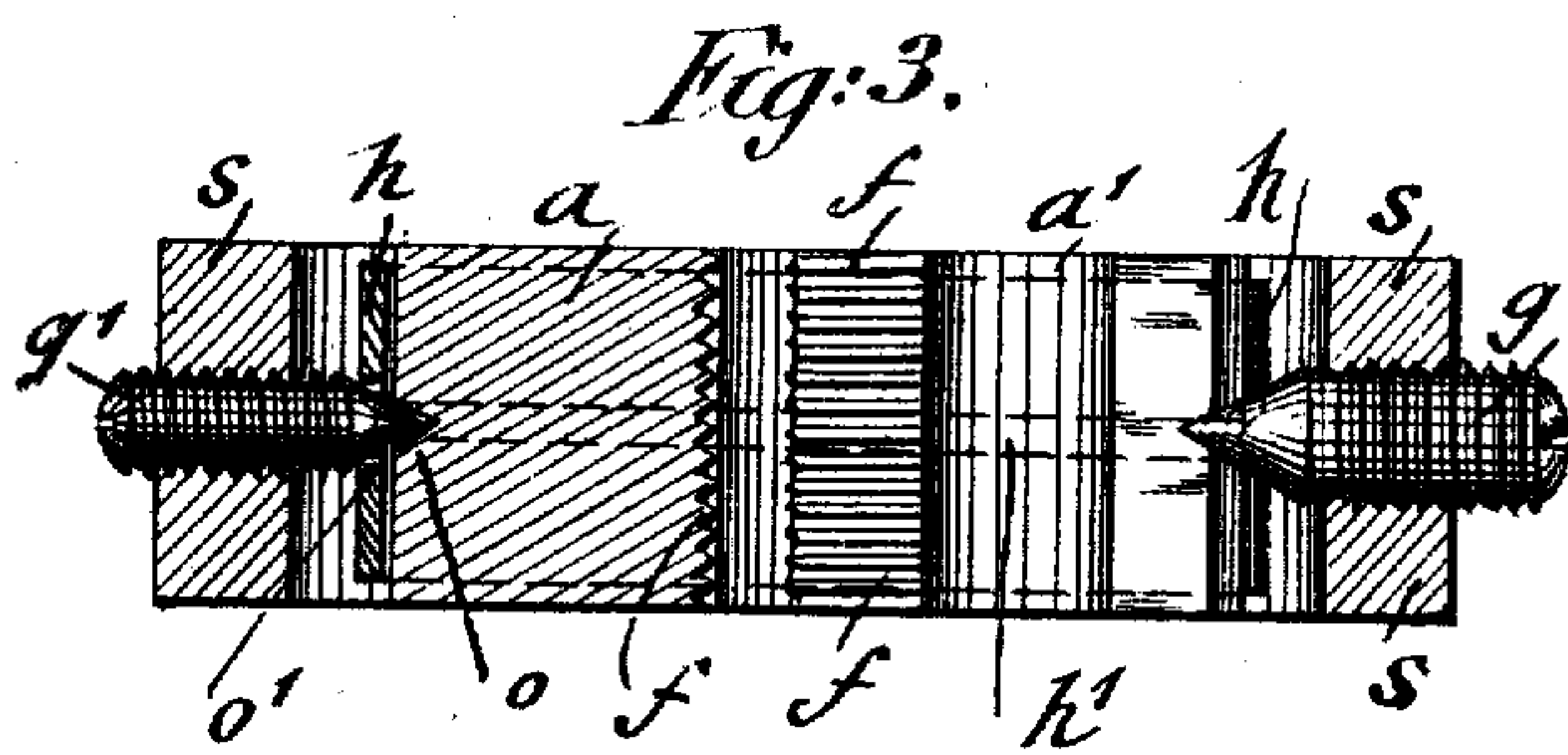
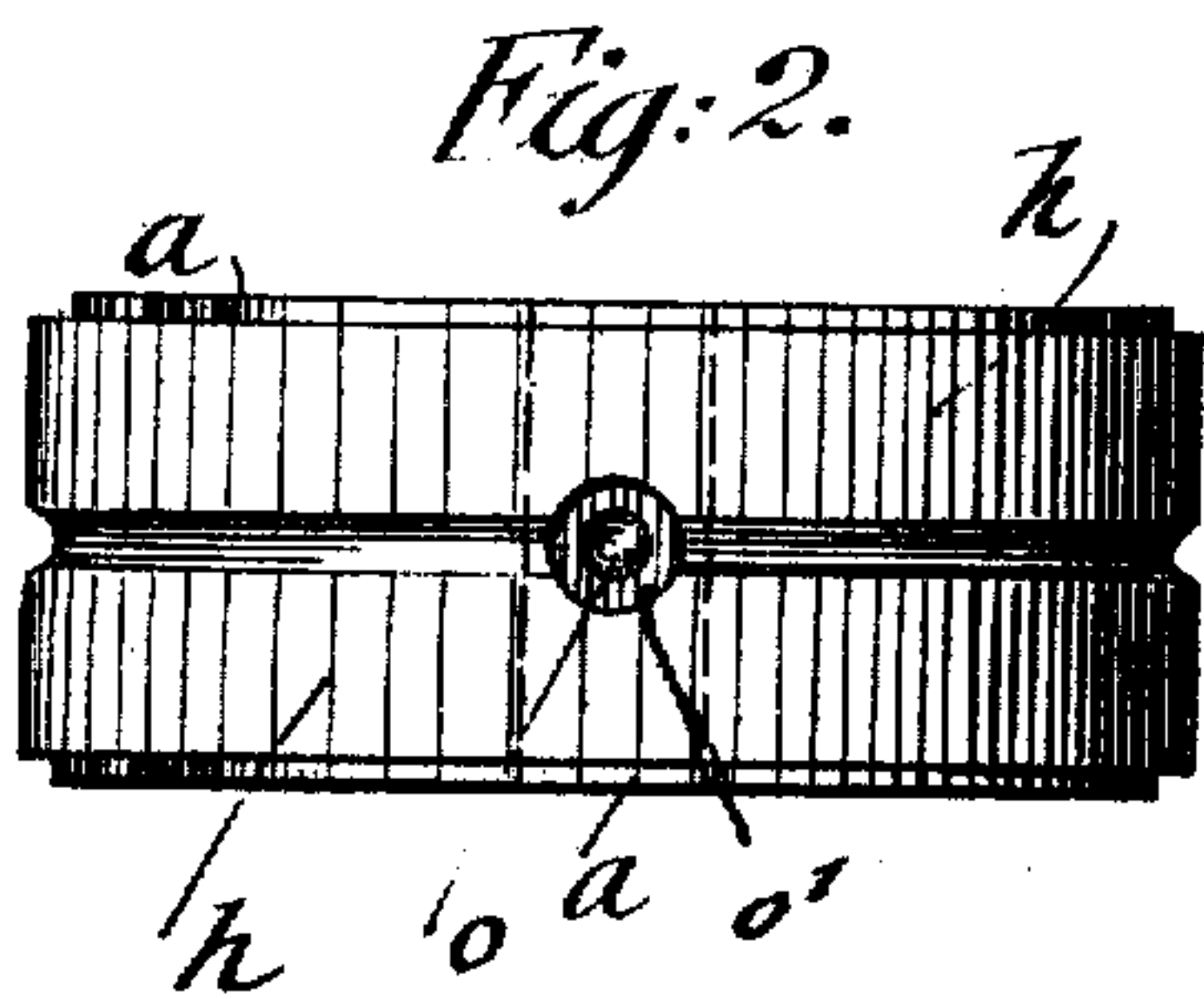
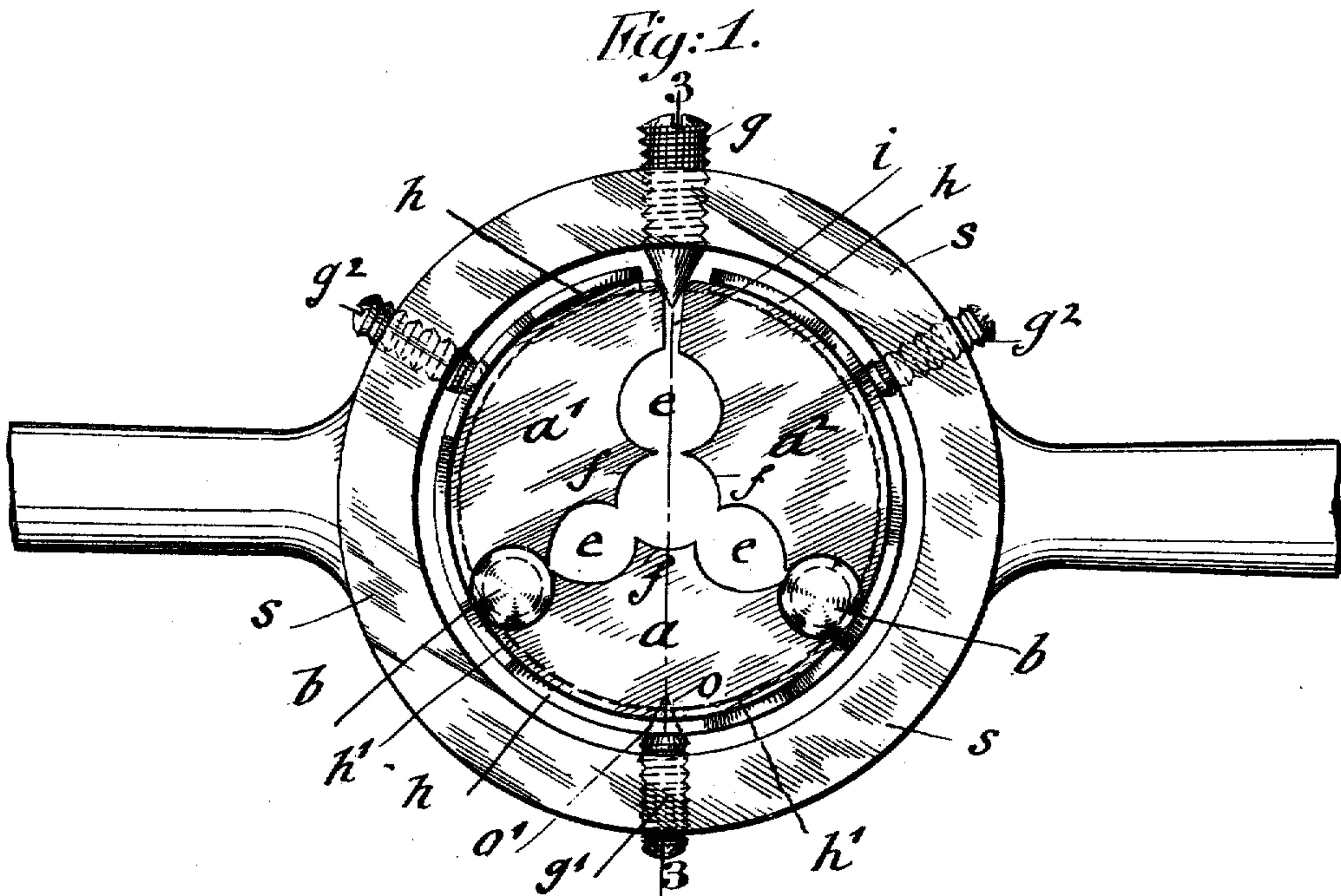
G. ERMOLD.

TAPPING DIE.

APPLICATION FILED MAR. 28, 1908.

913,001.

Patented Feb. 23, 1909.



Witnesses:
Jamies Fisk
Heures & Schurheit.

Inventor
George Ermold
 By his Attorney
James Goepel.

UNITED STATES PATENT OFFICE.

GEORGE ERMOLD, OF ELIZABETH, NEW JERSEY.

TAPPING-DIE.

No. 913,001.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed March 28, 1908. Serial No. 423,823.

To all whom it may concern:

Be it known that I, GEORGE ERMOLD, a citizen of the United States, residing in Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Tapping-Dies, of which the following is a specification.

This invention relates to certain improvements in tapping-dies by which rods, tubes and similar articles can be quickly provided with screw-threads, and more especially to certain improvements on the tapping-die for which Letters Patent were granted to Sven Tideman on November 25, 1890, No. 441,603, for an improved die and die-stock.

The object of this invention is to furnish an improved tapping-die which can be readily adjusted to the diameter of the article to be threaded without liability of breaking, and which is firmly held within the stock after being inserted therein and adjusted to the required size of the article to be threaded; and for this purpose the invention consists in the novel features to be hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a plan-view of my improved tapping-die, shown as inserted into the stock with which it is to be used, Fig. 2 is a side-elevation of the die shown as detached from the stock, Fig. 3 is an enlarged vertical section of Fig. 2, and Fig. 4 is a detail side-view of one of the pivot-pins of the tapping-die.

Similar letters of reference indicate corresponding parts throughout the several figures.

Referring to the drawings, a , a^1 , a^2 represent the three sections of which my improved tapping-die is composed. The die-sections are made of sector-shape, each of the sections a^1 , a^2 being pivoted to the section a by pivot-connections which consist of two plain pivot-pins b that are interposed between the sections and seated in semi-circular recesses at each end of the jaw a and in corresponding recesses at the adjacent ends of the sections a^1 , a^2 .

The inner portions of the sections a , a^1 , a^2 are provided with projecting portions or jaws f having face-threads for tapping in the usual manner. Between the outer ends of the sections and the inner ends or jaws of the same are arranged clearance-openings e . At the adjacent ends of the die-sections a^1 , a^2 opposite to the pivot-connections of the same with

the die-section a , is arranged a radial slit i by means of which the die-sections a^1 , a^2 can be moved closer towards or away from each other so as to adapt the tapping jaws f for cutting screw-threads on rods or tubes of varying diameters. This is accomplished by placing the tapping-die in a stock s , then adjusting the jaws of the die to the required diameter by means of a set-screw g , which is located in the stock and which has an inner tapering end, said set-screw being arranged in the circular portion of the stock as shown in Fig. 1. When the jaws of the tapping-dies are adjusted to the required size, the circular portion of the stock is tightly applied to the die by means of a clamping-screw g^1 , which enters into a socket-hole o in the circumference of the die-section a diametrically to the set-screw g , and two additional clamping-screws g^2 , which pass through the stock one for each of the jaws a^1 , a^2 . The tapping die is now in position to be applied to the article to be tapped in the usual manner. The die-sections are provided at their outer edges with grooves h^1 , and the pivot-pins are provided in line with the grooves h^1 with annular grooves h^2 . About the die-sections is placed a flat spring-ring h which is grooved centrally in order to form a rib which is seated in the grooves of the die-sections and pivot-pins. The outer groove in the spring-ring h by which the rib on the inner face is formed serves, in connection with the clamping-screws g^2 , for positioning the die-sections in the stock, the inner ends of said screws engaging in said groove, as shown in Fig. 1. The spring-ring h has also a hole o^1 registering with the hole o in the circumference of the die-section for the inner pointed end of the clamping-screw g^1 .

The sections of the improved tapping-die are made from a solid steel rod by cutting off solid circular blanks of the size of the tapping-die. The solid blank is then provided with a central opening, and adjacent thereto with the clearance openings e . Adjacent to the clearance-openings are arranged the recesses for the pivot-pins. After this the blank is split in radial direction into three die-sections. Then the circumferential grooves are cut into the die-sections and pivot-pins and the die-sections and pins connected by the spring-ring, the opening between the ends of which being located at the point where the tapering end of the set-screw

g is intended to enter into the slit between the die-sections a^1 , a^2 . The tapping-die being made up from the blanks is hardened in the usual manner.

5 The advantages of my improved tapping-die are, first, that the same is always ready for use and not liable to breakage or splitting; second, that articles of different diameters within certain limits can be tapped by
10 the same owing to the facility by which the jaws can be adjusted to the article to be threaded; third, that owing to the adjustability of the die to different diameters a smaller number of tapping-dies is required
15 than heretofore; fourth, that any die-section can be readily replaced in case the thread on its jaw should become injured by accident or wear, the die-sections being made up ready for use and readily assembled by means of
20 the spring-ring connection, and lastly, that the spring-ring and set-screws hold the die-sections and pivot-pins in their exact positions, and prevent any part of the die from moving independently of the others, making
25 the die thereby as rigid as a solid tapping die made of one piece.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A tapping-die comprising three sector-shaped die-sections, each section having a

groove at its outer part, a tapping-jaw at its inner part and clearance-openings adjacent said jaw, pivot-pins interposed between one of the die-sections and the two adjacent die-
35 sections, said pivot-pins being provided with annular grooves, and a spring-ring provided with a central groove forming a rib seated in the grooves of the die-sections and pivot-pins.
40

2. The combination, with a tapping-die comprising die-sections having grooves at their outer parts, pivot-pins interposed between said sections and provided with annular grooves, and a spring-ring having a
45 groove at its outer face forming a rib extending into the grooves of the die-sections and pivot-pins, of a stock for the tapping-die, a set-screw passing through the stock between certain of the die-sections, a clamping-screw
50 passing through the stock into socket-holes of the spring-ring and die-sections, and set-screws passing through the stock into the groove on the outer face of the spring-ring.

In testimony, that I claim the foregoing as
55 my invention, I have signed my name in presence of two subscribing witnesses.

GEORGE ERMOLD.

Witnesses:

PAUL GOEPEL,
HENRY J. SUHRBIER.