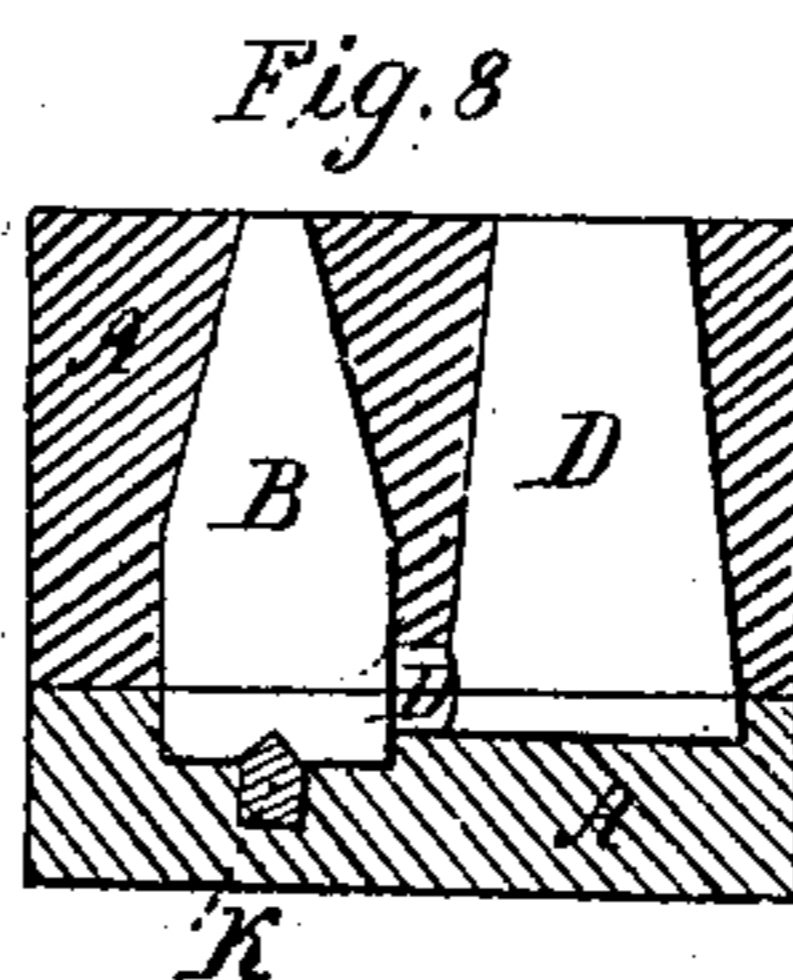
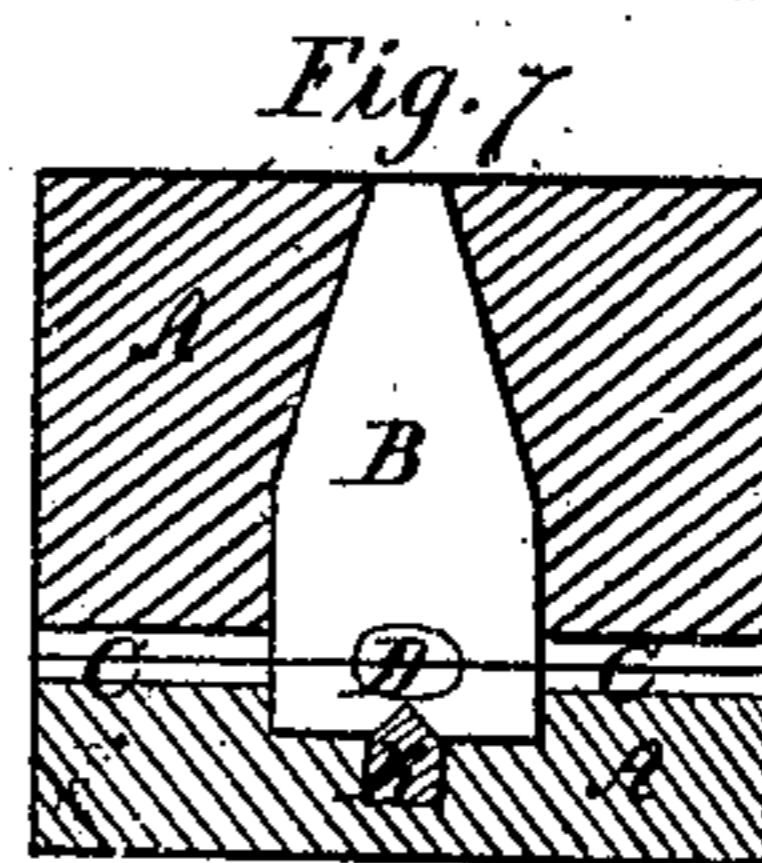
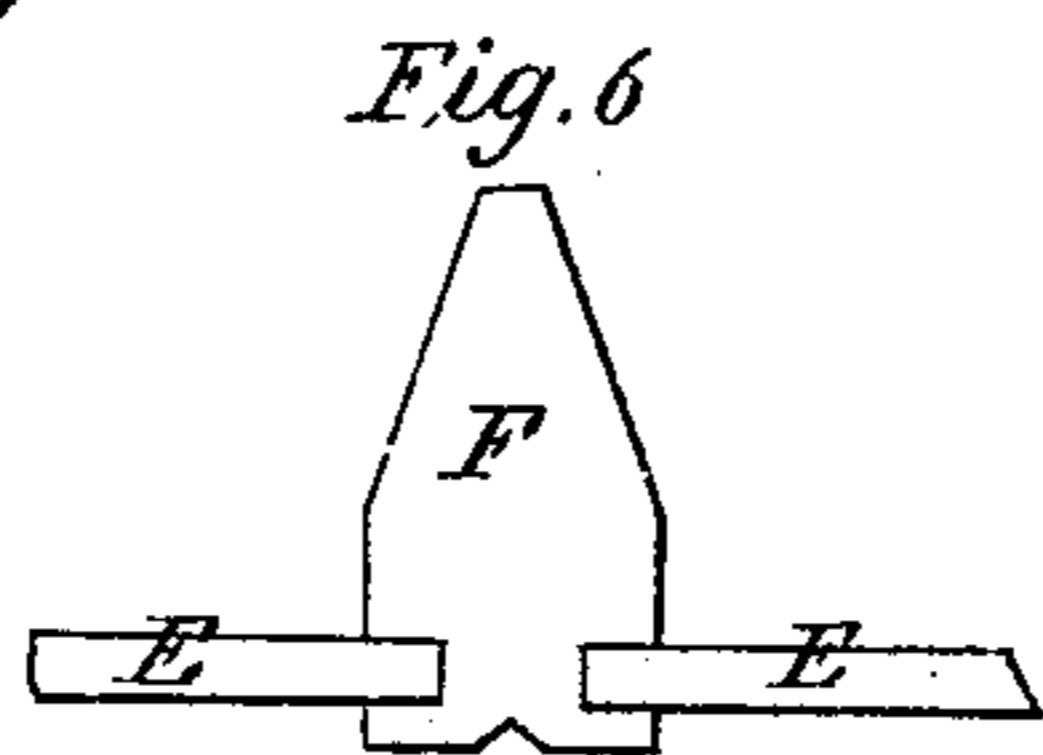
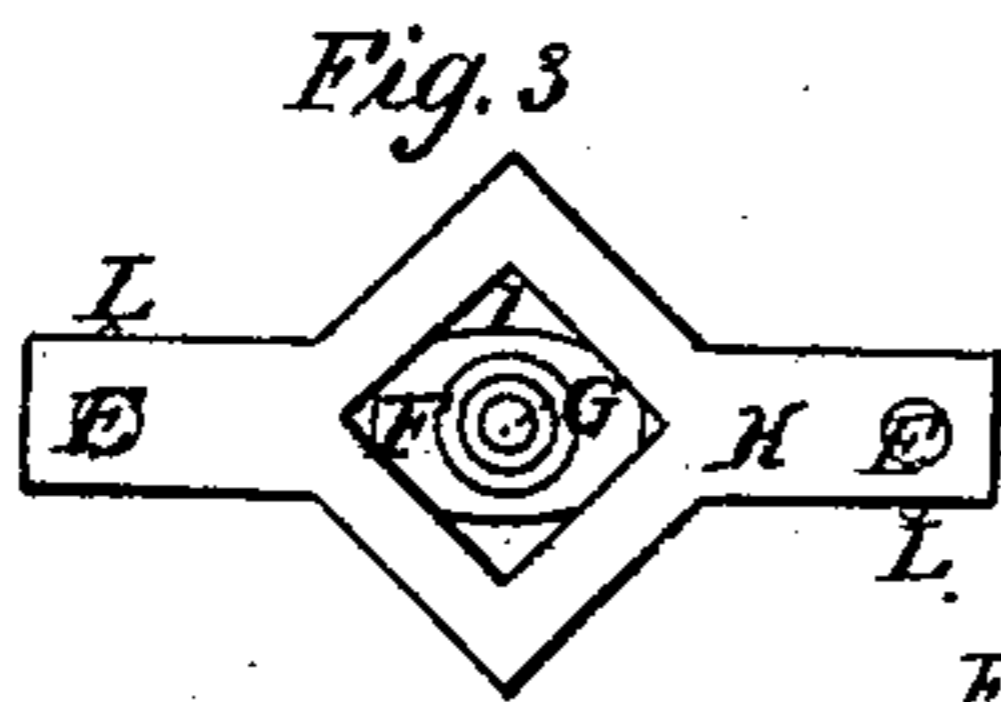
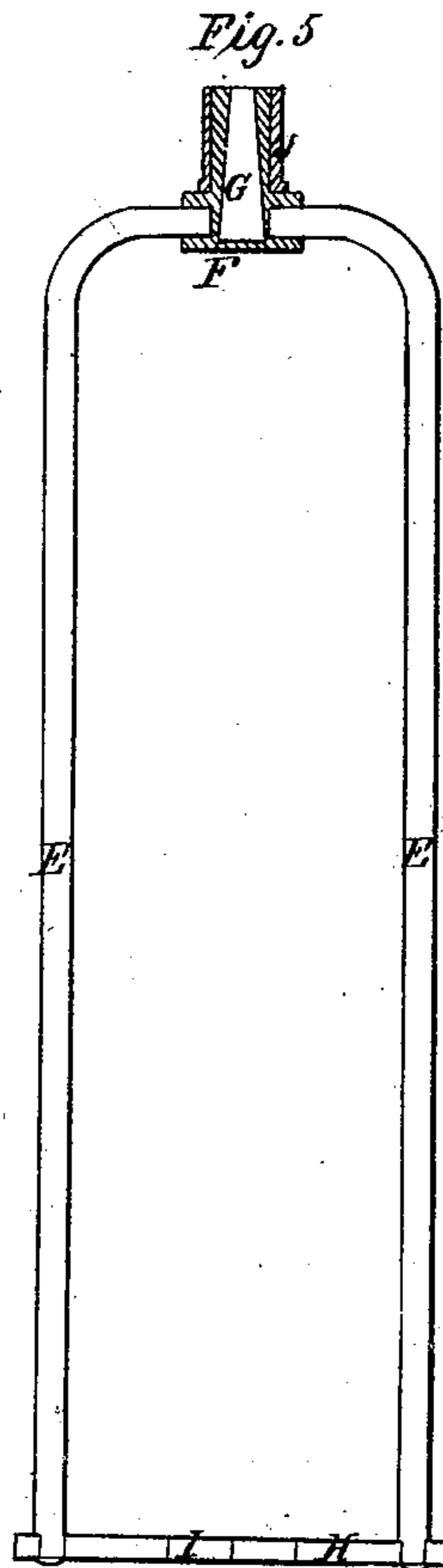
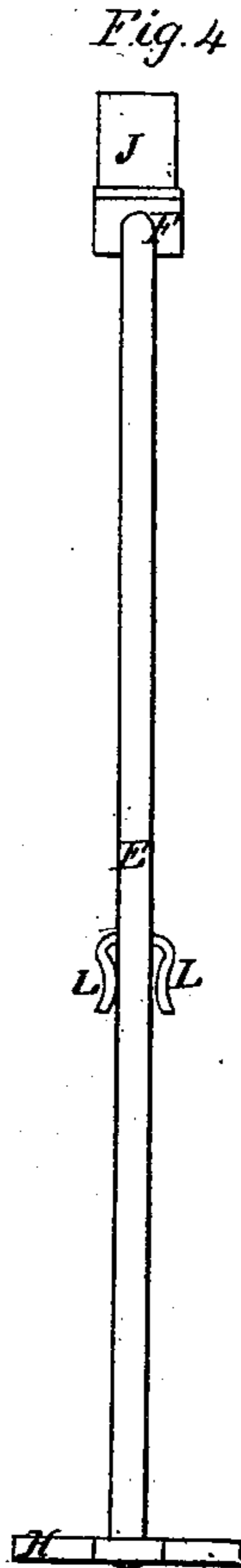
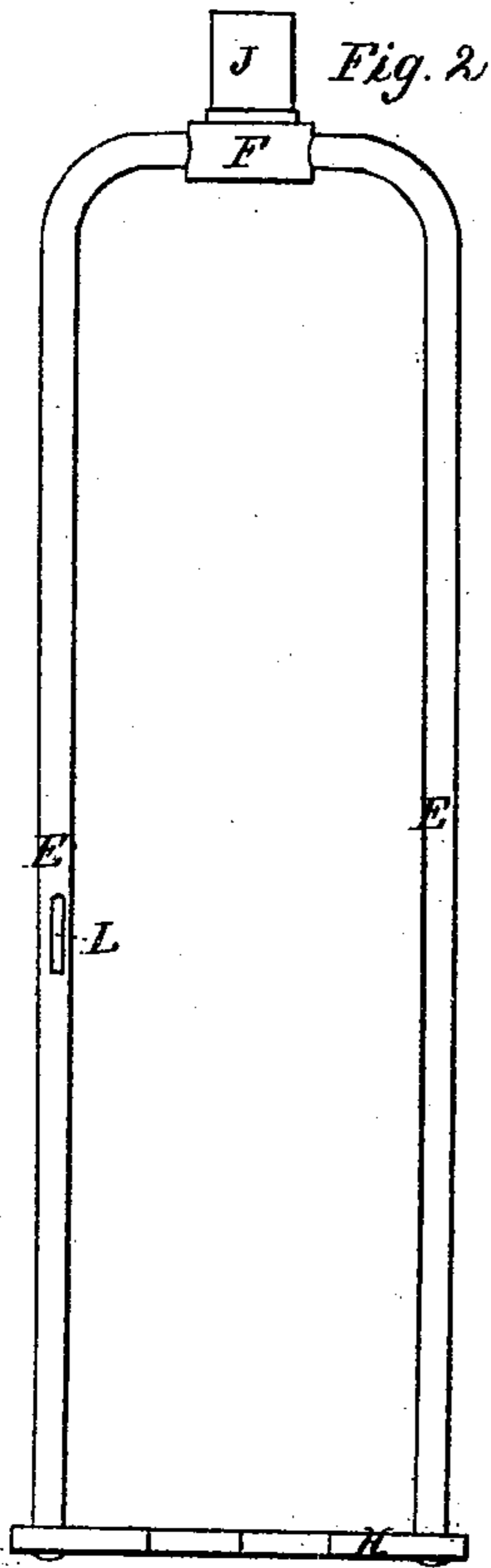
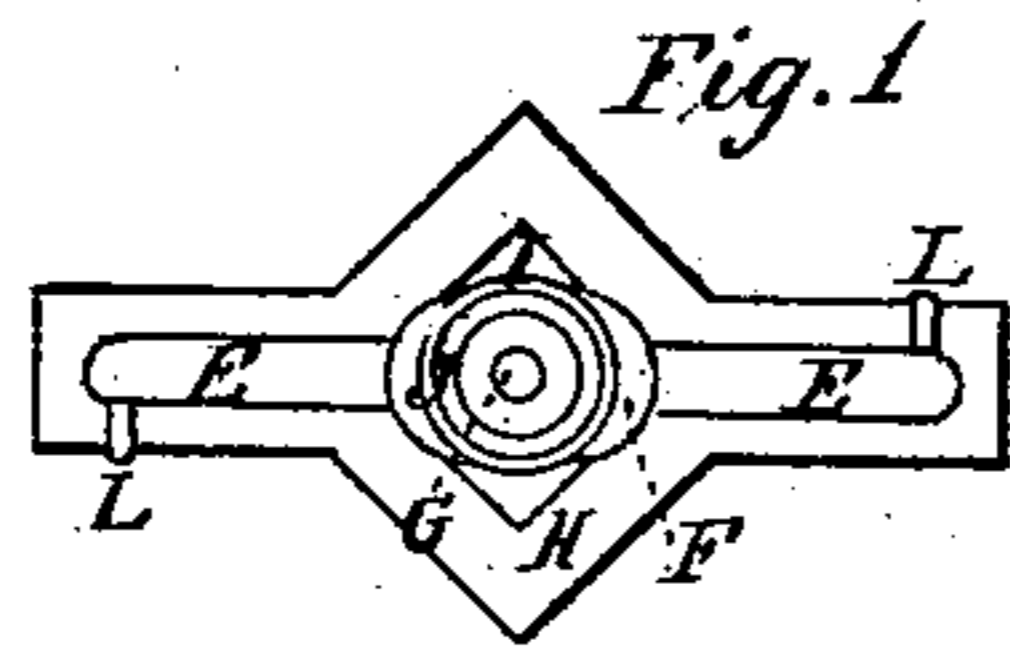


J. N. Sawtell.
Spinning Flyer.

No 16,657.

Patented Feb. 17, 1857.



UNITED STATES PATENT OFFICE.

JNO. N. SAWTELL, OF LOWELL, MASSACHUSETTS.

MANUFACTURING SPINNING-FLIERS.

Specification of Letters Patent No. 16,657, dated February 17, 1857.

To all whom it may concern:

Be it known that I, JOHN N. SAWTELL, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a novel and useful Improvement in Constructing Spinning-Fliers; and I hereby declare that the following is a lucid, clear, and exact description of them, and their construction, when taken in connection with the accompanying drawings and letters of reference thereon, in which—

Figure 1, denotes a plan or top view of the flier. Fig. 2, a front elevation of the same. Fig. 3, a view from the bottom of it. Fig. 4, an edge view. Fig. 5, a longitudinal and vertical section on line A, B, Fig. 4. Fig. 6 denotes a section of one of the nozzles removed from the mold, of the shape in which they have to be cast around the arms, so as the finished part will be sound or solid. Fig. 7, denotes a longitudinal and vertical section of the mold in which the nozzles are cast on to the arms. Fig. 8 denotes a transverse and vertical section of this mold showing the spruce or passage of the metal to form the nozzle.

The nature of my invention consists in casting metal nozzles on to the arms of fliers, so that they will firmly adhere to each other, as will be hereafter seen.

The old method of constructing fliers has been, to form the nozzles of steel which is first drilled and reamed to receive the yarn, then drilled transversely to receive the arms, which are driven into these holes and the arms being then brazed, after which the ends of the said arms which protrude through into the hole for the yarn, have to be drilled or chipped off with a cold chisel, and the hole again reamed so as to smooth the inward protruding ends of the arms, and the holes into which they project, the whole nozzle and part of the arms being blackened and roughened by the heating of them to braze the aforesaid arms into the nozzles, so that they have to be refinished at an expense of much time, and by an uncouth mode of procedure before the flier be finished, in addition the nozzle has to be hardened, by which operation the arms are again blackened, roughened, and so much annealed as to make them much more limber than is desirable it being necessary to again refinish them as also to polish the holes for

the yarn, and again finish the nozzle of every flier, thus handling them over many times during their construction, which is almost wholly avoided in following my invention as will be hereafter described.

In repairing the old nozzles after they have become worn so as to make such repairs necessary they will have to be annealed, which in many of them, say fully one third, causes the brazing to fuse, thereby disuniting the nozzle from the arms, which ruins them entirely.

To enable persons skilled in the art of making spinning fliers to construct and carry out my invention I will describe the same as follows.

I construct a mold of metal, of two parts seen at A, A, Figs. 7 and 8, in which is formed a recess of the desired shape of the casting for the nozzle as seen at B, Figs. 7 and 8. I also form a recess seen at C, in each part of the mold so as to admit the wires or arms E of the fliers, in which they are placed, when the molten composition is poured around them. The vertical extended shape is given the recess for the nozzle to form or constitute a riser to receive in the top part of this recess the scoria of the metal so that the lower part of the casting of which the nozzle is formed will be sound or solid. In the lower part of the mold is formed the center seen at K for the purpose of indicating the place to start the drill, when the nozzles are being bored to receive the yarn. I recess the mold as seen at D, for the passage of the metal to form the nozzle, allowing sufficient taper for the mold to be easily opened to remove the casting after it is formed. I then form a solution of chlorid of zinc in muriatic acid, as much of the zinc as the acid will dissolve, then mix with the above solution as much calcined borax as it will dissolve, then dip these ends into the above solution and place them into the mold, then pour the melted composition or metal into the passage D, from which it runs or flows into the recess B, which firmly congeals and unites to the arms E, and forms the casting for the nozzle as seen at F after which it is removed from the mold.

The peculiar action or effect of the above solution on the ends of the arms is such as to cause the composition in its molten state

to firmly and thoroughly unite with the iron or steel arms when changing from the liquid or molten to the congealed state without even discoloring or roughening the arms or polish on them.

A portion of the top of the casting F containing the scoria is removed and then the nozzle is drilled by any convenient means desired after which it is reamed the proper taper for the yarn to pass through as seen at G, then the arms E, are properly bended by, or on a suitable former which of course is gaged from the hole G, that may be true, and so as to receive the bottom H, which is firmly fastened to them by riveting or otherwise.

The hooks or guide wires for the yarn can be seen at L, and are firmly attached to the arms of the fliers.

In the center of the bottom H is formed a square hole seen at I, to receive the whirl which turns the flier, through which the spindle passes, a temporary spindle is fitted to the flier, to the round hole in the nozzle F, and to the square hole I, so that the upper portion of the nozzle F, can be turned and polished to constitute the bearing for the flier, while revolving on this spindle on any ordinary lathe, the part of the nozzle which cannot be turned, can be finished with file and emery stick, the arms being finished and polished before they are placed into the mold for casting. Thus a much better nozzle is formed at one operation than can be done in the old way at three or four operations, each taking as long to be performed as to construct one of my fliers, besides in the use of my flier there is little or

no electricity acting on the cotton as it is passing through my composition nozzle which is the case to a large extent with those constructed of iron or steel which is well known to persons who are practically experienced in spinning.

When the nozzle becomes worn so as to need repairing, it can be turned or reduced so as to receive a ferrule of steel at J as may be desired, or in case of repair, the nozzle can be enlarged by casting on the same metal or composition of which it is composed by using the beforementioned solution.

I do not claim the process of casting cast iron around wrought iron, whether the wrought iron be or be not heated, when the molten cast iron is poured thereon, as such process is well known. Neither do I claim as an improvement the constructing of the flier of two different metals without regard to how these two metals are united to each other, as different metals are used to a great extent in the formation of many well known articles.

I claim—

The manufacture of fliers substantially in the manner described; that is to say casting on the polished arms E, E, the neck or nozzle F, of metal, when the former as prepared by the application of a proper composition, so as to render the adherence of the nozzle to the arms secure as herein set forth.

JOHN N. SAWTELL.

Witnesses:

JAMES LYMAN,
WM. P. ELIOT.