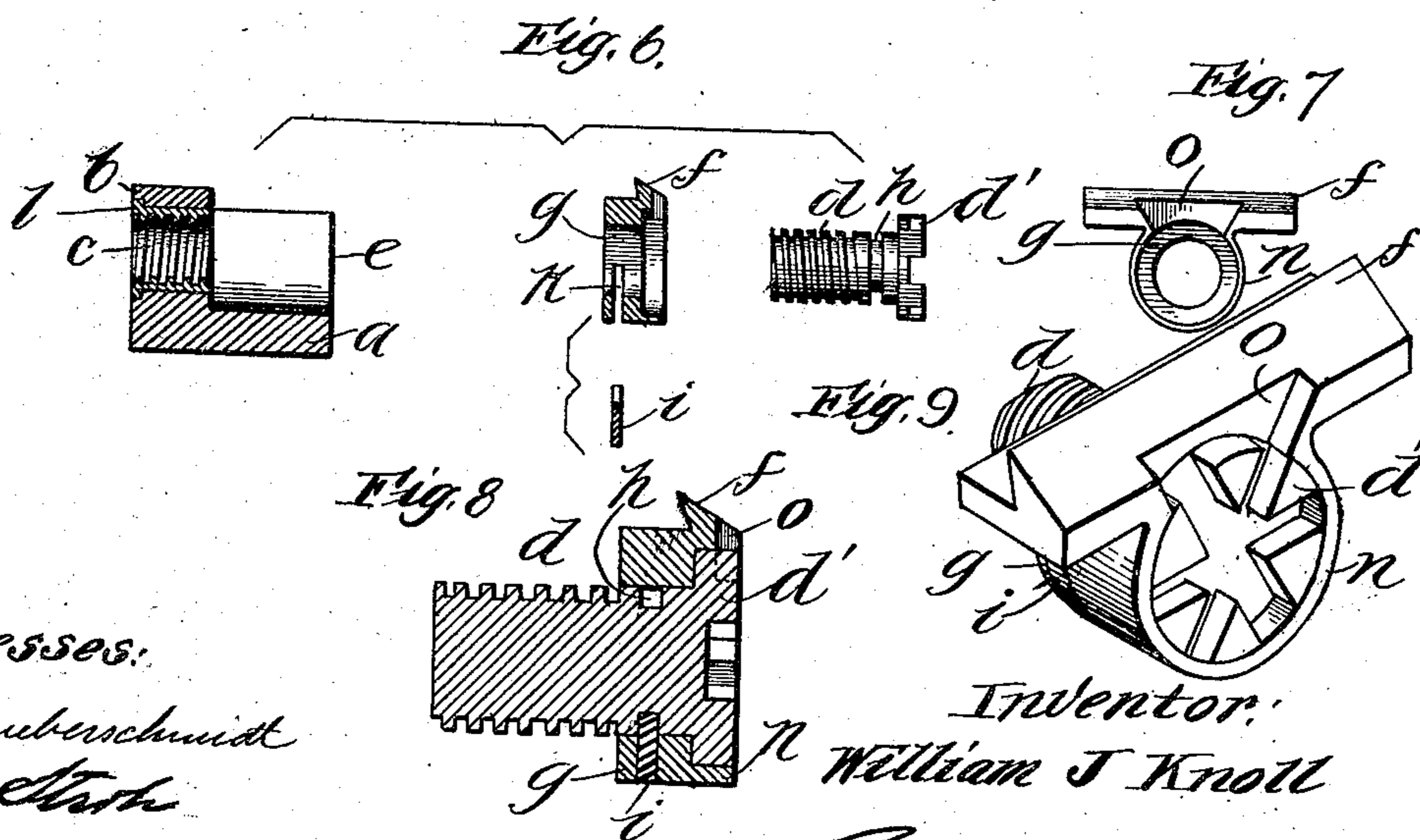
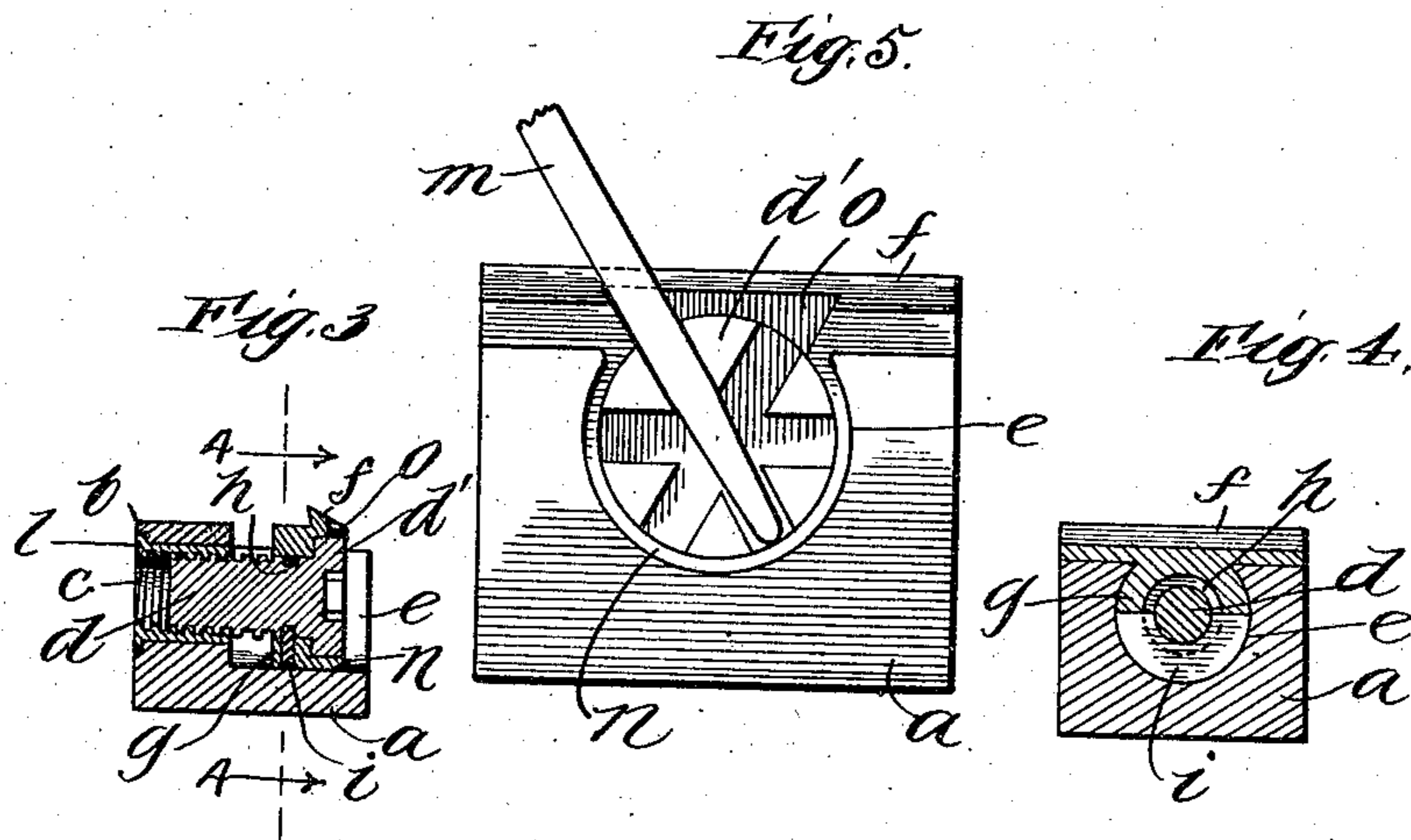
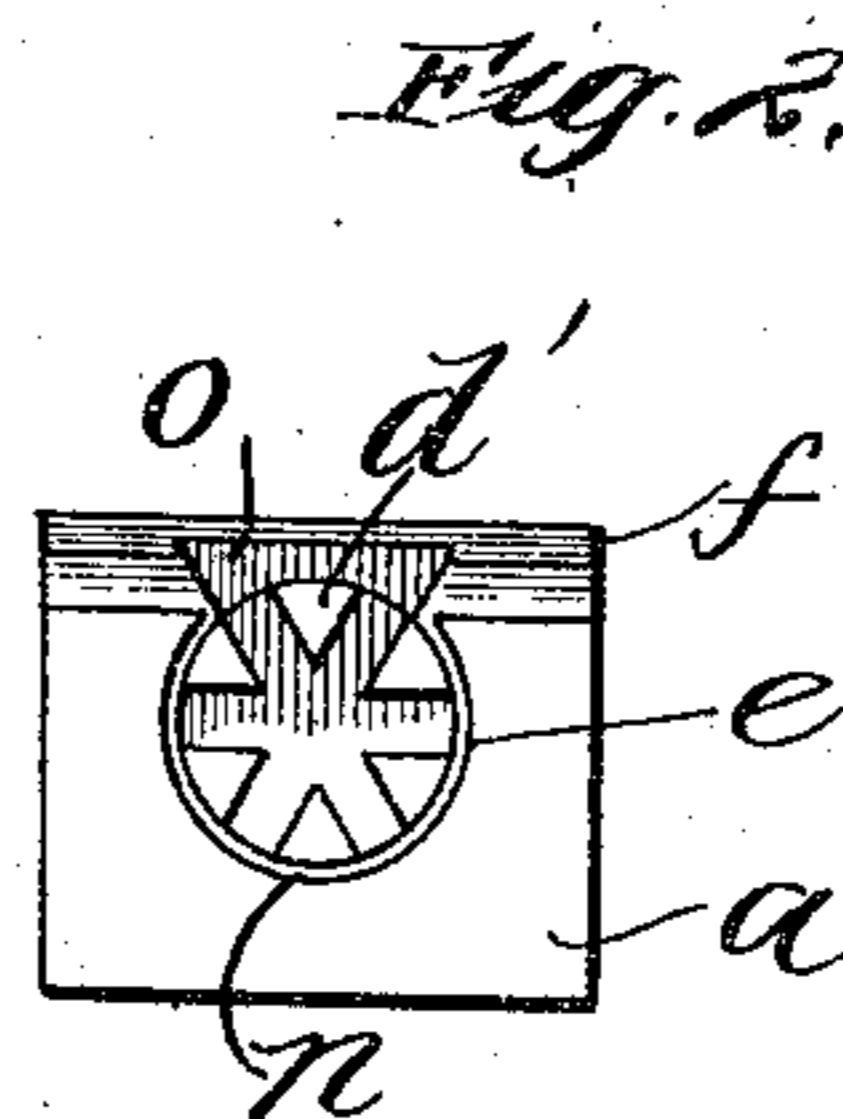
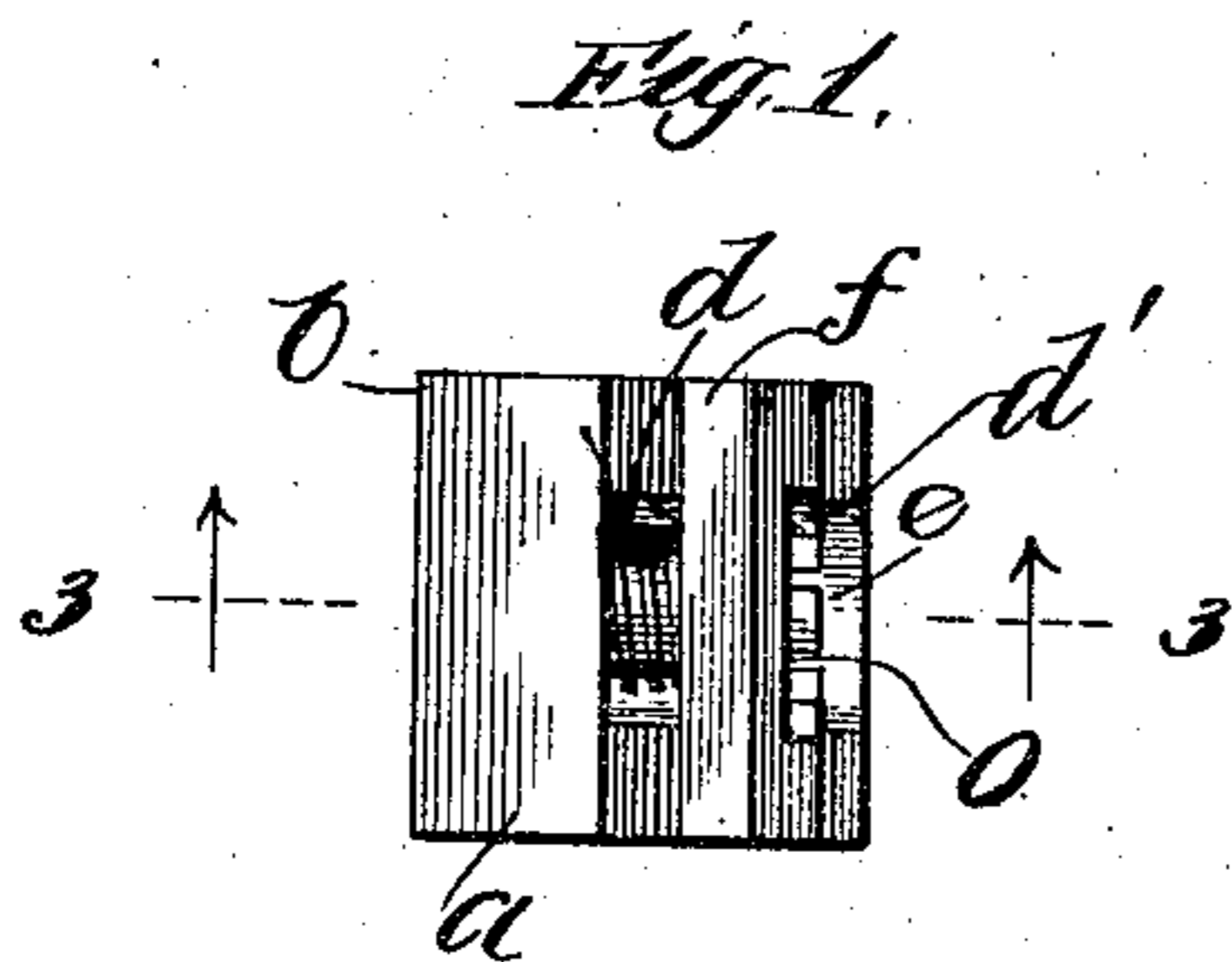


No. 894,447.

PATENTED JULY 28, 1908.

W. J. KNOLL.
PRINTING PLATE HOLDER.
APPLICATION FILED MAY 12, 1908.



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UNITED STATES PATENT OFFICE.

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PRINTING-PLATE HOLDER.

No. 894,447.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed May 12, 1908. Serial No. 430,459.

To all whom it may concern:

Be it known that I, WILLIAM J. KNOLL, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Printing-Plate Holders, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to printing plate holders, and has for its object the provision of improved structural characteristics of such holders which will be more readily understood by reference to the accompanying drawing, showing the preferred embodiment of the invention, and which will be pointed out in the appended claims.

In the drawing—Figure 1 is a plan view. Fig. 2 is an end view. Fig. 3 is a sectional view on line 3 3 of Fig. 1. Fig. 4 is a sectional view on line 4 4 of Fig. 3. Fig. 5 is an end view showing an operating tool in position. Fig. 6 is a view of the structure with the parts disassembled. Fig. 7 is an end view of the traveling jaw structure. Fig. 8 is a sectional view of the traveling jaw structure and the threaded shaft, the block being omitted. Fig. 9 is a view in perspective of the structure shown in Fig. 8, with the exception that the rear portion of the shaft in Fig. 9 is broken away.

Like parts are indicated by similar characters of reference throughout the different figures.

The plate holder, which includes novel features of my present invention, forms the subject matter of my application for United States Letters Patent Serial No. 418,415, filed February 29, 1908, though the features of novelty of my present invention are not to be restricted to the structure of my aforesaid co-pending application.

The plate holder illustrated includes a block *a* whose end wall *b* is desirably made substantially thick, which end wall is provided with a threaded bore *c* adapted to receive the threaded rotatable adjusting shaft *d*. The opposite end of the block *a* is provided with a recess *e* which conforms in shape to a partial cylinder, the recess being open at the top of the block *a* to permit of the union between the traveling jaw *f* upon the top of the block and the base *g* of said jaw located within the recess *e*. The base *g* of the jaw

conforms in shape to the curved portion of the recess *e* and has a nice sliding fit in said curved portion of the recess *e* so that the traveling jaw *f* may have ample support, in the event of such formation of the base of the jaw that makes said base conform substantially throughout in shape to the curved portion of the recess *e*. The threaded shaft *d* is provided with an annular recess *h*, into which recess there extends a projection or key *i* carried by the base *g* of the hook *f*. The shaft *d* is provided with a suitable formation in the form of a radially recessed head *d'*, which head may be engaged by a suitable tool in order that the threaded shaft *d* may be rotated within the threaded bore *c*, thereby longitudinally to move the shaft with reference to the block *a*, the hook *f* and its base moving longitudinally with the shaft owing to the engagement of the projection *i* carried by the hook base with the annular groove *h*. The base of the hook *f* is provided with a circular opening through which the threaded shaft may freely pass, and the projection or key *i* is separately associated with the base of the hook, this projection *i* being a segment of a ring whose outer periphery conforms in shape to the bottom of the recess *e* and whose inner periphery conforms in shape to the bottom surface of the annular recess *h*. The bottom of the hook base is provided with a slot *k* for the purpose of receiving the ring segment *i*.

In assembling the parts, the ring segment *i* is out of place, so that the threaded shaft *d* may be passed through the circular opening in the base *g* of the hook *f* until the annular recess *h* is in the same plane with the slot *k*, whereupon the ring segment *i* is inserted into the slot *k* and enters the annular recess *h*, whereafter the parts thus united are inserted longitudinally within the recess *e*, whereupon the threaded shaft *d* may be engaged with the threaded bore *c* by rotation of said shaft. Any rotary movement of the parts thus associated will effect a longitudinal movement of the hook *f* with its base.

Having now described one of several types of printing plate holders to which my invention is adapted, I will now describe the novel features of my invention.

The block *a* is usually made of brass, while the threaded shaft *d* is usually made of case-hardened steel. As a consequence, the threads in the end wall *b* of the block *a* are in

time worn out, so that the threaded engagement between the shaft and the block is impaired. I increase the durability of the threads in the end wall *b* by providing said threads in a bushing or lining *l* which is made of a metal which is non-wearing as compared with the material of the block *a*, said bushing or lining having a driving-fit within the end wall *b* and being provided with the interior threads, whereby the shaft *d* is afforded threaded engagement with said end wall. The metal of which the bushing *l* is made is preferably case-hardened steel. If it should happen that the bushing became worn, it could be removed and a fresh one inserted in its place, thereby restoring the structure to its original condition.

It is now the best practice to provide the wheels which effect the travel of the jaws of printing plate holders with radially disposed recesses that extend diametrically across the wheels, so that an operating lever (*m*) may be projected clear across a wheel it engages, this being the construction of such wheels whether the rotating shaft moves longitudinally or not, a printing plate holder with a longitudinally moving shaft being illustrated in the present drawing, while a rotating shaft which is not longitudinally movable is well known. It has also been the practice to provide such diametrically extending recesses in the body of the shaft itself, as, for example, in the construction of Patent No. 843,648, issued February 12, 1907 to T. Wensel. I have found that in practice the operating bar (*m*) by projecting diametrically across the shaft or shaft head, frequently injures the bore of the block in which said shaft is disposed, this being particularly the case if the inner end of the operating bar (*m*) has become broken, the broken end of the bar gouging the block, and in course of time rendering it unfit for further use. I provide means for protecting the block against the injurious action of the operating tool, which means resides in a segment *n* interposed between the head *d*¹ of the shaft, or the slotted portion of the shaft, and the bore of the block, this segment being preferably carried by, and desirably integrally formed with, the jaw *f*, so that as said jaw progresses, the guard *n* is ever present between the lower end of the tool *m* and the bore wall of the block *a*. The jaw *f* and the segment *n* are made of steel and said protecting segment is, therefore, not so liable to injury by the engagement of the tool *m* therewith, owing to the fact that it is made of non-wearing metal as compared with the material of the block *a*. The guarding segment *n* thus prevents the tool *m* from doing material injury to the structure. The segment *n* surrounds a considerable portion of the shaft head *d*¹ and materially enlarges the surface of the base of the jaw *f* where said base engages the bore of

the block *a*, thereby better maintaining the jaw and its base in proper relation to the block.

While I have shown the guarding segment *n* as moving with the jaw, I do not wish to be limited to this characteristic in all embodiments of the invention, as I consider it to be broadly new with me to interpose a non-wearing metal between the operating tool *m* and the material of the block *a* to prevent said tool from injuring said block.

The remaining feature of my invention relates to the cooperative relation between the operating wheel *d*¹ and the jaw whether or not such wheel is integrally formed with the shaft and whether or not the wheel rotates with or with respect to said shaft, this condition of plate holders being well known by those skilled in the art. It is the object of this feature of my invention to make the jaw as long as may be desired without sacrificing the narrowness of the space between adjacent plates. It is important to have the jaws long to prevent them from digging into the metal of the plates that they engage; but this result should not be gained at the expense of broadening the space between adjacent plates. In practicing the present feature of my invention, I make the rear faces of the shaft (or wheel *d*¹) and the jaw lie substantially in the same plane, this relation between the shaft portion *d*¹ and the jaw of the hook being maintained, inasmuch as the said jaw and the portion *d*¹ travel together. The jaw *f* has a central rear portion removed, as indicated at *o*, in order to expose a portion of the periphery of the element *d*¹ which is provided with suitable recesses for engagement with an operating tool (*m*), which recesses desirably extend diametrically across the wheel *d*¹. While the rear portion of the wheel *d*¹ is provided with the tool-engaging recesses, the forward portion of said wheel is solid and is overhung by the jaw including the central portion of the jaw, the metal intervening between the central portion of the jaw and the head *d*¹ being sufficient to maintain the strength of the jaw and to enable the jaw to extend substantially continuously from one side of the block *a* to the other, whereby said jaw may be made of sufficient length properly to engage the plate to be held, without digging into the same. The space removed from the rear of the jaw is of sufficient extent to permit of the swing of the operating tool *m* through an angle sufficient to rotate the wheel *d*¹ to present a fresh recess for engagement with the operating tool.

In the preferred embodiment of the invention, the forward portion of the jaw is continuous from end to end, but I do not wish to be limited to this characteristic in all embodiments of the invention.

It will be seen that I have provided a

printing plate holder including a block having a recess therein open at the top of the block, a traveling jaw moving above the top of the block, and mechanism for effecting the travel of the jaw, said mechanism including a rotating body traveling in said recess and moving longitudinally back and forth with the jaw and provided with recesses for the reception of an operating tool which is insertible, transverse to the plate to be held, through the opening provided in the top of the block and into the recess in which the rotating body works, the rear portion of the jaw between the ends of the jaw being removed, the space thus afforded at the rear of the jaw being between rearwardly extending end portions of the jaw and being sufficiently long to permit the operating tool to turn the rotating body sufficiently to present successive recesses in the rotating body (whose recesses are in the plane of said space) to the operating tool, the forward portion of the jaw being substantially continuous from end to end, whereby a desirable extent of the jaw is presented for engagement to the plate to be held.

By the expression "transversely to the plate to be held" I mean that the tool is adapted for insertion in a plane which is angular to the face of the plate.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to be limited to the precise construction shown, as changes may readily be made without departing from the spirit of my invention, but,

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

1. A printing plate holder including a block having a recess therein open at the top of the block, a traveling jaw moving above the top of the block, mechanism for effecting the travel of the jaw, said mechanism including a wheel or rotating body provided with a plurality of intersecting slots extending diametrically across its outer vertical face and working within said recess, the tool for engaging the slots in the rotating body being insertible in a vertical direction through the opening provided in the top of the block and into the recess in which the rotating body works, and a guard interposed between the said rotating body or wheel and the surface of said recess to prevent the operating tool from directly engaging the material of the block.

2. A printing plate holder including a block having a recess therein open at the top of the block, a traveling jaw moving above the top of the block, mechanism for effecting the travel of the jaw, said mechanism including a wheel or rotating body provided with a plurality of intersecting slots extending diametrically across its outer vertical face and working within said recess, the tool for en-

gaging the slots in the rotating body being insertible in a vertical direction through the opening provided in the top of the block and into the recess in which the rotating body works, and a guard interposed between the said rotating body or wheel and the surface of said recess to prevent the operating tool from directly engaging the material of the block, said guard and wheel or rotating body moving longitudinally back and forth with the jaw.

3. A printing plate holder including a block having a recess therein open at the top of the block, a traveling jaw moving above the top of the block, and mechanism for effecting the travel of the jaw, said mechanism including a rotating body traveling in said recess and moving longitudinally back and forth with the jaw and provided with recesses for the reception of an operating tool which is insertible, transversely to the plate to be held, through the opening provided in the top of the block and into the recess in which the rotating body works, the rear of said rotating body and jaw being substantially in the same plane, the rear portion of the jaw between the ends of the jaw being removed, the space thus afforded at the rear of the jaw being between rearwardly extending end portions of the jaw and being sufficiently long to permit the operating tool to turn the rotating body sufficiently to present successive recesses in the rotating body (whose recesses are in the plane of said space) to the operating tool, the forward portion of the jaw being substantially continuous from end to end, whereby a desirable extent of the jaw is presented for engagement to the plate to be held.

4. A printing plate holder including a block having a recess therein open at the top of the block, a traveling jaw moving above the top of the block, and mechanism for effecting the travel of the jaw, said mechanism including a rotating body traveling in said recess and moving longitudinally back and forth with the jaw and provided with recesses for the reception of an operating tool which is insertible, transversely to the plate to be held, through the opening provided in the top of the block and into the recess in which the rotating body works, the rear portion of the jaw between the ends of the jaw being removed, the space thus afforded at the rear of the jaw being between rearwardly extending end portions of the jaw and being sufficiently long to permit the operating tool to turn the rotating body sufficiently to present successive recesses in the rotating body (whose recesses are in the plane of said space) to the operating tool, the forward portion of the jaw being substantially continuous from end to end, whereby a desirable extent of the jaw is presented for engagement to the plate to be held.

5. A printing plate holder including a block having a recess therein open at the top of the block, a traveling jaw moving above the top of the block, and mechanism for effecting the travel of the jaw, said mechanism including a rotating body traveling in said recess and moving longitudinally back and forth with the jaw and provided with recesses for the reception of an operating tool which is insertible, transversely to the plate to be held, through the opening provided in the top of the block and into the recess in which the rotating body works, the rear of said rotating body and jaw being substantially in the same plane, the rear portion of the jaw between the ends of the jaw being removed, the space thus afforded at the rear of the jaw being between rearwardly extending end portions of the jaw and being sufficiently long to permit the operating tool to turn the rotating body sufficiently to present successive recesses in the rotating body (whose recesses are in the plane of said space) to the operating tool.

6. A printing plate holder including a block having a recess therein open at the top of the block, a traveling jaw moving above the top

of the block, and mechanism for effecting the travel of the jaw, said mechanism including a rotating body traveling in said recess and moving longitudinally back and forth with the jaw and provided with recesses for the reception of an operating tool which is insertible, transversely to the plate to be held, through the opening provided in the top of the block and into the recess in which the rotating body works, the rear portion of the jaw between the ends of the jaw being removed, the space thus afforded at the rear of the jaw being between rearwardly extending end portions of the jaw and being sufficiently long to permit the operating tool to turn the rotating body sufficiently to present successive recesses in the rotating body (whose recesses are in the plane of said space) to the operating tool.

In witness whereof, I hereunto subscribe my name this 30th day of April A. D., 1908.

WILLIAM J. KNOLL.

Witnesses:

G. L. CRAGG,
L. G. STROH.