

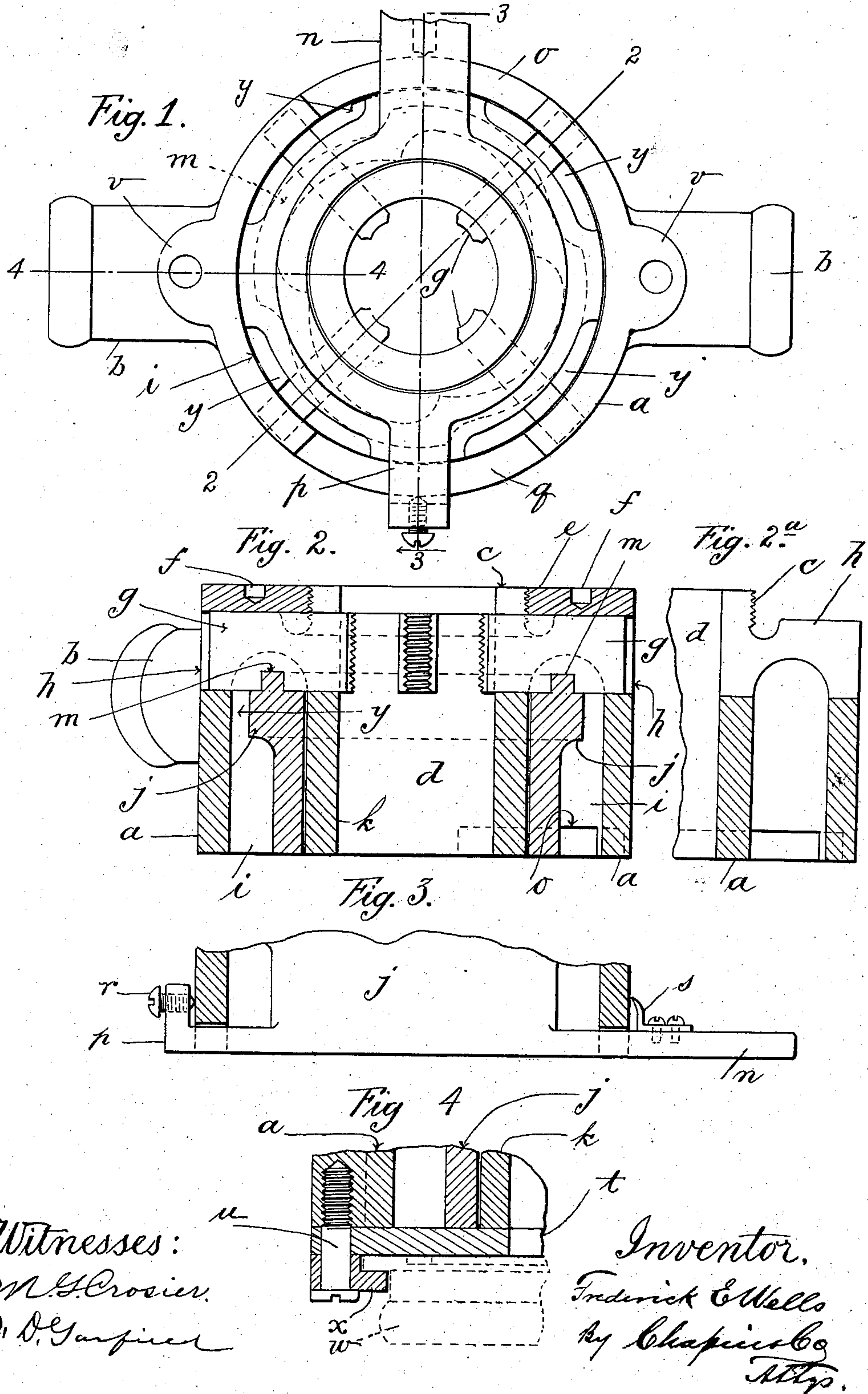
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PATENTED AUG. 11, 1903.

F. E. WELLS.
SCREW PLATE.

APPLICATION FILED JAN. 7, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

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SCREW-PLATE.

SPECIFICATION forming part of Letters Patent No. 736,045, dated August 11, 1903.

Application filed January 7, 1903. Serial No. 138,088. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC E. WELLS, a citizen of the United States of America, residing at Greenfield, in the county of Franklin and State of Massachusetts, have invented new and useful Improvements in Screw-Plates, of which the following is a specification.

This invention relates to screw-plates, and has special reference to devices of this character in which the dies are adjustable toward and from the center of the plate, whereby the tool is adapted to cut threads on bars or pipes of varying diameters, the object of the invention being to simplify the construction of a screw-plate of this character, whereby the introduction of the dies is much more easily performed and whereby the liability of the parts to clog by reason of the intrusion of chips is greatly reduced.

In the drawings forming part of this application, Figure 1 is a bottom plan view of a screw-plate constructed according to my invention with the bottom plate removed. Fig. 2 is a vertical section on line 2 2, Fig. 1. Fig. 2^a is a sectional view on line 2 2 of a portion of the body of the screw-plate alone. Fig. 3 is a side elevation, partly in section, of the lower part of the cam-ring and the lower part of the body of the screw-plate, the latter being shown in section in the plane of line 3 3, Fig. 1. Fig. 4 is a sectional view of a portion of the body of the screw-plate, taken on line 4 4, Fig. 1.

Referring to the drawings, it is seen that the body *a* of the screw-plate is provided in the usual manner with the oppositely-located sockets *b* to receive the handles by which it is rotated.

Referring to Figs. 2 and 2^a in connection with Fig. 1, it will be seen that the body *a* itself is circular in cross-section, and on the upper end thereof a central portion *c* extends above the top of the screw-plate in the form of a flange around a hole *d* in the center of the body. This flange is threaded exteriorly, and a plate *e* is screwed onto it by a spanner engaging the holes *f* or by other suitable means. This plate is screwed down to a bearing against the top of the body *a* and constitutes a retainer for the dies *g*, which

are located in radial die-slots *h*, said dies being slidable endwise in said slots.

Referring to Fig. 2^a, it will be seen that the die-slot *h* cuts through the flange or central portion *c*, as well as through the body *a* of the plate. Within this body an annular groove *i* is formed, which extends from the under side of the body toward the other end, deep enough to intercept the die-slots *h*, as shown in Figs. 2 and 2^a, and within this annular groove there is located a cam-ring *j*, which has a bearing on the inner wall *k* of the body *a* of the plate. On the upper end of this cam-ring *j* are located a number of cam-ribs *m*, eccentric to the body of the tool, the number corresponding to the number of dies *g*, there being one rib for each die. These ribs are continuous, as shown in dotted lines in Fig. 1, and they are thereby strengthened, the lower edge of the dies *g* having a rectangular slot cut therein which permits these dies to be fitted over the cam-ribs *m* when the parts are assembled as in Fig. 2. If now the cam-ring *j* be rotated, the dies *g* will by reason of their engagement with the cam-ribs *m* be moved in or outwardly in the slots *h*, according as the cam-ring is rotated in one direction or the other. To facilitate the rotation of the cam-ring *j*, a handle part *n* is formed on the bottom of the plate and extends through a slot *o*, cut in the lower edge of the body and shown in the drawings. Opposite this handle part *n* there is another projection *p* on the base of the cam-ring extending through another slot *q* to a point beyond the outer wall of the body and from thence extending upwardly and in close proximity to the latter. In said upturned end is a set-screw *r*, which may be turned up against the body to lock the cam-ring *j* in any desired position. Any other means to lock the cam-ring in position may be substituted for the screw *r*, as this forms no part of the invention. On the handle part *n* there is a pointer *s* in proximity to the body of the screw-plate on that side, said body being provided with a scale laid out circumferentially around it indicating to what point the cam-ring *j* must be rotated to adjust the die to a pipe or bar of a given diameter. To retain the cam-ring in its proper relation to the dies *g*, the bottom

plate *t* is screwed up against the lower side of the body *a*, as shown in Fig. 4, by means of the screws *u*, which enter holes in suitable bosses *v*, (shown only in Fig. 1,) located under the sockets *b*. This bottom plate is omitted from the other figures of the drawings.

That portion of the bottom of the screw-plate shown in Fig. 4 has shown in connection therewith in dotted lines the guide-plate *w*, of which no particular description is required. Suffice it to say that it is a rotatable plate which is supported against the bottom plate on the ears *x*, which are tightly screwed up against the bottom plate by the screws *u*. The guide-plate *w* serves its usual function of guiding the stock centrally through the screw-plate and preferably is so constructed as to be adjustable to bars or pipes of varying diameters and for that purpose may be constructed as shown in United States Letters Patent issued to Herman W. Oster on January 31, 1893, and numbered 490,676.

I am aware that it is not broadly new to make an adjustable screw-plate.

I am also aware that it is not broadly new to use cams engaging the dies to move the latter radially by the rotation of the cam-ring. The patent to Oster, above cited, embodies the general principles of this construction, as does also the United States Patent issued to Cornelius J. Harrington on December 19, 1899, and numbered 639,232; but my invention is an improvement on both of these constructions in that it provides for more easily inserting the dies in the screw-plate in a better support for the die-ring, whereby its movement is greatly steadied on account of the long bearing that it has, and, furthermore, in that the cams are so located that the ring may be turned practically a full quarter-turn to operate the dies, thereby increasing the range of usefulness of the tool, a further improvement consisting in the provision of continuous dies and means for removing any chips which may work into the cavity in

which the cams are located, whereby they might interfere with the free movement of the dies or cam-ring. This last-named improvement consists in cutting away the edge of the cam-ring, as indicated at *y*, Figs. 1 and 2, between the outer edge thereof and the wall of the groove *z*. By means of these openings the rotation of the cam-ring back and forth will serve to clear its upper surface of any chips which may have become lodged thereon, the dies acting as scrapers for said surface. By means of suitable openings in the bottom plate *t* the entire tool can be kept clean and free from chips.

To insert dies in this screw-plate, the plate *e* is unscrewed, the dies *g* are then dropped into their places in the die-slots *h*, the notches in the bottom of the dies engaging the cam-rib *m*, the plate *e* then being screwed on again to hold these dies in position in their slots. As stated above, this plate ordinarily comes to a bearing against the body *a*; but, if desired, the die-slots *h* may be made of such depth that the plate may be screwed down against the dies to lock them in any adjusted position.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

A screw-plate comprising a body provided with the usual axial passage therethrough, there being an annular groove formed in the under side of said body and extending toward the opposite end; radially-disposed dies located in grooves extending from said axial passage to the outside of the body and intercepting the upper portion of said annular groove; a cam-ring in the latter having cams thereon to engage the dies, together with top and bottom plates to secure the dies and cam-ring respectively in position, and means to rotate the cam-ring.

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Witnesses:

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