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PATENTED AUG. 13, 1907.

A. J. F. CRAUFURD.

TAPPET.

APPLICATION FILED JAN. 3, 1907.

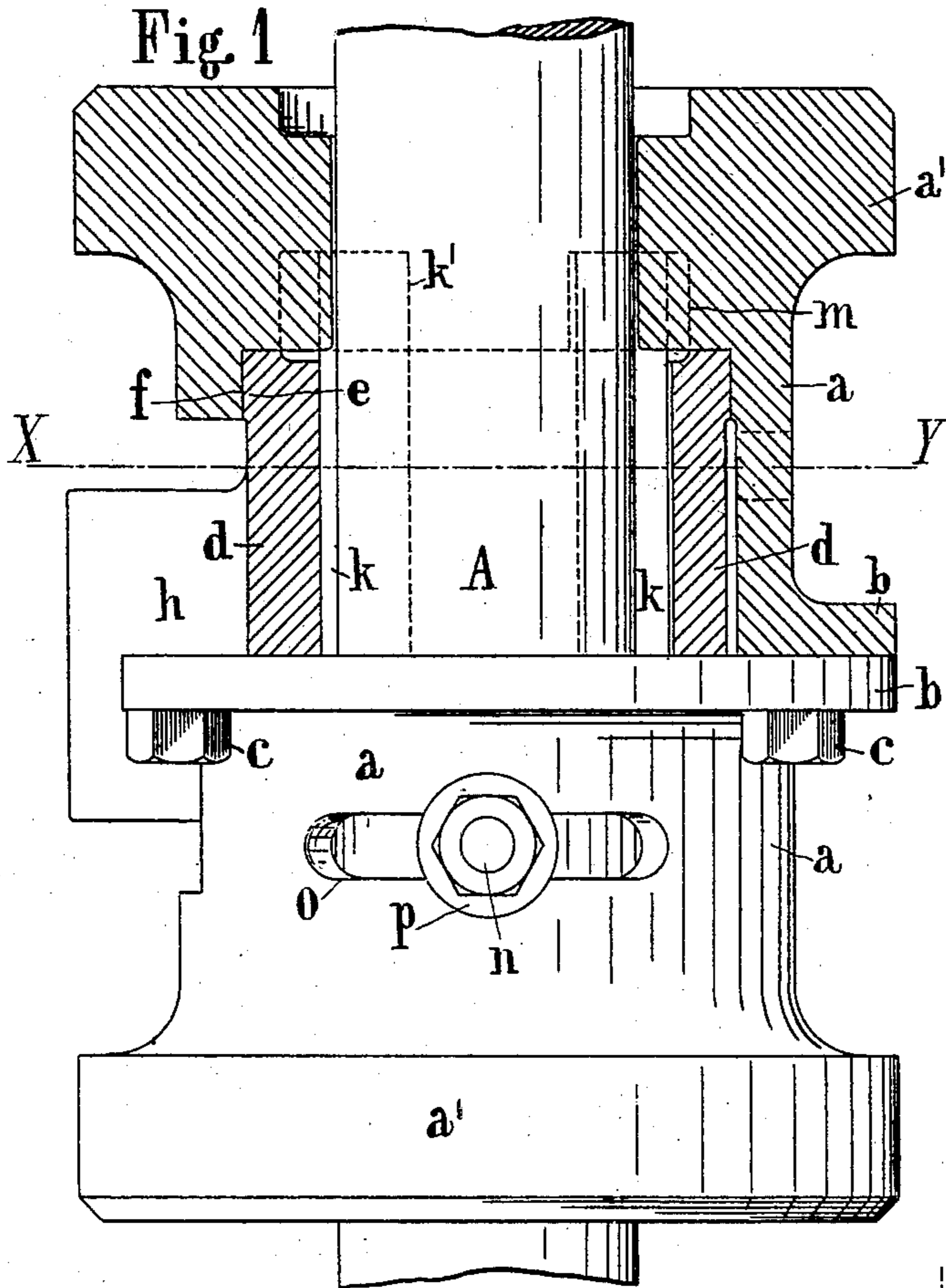


Fig. 4

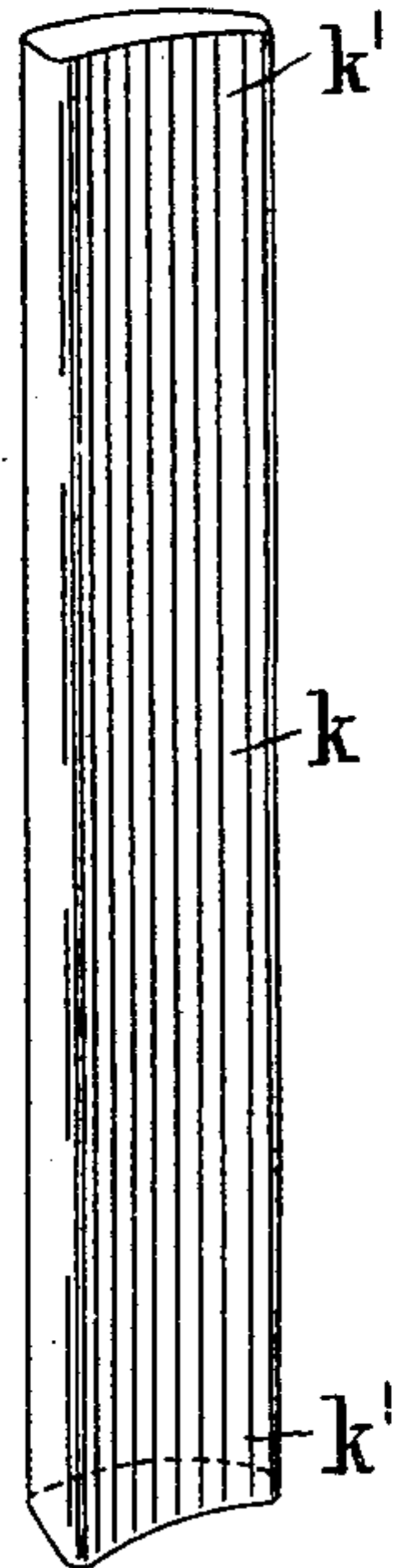
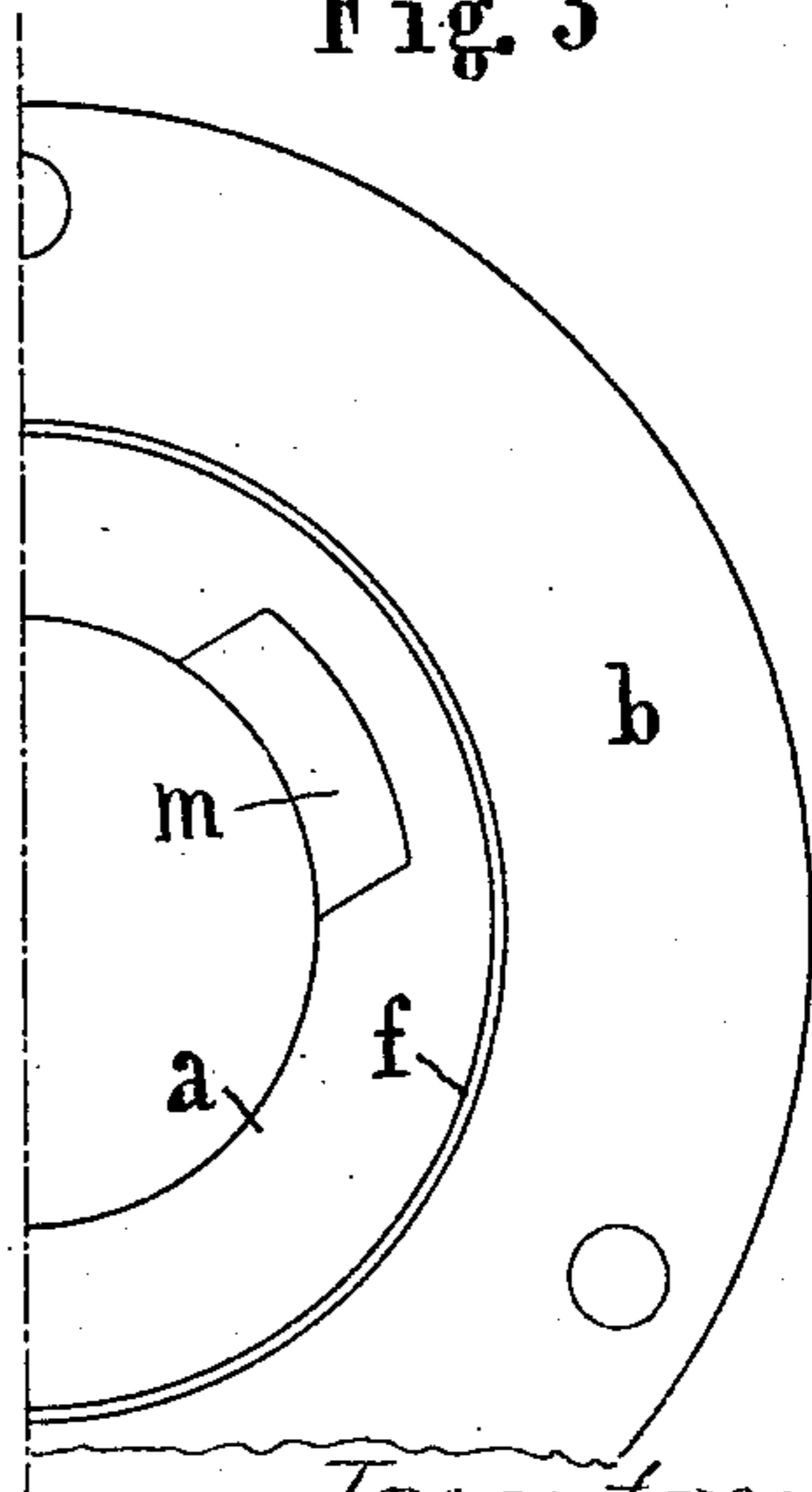
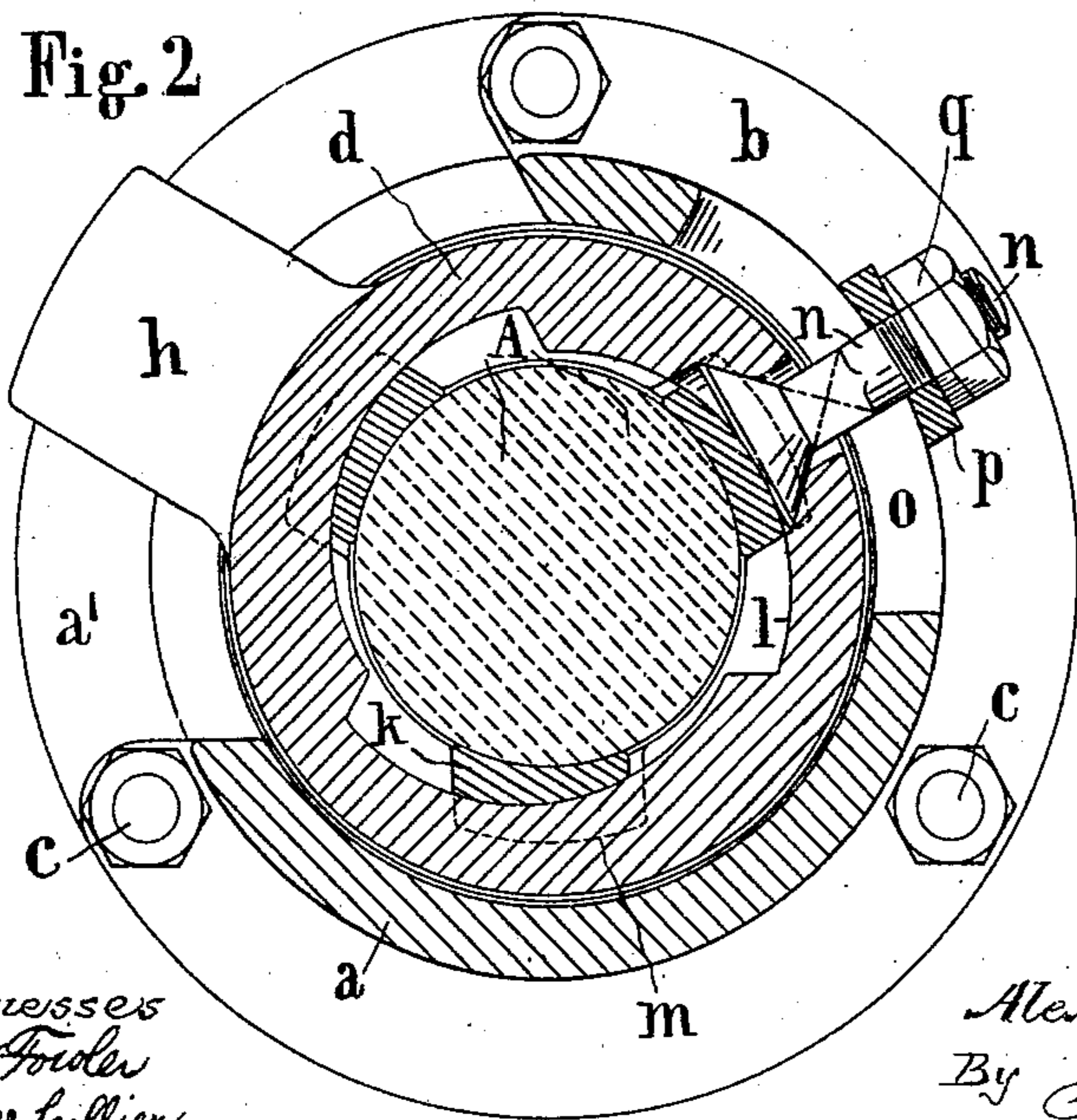


Fig. 3



Witnesses
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UNITED STATES PATENT OFFICE.

ALEXANDER JOHN FORTESCUE CRAUFURD, OF LONDON, ENGLAND.

TAPPET.

No. 863,051.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed January 3, 1907. Serial No. 350,682.

To all whom it may concern:

Be it known that I, ALEXANDER JOHN FORTESCUE CRAUFURD, a subject of the King of England, and residing at 10 Warwick Square, London, S. W., England, mining engineer, have invented a certain new and useful Improvement in Tappets, of which the following is a full, clear, and exact description and for which Letters Patent have been applied for in Great Britain, No. 10,502, dated May 4, 1906, and Transvaal, No. 417 of 1906, dated September 21, 1906.

This invention relates to an improved means for securing tappets to stamp-stems, shafts and the like.

The object of the invention is to enable the position of the tappet to be adjusted upon the stem in an improved manner.

The invention consists essentially in providing within the hollow body of the tappet a revoluble locking device which forces a number of gibs or wedges, curved to the contour of the stem, into intimate contact with the latter. The locking device is provided with means whereby it is held concentric with the body of the tappet, the latter being constructed in halves to permit of the insertion of the locking member and gibs. The gibs or curved wedges are inserted in the locking member in longitudinal grooves, their inner faces being in contact with the stem. Their outer faces, which are curved eccentrically to the stem, bear against the correspondingly-curved faces of the grooves. The extremities of the gibs extend beyond the top and bottom faces of the locking member and enter guides formed in the tappet body. These guides may be formed as recesses in the inner faces of the tappet ends and be disposed substantially radially of the tappet. The function of these top and bottom guides for the locking gibs is to prevent the locking member from carrying the gibs with it in its rotary travel when being fixed in position. Consequently the rotation of the locking member causes the eccentric faces of its grooves to force the gibs radially into close contact with the central stem. This cam-action may be made self-locking by suitably designing the eccentricity of the working faces so as to bring the resulting pressure within the angle of frictional repose.

Upon the accompanying drawing I have illustrated a mining stamp tappet constructed in accordance with the invention.

Figure 1 represents an elevation of the tappet, the upper half being in section. Fig. 2 is a sectional plan of the tappet on line X Y of Fig. 1. Fig. 3 is a part plan of the lower half of the tappet body and Fig. 4 is a perspective view of one of the gibs or curved wedges.

The tappet is formed in two similar parts or halves *a a* connected together at the flanges *b b* by means of bolts or pins *c*. The head *a'* of each half is made a trifle larger in the bore than the stamp-stem and its wearing surface may be recessed to equalize the wear

caused by the cam action of the wedges. The inner portions of the halves *a a* are constructed to receive the locking member *d* which is faced at *e* and seated in a guide *f* in the tappet body. This member *d* carries a projecting tailpiece *h* for the purpose of affording a lever or striking part when the locking member is driven round in order to lock the gibs *k*. The latter rest in grooves *l* in the member *d* and their projecting extremities *k'* work in recesses *m* in the tappet bodies *a a*. By the rotation of the guided member *d* the gibs *k* are compelled as the result of the pressure exerted by the cam-faces of the grooves *l*, to travel radially inwards along the guide recesses *m* until the gibs are in firm driving contact with the stamp-stem. The shell of the tappet body is cut away as shown in Fig. 2 in order to allow the required travel to the tail piece *h*.

As an additional security against the possibility of the locking device working loose in consequence of vibration or other cause, I have shown suitable means for connecting together the member *d* and the outer shell of the tappet body *a a*. For instance, one or more bolts or studs *n* may be used passing from the member *d* through slots *o* in the outer casing. A suitable washer *p* having its inner surface curved to the circumference of the shell is inserted to bridge the slot *o* and any suitable locking device may be used, if desired, to prevent the nut working loose. By way of example, I have shown at *q* a well-known form of helical and self-locking nut.

The wedges or gibs are irrevolubly connected to the tappet and are tightened against the stem by the rotation of the revoluble locking member contained within the body of the tappet. There is no rotation between the wedges and the tappet-body. The wedges have an outer face curved eccentrically and this is in contact with a correspondingly-curved face of a longitudinal groove in the locking member. In this invention the extremities of the gibs are guided in the shell of the tappet, the two halves of which are securely connected together. The central revoluble locking member is guided in the same body and by this means the regular action of the gibs and their perfect contact with the shaft are insured. Thus the wedges are tightened against the stem with a smooth cam-action, and by providing a number of such gibs at intervals around the circumference a firm and even grip is obtained. At the same time the tappet is relieved from the stresses which result from a symmetrical loading and since the wedges are the only parts of the tappet in contact with the stem much machining of the tappet may be saved.

Having thus described my invention, what I claim as such and desire to secure by Letters Patent, is:—

1. A tappet comprising a hollow body divided in a plane at right-angles to the axis of its core, means for securing the abutting ends of the body together, an annular locking member turnably mounted in said body, said member hav-

ing cam grooves in its inner periphery, gibs seated in said grooves, and guides for said gibs in said body, said gibs being adapted to travel radially inwards of the tappet by the turning of the locking-member.

- 5 2. A tappet comprising a body having a circumferential cut-away portion, said body being formed of hollow sections seating endwise one on the other, and means for securing said sections together, an annular locking-member horizontally turnable in said body and having a projection
- 10 extending through the cut-away portion thereof, said annular locking-member having cam-grooves in its inner periphery, gibs seated in said grooves adapted to be forced inwards of the tappet by the turning of the locking member, and a guide for the locking-member in the tappet
- 15 body.
3. A tappet comprising a body formed of upper and lower portions bolted together, an annular locking-member horizontally turnable in said body, and having a projection, said body having a cut-away portion through which
- 20 said projection extends, said locking-member having cam-shaped grooves in its inner periphery, gibs seated in said grooves, guide recesses for said gibs, and means for immovably connecting the locking member to the tappet body.
- 25 4. In a stamp-tappet, the combination of a body-portion, a horizontally turnable locking-member therein having cam-shaped grooves in its interior, curved wedge like gibs between said grooves and the stamp-stem, said locking-member being adapted to force the said gibs into intimate
- 30 contact with the stamp-stem, said tappet body having guides by which the gibs are held against oscillation.
5. In a stamp-tappet, the combination with the tappet body, said body being formed of alined hollow sections whose meeting ends abut and are bolted together, of a
- 35 locking-member having a portion turnably mounted in each of said sections and having a series of internal longitudinal grooves, the working faces of which are curved eccentrically to the axis of the tappet, and curved wedges or gibs fixedly secured in the tappet body and adapted to
- 40 be forced by the cam-action of the locking-member into driving contact with the stamp-stem.
6. In a tappet, an outer shell formed in halves, a turn-

ably mounted locking-member suitably guided in the shell, provided with a projecting striking-part, said locking-member having a number of internal longitudinal grooves 45 with eccentric faces, curved wedges traversing the longitudinal grooves and entering radial guide-slots formed in the body of the tappet, the inner surfaces of the wedges being curved to fit the stamp-stem and their outer surfaces curved eccentrically to fit corresponding surfaces of 50 the longitudinal grooves, so that the rotation of the locking-member relatively to the tappet body and the wedges will force the latter into intimate contact with the stem.

7. A tappet comprising a body formed in upper and lower portions bolted together, an annular locking-member 55 revoluble in said body, a cut-away portion to said tappet body, a projection from said locking-member extending through said cut-away portion, grooves in the inner periphery of said annular locking-member and gibs seated in said grooves adapted to be forced inwards of the tappet 60 by the revolution of the locking-member, means for guiding said locking-member in the halves of said tappet body, said body having a slot and said locking-member having a stud extending outwards through said slot, and a nut and washer by which the stud is locked against the tappet. 65

8. A stamp tappet comprising a body formed of longitudinally alined hollow portions having their ends abutting, said hollow portions being bored larger than the stamp-stem, and said portions being bolted together, an 70 annular locking-member revoluble in said body, a cut-away portion to said tappet body, a projection from said locking-member extending through said cut-away portion, grooves in the inner periphery of said annular locking-member and gibs seated in said surfaces adapted to be forced inwards of the tappet by the revolution of the lock- 75 ing-member, faces to said locking-member and seatings for said faces in the tappet body.

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

ALEXANDER JOHN FORTESCUE CRAUFURD.

Witnesses:

VICTOR F. FEENY,
VICTOR ISIDORE FEENY.