

No. 820,037.

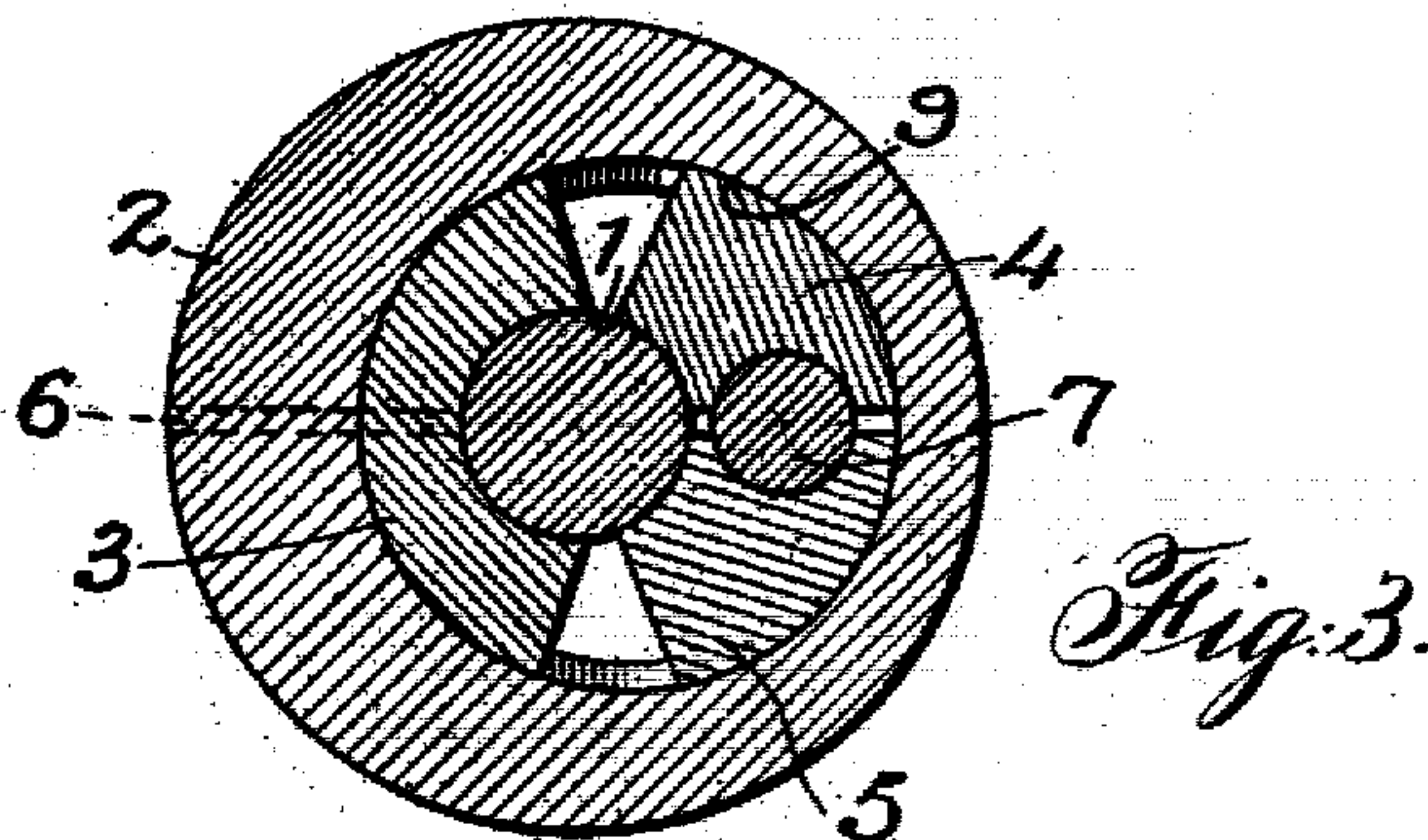
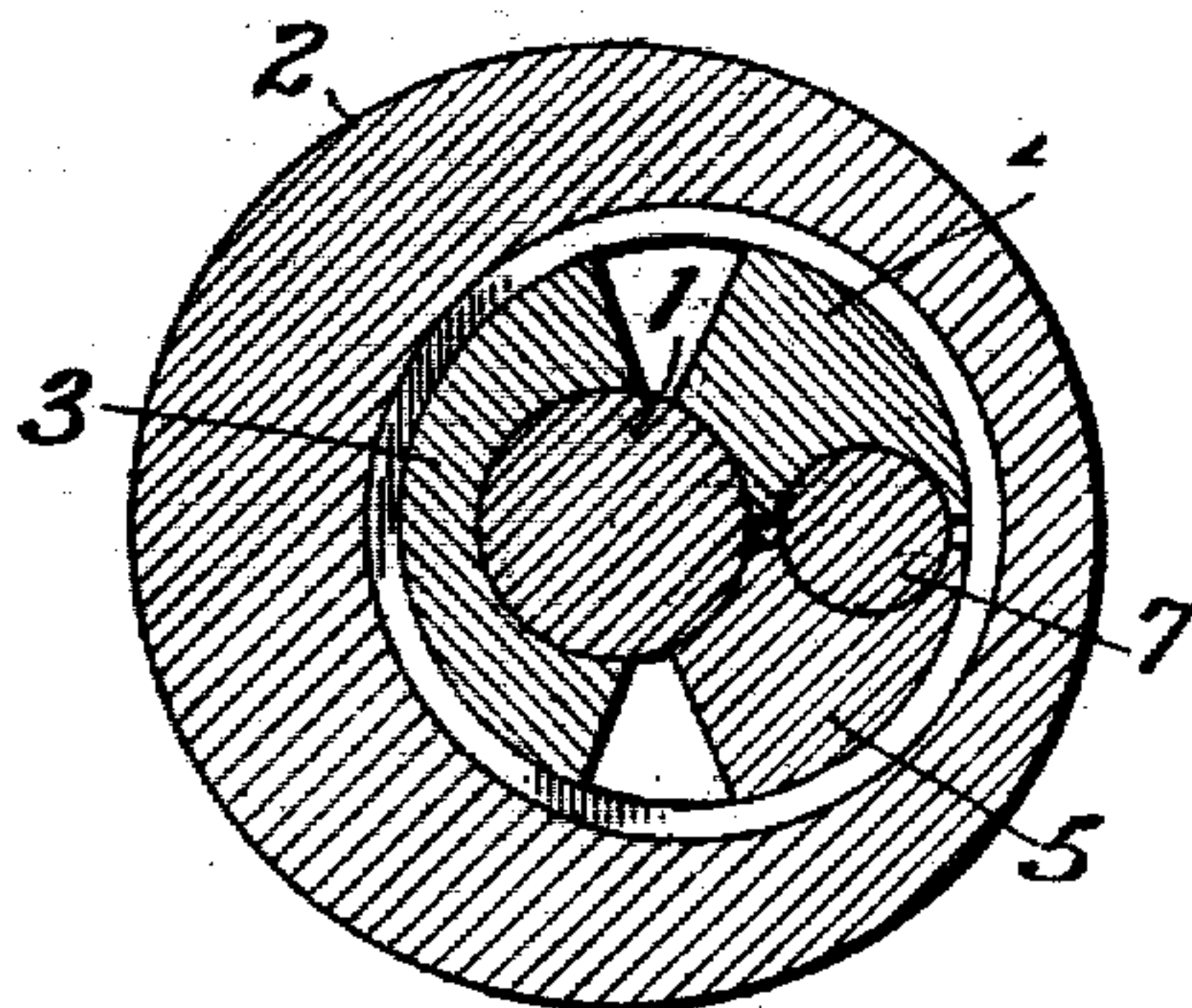
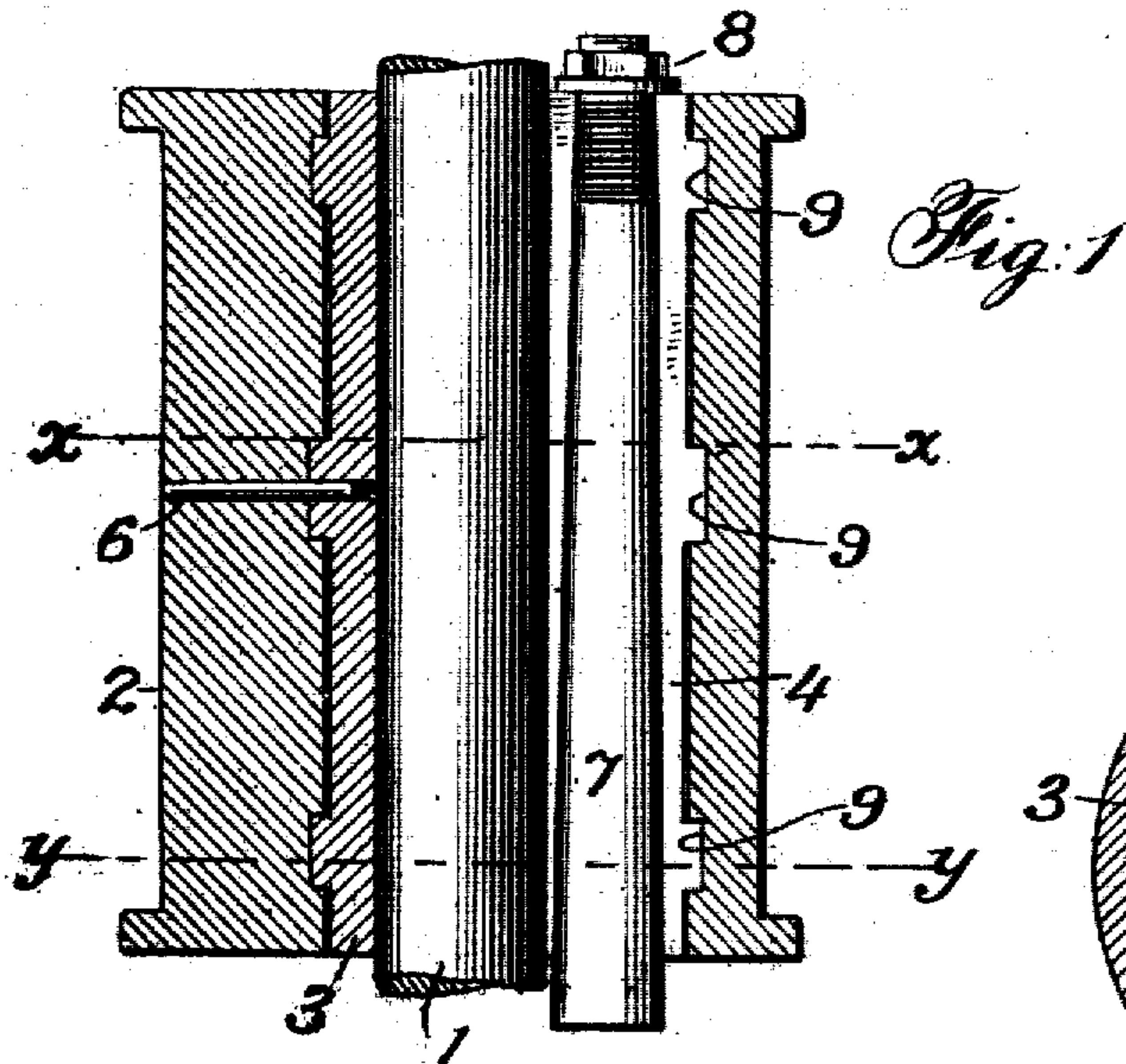
PATENTED MAY 8, 1906.

C. A. CANDA.

CLAMPING DEVICE FOR TAPPETS, WHEELS, OR SHAFT COUPLINGS.

APPLICATION FILED OCT. 28, 1905.

2 SHEETS—SHEET 1.



Witnesses

James F. Duhamel
Lyman S. Andrews Jr.

Inventor

Charles A. Canda

By his Attorney

H. M. Marble

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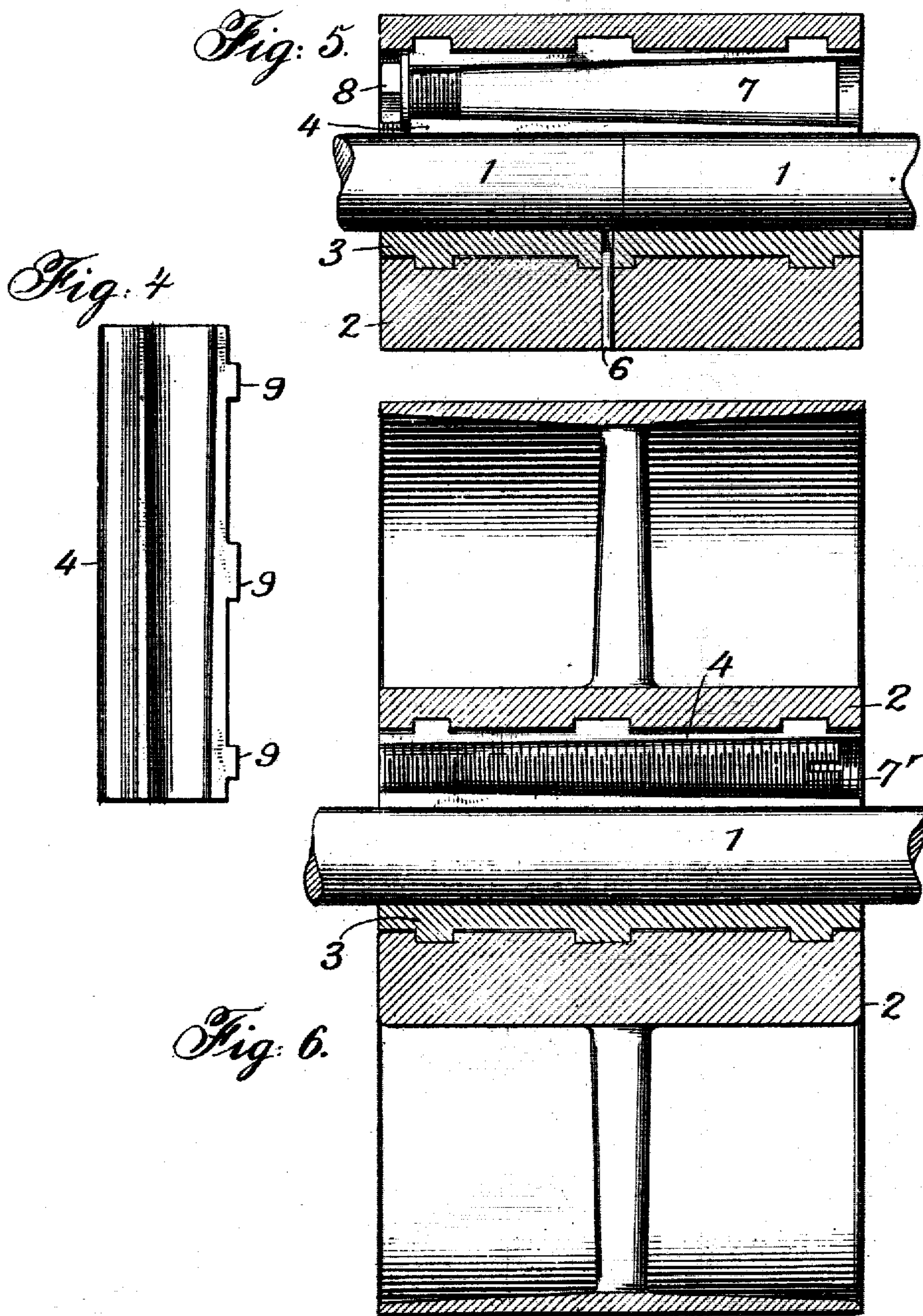
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UNITED STATES PATENT OFFICE.

CHARLES A. CANDA, OF ROSELLE, NEW JERSEY.

CLAMPING DEVICE FOR TAPPETS, WHEELS, OR SHAFT-COUPPLINGS.

No. 820,037.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed October 28, 1905. Serial No. 284,841.

To all whom it may concern:

Be it known that I, CHARLES A. CANDA, a citizen of the United States, residing in Roselle, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Clamping Devices for Tappets, Wheels, Shaft-Couplings, &c., of which the following is a specification.

My invention relates to clamping devices for stamp-mill tappets and for cams, wheels, shafts, and the like, and comprises a novel arrangement of wedges and associated parts whereby a tappet, cam, or wheel may be secured to or released from a shaft or stem or whereby two shafts may be coupled or uncoupled very quickly and readily and without the use of loose parts or the provision of keyways, recesses, projections, or the like on the shaft or stem.

The objects of my invention are to improve and simplify clamping devices adapted for the uses specified, to permit the clamping or releasing to be effected very quickly and with the application of very little power, to avoid the use of parts which must be detached when releasing the clamping device and so are likely to be lost, to insure substantial centering of the tappet, cam, or wheel, or the like with respect to the shaft or stem on which it is mounted, to make the device strong, simple, inexpensive to manufacture, and easy to use, and to make the number of its parts as small as possible.

I will now proceed to describe my invention with reference to the accompanying drawings, illustrating one form of device embodying my invention in various applications, and will then point out the novel features in claims.

In the said drawings, Figures 1, 2, and 3 are views illustrating the application of my improved clamping device to a stamp-mill tappet, Fig. 1 showing a vertical section of the tappet and clamping device in place on the stem, Fig. 2 showing a transverse section on the line $x x$ of Fig. 1, and Fig. 3 showing a transverse section on the line $y y$ of Fig. 1. Fig. 4 shows a side view of one of the wedges employed in the clamping device. Fig. 5 shows a longitudinal section of the clamping device employed as a shaft-coupling, and Fig. 6 shows a similar section of a belt-wheel provided with my improved clamping device for securing it to a shaft.

My improved clamping device comprises an inclosing member which in the case of a

stamp-mill tappet is the tappet itself, in the case of a cam, wheel, or pulley is the hub thereof, and in the case of a shaft-coupling is the casing of the coupling, said inclosing member having a bore eccentric to the stem, shaft, or the like on which the clamping device is to act, a plurality of segmental wedges mounted within such eccentric bore and adapted to surround the said shaft or stem, and a longitudinal taper key fitting between two such wedges and adapted to force the same apart.

Referring now to the drawings and at first to Figs. 1 to 3, inclusive, showing my invention applied to a tappet, numeral 1 designates the stem to which the tappet is to be applied, and 2 designates the said tappet or inclosing member provided with a bore eccentric with respect to the stem 1 and containing within such eccentric bore a plurality of wedges 3, 4, and 5, the latter two being substantial complements of each other. These wedges are in the form of segmental blocks the outer curvature of which corresponds to the bore of member 2 and the inner curvature of which corresponds to that of the stem 1. In order to insure substantial centering of the tappet with respect to the stem, the wedge 3 is preferably held stationary with respect to member 2 by a pin 6. Between wedges 4 and 5 is a taper wedge 7, which, as shown, is a round taper pin fitting within grooves of corresponding curvature in the adjacent faces of wedges 4 and 5. In practice there is slight difference between the curvature of the taper pin and the curvature of the grooves within which it works, so as to permit the desired longitudinal motion of the pin to compensate for slight variation of size of the stem, &c. In the drawings the taper of the pin is exaggerated in order to make it clearly evident to the eye. The pin 7 is provided with suitable means for drawing it up—in the instance shown a screw-nut 8. To reduce friction of the wedges against the sides of the member 2, to reduce the cost of machining, and to prevent the wedges from falling out before they are set up, said wedges are preferably provided with projecting rings or shoulders 9, fitting within suitable grooves in the member 2. In practice only the peripheries of these rings or shoulders are fitted to the grooves of member 2, the portions of the wedges intermediate said shoulders having slight clearance with respect to the bore of the member 2, so as not to require fitting and not to interpose frictional resistance.

In applying the tappet to the stem 1 said tappet, with the wedges in place therein, is placed on the stem 1 and adjusted to the proper position thereon, the wedges 4 and 5 being set so that they are about equidistant from wedge 3, and then the taper pin or wedge 7 is drawn up, forcing the wedges 4 and 5 apart, and therefore because of the eccentric bore of member 2 forcing them tightly against the stem, thereby holding the tappet firmly to the stem. It will be noted that these wedges engage substantially the entire periphery of the stem, so that there is relatively large surface for frictional contact, and the stem is held very firmly without the slightest marring of its surface. To release the tappet, it is necessary merely to unscrew slightly the nut on pin 7 without removing it from said pin altogether and then drive down the pin so as to free it from the wedges 4 and 5.

It being easy to set wedges 4 and 5 about equidistant from wedge 3, the tappet when clamped in place is of necessity substantially concentric with stem 1.

The construction of the clamping device may be substantially the same whether employed in a tappet, shaft-coupling, or hub of a pulley, cam, or the like. In Fig. 5 the clamp is shown in a shaft-coupling, each of the two shafts 1 being held by the single clamping device and being thereby coupled together. In this figure I have shown the nut 8 and the end of the pin 7 recessed between the wedges to avoid projecting parts. In Fig. 6 the clamping device is shown in the hub of a belt-wheel and arranged to clamp the said wheel to a shaft. The construction of the device is the same as in the preceding figures, except that I have shown the wedge or pin 7' as a taper screw.

I deem it unnecessary to illustrate further applications and forms of my clamping device, as many such will occur to those skilled in the art.

What I claim is—

1. In a clamping device such as described, the combination with an inclosing member, of a plurality of wedges at least three in number within the same having inner and outer curved surfaces which are relatively eccentric, the intermediate wedge secured to said inclosing member and the others movable with respect thereto, and means independent of said intermediate wedge for forcing said latter wedges apart.

2. In a clamping device such as described, the combination with an inclosing member, of a plurality of wedges at least three in number within the same having inner and outer curved surfaces which are relatively eccentric, the intermediate wedge secured to the inclosing member and the others movable with respect thereto, and a longitudinal wedge between said latter wedges for forcing the same apart.

3. In a clamping device such as described, the combination with an inclosing member having a grooved bore, of a plurality of wedges within said bore having shoulders within and fitted to said grooves, the portions of the surfaces of said wedges intermediate said shoulders being out of contact with said inclosing member, and having inner and outer surfaces which are relatively eccentric, and means for forcing said wedges apart.

4. In a clamping device such as described, the combination with an inclosing member having an eccentric bore, of a plurality of wedges at least three in number having outer surfaces fitting said bore and inner surfaces adapted to fit the object to be held, the intermediate wedge secured to said inclosing member, and means independent of said intermediate wedge for operating said wedges.

5. In a clamping device such as described, the combination with an inclosing member having an eccentric bore, of a plurality of wedges at least three in number having outer surfaces fitting said bore and inner surfaces adapted to fit the object to be held, the intermediate wedge secured to said inclosing member, and a longitudinal wedge between said other wedges.

6. In a clamping device such as described, the combination with an inclosing member having a grooved eccentric bore, of a plurality of wedges having shoulders on their outer surfaces fitting such grooves, the portions of the surfaces of said wedges intermediate said shoulders being out of contact with said inclosing member, and inner surfaces adapted to fit the object to be held, and means for operating said wedges.

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

CHARLES A. CANDA.

Witnesses:

ABNER CANDA,
JOHN CASALEGGI.