

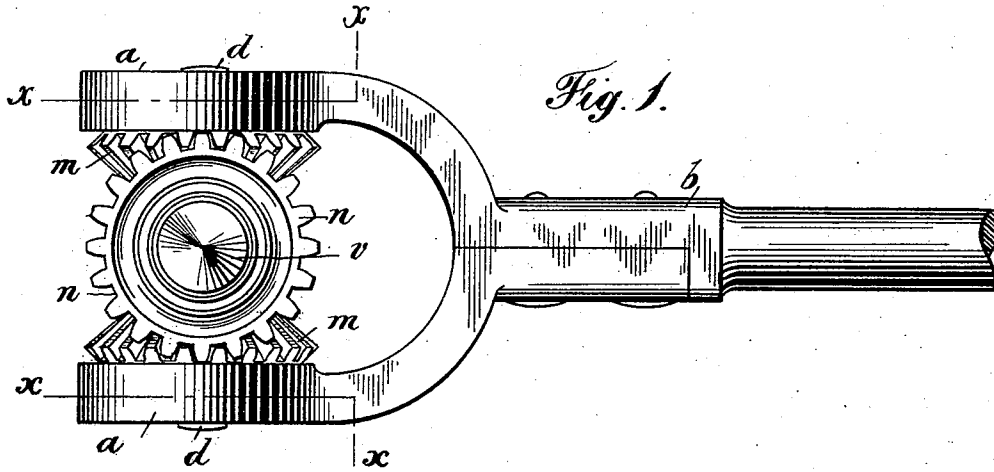
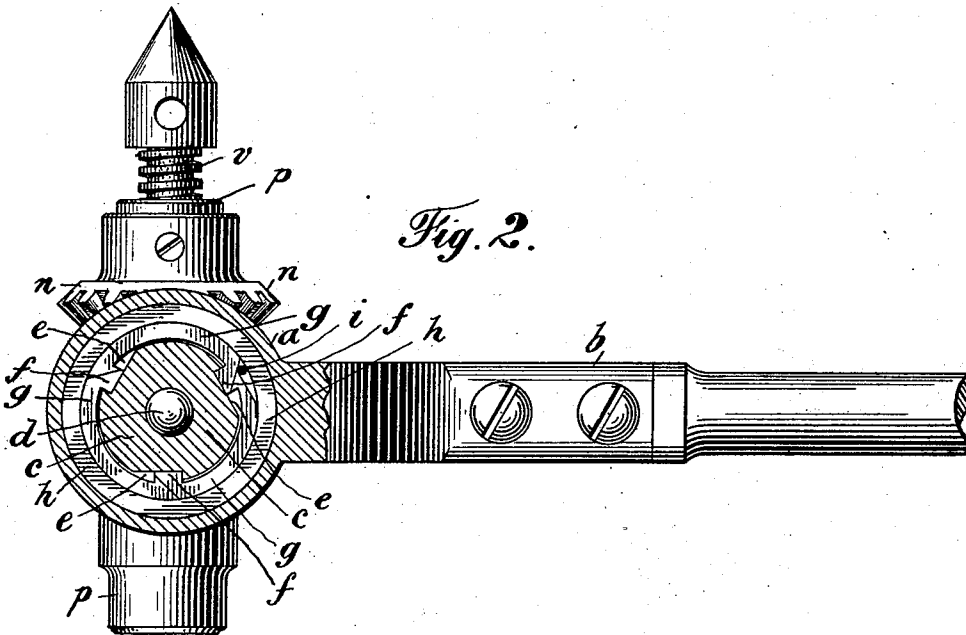
No. 705,931.

Patented July 29, 1902.

C. JOSS.
RATCHET MECHANISM.
(Application filed Apr. 18, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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No. 705,931.

Patented July 29, 1902.

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RATCHET MECHANISM.

(Application filed Apr. 16, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.

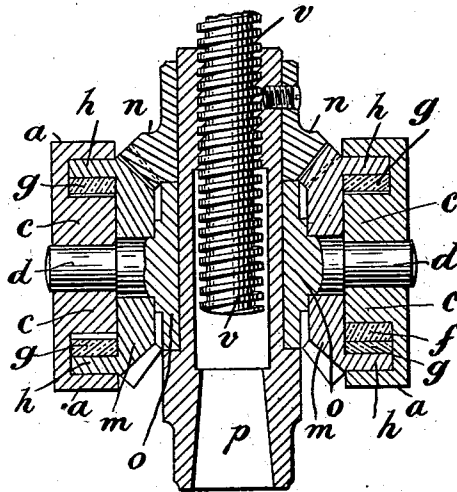
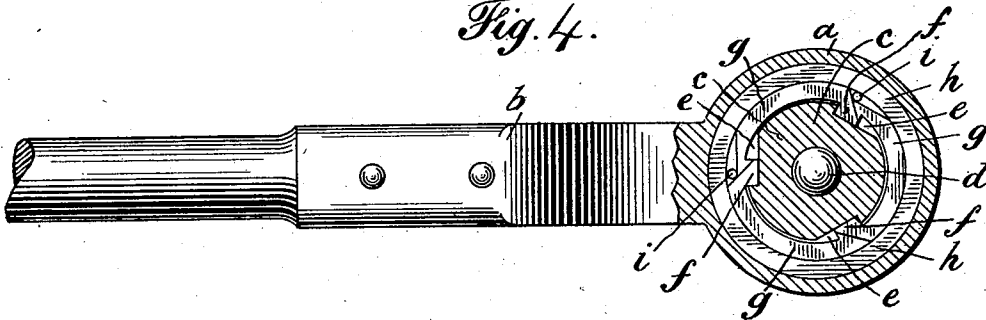


Fig. 4.



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CHRISTIAN JOSS, OF BERNE, SWITZERLAND.

RATCHET MECHANISM.

SPECIFICATION forming part of Letters Patent No. 705,931, dated July 29, 1902.

Application filed April 16, 1900. Serial No. 13,159. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN JOSS, a citizen of the Republic of Switzerland, residing at 50 Breitfeldstrasse, Berne, Switzerland, have invented certain new and useful Improvements in Ratchet Mechanism, of which the following is a specification.

This invention relates to ratchet mechanisms, and it is capable of use in many different connections where it is desired to impart an oscillatory motion into an intermittent or continuous rotary one, such as is the case in certain kinds of presses, drills, &c.

The invention is shown in the accompanying drawings, in which—

Figure 1 is a plan view of the ratchet mechanism including my invention and showing the same incorporated in a brace having a forked actuating-lever. Fig. 2 is a sectional side elevation of the same, the section being taken in the line *x x*, Fig. 1. Fig. 3 is a central vertical section of the ratchet mechanism and certain coöperating parts. Fig. 4 is a sectional side elevation of the ratchet mechanism on the side of the drill opposite that shown in Fig. 2, certain of the parts being omitted.

Like characters refer to like parts in all the figures of the drawings.

The drill holder or stock *p*, inclosing the screw *v*, carries a sleeve *o*, having oppositely-disposed trunnions *d*, on which the two branches *a* of the fork-lever *b* and the two conical or miter pinions *m* freely turn, these pinions *m* gearing with the bevel-pinion *n*, fixed to the drill-stock *p*. The hubs of the pinions *m* are incased concentrically but loosely in the rings *a* of the branches of the actuating-lever *b*; but the ratchets *c* of special shape are fixed by a square end in the rings *a* or may be secured to said rings in any other suitable manner. The two ratchets *c* face in opposite directions. Between the ratchets *c* and the inner surface of the hollow hubs of the pinions *m* are rings *g*, each ring consisting of a plurality of segments separated from each other and three of them being shown. The segments of the rings each terminate at one end in a hook *f*, the hooks being shown as situated in rectangular notches *e*, formed in the periphery of the ratchets *c*, one of the sides of each notch being, as shown in Figs.

2 and 4, radial or substantially radial to the axis of movement of said ratchet, and said radial faces are very much shorter than the other faces of the notches.

It will be seen that the space between the peripheries of the respective ratchets *c* and the inner surfaces of the coöperating pinions is greater than the width of the segments forming the rings *g*, so that said segments can freely move laterally, thereby securing expansion of the said split ring. Let it be assumed that the lever *b* is swung downward. During this motion the short faces of the notches *e* by acting against the shoulders *f* of the respective segments constituting the ring *g* carry said ring around with the same; but on the opposite movement of said lever, and hence of the ratchet *c*, which moves therewith, the long faces of the rectangular notches *e*, acting as wedges or cams, will force the segments of the ring *g* outward into contact with the inner surfaces of the hub of the pinion, as shown in Fig. 2, so that said pinion will be positively coupled to the ratchet, whereby it is effective for operating the pinion *n*, and hence rotating the drill-stock *p*. The operation thus briefly described applies to the structure shown in detail in Fig. 2, it being understood that the reverse operation takes place with the parts illustrated in Fig. 4.

The adjacent ends of one or more of the segments composing the ring *g* have outwardly-diverging beveled faces constituting pockets and adapted to receive the rollers *i*, which upon the rotation of the ratchet *c* in the proper direction are caused to roll outward along the outer inclined faces of the hooked ends of the segments of the ring *g*. In other words, the rollers are carried into the shallow portions of the pockets formed by and between the hooked ends of said segments and the ring *h*, so that when the ratchets *c* turn in the effective position thereof the roller or rollers will be put into biting engagement with the ring *h*, so as to rigidly connect the split ring *g* and ring *h*.

Having described the invention, what I claim is—

A ratchet mechanism comprising a part to be driven, having a hub, a ratchet inclosed by the hub, said ratchet having a plurality

of peripheral, rectangular notches, the shorter
walls of the notches being substantially radial
to the axis of the ratchet, means for rotating
said ratchet, a ring consisting of a plurality
5 of segments located between the periphery
of the ratchets and the inner surface of said
hub, each segment terminating in a shoulder
and the shoulders being situated in said
rectangular notches, and the adjacent
10 ends of certain of the segments having
outwardly-diverging beveled faces and rollers

fitted between the rings and the inner surface
of the hub and adapted to cooperate with the
said outwardly-diverging faces.

In testimony whereof I have hereunto set
my hand in presence of two subscribing witnesses.

CHRISTIAN JOSS.

Witnesses:

LEO J. FRANKENTHAL,
S. MILLER HALBERTS.