

No. 675,967

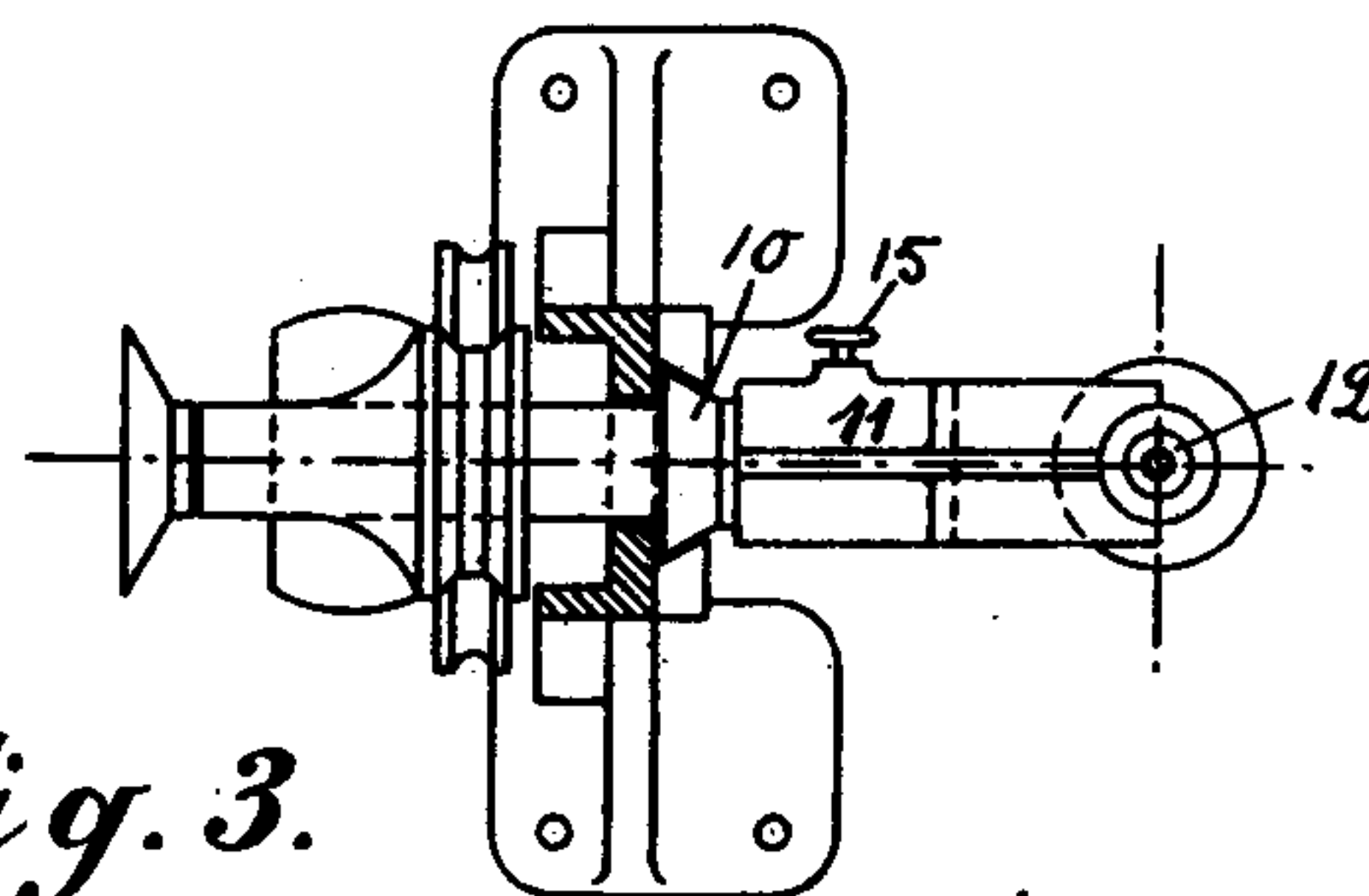
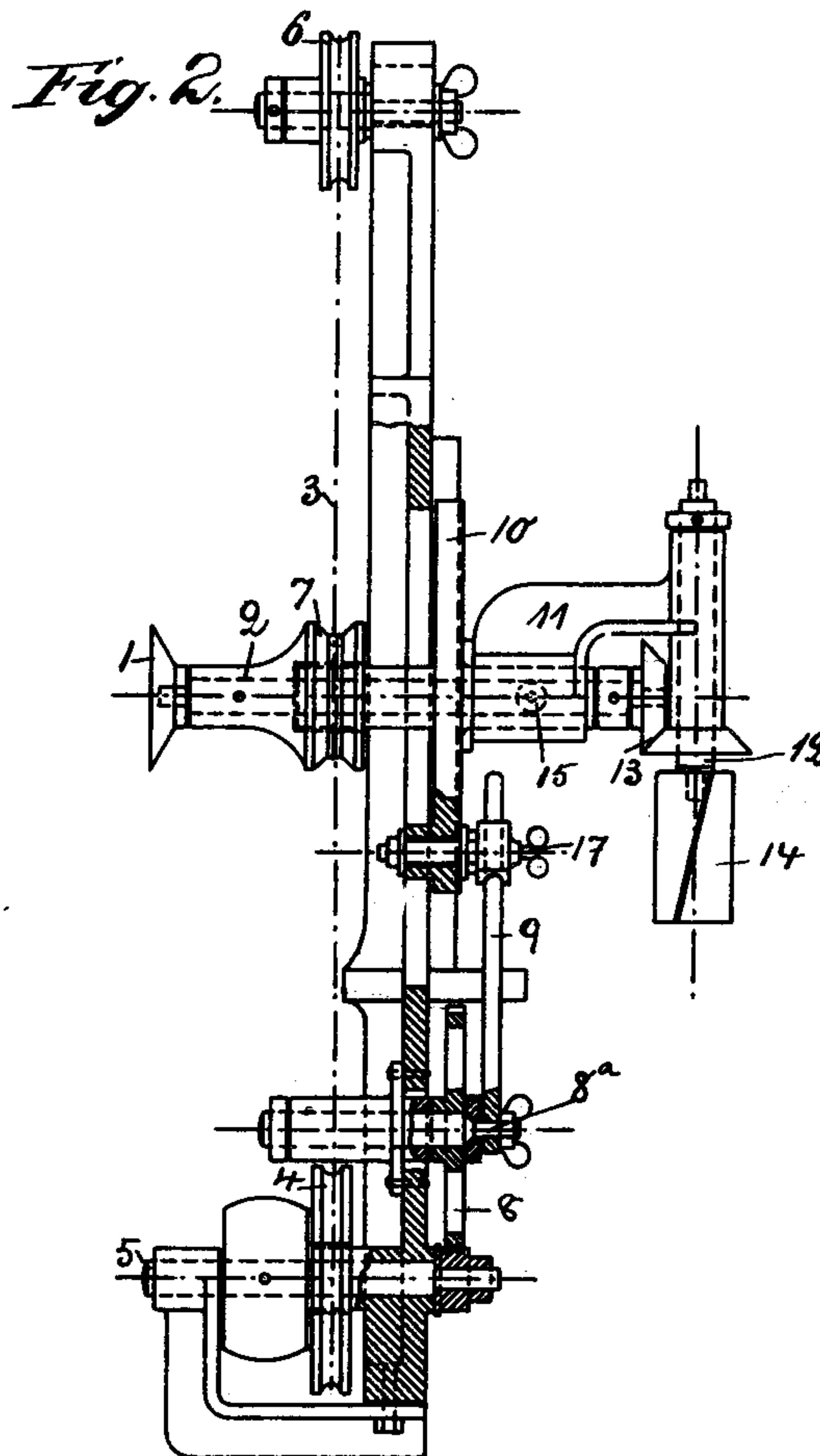
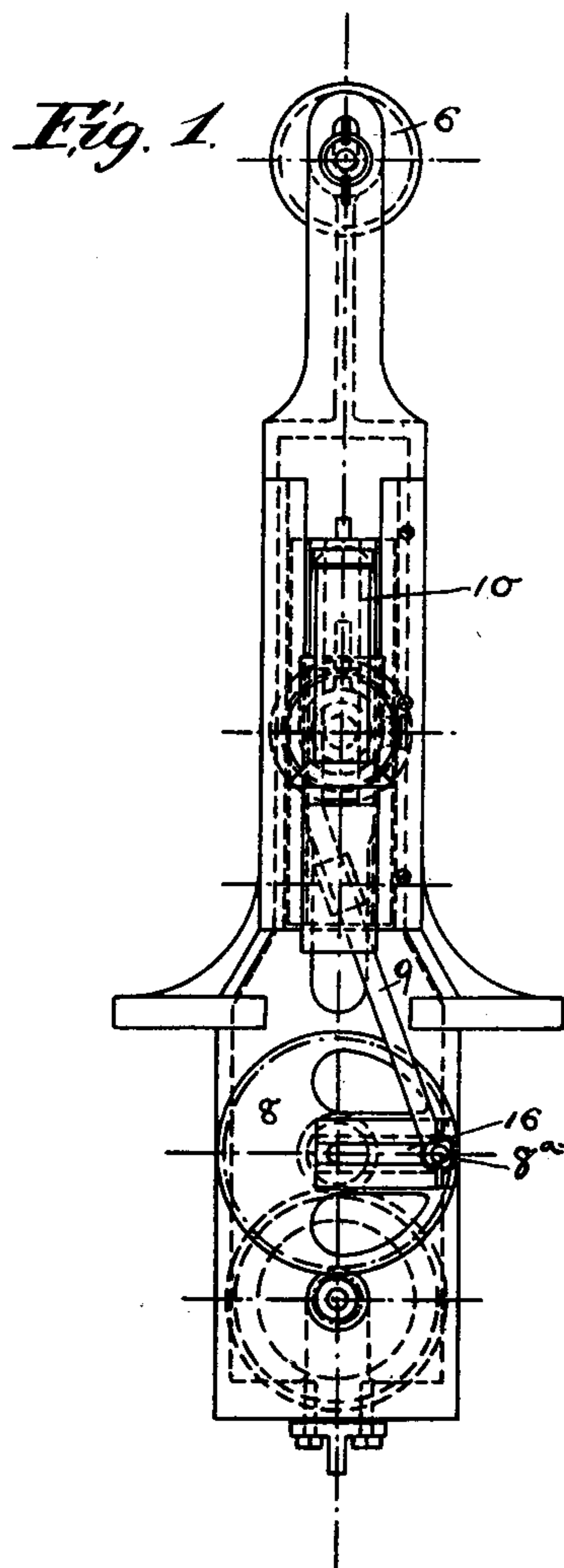
Patented June 11, 1901.

C. W. NYSTRÖM.
APPARATUS FOR GRINDING AND POLISHING.

(Application filed Aug. 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 6.

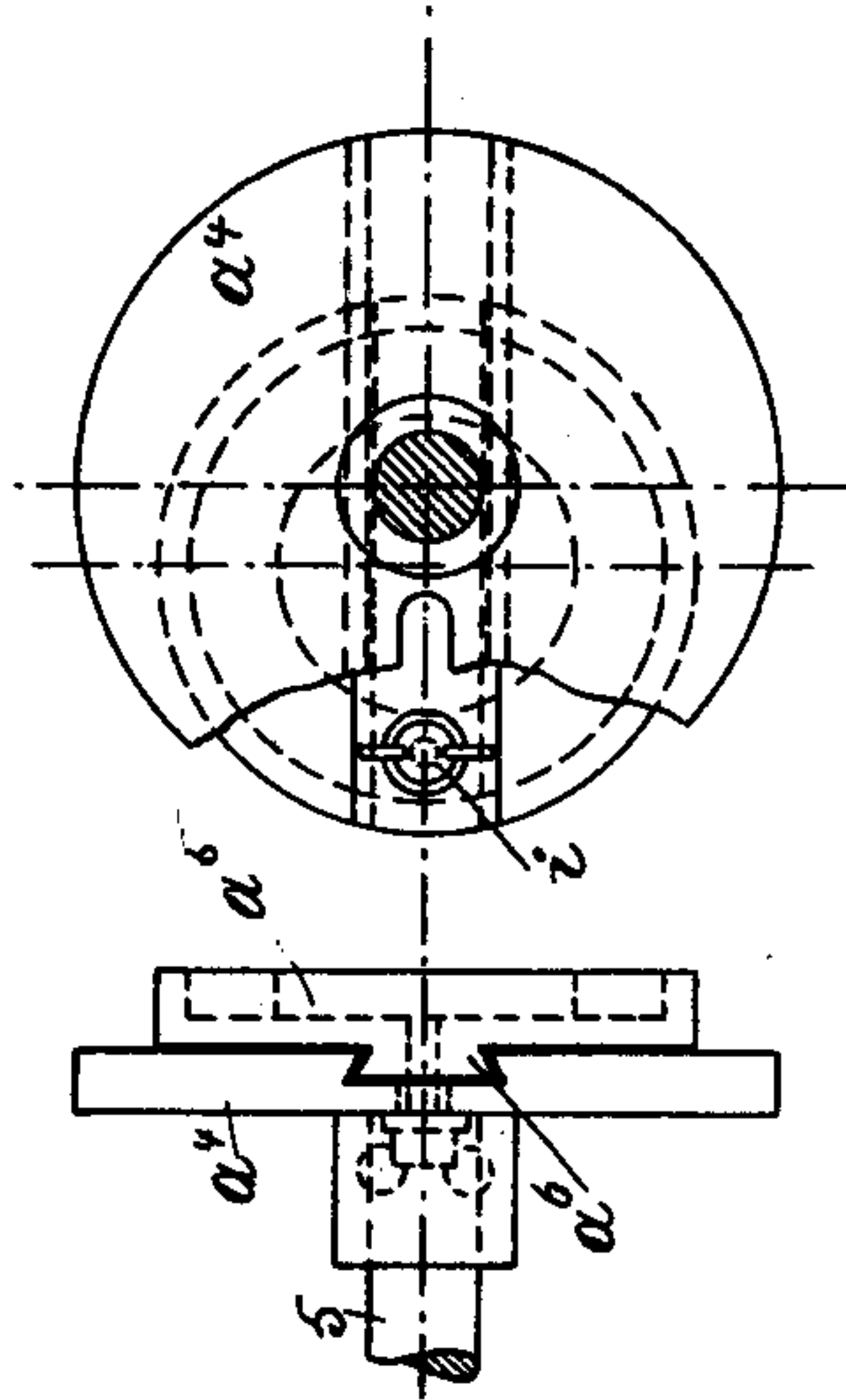
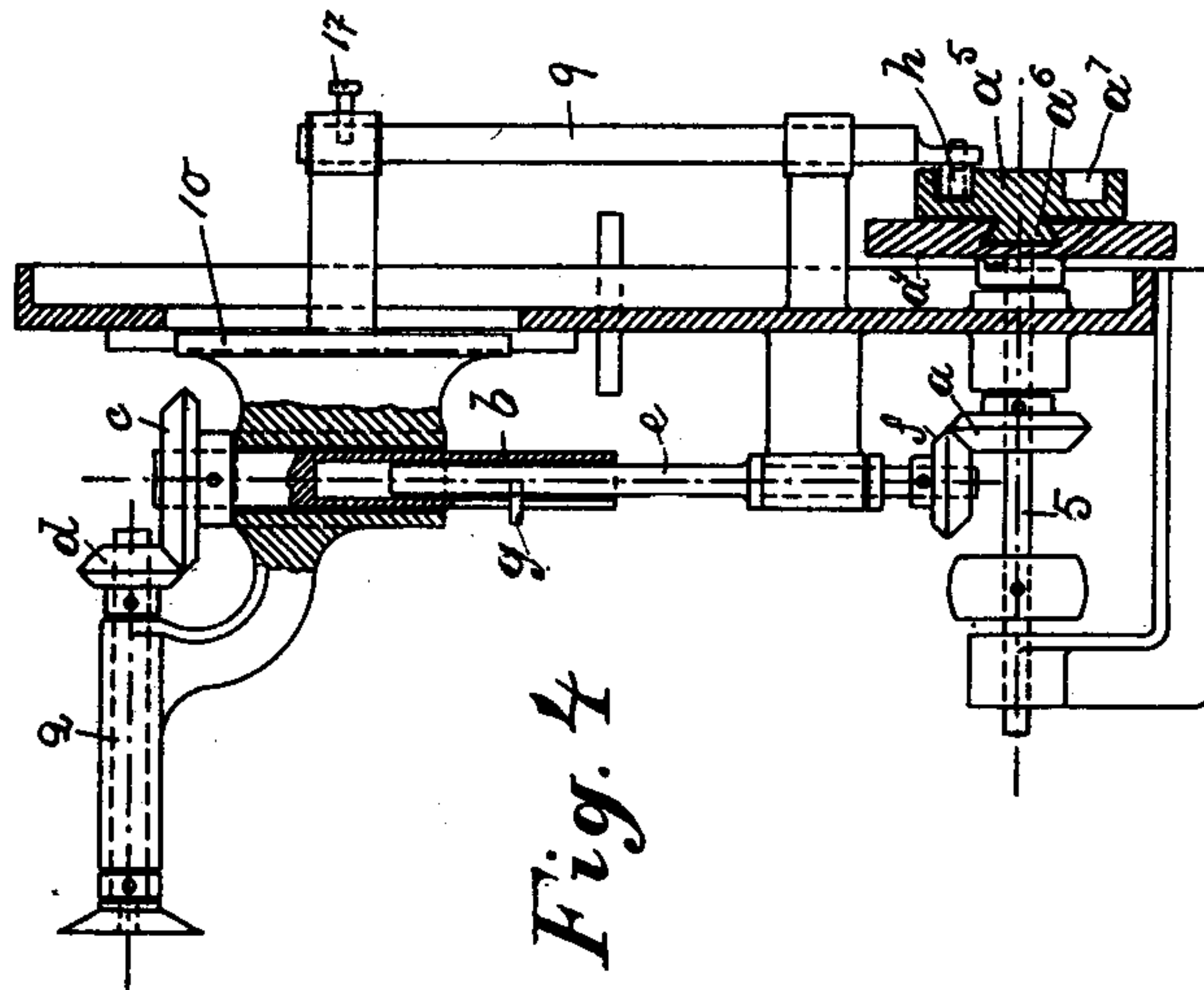
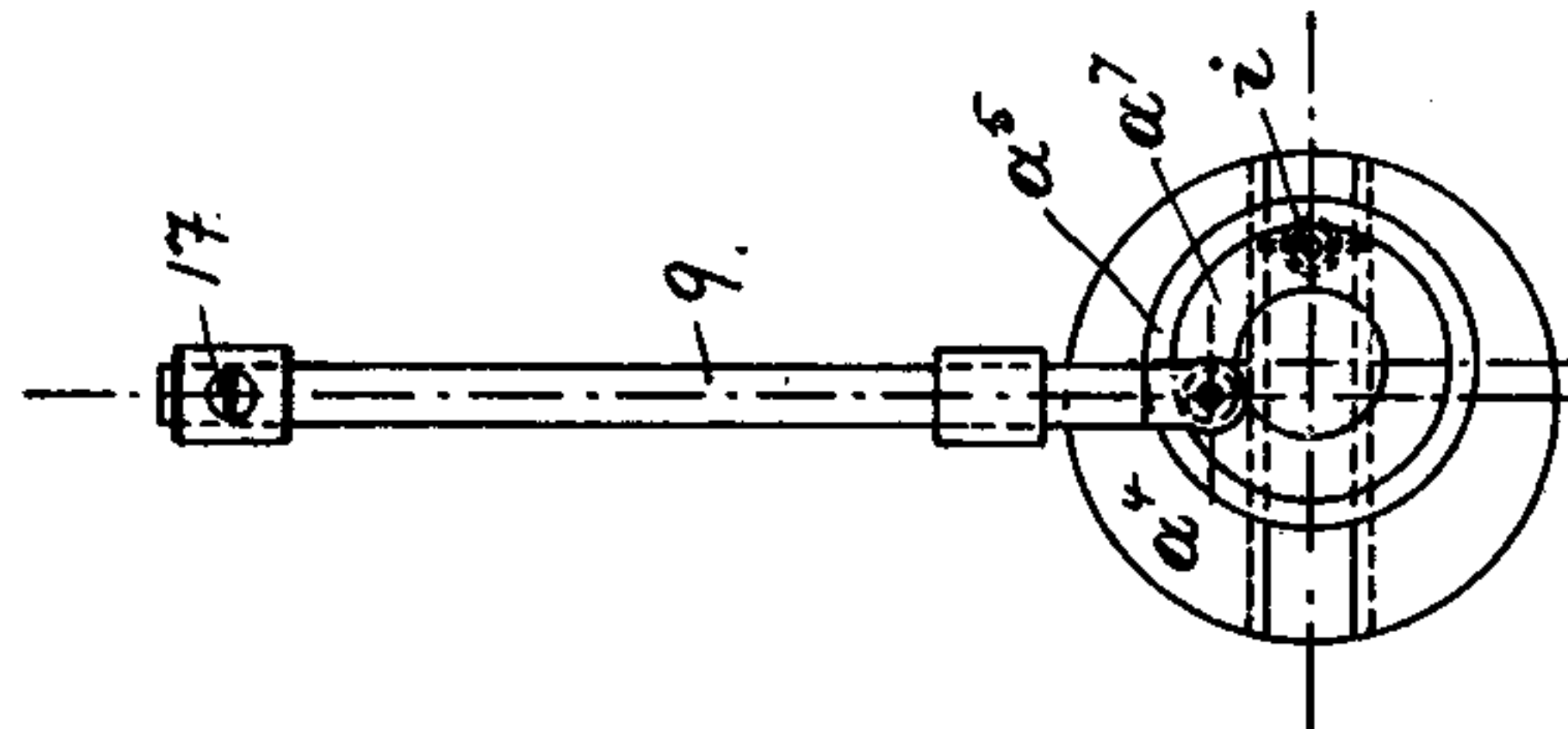


Fig. 5.



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CARL WILHELM NYSTRÖM, OF KARLSTAD, SWEDEN.

APPARATUS FOR GRINDING AND POLISHING.

SPECIFICATION forming part of Letters Patent No. 675,967, dated June 11, 1901.

Application filed August 29, 1900. Serial No. 28,461. (No model.)

To all whom it may concern:

Be it known that I, CARL WILHELM NYSTRÖM, of Karlstad, Sweden, have invented certain new and useful Improvements in Apparatus for Grinding and Polishing, of which the following is a specification.

The present invention refers to an apparatus for grinding and polishing articles, especially of wood and of such kind where it is necessary that the grinding or polishing tool may be able to follow the outlines of the article to be ground or polished. The apparatus is characterized thereby that it is provided with a horizontal and a vertical shaft, which two shafts respectively carry a grinding or polishing tool, and to which is given a reciprocating motion in a vertical direction simultaneously with a rotary motion, as usual. On account of this arrangement the apparatus is made employable for grinding or polishing wood surfaces which may be provided with outlines of the most unequal kind, as such parts of the surface which may not be suitable to be ground or polished by means of one of the tools—say, for instance, that one on the horizontal shaft—may be easily polished by means of the other tool—say that on the vertical shaft. Moreover, in some cases the two tools may be employed simultaneously for grinding or polishing different articles.

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

Figure 1 is a front elevation. Fig. 2 is a side view, partly in section. Fig. 3 is a top view, also partly in section. Fig. 4 is a side elevation, partly in section, of a modification. Fig. 5 is a detached detail of the operating-disk and rod or pitman, and Fig. 6 is an enlarged detail of the operating-disk.

The horizontal shaft 2, carrying the grinding or polishing tool 1, is given a reciprocating motion in a vertical direction simultaneously with the usual rotary motion. This rotary motion is imparted to it by means of a rope 3, which passes around a driving-pulley 4 on the driving-shaft 5 and around a second pulley 6 on the upper part of the frame, said rope between the two pulleys 4 and 5 being wound once around a third pulley 7 on the grinding or polishing shaft 2, thus giving a rotary motion to said shaft. The reciprocating motion is given to the shaft 2 from a

crank-disk 8 by means of the pitman 9, which is connected to an adjustable crank-pin 8^a and with the sliding block 10, carrying the shaft 2.

The grinding or polishing shaft projects laterally and passes through a bracket 11, in which is journaled a vertical tool-carrying shaft 12, which is rotated from the horizontal shaft 2 by means of bevel-wheels 13. The bracket 11 is mounted on a boss projecting from the block 10. The shaft 12 carries a grinding or polishing tool 14, which thus receives a reciprocating motion as well as a rotary motion. One of these grinding or polishing tools may be employed alone or they may be used simultaneously, in which case two workmen may be employed at one machine. The bracket 11 is rotatable on its boss and may be fixed in any suitable inclined position by means of a screw 15.

In order to vary the reciprocating motion of the grinding or polishing tool according to the thickness of the article to be ground or polished, the crank-pin 8^a is adjustable in a radial slot 16 in the crank-disk 8, whereby the length of the vertical motion of the sliding block 10 may be regulated. The pitman 9 is fixed at the sliding block 10 by means of a screw 17, which clamps it in a sleeve on the sliding block 10. By loosening this screw 17 the sliding block is put out of motion, whereby the grinding or polishing tool receives only the rotary motion.

Figs. 4, 5, and 6 show a modified constructional form of the grinding or polishing apparatus according to this invention, the modification principally referring to the means for regulating the reciprocating motion of the grinding or polishing tools. From the driving-shaft 5 of the machine the rotary motion is transmitted to the horizontal grinding or polishing tool carrying shaft 2 by means of two bevel-gearings *a f* and *d c* and the shafts *b e*. The shaft *b* is hollow and receives the shaft *e*, which is connected therewith by means of a pin *g*, engaging in a vertical slot in the hollow shaft *b*. On the driving-shaft 5 is mounted a disk *a*⁴, which is provided with a dovetail slot which receives a corresponding projection *a*⁶ on a second disk *a*⁵. The disk *a*⁵ is thus carried by the disk *a*⁴ and is radially adjustable upon the same, so as to be concen-

tric with it or more or less eccentric with it at will, whereby it may be fixed in the required position by means of a screw *i*, Figs. 5 and 6. The disk a^5 transmits the reciprocating motion to the sliding block 10 by means of the pitman 9, which is fixed with its upper end at an arm extending laterally from the sliding block 10. At its lower end the pitman 9 carries a roller *h*, which engages in an annular slot a^7 in the disk a^5 . By radially adjusting the disk a^5 upon the disk a^4 the vertical motion of the sliding block 10 may be regulated. The sliding block 10 may be put out of motion by loosening the screw 17.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

1. An apparatus for grinding and polishing articles comprising a suitable frame, a horizontal and a vertical shaft carried thereby, tools carried by said shafts, and means for imparting to said shafts simultaneously a rotary and a reciprocating motion, substantially as described.

2. In combination, the frame, the horizontal shaft having a suitable tool, a sliding block, in which said shaft is mounted, a bracket, carried by the block, a vertical shaft carry-

ing a tool and journaled in said bracket, bevel-gearing between said shafts and means for imparting to the horizontal shaft, a vertical reciprocating and a rotary motion, substantially as described.

3. In combination, the frame, the horizontal shaft having a suitable tool, a sliding block, in which said shaft is mounted, a bracket, carried by the block, a vertical shaft carrying a tool and journaled in said bracket, bevel-gearing between said shafts, a crank-disk, driven from the driving-shaft, a rod, with one end adjustably connected to the crank-disk and with the other end detachably connected to the sliding block, and means for imparting to the horizontal shaft a rotary motion, substantially as described.

4. In a grinding and polishing machine, a horizontal shaft carrying a suitable tool, and means for imparting to said shaft a simultaneously rotary and vertically-reciprocating motion, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CARL WILHELM NYSTRÖM.

Witnesses:

WALDEMAR BOMAN,
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