

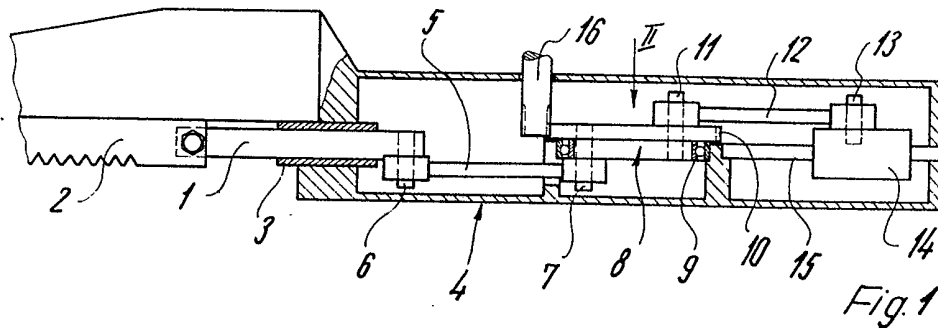
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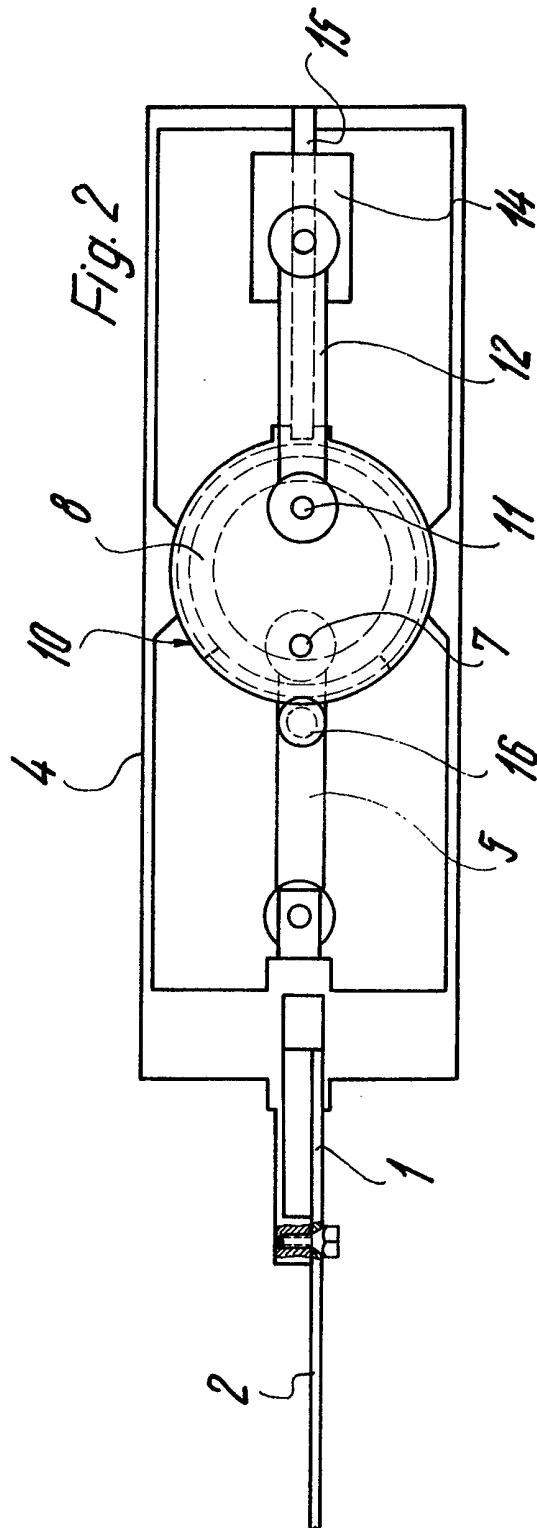
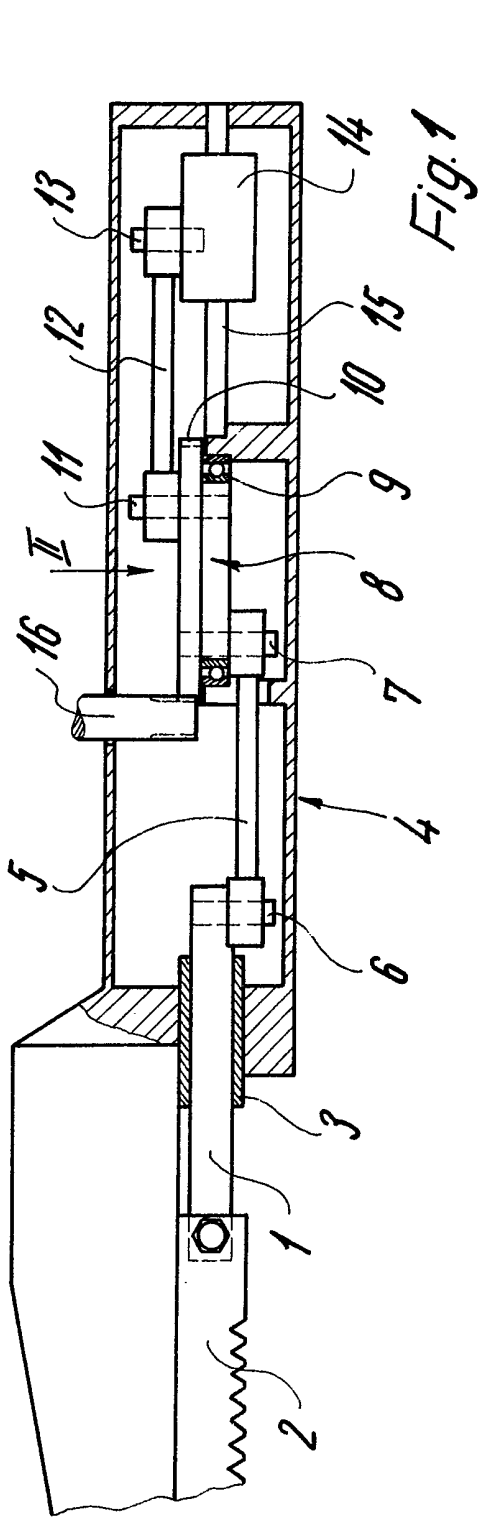
(54) Saw

(57) A saw having a slider member 1 which can be reciprocated by a connecting rod 5 and to which a saw blade 2 may be secured, and a counterweight 14 which is movable by a further connecting rod 12 in

opposition to the slider member, wherein the connecting rods are mounted on two opposite sides of a crank disc 8 which is provided with external teeth 10 and which is rotatably mounted in a drive housing in a bearing 9 and which is engaged by means of its external teeth with a drive pinion 16.



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SPECIFICATION

Saw

The present invention relates to a driven saw particularly such a saw in which a reciprocating blade is held at one end. Among the saws to which the application is applicable are compass saws, fretsaws, keyhole saws and tenon-saws.

Saws have been proposed having a slider member which can be moved up and down by a connecting rod and to which a saw blade may be secured, and a counterweight which is movable by a further connecting rod, in opposition to the slider member. Providing a counterweight for the slider member and the saw blade is intended to cause the oscillations which occur in operation, due to the upward and downward movements of the slider member with the saw blade, to be nullified or substantially eliminated. Hitherto, the two connecting rods have been connected to a crankshaft. The mounting for the crankshaft is relatively expensive and the crankshaft itself is a complicated and also large component. This has a highly detrimental effect both in regard to manufacturing costs and also the dimensions of the saw.

Furthermore, in the previously proposed saws, it is inevitable that considerable transverse oscillations occur due to the relatively large distance between the connecting rods, so that in many cases the desired effect, namely reducing longitudinal oscillations by the provision of a counterweight, is nullified by the transverse oscillations which are produced.

There is therefore a need for a saw of the kind set out above, which is of small dimensions and which has low manufacturing costs, and in which oscillations do not occur or oscillations occur to an extent which is of no significance from the practical point of view.

According to the present invention, there is provided a saw having a slider member which can be reciprocated by a connecting rod and to which a saw blade may be secured, and a counterweight which is movable by a further connecting rod in opposition to the slider member, wherein the connecting rods are mounted on two opposite sides of a crank disc which is provided with external teeth and which is rotatably mounted in a drive housing in a bearing and which is engaged by means of its external teeth with a drive pinion.

Using a crank disc which is mounted only in a bearing such as a ball bearing assembly provides a considerable reduction both in manufacturing costs and also in the overall dimensions of the drive unit of the saw, and also provides that the two connecting rods are spaced from each other by only a very small distance, so that transverse oscillations do not occur, or occur only to an insignificant extent, in operation of the saw.

An embodiment of the invention is described in greater detail hereinafter by way of example with reference to the drawing in which:—

Figure 1 shows a view in longitudinal section through a drive housing of a power-driven compass saw according to the invention, including the saw blade, but without showing a drive motor, and

Figure 2 shows a view in the direction of the arrow II in Figure 1, with the cover of the drive housing removed.

Figures 1 and 2 show the main components of a compass saw according to the invention. A saw blade 2 is secured to a slider member 1 which is mounted for axial displacement in a bush 3 which is fitted into an end wall of a drive housing 4.

A connecting rod 5 is connected by way of a pin 6 to the end of the slider member 1 which projects into the interior of the housing 4. The connecting rod 5 is connected by its other end to a crank pin 7 which in turn is secured to a crank disc 8.

The crank disc 8 is mounted rotatably in a ball or roller bearing assembly 9 within the housing 4 and is provided with external teeth 10.

At the side of the crank disc 8 which is remote from the connecting rod 5 and the crank pin 7 is a further crank pin 11 on which a further connecting rod 12 is mounted. The other end of the connecting rod 12 is connected by way of a pin 13 to a counterweight 14. The counterweight 14 is mounted for axial displacement on a guide rod 15.

The longitudinal axis of the guide rod 15 is aligned with the longitudinal axis of the slider member 1.

The crank disc 8 is engaged by way of its external teeth 10 with a drive pinion 16 of a drive (not shown), preferably an electric motor.

As, when the counterweight 14 moves in opposite directions with respect to the slider member 1, the counterweight 14 is guided in a line which is in alignment with the longitudinal axis of the slider member 1, longitudinal oscillations of the saw are virtually completely eliminated. If there are any transverse oscillations at all, such oscillations are of a degree which is only insignificant from the practical point of view, as the two connecting rods 5 and 12 are only slightly offset relative to each other.

A further advantage is that the housing 4 can be made small and flat.

Claims

1. A saw having a slider member which can be reciprocated by a connecting rod and to which a saw blade may be secured, and a counterweight which is movable by a further connecting rod in opposition to the slider member, wherein the connecting rods are mounted on two opposite sides of a crank disc which is provided with external teeth and which is rotatably mounted in a drive housing in a bearing and which is engaged by means of its external teeth with a drive pinion.

2. A saw according to claim 1, wherein the longitudinal axis of a guide rod on which the counterweight is guided for displacement is

aligned with the longitudinal axis of the slider member.

3. A saw substantially as described herein with reference to the accompanying drawings.

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