B. M. W. HANSON.

CLUTCH ACTUATING MECHANISM.

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909,894. Patented Jan. 19, 1909.

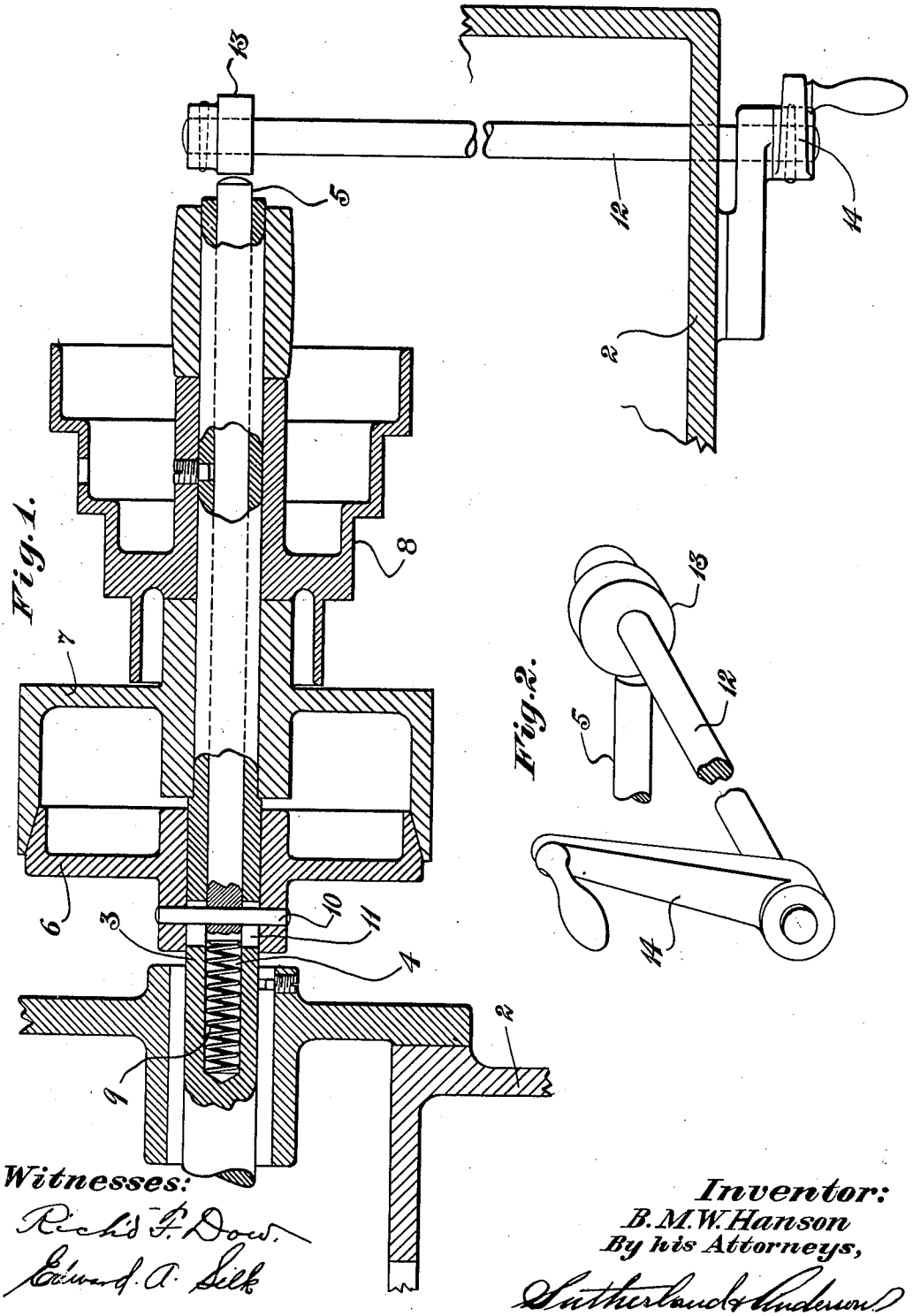


Fig. 1.

Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

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CLUTCH-ACTUATING MECHANISM.

No. 909,894. Specification of Letters Patent. Patented Jan. 19, 1909.

Application filed June 2, 1908. Serial No. 436,202.

To all whom it may concern:

Be it known that I, BENGT M. W. HANSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Clutch-Actuating Mechanism, of which the following is a specification.

This invention relates to clutch-actuating mechanism.

Clutch-actuating mechanism involving my invention can be used in many different ways one advantageous adaptation thereof being in conjunction with or as part of a metal-working machine. Said clutch-actuating mechanism comprises a longitudinally-bored shaft, a rod slidable in the bore of said shaft, and a clutch-member operable by the rod, the latter extending beyond one end of said bore whereby it can be easily operated by a cam or equivalent device. By virtue of this construction I provide for compactness in that all the wheels, levers and similar elements can be mounted in a small compass on one side of the machine, usually the front, and among these several elements is the hand-lever of like part by which the rod-operating cam, through suitable instrumentalities, can be operated to effect the action of said clutch-member.

In the drawings accompanying and forming part of this specification I illustrate in detail one simple and effective embodiment of the invention which to enable those skilled in the art to practice the same will be set forth in detail in the following description while the novelty of the invention will be included in the claims succeeding said description.

Referring to said drawing, Fgure 1 is a horizontal sectional view of clutch-actuating mechanism including my invention, and, Fig. 2 is a detail view in perspective of a cam, its shaft, and a portion of the clutch-member operating-rod.

Like characters refer to like parts in both figures.

As will be apparent from what has been stated clutch mechanism comprehending my invention can be employed with utility in many combinations although I have found it of especial advantage when constituting part of a grinding-machine in that all the primary controlling members or those provided to throw certain mechanisms into action can be disposed all on one side of a machine and within easy reach of the attendant thereof.

It will be assumed that the numeral 2 denotes the framing of a grinding machine or in fact it may be the framework of any other machine to which the mechanism may be applied. I might state that I have not shown all the framework of such a machine but only fragments thereof yet enough to illustrate the nature of the mechanism and its mode of operation.

The framework 2 is represented as supporting for rotation a shaft as 3 in which is formed a longitudinally-extending bore as 4. In this bore 4 I have shown as fitted for sliding movement a rod as 5 which serves as a convenient device for operating a clutch-member as 6. The outer end of the rod is shown as extending beyond the outer open end of the bore so as to be within ready access of a rod-operating element as will hereinafter appear.

The clutch-member 6 coöperates with a clutch-member as 7 shown as loose on the shaft 3, the clutch-member 6 being rotative with said shaft. These two clutch-members present a well-known type of clutch with which my actuating mechanism is adapted for coaction: other forms of clutches might be employed in lieu of that described. The shaft 3 is also shown as having rotative therewith a pulley as 8 of the stepped cone type and it therefore follows that when the said pulley is rotated and when the clutch-members 6 and 7 are in engagement the clutch-member 7 will be driven. In a grinding machine it is my custom to drive the tool-spindle from the clutch-member 7, the latter being shaped peripherally to receive a belt for such purpose although the said belt is not shown nor is that for rotating the cone-pulley 8. As illustrated the clutch-member 7 is located between the clutch-member 6 and the pulley 8. The clutch-member 6 is represented as provided with a peripheral cone or inwardly tapered portion to engage a corresponding portion within the clutch-member 7 when the two are in clutched relation. To unclutch the members the two cone portions will be disengaged, and their successive engagement and disengagement is obtained in the present case, by sliding the clutch-member 6 longitudinally of the shaft 3 through the intervention of the endwise slid-

able rod 5 which is preferably operated in one direction by a spring as 9 and in the other direction by the act of the attendant of the machine.

The spring 9 when the rod 5 is released from the action of a cam or equivalent device as will hereinafter appear, moves the clutch-member 6 into driving relation with the clutch-member 7 and can maintain a uniform driving relation therebetween which would not be the case were there a rigid or unyieldable application of power to said clutch member 6 such for example as by a cam or equivalent part.

The spring 9 is of coiled push form and is bottomed in the bore 4; that is to say one end of the spring bears against the bottom or inner closed end of said bore while the other end thereof bears against the inner end of the rod 5. Said rod is perforated near its inner end for the passage of a pin as 10 which extends oppositely from said rod and through diametrically-opposite elongated slots as 11 in the shaft 3, such slots as will be apparent intersecting the bore 4. The hub of the clutch-member 6 is also perforated to receive said pin. It therefore follows that when the rod 5 is operated the clutch-member 6 will be shifted thereby. When the rod is thrust to the right in Fig. 1 by the power of the spring 9 the clutch-member 6 will be put into clutching relation with the clutch-member 7.

The framework 2 supports at or near one end thereof a transversely-disposed rock-shaft as 12, the forward or outer end of which in practice is located at the front side of the machine while the rear end thereof is equipped with a suitable operating device, such as a cam 13, for the rod 5. Said rock-shaft 12 is therei e at substantially right angles to the shaft 3; in other words the axes of the two shafts are transverse to each other by reason of which the compact disposition of parts and convenience to the machine attendant are possible. The cam consists as shown of an eccentrically-placed disk carried by said rock-shaft 12. When the machine is at rest or out of action the high part of the cam will be against the outer end of the rod 5 so as to hold the rod in its retracted position with the clutch-member 6 out of engagement with the companion clutch-member 7. When, however, the shaft 12 is rocked to move the low part of the cam against the outer end of said rod the spring 9 becomes effective to impart an advancing movement to the rod 5 to cause the clutch-member 6 through the intermediate parts to engage the clutch-member 7.

The rock-shaft 12 is shown as provided at its forward or outer end with a hand-lever or crank as 14 which constitutes a convenient means for turning said rock-shaft to cause the action of the clutch-mechanism and in practice this hand-lever is arranged upon the front of the machine frame.

What I claim is:

The combination of a longitudinally-bored rotary shaft, a pair of clutch-members one of which is loose on said shaft and the other of which is rotative therewith, a rod slidable in the bore of said shaft and projecting beyond one end of the same, a spring in the bore acting against the bottom thereof and also against the rod and serving to move the rod in an endwise direction to put the clutch-member which is rotative with said shaft into clutching relation with the companion clutch member, a rock-shaft movable about an axis transverse to that of said longitudinally-bored shaft having a cam and a hand-lever both turnable therewith, said cam being adapted to engage the projecting end of said rod to operate the latter in opposition to said spring when the rock-shaft is turned by said hand-lever

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

BENGT M. W. HANSON.

Witnesses:
W. M. STORRS,
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