

No. 800,088.

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G. EDGAR, JUN.

GEARING.

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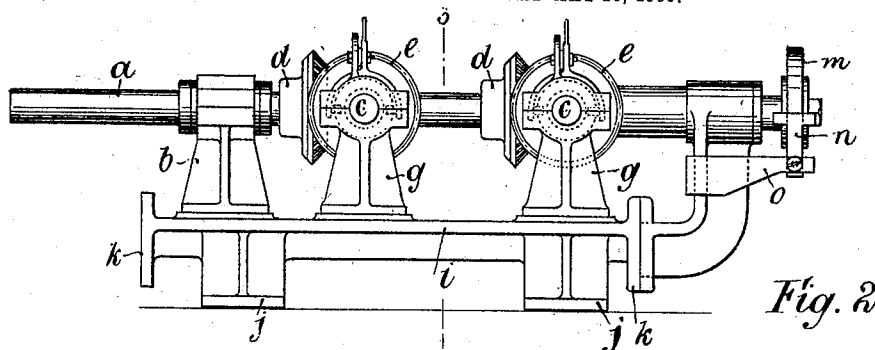


Fig. 2

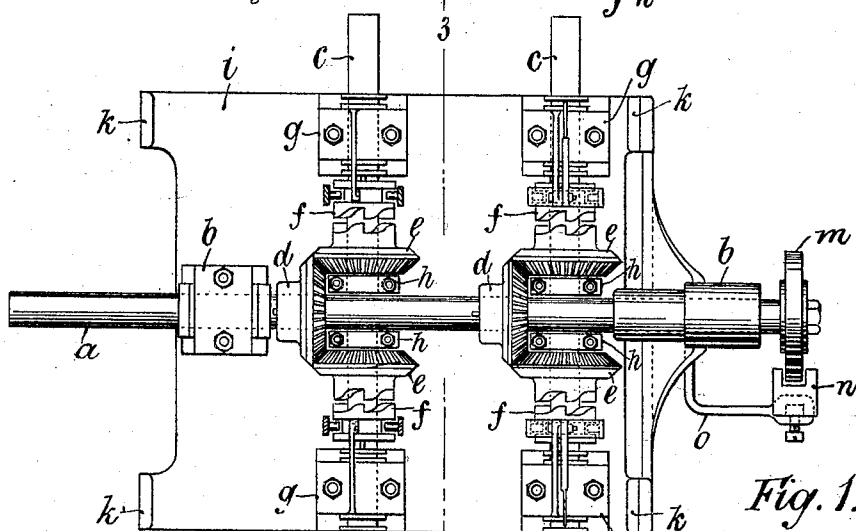


Fig. 1.

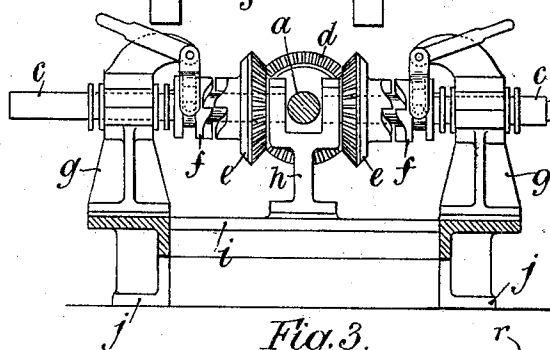


Fig. 3.

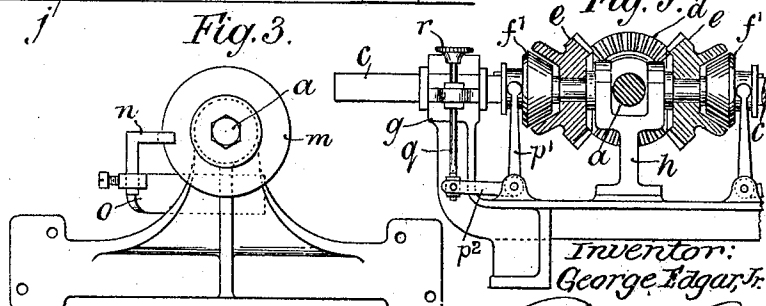


Fig. 4.

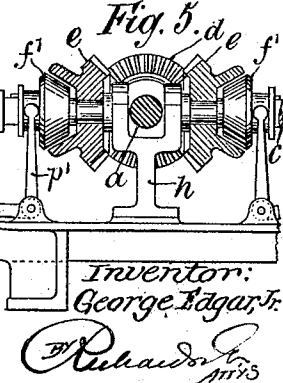


Fig. 5.

Witnesses
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 1905

UNITED STATES PATENT OFFICE.

GEORGE EDGAR, JUN., OF NEWPORT, ENGLAND.

GEARING.

No. 800,088.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE EDGAR, JUN., a subject of the King of Great Britain, residing at the Tredegar Dry Docks and Wharf Company Limited, Newport, county of Monmouth, England, have invented new and useful Improvements in Gearing, of which the following is a specification.

This invention relates to a transmitting mechanism for distributing motive power to any one or more of a number of rotating shafts for drilling purposes and for other purposes requiring a corresponding effort, speed of rotation, and facility for starting and stopping the operation.

The contrivance is specially adapted as a central station from which any desired number of leads can be taken through flexible shafts to perform operations at many points at the same time on a structure the size of which prevents it from being readily moved. The operations to be performed are such as can be effected by a rotating element, the position of which can be varied as desired and comprise the dressing of castings by emery grinding-wheels and the application of revolving wire brushes, as well as drilling holes.

The contrivance has a sufficient degree of portability to enable it to be shifted from place to place where the work is required to be done.

The accompanying drawings show a form of construction of mechanism suitable for effecting the purposes above described.

In the drawings, Figure 1 is a plan. Fig. 2 is a side elevation. Fig. 3 is a sectional end elevation taken along the line 3 3 of Figs. 1 and 2. Fig. 4 is an end view of a detached bracket shown on the right of Figs. 1 and 2; and Fig. 5 is a sectional end elevation of a portion corresponding to Fig. 3, but with an alternative construction of clutch.

In the views, *a* is a shaft which is rotated by some agency, such as a motor, electric or otherwise, specially devoted to the purpose or which is driven from a general source of motive power by a belt and pulley or some equivalent organ. This shaft extends continuously in the direction of the length of the machine along the middle and is supported in two bearings, (marked *b b*.) From this main or primary driving-shaft power is transmitted laterally to secondary shafts *c c*, of which four are shown, though the number can be indefinitely increased. For each pair of secondary shafts a bevel-wheel *d* is secured to the pri-

mary shaft *a*, and mounted to rotate freely on each shaft *c c* is a bevel-wheel *e*, which continuously gears with one of the bevel-wheels *d*.

Slidably mounted on each secondary shaft, with a feather-key connection or its equivalent, is a clutch-piece *f*, and means are provided for putting it into and out of connection with facility with a corresponding clutch element formed on the rear face of each of the bevel-wheels *e*.

It will be observed that the nature of the gearing is such that relatively to the person who is operating the drilling, grinding, or other tool the rotation of all the secondary shafts will be in the same direction—that is to say, for example, all clockwise when the primary shaft at the right-hand end is driven clockwise.

In Figs. 1, 2, and 3 a positive clutch of the jaw or toothed type is shown, and in Fig. 5 there is an alternative construction in which the connection is made in a less abrupt manner by friction-cones.

The secondary shafts at the outer ends are mounted in bearings carried in pedestals *g*, and to support the inner ends a pedestal *h* is provided, situated between two bevel-wheels *e e* and so constructed as not to interfere with the continuity of the shaft *a*. The whole is carried on a bed-plate *i*, having feet *j*, whereby it can be secured to foundations or to a frame or other bed-plate. Also end flanges *k* are provided for the purpose of making connection with the bed-plate of a motor or other actuating organ. On one bed-plate more than two pairs of secondary shafts may be mounted, or, alternatively, provision for a larger number of secondary shafts may be arranged for by duplicating the whole contrivance, two bed-plates being connected together by the end flanges.

In the figures, by way of example, a method of utilizing the rotating free end of the primary shaft *a* is shown. It consists of an arrangement for grinding the tools employed in the machine or others and comprises a wheel *m*, secured to the shaft *a*, and rest *n*, slidably mounted in a bracket *o*, secured to the bed-plate *i*.

In Fig. 5 is shown a device for the forced application of the sliding element *f'* of the friction-clutch and for maintaining it in gear, comprising a forked bell-crank lever *p' p''*, the horizontal arm *p''* of which carries a pivoted nut. A screw *q*, mounted in the pedestal *g*, can by means of the small hand-wheel *r* be so

operated as to effect the connection and disconnection of the friction-clutch.

In Fig. 3 a flexible shaft *s* is shown coupled to one of the secondary shafts *c* and arranged
5 to drive an emery-wheel *t*.

I claim—

1. A transmitting mechanism adapted to facilitate the distribution of motive power from a central station the position of which is adapted to be shifted, comprising a bed-plate, a primary motion-shaft mounted in bearings carried on the bed-plate, secondary shafts adapted to gear in pairs with the primary shaft, and a clutch adapted to connect or disconnect each secondary shaft.
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2. A transmitting mechanism adapted to facilitate the distribution of motive power from a central station the position of which is adapted to be shifted, comprising a bed-plate, a primary motion-shaft mounted in bearings carried on the bed-plate, secondary shafts, a loose bevel-wheel on each secondary shaft, a bevel-wheel keyed to the primary shaft engaging with a pair of the loose bevel-wheels and a clutch adapted to connect or disconnect each secondary shaft.
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3. A transmitting mechanism adapted to facilitate the distribution of motive power from a central station the position of which is adapted to be shifted, comprising a bed-plate, a primary motion-shaft mounted in bearings carried on the bed-plate secondary shafts mounted in transversely-situated bearings pedestals carrying said bearings the ends of the secondary shafts toward each other being carried by a pedestal common to the two and intersected by the primary shaft, a loose bevel-wheel on each secondary shaft a bevel-wheel keyed on the primary shaft and engaging with a pair of loose bevel-wheels and a clutch adapted to connect or disconnect each secondary shaft.
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4. A transmitting mechanism adapted to facilitate the distribution of motive power from a central station the position of which is adapted to be shifted, comprising a bed-plate, a primary motion-shaft mounted in bearings carried on the bed-plate, secondary shafts adapted to gear in pairs with the primary shaft, means for rotating the primary shaft and a friction-clutch adapted to connect or disconnect each secondary shaft.
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5. A transmitting mechanism adapted to facilitate the distribution of motive power from a central station the position of which is adapted to be shifted, comprising a bed-plate, a primary motion-shaft mounted in bearings carried on the bed-plate secondary shafts mounted in transversely-situated bearings pedestals for said bearings the ends of the secondary shafts toward each other being carried by a pedestal common to the two and intersected by the primary shaft, a loose bevel-wheel on each secondary shaft a bevel-wheel keyed to the primary shaft, and meshing with said bevel-wheels, and a friction-clutch adapted to connect or disconnect each secondary shaft.
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6. A transmitting mechanism adapted to facilitate the distribution of motive power from a central station the position of which is adapted to be shifted, comprising a bed-plate, a primary motion-shaft mounted in bearings carried on the bed-plate, secondary shafts adapted to gear in pairs with the primary shaft, and a clutch adapted to connect or disconnect each secondary shaft.
70 75

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE EDGAR, JUN.

Witnesses:

S. W. ALLEN,
FREDERICK J. LEAN.