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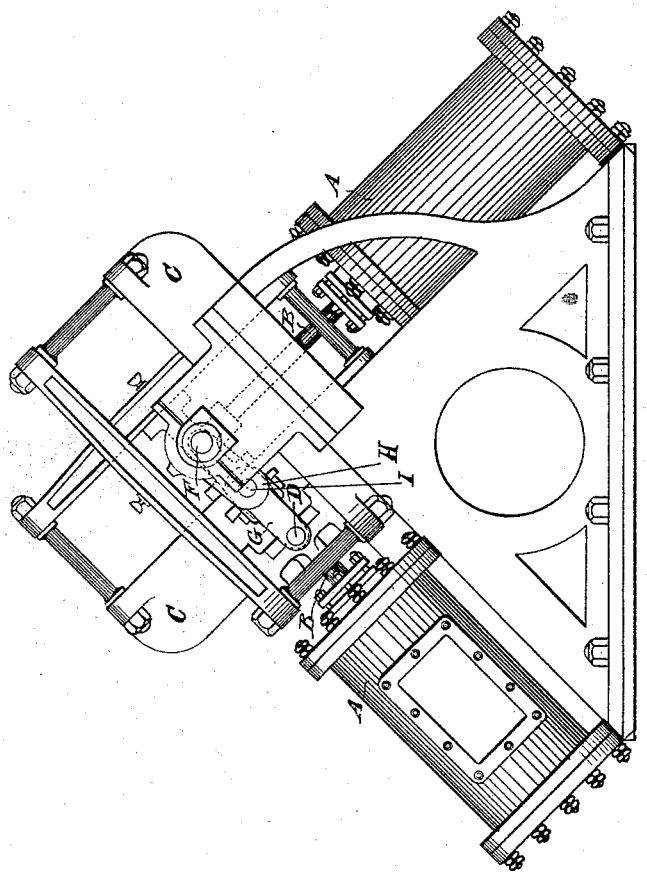
G. CHAPMAN.

MEANS FOR PRODUCING ROTARY FROM RECIPROCATORY MOTION.

No. 526,614. Patented Sept. 25, 1894.

Fig. 1



Witnesses—
Walter E. Allen.
Sadie Allen.

Inventor—
George Chapman.
By Knight Bros.
Attorneys.

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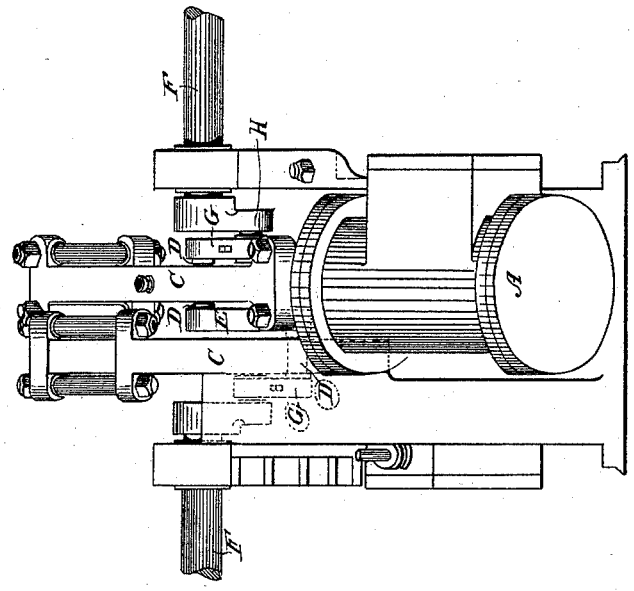
Fig 2.



Witnesses:
Walter E. Allen.
S. Allen.

Inventor:
George Chapman.
By Knight Bros
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

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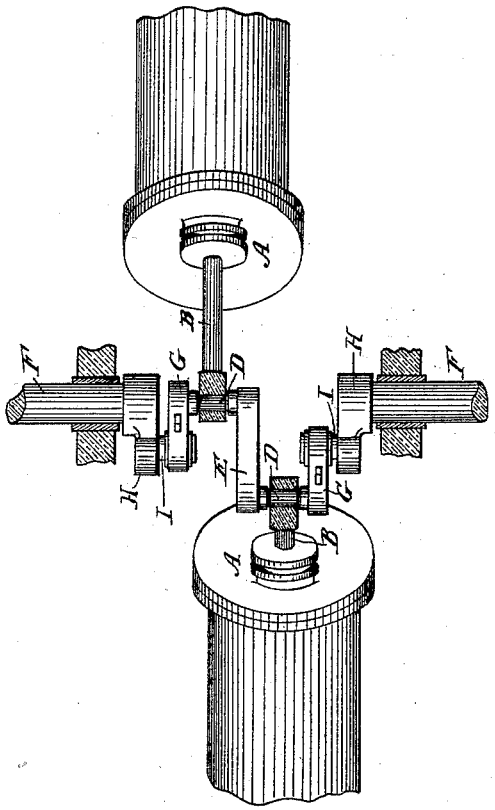
Fig. 3.



Witnesses:
Walter E. Allen
S. Allen

Inventor:
George Chapman
By Knight Bros
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE CHAPMAN, OF EDINBURGH, SCOTLAND.

MEANS FOR PRODUCING ROTARY FROM RECIPROCATORY MOTION.

SPECIFICATION forming part of Letters Patent No. 526,614, dated September 25, 1894.

Application filed December 8, 1893. Serial No. 493,152. (No model.) Patented in England June 6, 1893, No. 11,028.

To all whom it may concern:

Be it known that I, GEORGE CHAPMAN, letter-press printer, of 30 Inverleith Row, Edinburgh, in the county of Mid-Lothian, Scotland, have invented an Improved Means for Producing Rotary from Reciprocating Motion, (for which I have obtained British Patent No. 11,028, bearing date June 6, 1893,) of which the following is a specification.

This invention relates to an improved means of producing a rotary motion from a reciprocating one, and is the practical adaptation of a mathematical law, viz: When two ends of a line move diagonally its center describes a circle. The pistons move diagonally crossing and recrossing each other's courses midway at every stroke, and a link, half the length of one of the rods, connects both cross-heads of the pistons by a pin at each end passing through and revolving in journals, the outer continuation returning to a line with the center of the inner one, so that they move together, the outer forming part of the crank (or cranks where there is one on each side) in connection with pistons, the circular motion causing the rotation of the connected shaft. A continuous motion is thus obtained in no way dependent on the momentum of the shaft. The diagonal movement of the two ends of the link approximates to a parallel motion and thereby reduces the friction on the guides to a minimum.

In carrying out my invention I provide two cylinders with pistons and guide frames set at right-angles to one another and with a space between in which a link connecting the two piston rods works.

My invention consists in novel features of construction hereinafter described and claimed.

In the drawings—Figure 1 is a side elevation; Fig. 2, an end elevation; and Fig. 3 is a plan of the two cylinders showing piston rods, shaft and connecting links, the guide frames being removed.

A A are the two cylinders; B B, the two piston rods; C C, the guide frames.

The cylinders and guide frames are placed at right angles to one another, and the piston-rods pass and cross each other, one piston being in the middle of its stroke when the other is beginning or ending its stroke. There is a pin D working in journals in the cross-head of each piston, and a link E connects the two inner ends of the pins D. The outer ends of the pins D are connected to the shaft F by means of the links G, and cranks H, having pins I. As the pistons move up and down the reciprocating motion of the piston rods communicates a rotary motion to the shaft by means of the connecting links E and G.

I claim—

The combination of the cylinders, and guide frames placed at right angles to one another, the piston-rods having cross-heads sliding in the guide-frames, and adapted to pass and cross each other, the pins working in journals in the cross-heads and extending therethrough, the intermediate link connecting the inner ends of the cross-head-pins, the shafts having cranks, the outer links mounted on the inner ends of the cross-head-pins, and the crank-pins connecting the outer links with the cranks; substantially as described.

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

GEORGE CHAPMAN.

Witnesses:

JOHN LIDDLE,
Patent Agent, Glasgow.

JOSEPH HENRY PEARSON,
Draftsman, 154 St. Vincent Street, Glasgow.