

(No Model.)

2 Sheets—Sheet 1.

C. SANDFORD.

HORSE POWER.

No. 354,842.

Patented Dec. 21, 1886.

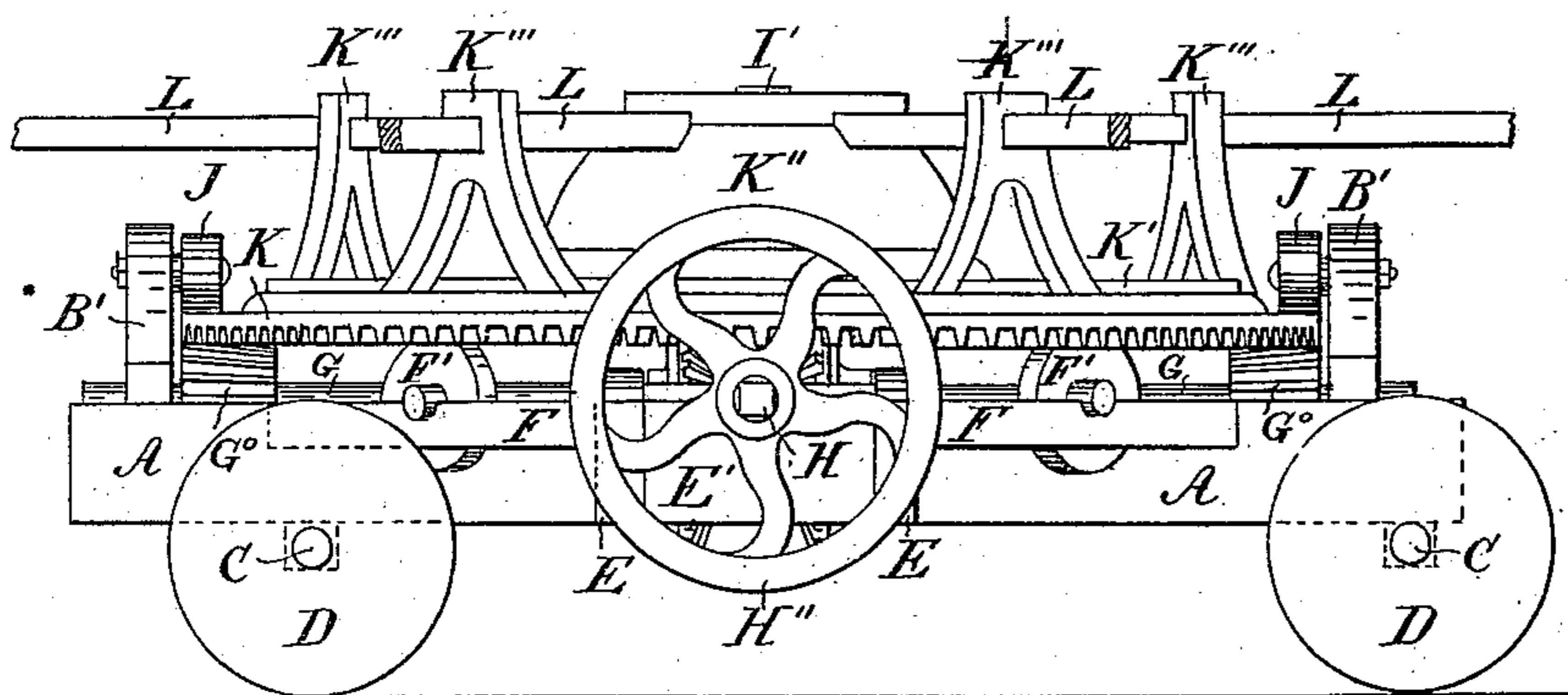


Fig. 1.

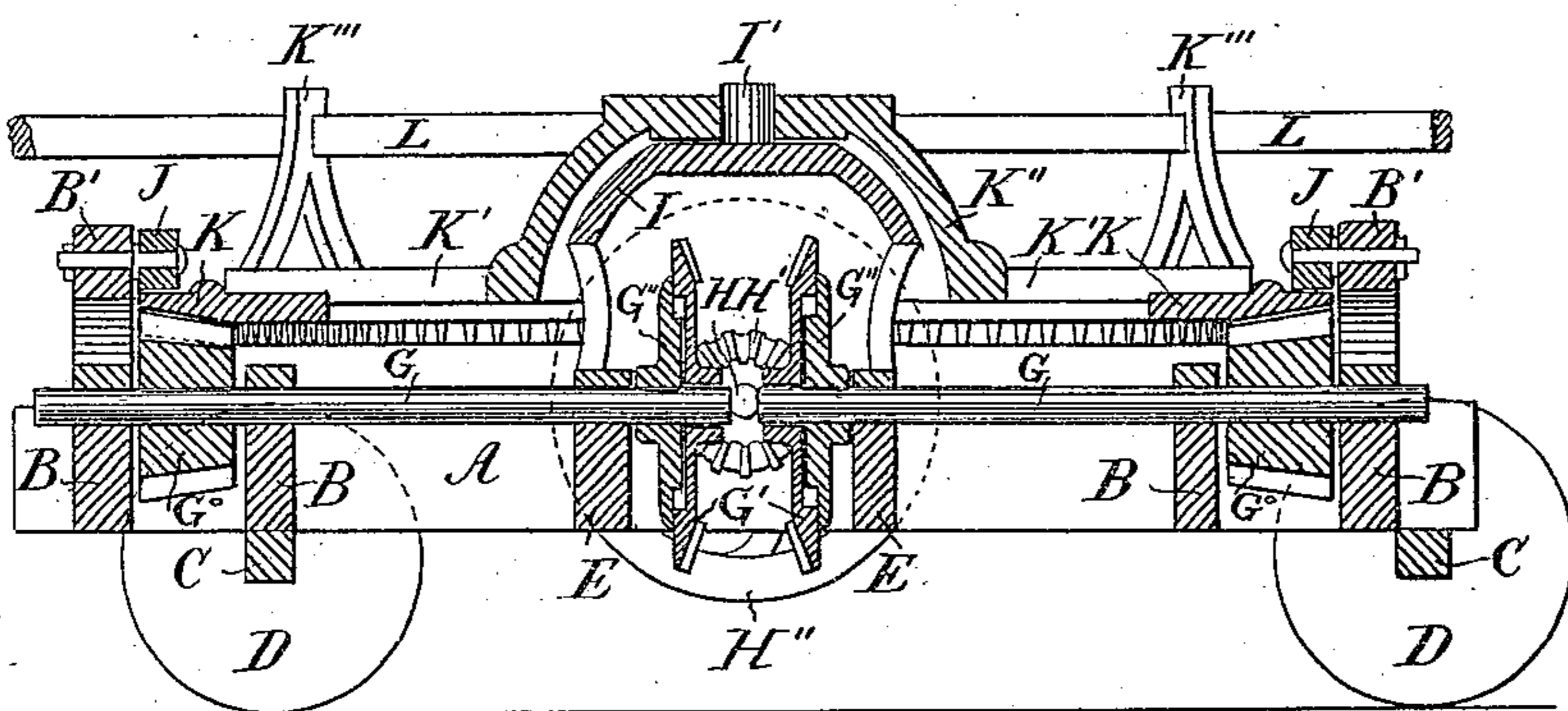


Fig. 2.

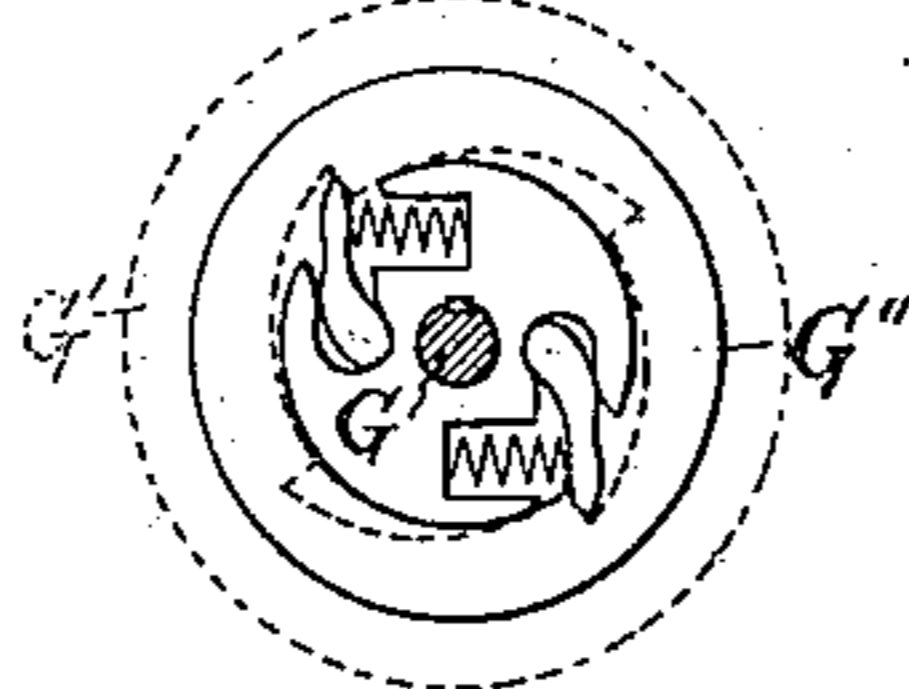


Fig. 5.

Witnesses:
B Harvey
J F Ritchie

Charles Sanford
Inventor
A. Harvey
Attorney

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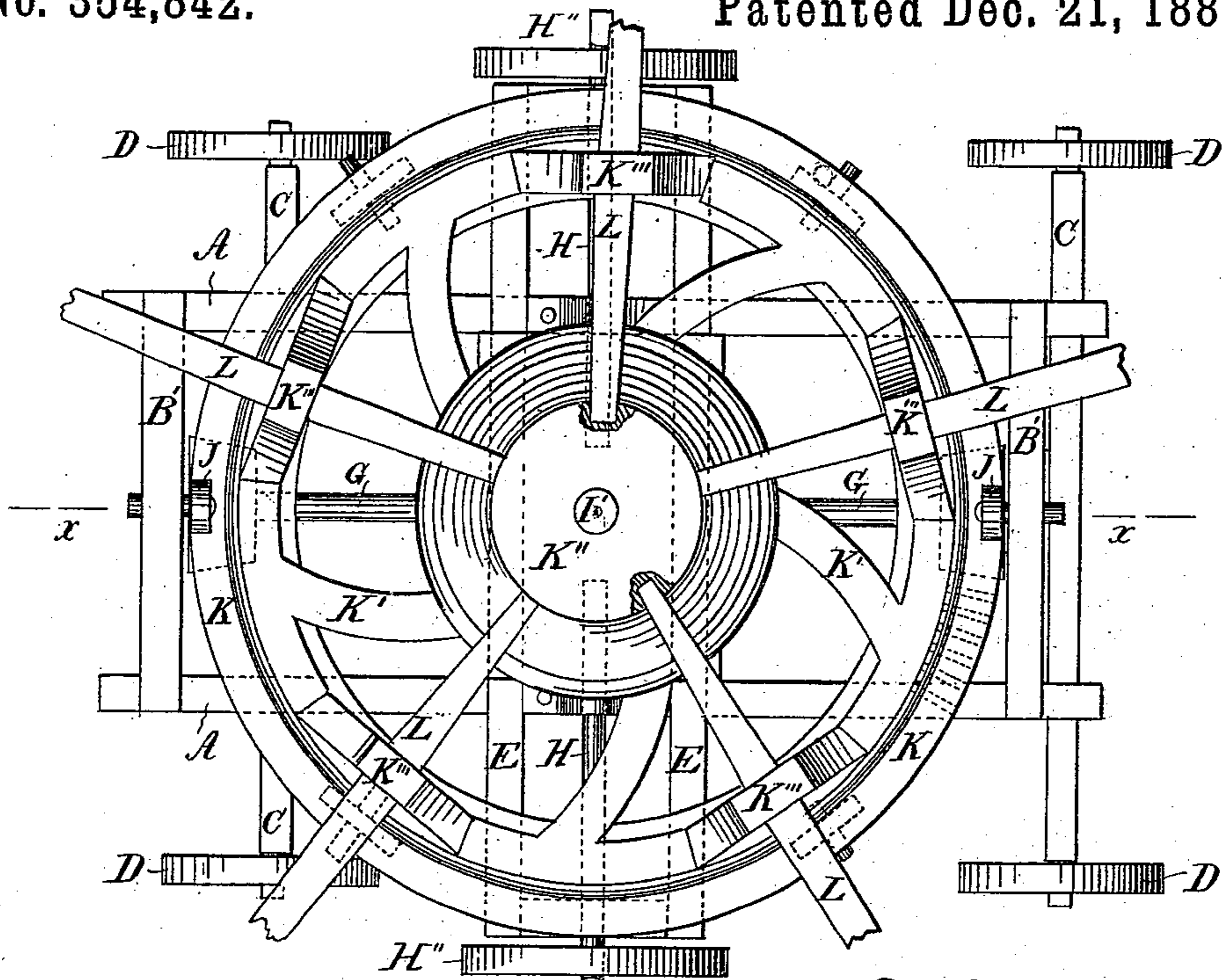


Fig. 3.

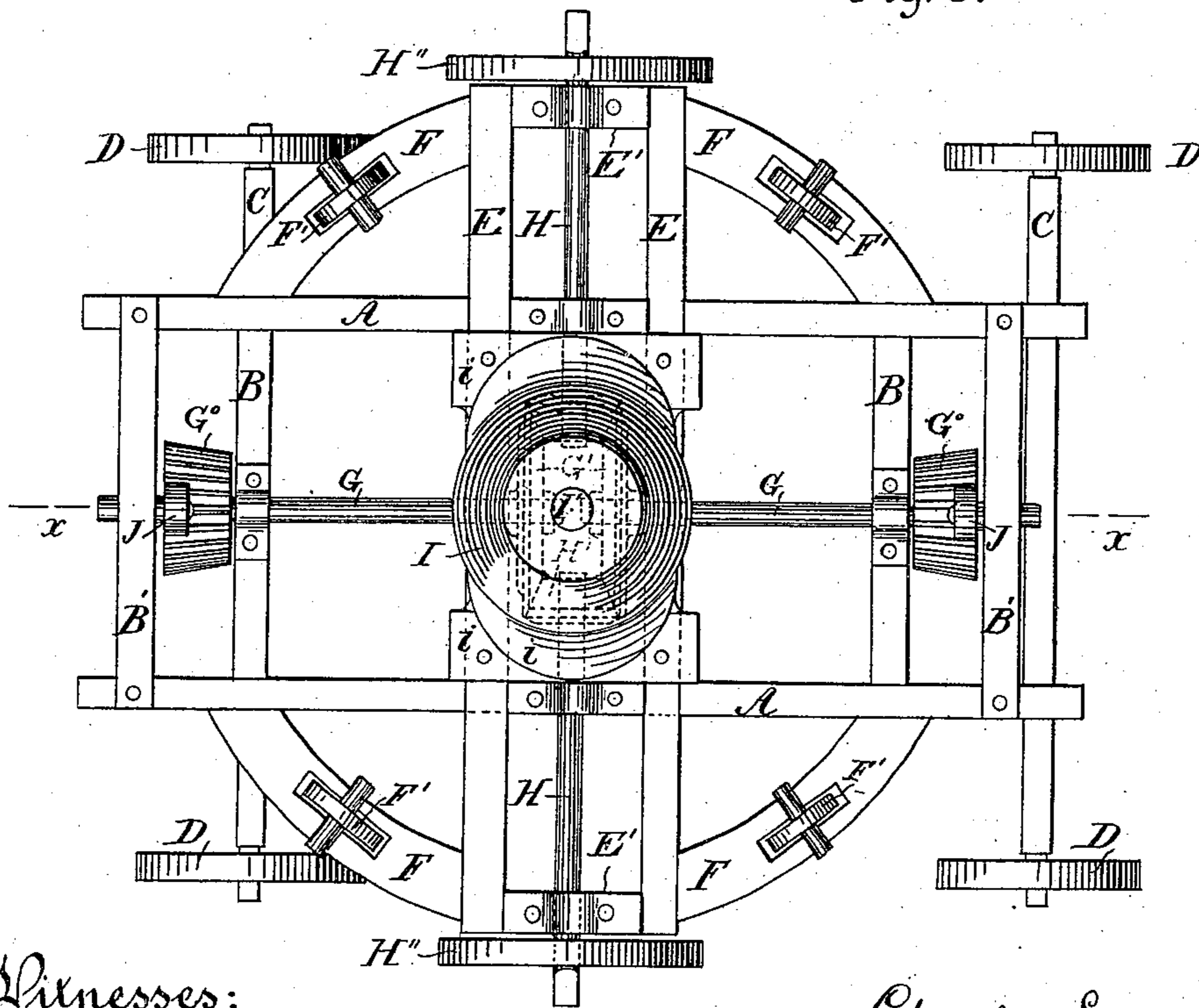


Fig. 4.

Witnesses:
B Harvey
J F Ritchie

Charles Sandford
Inventor
A Harvey
Attorney

UNITED STATES PATENT OFFICE.

CHARLES SANDFORD, OF FENELON FALLS, ONTARIO, CANADA, ASSIGNOR
OF ONE-HALF TO EBENEZER SANFORD, OF SAME PLACE.

HORSE-POWER.

SPECIFICATION forming part of Letters Patent No. 354,842, dated December 21, 1886.

Application filed February 13, 1886. Serial No. 191,895. (No model.) Patented in Canada April 15, 1884, No. 19,117.

To all whom it may concern:

Be it known that I, CHARLES SANDFORD, of Fenelon Falls, in the Province of Ontario, Canada, have invented new and useful Improvements in Horse-Powers, (for which I have obtained a patent in Canada, No. 19,117, bearing date April 15, 1884;) and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

Figure 1 is an elevation of my improved horse-power. Fig. 2 is a vertical longitudinal section of the same on line *x x*, Figs. 3 and 4. Fig. 3 is a top view, and Fig. 4 is another top view, the crown-wheel being removed. Fig. 5 is an elevation of the slip-coupling.

A A are two sills connected at each end by two ties, B, to form the main frame, which may be supported upon axles C and wheels D.

E are two central ties secured a little distance apart to the sills A, and connected by pieces E' at each end.

F are corner-pieces secured to the sills A and ties E. Upon these are journaled the friction-rollers F', supporting the inner flat rim of the crown-wheel.

Two longitudinal shafts, G, are journaled in the center of the main frame A B, the outer end of each journaled upon the ties B, and their inner ends upon the ties E. Each carries upon its outer end, and between the outer journal-bearings, a bevel-pinion, G°, gearing with the crown-wheel, and at their inner end, overhanging the transverse sills E, a bevel-wheel, G'. The shafts G are constructed with a slip-coupling, G'', to enable the horses to stop, while the balance-wheels H'' exhaust the acquired momentum or inertia.

In the center of the transverse frame E E', and journaled upon the main sills A and the end pieces, E', are two lineable transverse shafts, H, each carrying at its inner end a bevel-pinion, H', gearing into the bevel-wheels G, and upon its overhanging outer end a balance-wheel, H'', the projecting shaft end being square or otherwise prepared for connecting the tread-rod or driving-shaft. A circular dome-shaped flat-topped cap, I, with a trunnion, I', at the top, is fitted over the bevel wheels and pinions G' H', and secured by the feet i upon the transverse sills E.

K is the crown-wheel. It is constructed

with a flat-topped dome-shaped hub, K'', corresponding to the cap I, upon which it is supported and journaled by means of the trunnion I', the rim K and the hub K' being connected by arms K''. The rim K is made of sufficient breadth behind the teeth to form a flat surface adapted to run upon the friction-rollers F'. The upper surface of the rim is also made flat and placed under the guide-roller J, journaled over the pinions G° to a bridge-piece, B', secured at each end of the main frame, so as to prevent the crown-wheel from ungearing with the bevel-pinion below. A number of brackets, K''', are secured upon the crown-wheel, these brackets having eyes or holes into which draft poles or sweeps L may be inserted and footed in the hub K'.

It will be seen that the draft being applied to one or more of the poles or sweeps L, motion is given to the crown-wheel K K' K'', which communicates the same to the pinions G°, and by the shaft G and bevel-wheel G' to the pinions H' and the shafts H, from which the power may be taken off.

I claim as my invention—

1. The combination, with the main frame composed of the sills A A, ties B B, sills E, ties E', and corner-pieces F, having friction-rollers F', of the shafts G G H H, bevel-gears G' H', crown-wheel K, having arms K' and hub K'', and brackets K''', bevel-pinions G°, guide-rollers J, cap I, trunnions I', and bridge-piece B', the whole constructed and operating as shown and described, and for the purpose set forth.

2. The combination of the flat-topped cap I, trunnion I', integral therewith, flat-topped dome-shaped hub K'', bearing upon said cap and journaled upon the trunnion I', crown-wheel rim K, arms K', to which said hub K'' is secured, pinions G°, shafts G, bevel-wheels G', clutches G'', bevel-wheels H', and shafts H, substantially as shown and described.

3. The combination of the shafts G, bevel-wheel G', clutch G'', bevel-wheel H', shafts H, and cap I, covering said wheels and clutches, substantially as shown and described.

CHARLES SANDFORD.

Witnesses:

P. S. MARTIN,
R. H. HOPKINS.