

(No Model.)

C. V. BIRK.
HORSE POWER.

No. 399,478.

Patented Mar. 12, 1889.

Fig. 1

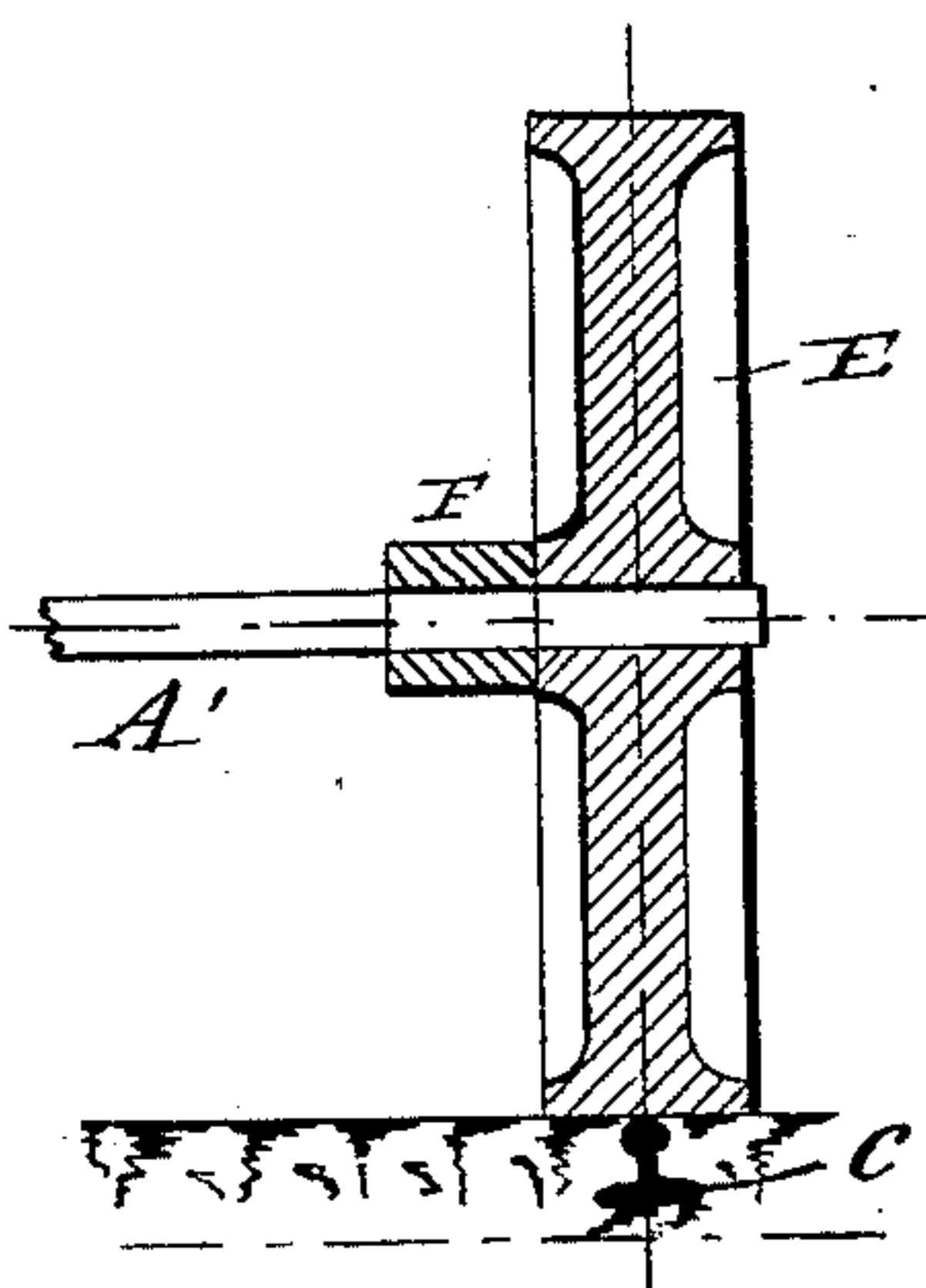
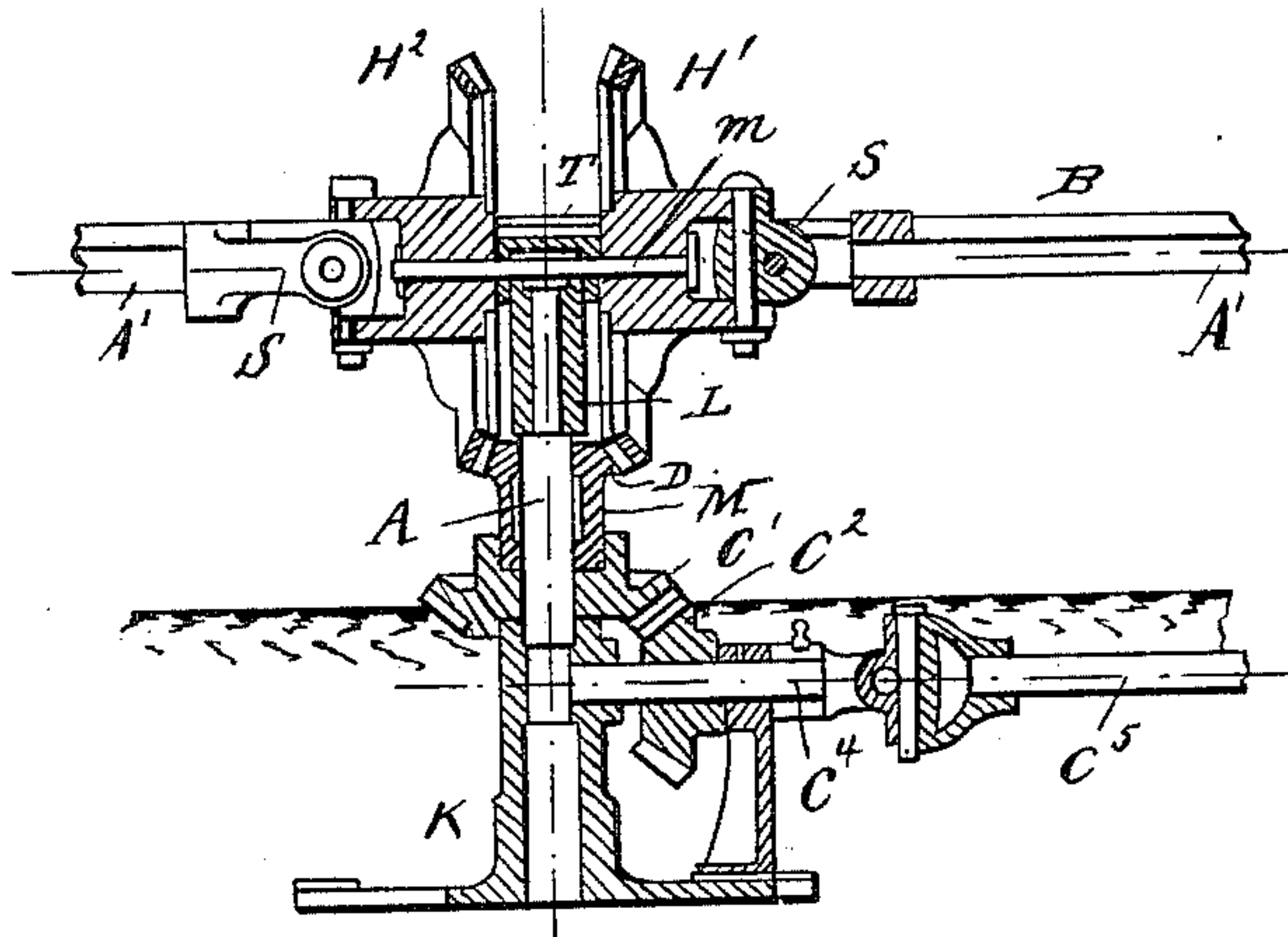
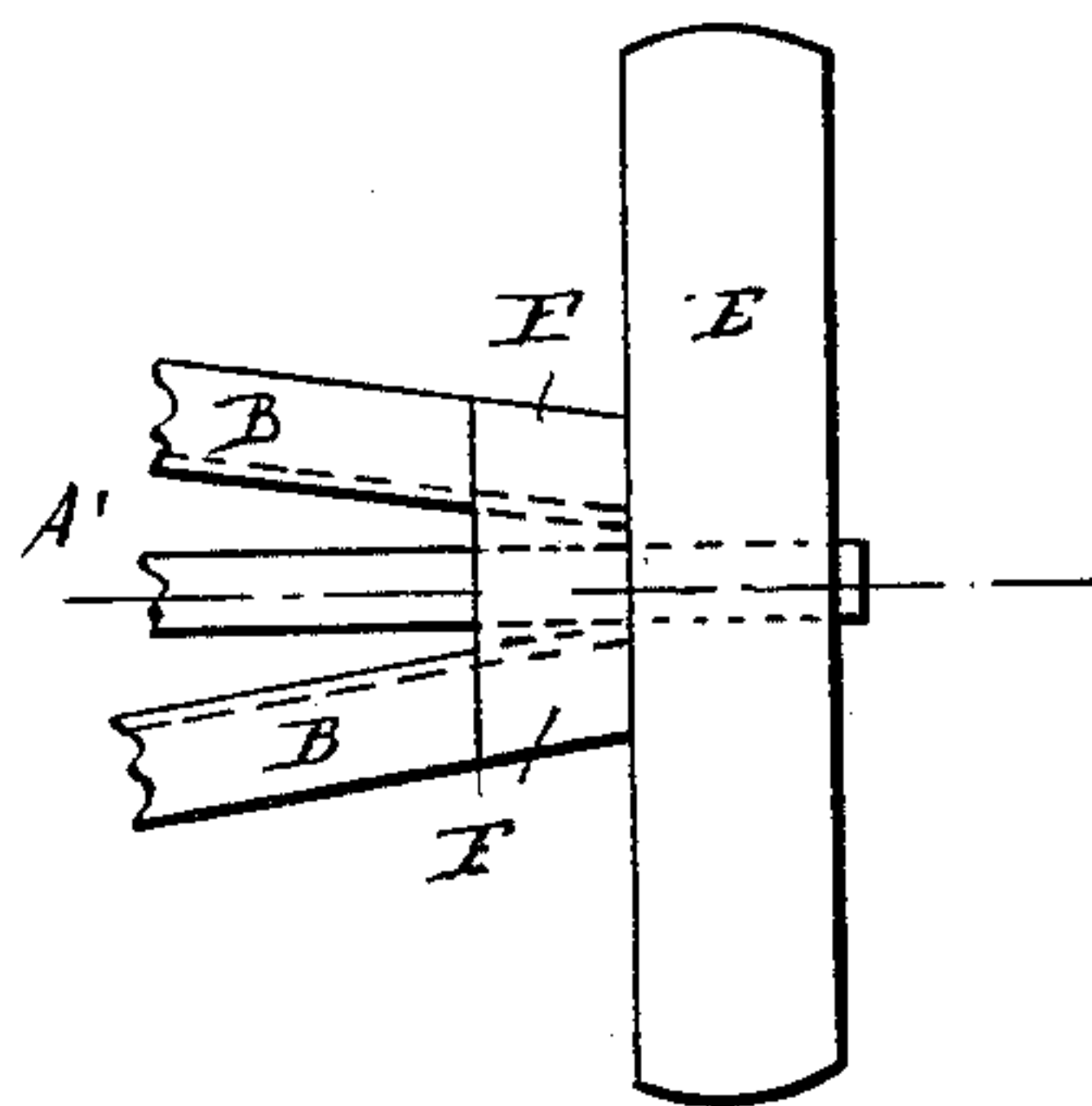
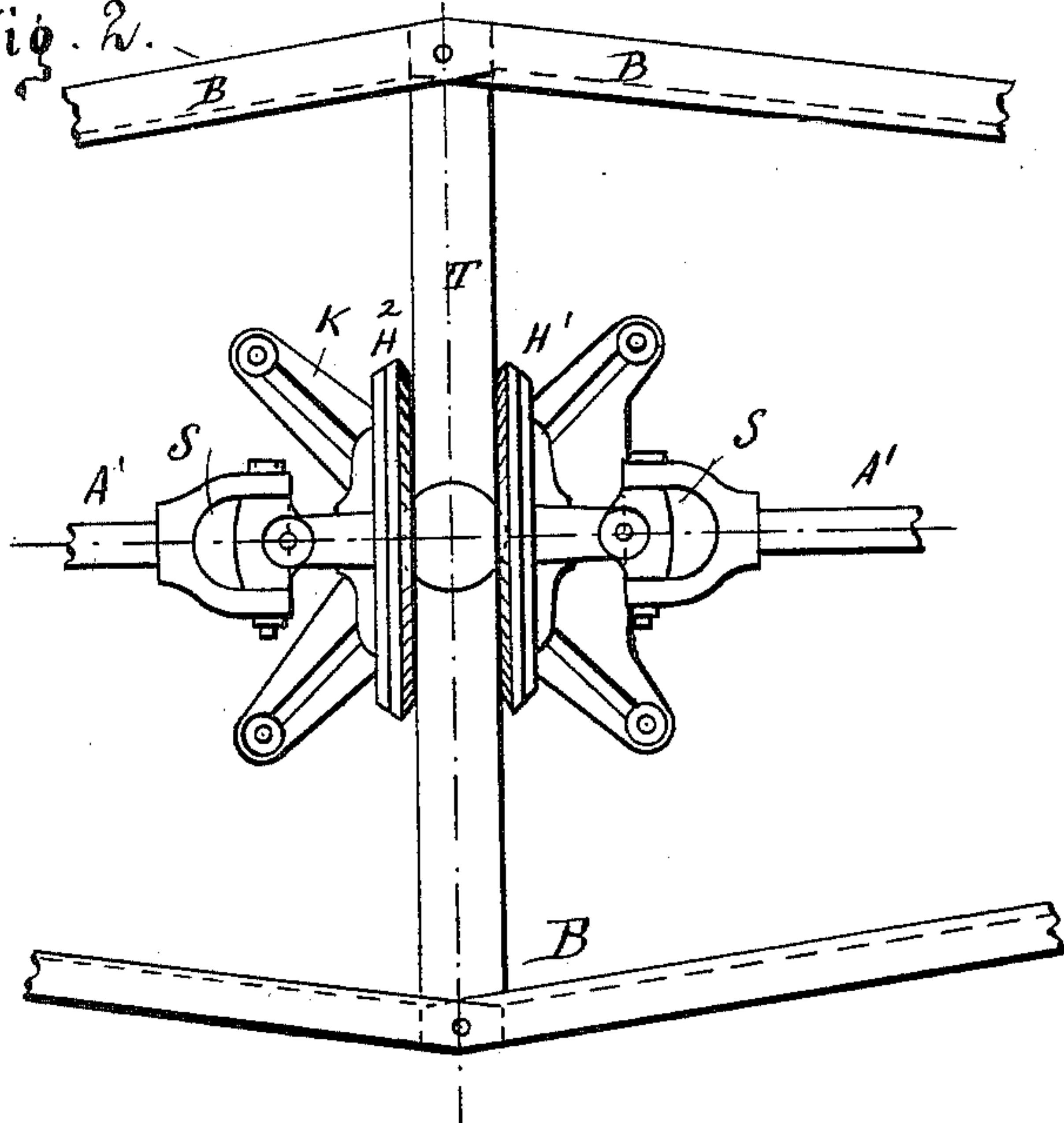


Fig. 2.



WITNESSES:

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CARL VALDEMAR BIRK, OF BORUP, DENMARK.

HORSE-POWER.

SPECIFICATION forming part of Letters Patent No. 399,478, dated March 12, 1889.

Application filed November 1, 1888. Serial No. 289,717. (No model.) Patented in England September 24, 1888, No. 13,777; in France December 3, 1888, No. 193,680, and in Germany January 14, 1889, No. 46,642.

To all whom it may concern:

Be it known that I, CARL VALDEMAR BIRK, a subject of the King of Denmark, residing at Borup, Kingdom of Denmark, have invented certain new and useful Improvements in Horse-Powers, (for which Letters Patent heretofore were granted to me by the governments of England, dated September 24, 1888, No. 13,777; France, dated December 3, 1888, No. 193,680, and Germany, dated January 14, 1889, No. 46,642;) and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in that class of devices known as "horse-powers," and which are provided for the purpose of utilizing the power of a horse for driving machinery and other similar purposes; and the object of my invention is to provide a horse-power in which few gear-wheels are used for giving the driven wheel a great speed of rotation, and which also reduces the friction, and is so constructed that the sudden jolts produced by the irregular movements of the horse do not affect the driven machinery.

The invention consists in the combination, with an upright spindle, of a frame mounted to rotate horizontally on the same, shafts in said frame, a wheel fixed on the outer end of each shaft and running on a suitable track, a cog-wheel connected with the inner end of each shaft, and a cog-wheel driven by the cog-wheel on the inner ends of the shafts.

The invention also consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a central longitudinal vertical sectional view of my improved horse-power, parts being broken out. Fig. 2 is a plan view of the same, parts being broken out.

Similar letters of reference indicate corresponding parts.

The spindle A is secured in a suitable base, K, and on the upper end of said spindle a sleeve, L, is mounted to rotate, on which is fastened a transverse piece, T.

From each end of the transverse piece T two beams, B, are secured, and are inclined toward each other in horizontal plane, their outer ends being secured to a bearing, F. In said bearing F a shaft, A', is journaled, on the outer end of which a wheel, E, is rigidly mounted. The inner ends of the shafts A are connected by universal joints S with two opposite beveled cog-wheels, H' H², mounted loosely on the common bolt or pin m, passed transversely through the piece T. Said beveled cog-wheels H' H² engage a beveled cog-wheel, D, made integral with a sleeve, M, mounted loosely on the spindle A, said sleeve M being connected with the beveled cog-wheel C', also mounted loosely on the spindle A, and engaging the beveled cog-wheel C², mounted on the horizontal shaft C⁴, connected by a universal joint with the power-transmitting shaft C⁵. In place of using the cog-wheels C' C², belts and pulleys or other devices may be used for transmitting motion from the sleeve M.

The wheels E run on the circular track C, but may be arranged to run on any other suitable support. A horse is connected with the frame formed by the beams T and B at one or both bearings, F. The horses are driven around in a circle, and the wheels E revolve and rotate the beveled cog-wheels described. The shafts A' are connected with the cog-wheels by universal joints for the purpose of avoiding undue bending and twisting strains. When the horses draw suddenly, the wheels E slide on their track, and thus no jolts or jars are transmitted to the gear-wheels H', H², and D. By properly weighting the frame B, or increasing the weight of the wheel E, the friction between the wheels and the track can be increased, and thus more power obtained.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a horse-power, the combination, with a spindle, of a sleeve on the same, a cross-bar on said sleeve, beams secured to the ends of said cross-bar and inclined toward each other, bearings secured to the outer meeting ends of said beam, shafts journaled in said bearings, and wheels secured on the outer ends of the shaft and running on a suitable support, cog-wheels connected with the inner ends of the

shafts, and a cog-wheel mounted loosely on the spindle and engaged with the cog-wheels on the inner ends of the shafts, substantially as set forth.

- 5 2. In a horse-power, the combination, with an upright spindle, A, of the sleeve L on the same, the cross-piece T on the sleeve L, beams B, secured to the cross-piece C and to bearings F, the shafts A', journaled in the bearings F,
10 wheels E, fixed on the outer ends of the shafts A, the beveled cog-wheels II' II², connected

with the inner ends of the shafts A', the transverse bolt *m* in the cross-bar T, on which bolt *m* the wheels H' H² are mounted, and the cog-wheel D, loosely mounted on the spindle A, 15 substantially as set forth.

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

CARL VALDEMAR BIRK.

Witnesses:

T. REDDERSEN,
L. HOFMAN BANG.