

(No Model.)

4 Sheets—Sheet 1.

B. W. GRIST.

MEANS FOR SUPPORTING DRUMS OR PULLEYS.

No. 495,885.

Patented Apr. 18, 1893.

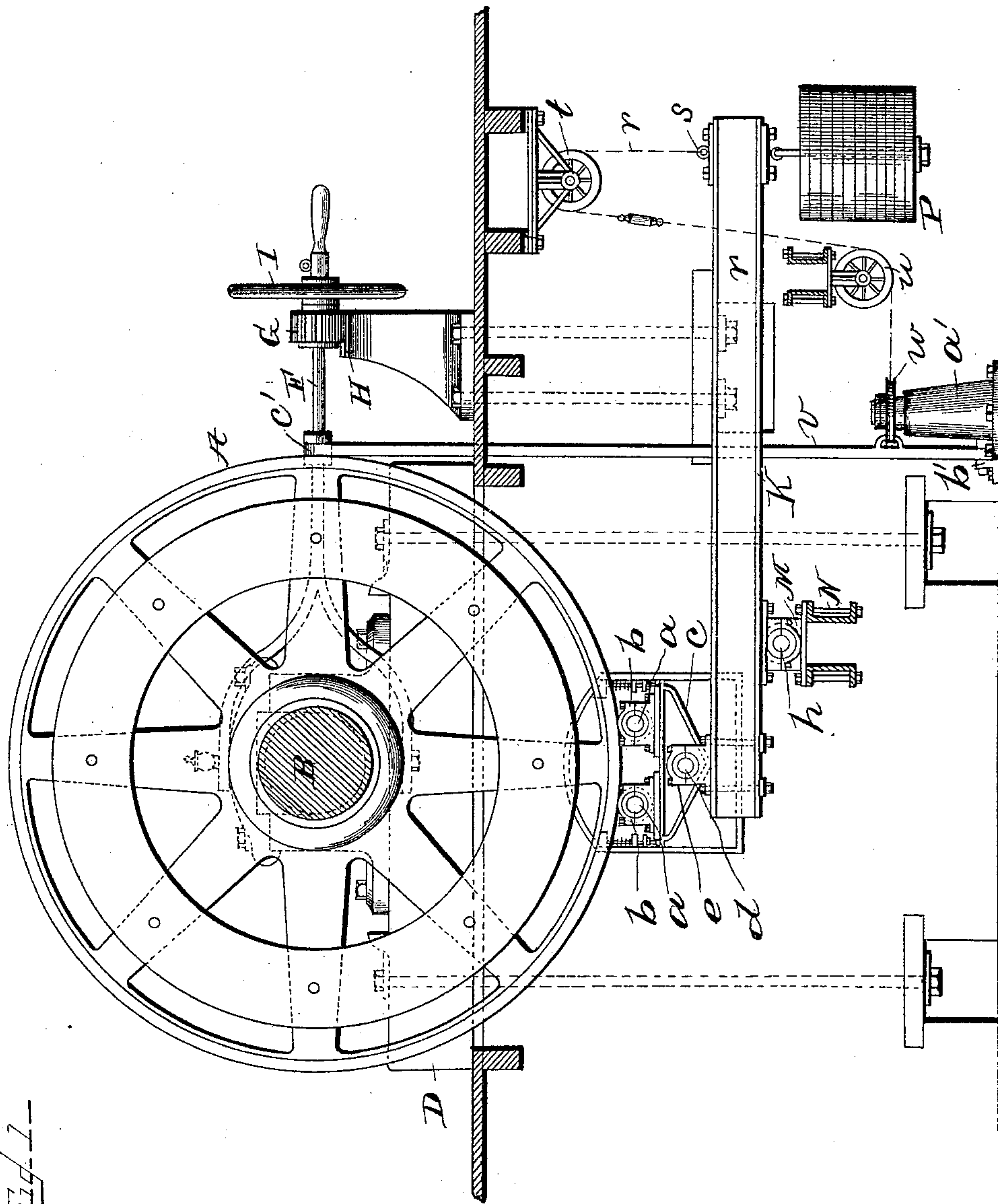


Fig. 1

Witnesses

G. A. Taubenschmidt.
H. B. Reinohl

Inventor

Benj. W. Grist
By W. C. Reinohl

Attorney

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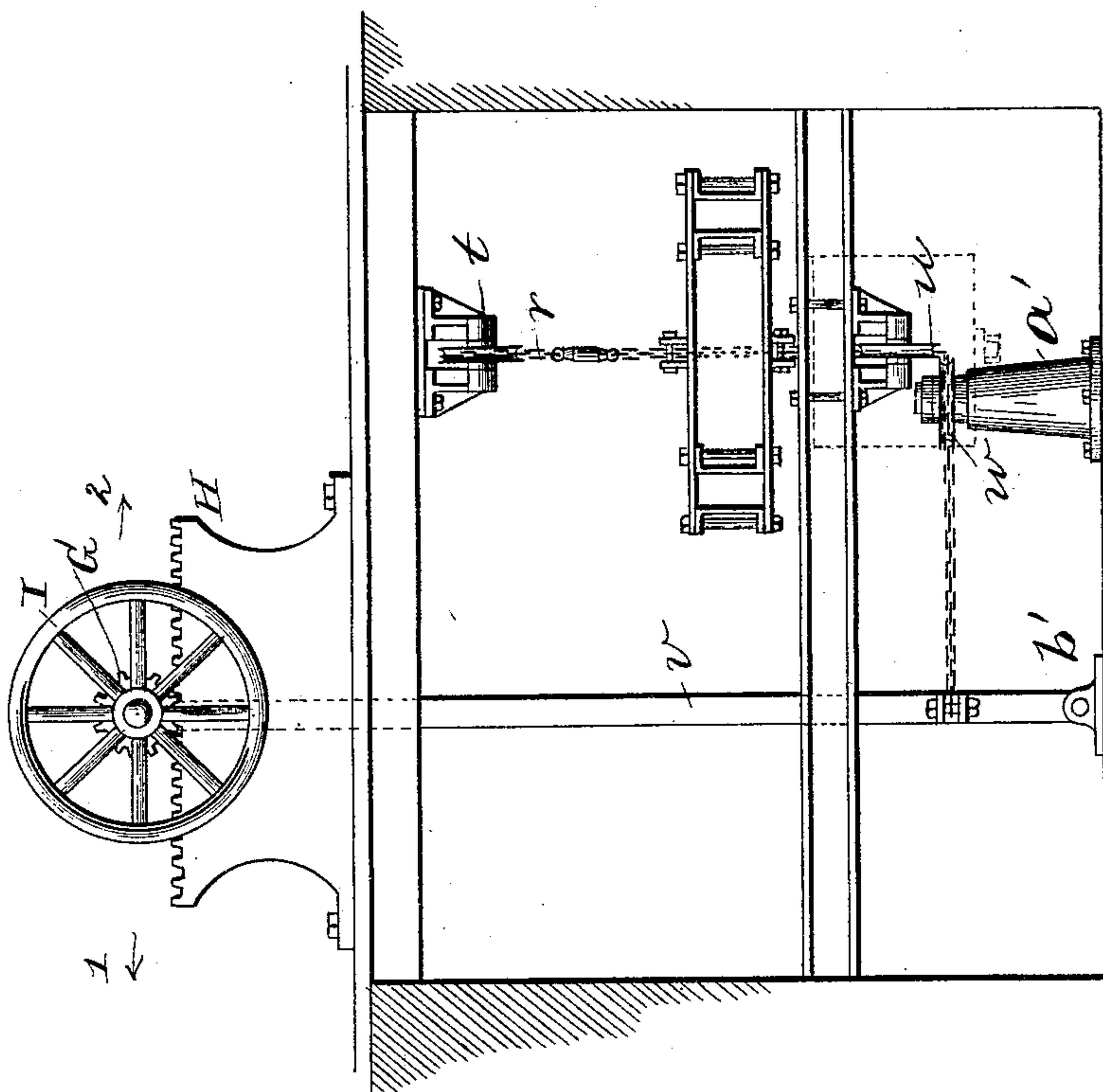


Fig. 2.

Witnesses

L. A. Tauberschmitt
H. B. Reinohl

Inventor

Benj. W. Grist
By D. C. Reinohl

Attorney

(No Model.)

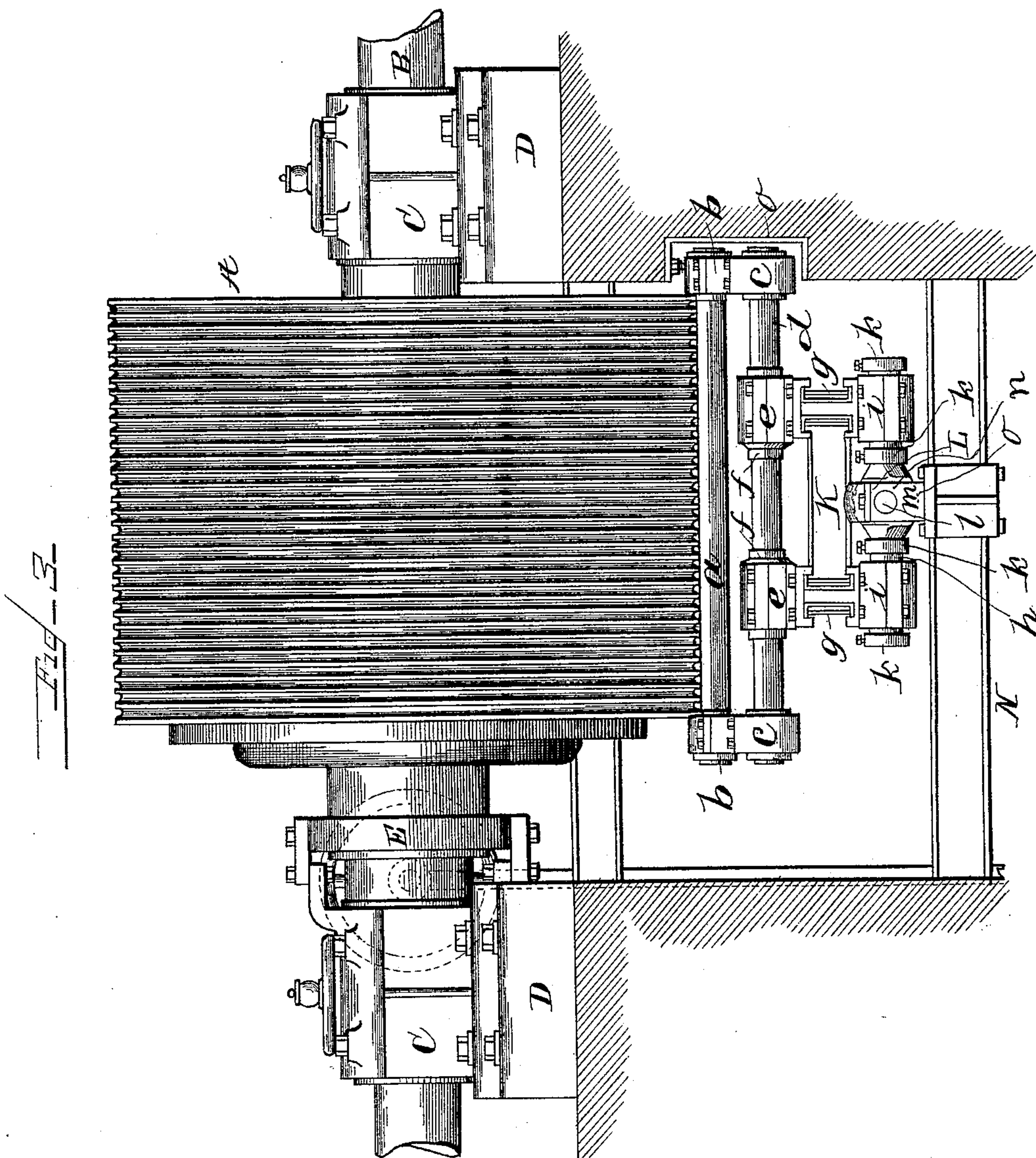
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Witnesses
D. A. Ambroschmidt,
H. B. Reinohl

Inventor
Benj. W. Grist.
By D. C. Reinohl.
Attorney

(No Model.)

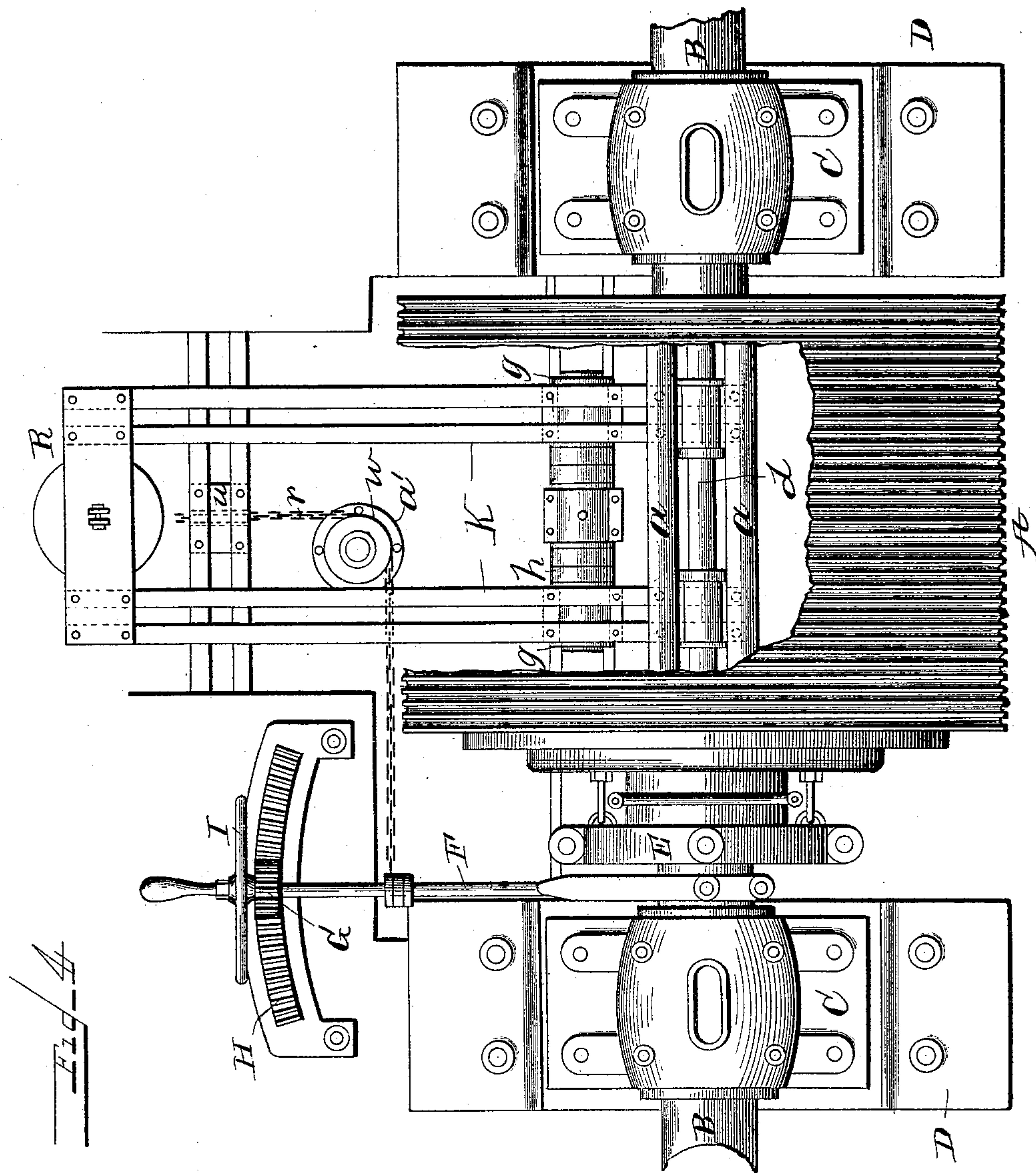
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G. A. Tauberschmidt
H. B. Reinohl

Inventor

Benj. W. Grist
By D. C. Reinohl

Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN W. GRIST, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
THE PENNSYLVANIA IRON WORKS COMPANY, OF SAME PLACE.

MEANS FOR SUPPORTING DRUMS OR PULLEYS.

SPECIFICATION forming part of Letters Patent No. 495,885, dated April 18, 1893.

Application filed December 20, 1892. Serial No. 455,806. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN W. GRIST, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Means for Supporting Drums or Pulleys; and I do hereby 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.

My present invention relates primarily to machinery for transmitting power in cable railway systems, but is not limited thereto in its application, and has for its object the construction of means for relieving the drum shaft of the weight of the drum when not in service, to prevent wear upon the shaft and the bearing in the drum.

The invention will be fully disclosed in the following specification and claims.

In the accompanying drawings which form part of this specification Figure 1, represents an end elevation partly in section; Fig. 2, an end view of the means for operating the clutch and the drum supporting device; Fig. 3, an end view showing the drum and its supporting device, and Fig. 4, a top plan view with part of the drum broken away.

Reference being had to the drawings and the letters thereon, A indicates a multi grooved cable or rope drum, B the shaft upon which the drum is mounted to revolve loosely when not in service for transmitting power, C, C, pillow blocks for supporting the shaft B, and rest upon suitable timbers D, D, or upon part of the engine frame or bed-plate.

E indicates a clutch for engaging the drum A with the shaft B and disengaging it therefrom, and is operated by a lever F, on which is secured a pinion G which engages a stationary rack H and a hand-wheel I. These several parts may be of any approved form of construction and constitute no part of my invention.

Under the drum is a cradle composed of rollers *a a* supported at their ends in journal-bearings *b, b* to revolve freely therein when in contact with the periphery of the drum. The journal-bearings are supported on yokes *c c* which connect the rollers and secure them

in their relative position, and the yokes are supported on the ends of a shaft *d* on which they are free to move axially to admit of automatic adjustment of the cradle to bring both rollers against the periphery of the drum. On the shaft *d* are journal-bearings *e, e*, secured in position by collars *f, f*, and rest upon and are each secured to one side *g, g*, of a counter-balancing lever K made preferably of channel-iron. The lever K is fulcrumed upon a shaft *h* supported at its ends in journal-bearings *i, i* secured to the under side of the arms *g, g*, (see Figs. 1 and 3) and in the center in a journal-bearing L; and on said shaft *h* are collars *k k* to prevent lateral movement of the bearings *i i* on the shaft. The journal-bearing L is provided with trunnions *l*, one on each side and with a convex seat *m*, the trunnions being supported in the vertical sides *n* of the pedestal M and the convex seat *m* resting upon the concave bearing surface *o* between the sides *n* (as shown in Fig. 3) and the pedestal rests upon and is secured to a girder N, preferably of channel-iron suitably supported in masonry. The shaft *h* is secured in the journal-bearing L against revolving therein by suitable set-screws not shown, but the shaft *h*, the lever K and the cradle are free to move laterally (to adjust the rollers to the drum) in the bearing between the sides of the pedestal M, while the cradle is adjusted transversely to the bearing surface or periphery of the drum by the movement of the yokes *c c* supporting the rollers *a a* on the shaft *d*. By these two adjustments of the cradle the rollers are brought to bear evenly throughout their length upon the periphery of the drum and thus distribute the weight of the drum on the cradle. To provide for the arrest of the cradle in its upward movement and to bring it to a state of rest at both ends against the drum, a metallic frame O is walled in the masonry of the foundation, and within which one of the yokes *c* operates and is cushioned by springs *q* interposed between the upper side of the yoke and the top or upper side of the frame, as shown in Fig. 3, and thus prevents a shock or jar of the parts.

To the outer end of the counter-balancing lever K, is attached a weight P composed of a number of disks which with the long arm

r of the lever are of sufficient weight to support the cradle and take or sustain the weight of the drum and relieve the shaft B of said weight and prevent "cutting fast" between the shaft and the bore in the hub of the drum.

The several devices relating to the drum supporting mechanism thus far described are claimed in my application Serial No. 455,805 and in which they are fully illustrated in the drawings.

In the former application the clutch mechanism and the drum supporting mechanism are operated separately, in this instance it is my purpose to operate the two mechanisms synchronously so that when the clutch is released or disengaged from the drum, the supporting mechanism is brought into position under the drum to sustain its weight, and vice versa. To accomplish this purpose a cord, chain or cable r is attached to the lever K at s , passed over a sheave t thence downward under sheave u , thence to and connected with lever v , and is supported between sheave u and the lever v by a grooved horizontal sheave w which rests upon a suitable support a' . The lower end of the lever v is pivotally secured in a base plate b' and the upper end is connected with the lever F which engages the clutch mechanism, at c' so that the drum supporting mechanism is controlled and operated by the clutch operating mechanism.

In the construction shown, the two mechanisms are out of engagement; to apply the clutch, the hand wheel I is revolved and the pinion G on the rack H moved toward the left as indicated by the arrow 1, which moves the lever v in the same direction and draws on the cable r , raises the outer end of the lever K and lowers the cradle out of engagement with the periphery of the drum A; to disengage the clutch and apply the supporting mechanism, the wheel I is revolved and the pinion G moved in the opposite direction as indicated by the arrow 2 beyond the median line of the rack H until the cradle is brought to bear against the periphery of the drum and sustain its weight while the shaft is revolving loosely in its hub. The cable r may be provided with any approved form of tightener to take up slack.

Having thus fully described my invention, what I claim is—

1. The combination of a shaft, a drum or pulley loosely mounted thereon, means for supporting the weight of the drum when disengaged from the shaft, a clutch mechanism for engaging the drum with the shaft and disengaging it therefrom and a connection between the clutch operating mechanism and the drum supporting device whereby the two are operated synchronously.

2. The combination of a shaft, a drum or pulley loosely mounted thereon, means for supporting the weight of the drum when disengaged from the shaft, a clutch mechanism, and a lever and a rope or chain connecting the clutch operating mechanism with the drum supporting device, substantially as and for the purpose described.

3. The combination of a shaft, a drum or pulley loosely mounted thereon, a cradle to engage the periphery of said drum, a counter-balancing lever supporting said cradle, a clutch mechanism, and a suitable connection between the counter-balancing lever and the clutch operating mechanism.

4. The combination of a shaft, a drum or pulley loosely mounted thereon, a cradle to engage the periphery of said drum, a counter-balancing lever supporting said cradle, a clutch mechanism; and a cable and a lever connecting the counter-balancing lever and the clutch operating mechanism.

5. The combination of a shaft, a drum or pulley loosely mounted thereon, a cradle to engage the periphery of the drum, a counter-balancing lever supporting said cradle, a clutch operating mechanism consisting of a rack, a pinion and a lever; a lever pivotally secured at its lower end and attached to the clutch lever at the opposite end, and a cable connected to the counter-balancing lever and to the lever which is attached to the clutch lever.

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

BENJAMIN W. GRIST.

Witnesses:

JAMES E. GRIST,
EDWIN A. MOORE.