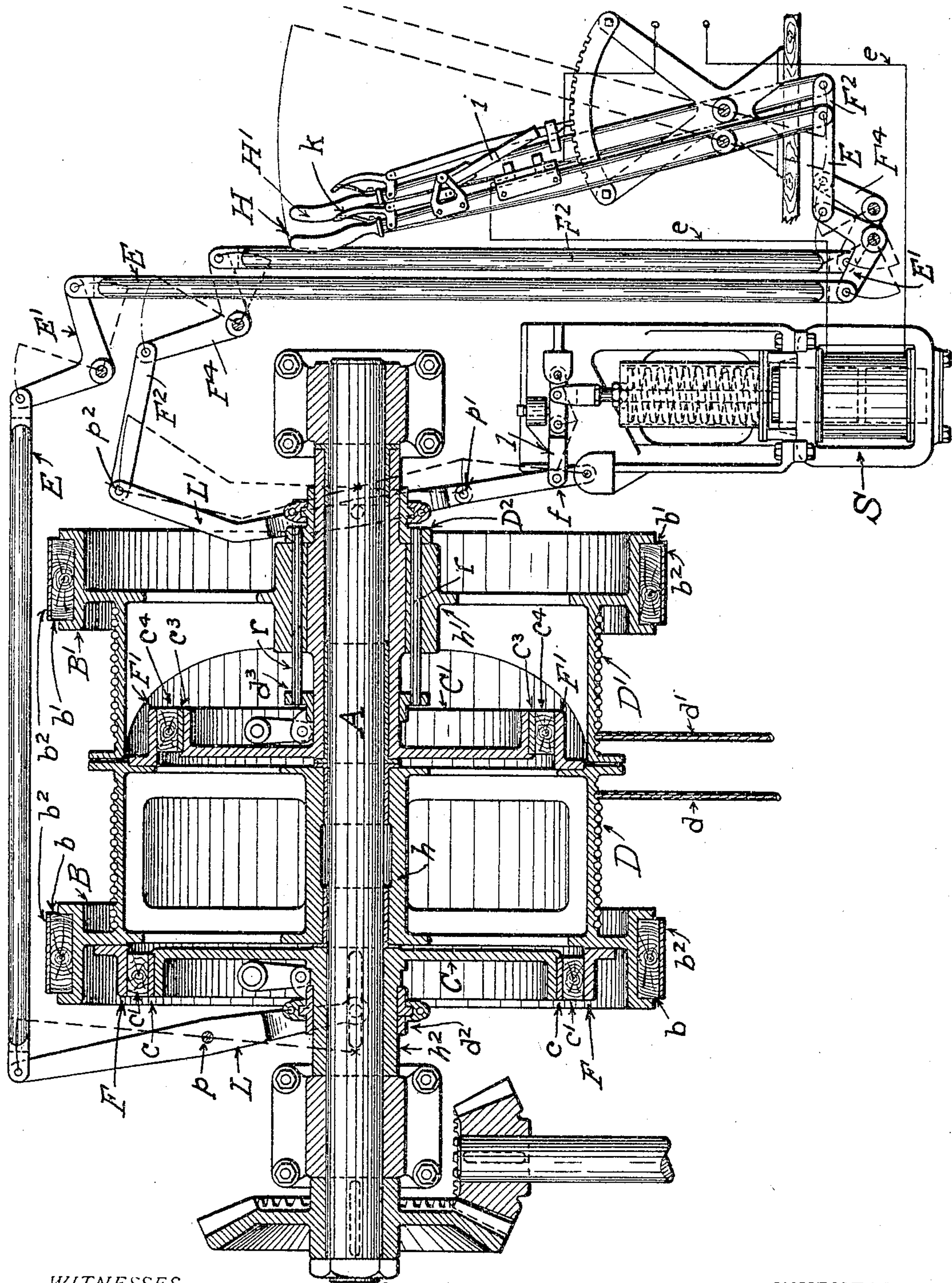


No. 795,266.

PATENTED JULY 25, 1905.

A. E. BROWN.
DOUBLE DRUM FOR OVERHEAD TRAMWAYS.
APPLICATION FILED DEC. 22, 1904.



WITNESSES.

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DOUBLE DRUM FOR OVERHEAD TRAMWAYS.

No. 795,266.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed December 22, 1904. Serial No. 238,013.

To all whom it may concern:

Be it known that I, ALEXANDER E. BROWN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Double Drums for Overhead Tramways, as to which I hereby declare the following to be a full, clear, and exact description, due reference being had and intended to the drawing accompanying this specification, which I mean to have regarded as a part of the same.

My invention relates to the special kind of appliances chiefly employed in hoisting and conveying machinery in connection with what is known as the "two-rope" style of grab-bucket wherein hoisting and bucket-sustaining ropes are to be intermittently or alternately wound up or paid out and where the drums by which this is accomplished are driven from a single power-shaft rotating in one direction. Apparatus of this character necessarily involves loosely-mounted drums in close relation to each other upon the shaft and dominated by one or more friction-clutches whenever said drums are brought into activity. The clutches themselves are controlled and operated through the medium of two or more link-bars and hand-levers located at some common operative point; but inasmuch as the movement that the drums are called on to make during a single hoisting and conveying process are numerous, varying, and abrupt the difficulties attending the manipulation of the levers in the performance are in direct proportion to the latter's number, and it is consequently of the highest importance that existing devices of the kind in question be so far simplified and improved that the number of levers required for a given operation and the consequent movement of the operator be made the fewest possible. With this main purpose in view and at the same time to provide a drum mechanism that is improved in other respects I have devised the arrangement that is the subject of the present specifications that illustrates and describes the particular form of construction I have chosen in which to embody my invention, although, of course, it may equally be carried into effect under divers modifications or variations of the particular structure shown.

Said drawing is a longitudinal sectional view of my double drum in place upon its shaft with a full front view of the solenoid attachment

feature that I specifically claim and the link-bar and operative connections used.

In the drawing, D and D' are drums carrying, respectively, the hoist and the bucket-sustaining ropes d and d' . Around their outer ends and integral therewith are brake-wheels B and B', having braking facilities, (indicated in this case by the brake-shoes b b' and brake-bands b^2 b'^2 .) Said drums are mounted loosely on the drive-shaft A through their hubs h and h' , respectively, and, as shown, have their inner ends in close juxtaposition one to the other. Beneath the peripheral rim of the brake-wheel B, against and firmly affixed in any suitable manner to the outer end of the drum D, is an annular flange F, and a similar flange F' is in like manner affixed to and around the inner end of the same drum, and beneath and concentric with the flange F there is mounted the wheel C of a friction-clutch device. The clutch shown in the drawing is of that order of such devices where the circumferential surface of an annular band or fillet that surrounds and is fastened to a shaft-wheel is moved into forcible contact with a peripheral surface of the part to be driven by distending such band oppositely from its ends. Between the perimeter of the wheel C and the annular flange F is the band of such clutch, (denoted in the drawing by c), and fastened to the under surface of the flange F is a thicker fillet or band of wood, vulcanized fiber, or like material c' , which serves as the shoe or bearing-surface with which the clutch-band comes in contact when the clutch is thrown in. As indicated by dotted lines, the wheel C is keyed or splined to the shaft A through its hub h^2 . A similar clutch-wheel C', with corresponding clutch-band c^3 and shoe c^4 , is indicated as concentric with the flange F' at the opposite exterior end of the drum D. The wheel C' differs, however, from the wheel C in that its hub is a prolongation of or, rather, is fixed to and within the hub proper of the drum D', and consequently is not keyed to the shaft A, but is mounted loosely thereon and turns with and as a part of said drum.

d^2 is a sliding collar around the hub h^2 , adapted to throw the clutch in or out, according as it is reciprocated, and d^3 is a corresponding collar connected by the rods r r' with the outer sliding collar D².

L is a clutch-lever pivoted at a fixed point p and having a bifurcated lower end whose arms embrace and engage the collar d^2 . Said

lever is connected with an operative handle H by suitable rods and link-pieces E E and bell-cranks E' E'. Similarly L' is a lever for the sliding collar D². It is connected with an operative handle H' by suitable rods and link-pieces F² F³ and bell-cranks F⁴ F⁵.

p' is the fixed point for the last-named lever when operated by the handle H'. When operated by the solenoid, as now to be explained, its fixed point is at p².

S is a solenoid connected by the links l with the lever-arm L' at f'. Its circuit (represented by the lines e e) comprehends the handle-bar H and a current-interrupter i, located on the same. Said interrupter i is operatively connected with a clip k near the top of the handle-bar H and within convenient grasp of the operator, whose station is supposed to be to the left of the handles H H' in the drawing.

The operation of the said device is manifest. Assuming, for instance, that a two-rope grab-bucket is to be made to close upon its load below by means of the same and is then to be raised to the tramway above, the drums D D' being idle upon the shaft and disconnected one from the other, the operator will simply push the handle H outwardly, which, through the intermediate bell-cranks and levers, will slide the collar d² inwardly along the hub h² on the drum D until the clutch C is thrown into engagement with the flange F. Thereupon the drum D will revolve and the bucket be closed upon its load and the upward hoist proceed, when by either pushing outward the handle H' or pressing in the clip k the sliding collar d³ is moved in to actuate the clutch C', and thereby engage the drum D' with the revolving drum D, so that the bucket-sustaining rope shall be wound in at the same time and at the same rate as the hoist-rope. When the solenoid is used, it is of course understood that the handle H' must be definitely set in its quadrant-stand, so as to afford the necessary resistance, through the several bell-cranks and levers, to and against the opposite action of such solenoid. When the bucket has been brought up to its trolley upon the overhead tramway in the manner just described, the trolley and bucket may be drawn to and above the dumping-point by revolving the racking-drum in the usual manner, which drum must of course be

adapted to take up and pay out its rope at the same rate as the two drums D and D'. Upon arriving above the dumping-point the load may be discharged by first releasing the clutch C, setting the brake of the bucket-sustaining drum D', (represented in the drawing by b',) which will hold the two drums against the downward pull of the load, and then releasing the clutch C', when the drum D will immediately be revolved by the weight of the load until the bucket-jaws distend and the load escapes.

It will be apparent that by different and various manipulations of the mechanism in question the same or different and further operative results may be achieved; but the foregoing will make sufficiently clear the manner in which my invention may be handled for any and all purposes to which it is applicable.

Having thus described my said invention, what I claim, and desire to secure by Letters Patent, is—

1. In a double drum for overhead tramways, the combination, with a drive-shaft, of a hoist-drum, and a bucket-sustaining drum, suitable means, respectively, for clutching one of said drums to said shaft, and each to the other, one of the means so provided, being controlled by a hand-lever, provided for the purpose, and, the other, by a circuit-breaking apparatus, on such hand-lever, and a solenoid operatively related to the same, substantially as shown and described.

2. In a double drum for overhead tramways, the combination, with a drive-shaft, of a hoist-drum, provided with a suitable device for clutching the same to said shaft, and suitably connected with an operating-lever for actuating said hoist-drum, a bucket-sustaining drum provided with a suitable device for clutching the same to said hoist-drum, when a lever-arm, provided for the purpose, is reciprocated, together with a solenoid, operatively related to said lever-arm and to controlling devices for such motor located upon said operating-lever, substantially as shown and described.

ALEXANDER E. BROWN.

In presence of—

R. G. CLAPP,
RICHARD DEVENS.