

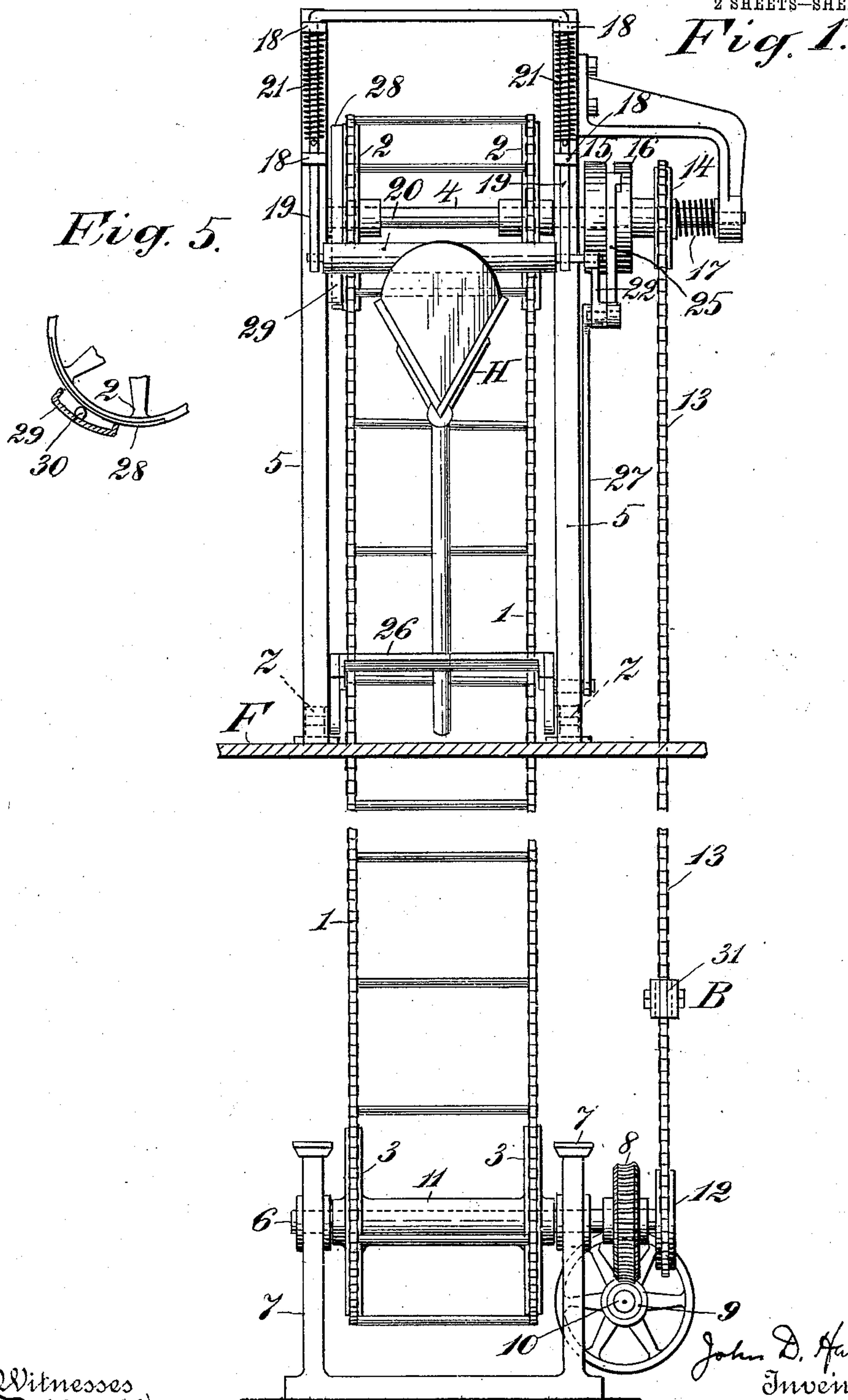
No. 842,657.

PATENTED JAN. 29, 1907.

J. D. HARPER.
HOD ELEVATOR.

APPLICATION FILED OCT. 17, 1905.

2 SHEETS—SHEET 1.



Witnesses
J. H. H. H. H.
William J. Firth

John D. Harper
Inventor
By his Attorney Henry Barnett

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Witnesses
J. M. Kliman
William J. Faith

John D. Harper
Inventor

By his Attorney *Henry Barnett*

UNITED STATES PATENT OFFICE.

JOHN D. HARPER, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES W. ANDERSON, OF BROOKLYN, NEW YORK.

HOD-ELEVATOR.

No. 842,657.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed October 17, 1905. Serial No. 283,118.

To all whom it may concern:

Be it known that I, JOHN D. HARPER, a citizen of the United States, residing in the borough of Brooklyn, in the county of Kings, in the city and State of New York, have invented certain new and useful Improvements in Hod Elevators or Hoists, of which the following is a specification.

This invention relates to the class of devices employed in the construction of buildings and used for hoisting hods containing bricks, mortar, and the like; but under the word "hod" as herein employed is of course included any similar carrying device.

The present invention has for its object to provide the usual or ordinary endless-chain hoist, with an automatic stop device which arrests the movement of the hoist or elevator without stopping the motor when the loaded hod reaches the desired height. When the hod is removed from the hoist the latter is again set in motion automatically.

Other features of the invention will be hereinafter described, and the novel characteristics defined in the claims.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a front elevation of a hoist or elevator constructed according to this invention, and Fig. 2 is a side elevation. Fig. 3 is an enlarged detail view of the clutch device, showing the clutch closed; and Fig. 4 is a similar view showing the clutch open. Fig. 5 is a detail view of the brake on the hoist.

In this construction 1 designates the endless-chain carrier of the hoist, which consists of two endless chains and rungs connecting the chains and properly spaced. These chains run on a pair of sprocket-wheels 2 above and a similar pair of sprocket-wheels 3 below. The shaft 4 of the upper sprocket-wheels is rotatively mounted in a frame 5, and the shaft 6, carrying the lower pair of sprocket-wheels, is rotatively mounted in a frame 7. Obviously the endless chains may be extended up to any height required by the exigencies of the building under construction. A hod H is shown hung to a rung of the endless-chain carrier, and F designates the upper floor, to which the load is to be hoisted.

The above features are common in some form in hod hoists and elevators.

As herein shown, the shaft 6 carries a worm-wheel 8, with which gears a screw or worm 9 on the main shaft 10, which may be driven from any source of power, as from a steam or gas engine. The lower pair of wheels 3 are here shown as connected together by a tubular bearing-sleeve 11, which is slipped over the shaft 6 and is free to rotate thereon.

On the shaft 6 is secured a sprocket-wheel 12, connected by an endless chain 13 with a sprocket-wheel 14 above for driving the upper pair of wheels 2 and through them the hoist.

On the shaft 4, which carries the wheels 2, is secured one member 15 of a clutch, the other member 16 thereof being rotatable and slidable on said shaft and having secured to it the sprocket-wheel 14, over which passes the endless driving-chain 13. There is a spring 17 behind the clutch member 16, which tends to hold it in interlocking engagement with the member 15. It will be noted that the two clutch members have circumferential flanges, which when the clutch-teeth are engaged, as in Fig. 3, provide between them a circumferential groove-like space *a*, in Figs. 3 and 4. So long as the clutch-teeth are engaged the hoist will be driven; but if the member 16 is moved along the shaft 4 far enough to disengage the clutch-teeth the hoist will stop. One feature of the present invention is a means actuated automatically through the upward movement of the hod H for disengaging the clutch members, and this device will now be described.

Mounted to slide up and down in brackets 18 on the frame 5 in front of the ascending side of the carrier-chains 1 is a frame 19, the lower bar of which is in the upward path of the hod H, and on this bar is mounted, by preference, a roller 20 for the hod to impinge upon when it rises. This frame 19 has springs 21, tending to press it down forcibly, and the frame is coupled by a link 22 with one arm of a lever 23, fulcrumed at *x* in the frame 5. Obviously when the loaded hod rises, impinges on the frame 19, and moves the latter upward the frame will rock the lever 23 on its fulcrum and lift the longer front arm thereof. On this arm of the lever is fixed a wedge 25, the form of which is best

seen in Fig. 3. The tip of this wedge rests normally between the circumferential flanges on the respective clutch members 15 and 16, and when the lever 23 is lifted this wedge 25 is driven in between said flanges in a manner to drive the clutch member 16 along the shaft and disengage its teeth from those on the other member. This stops the movement of the endless-chain carrier, and consequently the upward movement of the hod. The driving mechanism continues to move, however. The laborer now proceeds to remove the hod from the carrier, and when he does so the springs 21 drive down the frame 19, actuate the lever 23, and thereby cause the latter to withdraw the wedge 25. This permits the spring 17 to put the clutch member 16 into engagement with the member 15, and thus set the chain again in motion.

The roller 20 on the frame 19 is intended to facilitate the removal of the hod from under said frame; but as the hod may be filled high with bricks or other material, which would make it difficult to disengage the hod readily, it is preferred to provide the means now to be described for freeing the hod from said frame.

A platform 26 is hinged or fulcrumed at *z* and occupies a position directly in front of the chains, so that in removing the hod the laborer most stand upon it. This platform is coupled to the lever 23 back of its fulcrum *x* by a rod 27. Normally this platform 26 will incline upward from the floor to a considerable extent; but when the hod comes up and lifts the front arm of the lever 23 this will have the effect of lowering the platform, say, about half-way to the floor *F*. The laborer steps onto the platform to take the hod and his weight depresses it to the floor, thus elevating the frontend of the lever 23, and with it the frame 19, until the roller 20 is free and clear from the hod. This will of course have the effect to move the wedge 25 in farther between the clutch members; but this will accomplish nothing and do no harm.

To prevent the weight of the hod and its load from running the carrier backward when the clutch is disengaged, a brake is provided. This is shown in Figs. 1 and 5, although any ratchet or brake device may be used as well.

One of the wheels 2 has on it a rim 28, and adjacent to this rim is a fixed pocket 29, containing a loose ball 30. When the wheel 2 is rotating in the direction to hoist the loaded hod, it rotates freely; but when an attempt is made to rotate it in the other direction the ball 30 by wedging in between the rim 28 on the wheel and the bottom of the pocket brakes the wheel and arrests its rotation. This form of brake is common in sewing-machines and is not specifically claimed herein. Any back-stop device or brake will serve.

It will be obvious that the present invention is not restricted to the specific construction of the devices herein shown. For example, the frame 19, sliding in the supporting-brackets 18, is merely a convenient movable intermediate between the rising hod and the operating-lever 23, and any suitable intermediate for this purpose may be used. So, also, with the wedge 25 used for disengaging the teeth of the clutch. Any suitable means disposed between the clutch and the lever may be employed for this purpose.

In order to keep the chain 13 on the driving sprocket-wheel 12, it is preferred to put a binder on it, as indicated at *B* in Figs. 1 and 2. This binder consists of a loop-like frame 31 and rollers 32 therein to bear on the chains and cramp them together a little, as clearly shown in Fig. 2, where the frame of this cramping device is shown in section.

Having thus described my invention, I claim—

1. A hod-hoist, having a carrier for the hod, a driving mechanism for said carrier, a clutch connecting said mechanism with the carrier, one of the members of said clutch being slidable into and out of engagement, and a spring for holding it yieldingly engaged, a lever, a wedge carried by said lever for disengaging the clutch, and a sliding part connected with said lever and disposed in the path of the ascending hod.

2. A hod-hoist, having a carrier for the hod, a driving mechanism for said carrier, a clutch connecting said mechanism with the carrier, one of the members of said clutch being slidable into and out of engagement and a spring for holding it yieldingly engaged, a lever, a wedge carried by said lever for disengaging the clutch, a movable part in the path of the ascending hod and coupled to said lever for actuating it and the said wedge, a movable platform in front of the carrier, and a rod connecting said platform with said lever for elevating the lever, for the purpose specified.

3. In a hod-hoist, the combination with the endless-chain carrier and its sprocket-wheels, and means for driving said carrier, of the sliding frame in the path of the ascending hod, the supports for said frame, the lever 23 coupled to said frame, the clutch device, and a wedge carried by said lever for disengaging the clutch when the lever is lifted, and means whereby the said frame is lifted by the weight of the person removing the elevated hod.

In witness whereof I have hereunto signed my name, this 13th day of October, 1905, in the presence of two subscribing witnesses.

JOHN D. HARPER

Witnesses:

H. G. HOSE,
WILLIAM J. FIRTH.