No. 620,995. Patented Mar. 14, 1899.

G. TROUTMAN & J. D. YETTER.

SAFETY DEVICE FOR USE IN SINKING MINE SHAFTS.

(Application filed Nov. 29, 1898.)

(No Model.)

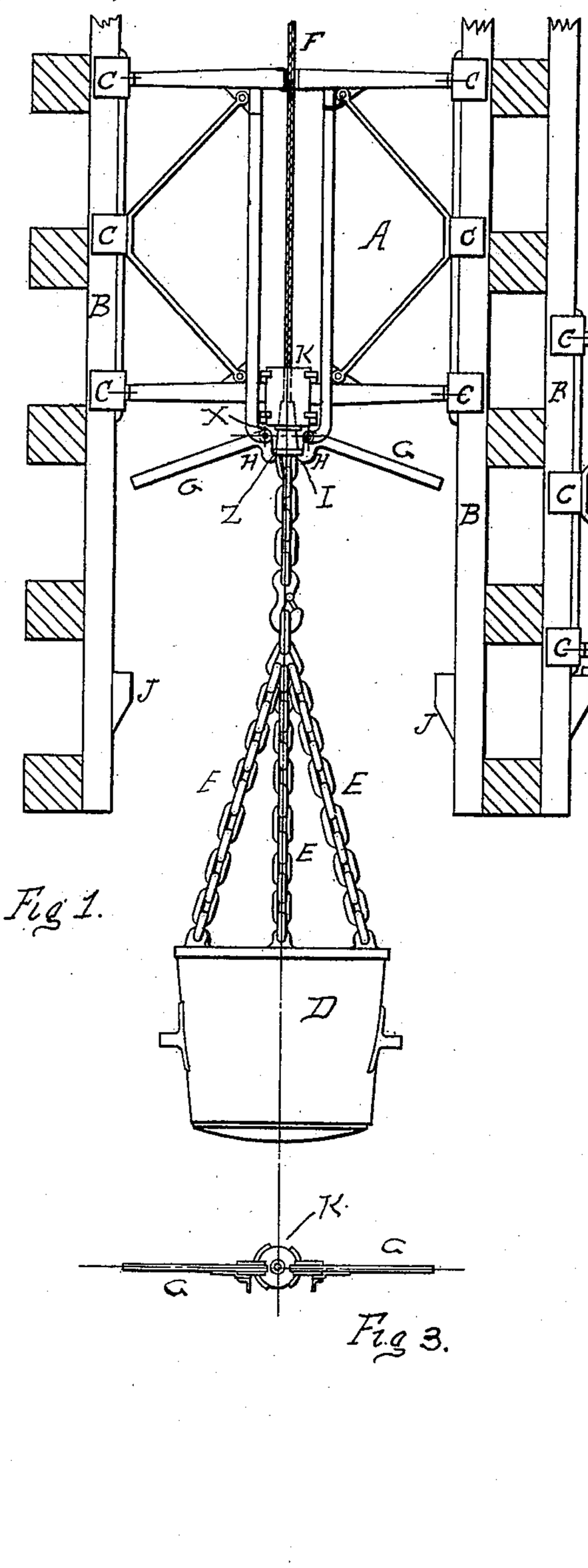

Fig 1.

Fig 3.

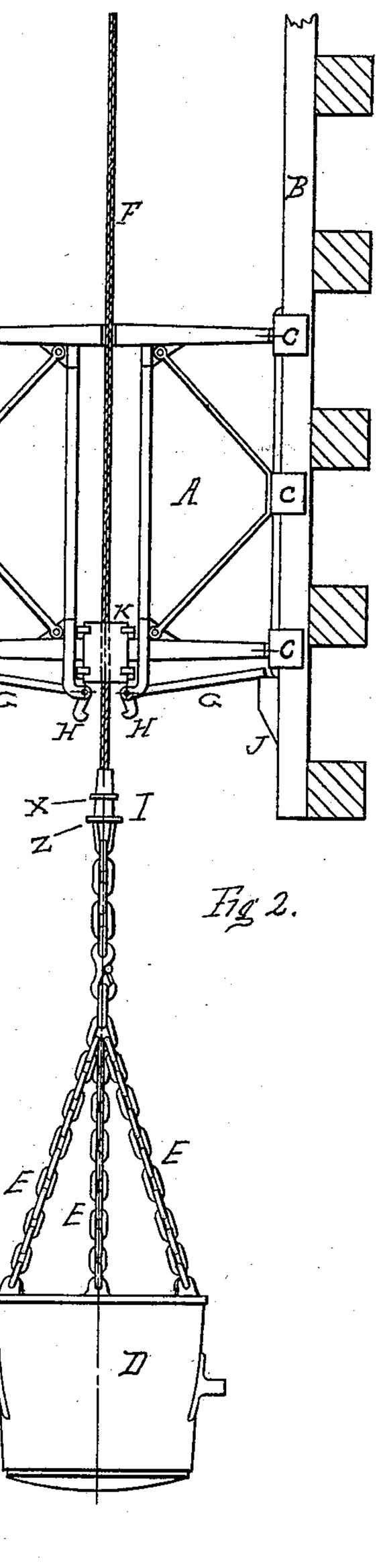

Fig 2.

Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE TROUTMAN, OF CENTRALIA, AND JOSEPH D. YETTER, OF WADESVILLE, PENNSYLVANIA.

SAFETY DEVICE FOR USE IN SINKING MINE-SHAFTS.

SPECIFICATION forming part of Letters Patent No. 620,995, dated March 14, 1899.

Application filed November 29, 1898. Serial No. 697,810. (No model.)

To all whom it may concern:

Be it known that we, GEORGE TROUTMAN, residing at Centralia, county of Columbia, and JOSEPH D. YETTER, residing at Wadesville, county of Schuylkill, State of Pennsylvania, have invented a new and useful Safety Device for Use in Sinking Mine-Shafts, of which the following is a specification.

Our invention relates to improvements in hoisting mechanism for mine-shafts where the hoisting-rope is guided by a movable cross-head; and our objects are to prevent the damage caused by a sticking cross-head and to afford additional safety to the men working in the bottom of the shaft. We attain these objects by use of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of all the mechanism used and showing a hoisting-bucket being raised in a shaft. Fig. 2 is the same view showing the hoisting-bucket at or very close to the bottom of the shaft. Fig. 3 is a top view of the cross-head, center rope-guide K, and the levers G G.

Similar letters of reference refer to similar parts throughout the several views.

In sinking mine-shafts it is customary to timber the sides of the shaft as the work progresses, and there is always a portion of the shaft near the bottom not timbered. Fastened to the timbers are guides B B, on which the cross-head A works up and down, being held in position by the shoes C C. The hoisting-rope F runs through the center of the cross-head A in the guide K and is thus kept in the center of the shaft, preventing the hoisting-bucket from swaying from side to side. The hoisting-bucket D is suspended from the rope F by spreader-chains E E E, and the rope F and the spreader-chains E E E are joined together by the thimble I. On this thimble I there is an annular rib X, which when hoisting is going on will rest against the bottom of the center guide K of the cross-head A, and by this means the cross-head is lifted to the top of the shaft, as shown in Fig. 1. On this thimble I we form another annular rib Z. Hinged to the bottom of the cross-head A we place the levers G G, having the clutch-hooks H H formed on one end. Near the bottom of the guides B B we secure the stopping-blocks J J. These blocks are intended to prevent the cross-head from descending any lower than the point at which they are placed and are to be moved as the shaft is sunk deeper and more timbers and girders are put in. It will be seen in Fig. 2 that when the cross-head rests on these blocks J J the ends of the levers G G also rest there, thus throwing the clutch-hooks H H apart. In hoisting when the thimble I reaches the bottom of the cross-head A the cross-head lifts, the levers G G fall of their own weight, and the clutch-hooks H H immediately engage the annular rib Z. Should the rope F break, the bucket would still be attached to the cross-head, which could have any of the numerous safety devices now in general use attached to it, such attachment not being claimed by us as part of our invention, and which would hold cross-head and bucket, owing to our device being used.

In actual use the cross-heads often catch on the guides, remain for a while, and then fall with such force as to crush and kill the workmen underneath at the bottom of the shaft. With our device if the cross-head catches the bucket is held too and the slacking up of the rope at once causes the hoisting-engineer to see that something is wrong and to take means to remedy it.

What we claim, and desire to secure by Letters Patent, is—

1. The combination in a safety device for shaft-sinking of the hinged levers G G having the clutch-hooks H H formed on their inner ends, the double annular ribbed thimble I, the cross-head A, and the stopping-blocks J J, all substantially as set forth.

2. The combination in a safety device for shaft-sinking, of a cross-head A working on guides B B and having hinged to the bottom thereof, levers G G with clutch-hooks H H, the stopping-blocks J J, the hoisting-rope F passing through the center of the cross-head A, the hoisting-bucket D, spreader-chains E E E, cross-head center rope-guide K and thimble I having the annular ribs X and Z, all substantially as and for the purposes set forth.

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Witnesses:
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